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EDITORIAL

HOPE FLOATS

Thanks to those ships, the whole country is still afloat. This is the conclusion one comes to going through the recent economic outlook by the Finnish Technology Industry. Finland just can't get back on the growth path; of the companies representing the technology industry, 60 % reported that their new orders and order books had shrunk during the autumn.

The rare hero in this gloomy story is marine. Orders placed for ships have helped to fill the order books; numerous ship deliveries are scheduled for the coming years, to be completed by 2020. If the orders for ships are disregarded, new orders received by the other technology companies remain at the same level as in 2009.

Jan Meyer, CEO of Meyer Turku, acknowledged that despite trying times, the shipyards are doing rather well. Making an appearance in Helsinki in November, Meyer said that previously cruise lines were cautious, ordering only one ship at a time, with a possible option for another. Now orders are put on a string and business is booming.

What a difference does a year make. Since the Meyer family bought Turku shipyard in autumn 2014, seven ship orders have been won – from three different clients – and there is work for five years on the shipyard now.

According to a new study from Cruise Lines International Association (CLIA) – published in October – global demand for cruising reached 22 million passengers in 2014, up 68 percent from 13.1 million passengers in 2004.

Total contributions of the cruise industry to the global economy reached \$119.9 billion in 2014, up from \$117 billion the previous year. The cruise industry has enjoyed progressive growth over the last 30 years, driven initially by demand from North America, but then expanding more and more to Europe, Australia and now Asia.

According to CLIA's study, those millions and millions of passengers are sourced from all around the world. Still, North America accounted for 55 percent (or 12.2 million) cruise passengers. Europe accounted for 29 percent (6.4 million) passengers. Apart from North America and Europe, other regions of the world account for nearly 85 percent of the world's population, yet represent only 16 percent of cruisers.

For example in Asia, cruise tourism is growing at double-digit rates, both in capacity and as a passenger source market. The country on the driver's seat is China, adding 480,000 more cruise travelers since 2012.

PETRI CHARPENTIER

seatec

1/2016

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PubliCo Oy Pälkäneentie 19 A FI-00510 Helsinki Finland Phone +358 20 162 2200 info@publico.com www.publico.com

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COVER PHOTO Royal Caribbean Cruises Ltd

PRINTED BY PunaMusta Oy

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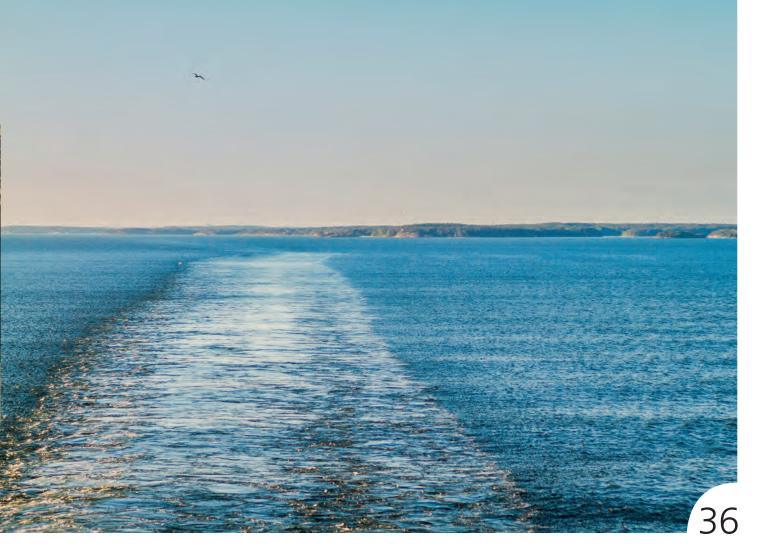
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32 RMC shipyard in Rauma modernised Silja Serenade

The shipyard of Rauma Marine Constructions (RMC) in Rauma has a long history of ship overhauls, as well as of building ships for the Finnish Navy. In November 2015, RMC carried out a large-scale overhaul for the cruise ferry Silja Serenade. Negotiations for new significant projects are ongoing.







36 Marine subcontractors face tough competition

A new comprehensive report on marine subcontractor networks in Finland has been published by the University of Turku. The report outlines what is required of contemporary maritime subcontractors. It is not an easy job.

40 Start-ups at Sea?

"Disruption" is not a term usually linked with the marine industry – actually, one might think that this is a reference to a ship in trouble. Nevertheless, there are those industry pioneers who feel that "rocking the boat" – so to speak – can lead to increased momentum and better business opportunities. Pierpaolo Barbone, President of Wärtsilä Services is convinced that the marine industry provides an enormous amount of possibilities for new product and service innovations.

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Turku knows LNG

THE SHIPYARD IS HARD AT WORK WITH LNG-POWERED TALLINK LNG SHUTTLE FERRY – WITH TWO LNG CRUISE SHIPS WAITING IN LINE

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Manue

by: SAMI J. ANTEROINEN photos: MEYER TURKU OY

TAL

Meyer Turku shipyard is fast on track to becoming a world-class LNG expert. The production of Tallink's new generation LNG (Liquefied Natural Gas) powered fast ferry kicked off in August – and in June, it was announced that Turku will build two LNG-powered cruise ships for Carnival Corporation.



C oncept Design Manager Sami Kouvonen from Meyer Turku believes that the shipyard has gained considerable know-how in LNG ship-building – and the competition has to work hard indeed if they want to catch up.

"We have first-hand experience of

the requirements that come with LNG projects – the primary challenge being safety. One must be able to find the right technology solutions to meet safety requirements, while building an efficient system over-all," says Kouvonen.

Now that LNG is clearly trending in

the global marine industry, Turku is getting more and more contacts regarding its use in various ship projects.

"You could almost say that the LNG option is at least looked into in connection to every new project," Kouvonen reveals.



FOLLOWING GRACE

Looking at the LNG trio, it is clear that the Tallink vessel benefits from the fact that Turku has already realised one LNGpowered cruise ferry, Viking Grace (2013). Therefore the shipyard teams have a pretty good idea of what they're doing – presently, the new vessel is being assembled from blocks, with the ceremonial keel laying waiting practically around the corner in early 2016.

The new LNG shuttle ferry will be quite similar to Viking Grace in size, with approximately 212 metres in length – in contrast to Grace's 218 metres – with a gross tonnage of 49,000 (Grace: 57,600). The Tallink ship will operate on the route between Helsinki and Tallinn and she is designed for carrying 2,800 passengers. The service speed is 27 knots.

The ship will be delivered from Meyer

Turku in the beginning of 2017. Jan Meyer, CEO of Meyer Turku Oy, has commented that with the construction of the new Tallink fast ferry, the shipyard is taking "the next step" in the technical development of the LNG ferries – all tailored to the specific needs of the customer. For the Turku yard, this order boosts the production volume for 2016 as much as 30 % above the 2015 level; the project also gives approximately 2 000 person-years of employment for the shipyard and the supplier network.

GREEN TO THE CORE

In addition to using LNG as fuel, the Tallink new-build will comply with the new and stricter emission regulations for the ECA areas, including the Baltic Sea. The highly innovative hull form will minimise the hydrodynamic flow resistance, which together with other cutting-edge solutions will bring significant improvement in energy efficiency. Efficient and fast cargo turnaround in ports has also been taken into account in the design of the fast ferry.

The client, Tallink Grupp, is expecting the new shuttle vessel to pave the way for the next era of fast ferry service on the Tallinn-Helsinki route – and to become a real benchmark for the whole industry that is increasingly turning towards greener technologies and concepts.

CARNIVAL WANTS FOUR

LNG was also the centre piece of the conversations between Carnival Corporation, Meyer Turku and the mother company Meyer Werft over the spring/summer, as Carnival was inquiring about the possibility of building as many as four cruise ships in the coming years.

The order is so massive that it needs to be split in half, with Meyer Werft in Papenburg, Germany, building two ships and Turku taking care of the other two. This quartet of 180 000 GT cruise ships will feature a revolutionary "green cruising" design and will be the first-ever "pure" cruise ships powered by LNG at sea.

With these orders being announced on the 15th of June, Meyer Turku had

cause to celebrate, having secured a long term order book until 2020.

TOTAL PACKAGE

As per agreement, the blockbuster deal will pioneer a new era in the use of sustainable fuels as the four new ships will be the first in the cruise industry to use LNG in dual-powered hybrid engines to power the ship, both in port and on the open sea. LNG will be stored onboard and used to generate 100 percent power at sea – producing another industry-first innovation for Carnival Corporation and its brands. Using LNG to power the ships in port and at sea will eliminate emissions of soot particles and sulphur oxides.

Bernard Meyer, CEO of Meyer Werft, noted in connection to the contract that in past years, Meyer Werft has built seven highly successful ships for Carnival's AIDA Cruises, so there is a lot of history there –

LNG is clearly trending in the global marine industry.



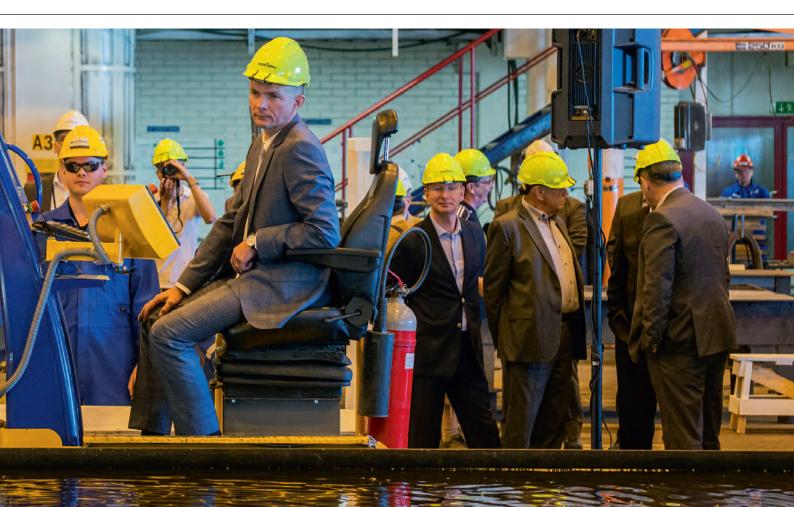


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but having been entrusted with the implementation of Carnival's ambitious shipbuilding program is still a great honour.

Jan Meyer added that the order is very important for the Turku yard, since it provides the shipyard and its specialized maritime subcontractors with the "long sought-after stability" that allows the company to develop and improve operations.

NETWORKING POWER

Rexel Finland Oy is one of the "veterans" of the subcontractor network. Currently charged with installing cable to the Tallink LNG shuttle ferry, the company has been involved in building new ships in Turku since Royal Caribbean's Freedom of the Seas (2005). Rexel also has its own warehouse in the shipyard area.

Karri Westermark from Rexel Finland

The deal will pioneer a new era in the use of sustainable fuels.

comments that "going marine" is a strategic decision by the company that has serviced as many as three Finnish shipyards at one point in time.

"With regards to Turku shipyard, we are very committed to each ship project

and look forward to continuing collaboration," Westermark says. All and all, Rexel has been involved in ten ship projects in Turku, among them also the two Oasisclass vessels, the "biggest and the best" cruise ships around.

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Finnish deliveries for STX France's two new Oasis class cruise ships

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by: MERJA KIHL AND ARI MONONEN photos: ROYAL CARIBBEAN CRUISES LTD

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The third Oasis-class ship Harmony of the Seas will have a length of 362.15 metres.

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At STX France's St. Nazaire shipyard, the third Oasis class cruise ship Harmony of the Seas is being built, scheduled for delivery by the summer of 2016. Building of the sister ship, known so far simply as Oasis-4, has also been started at the same shipyard on the west coast of France.

In the case of both ships, several Finnish subcontractors are taking part in the construction.

When the 'Harmony of the Seas' was ordered from STX France by Royal Caribbean in December 2012, it was announced to be the largest cruise ship ever built, with 16 decks and a capacity for 5 479 passengers.

This third Oasis class ship is now in the final stages of production. When finished, the ship will be 362.15 metres in length. Delivery is expected in the summer of 2016.

On the 9th of May 2014, Royal Caribbean also ordered a sister ship for 'Harmony of the Seas.' Shipbuilding work for this new Oasis-4 cruise ship has been started at St. Nazaire shipyard. According to schedule, the ship should be ready for delivery in 2018.

FIRE DOORS FOR BOTH CRUISE SHIPS

Parmarine Ltd – a Finnish manufacturer of ship fire doors, cabins, bathroom units and wall/ceiling panels for the shipbuilding industry – has taken part in the building of the 'Harmony of the Seas' and her new sister ship Oasis-4 at St. Nazaire.

"For the 'Harmony of the Seas,' we have supplied A60 class sliding fire doors and hinged fire doors," notes Mr. Risto Kallio, Vice President at Parmarine Ltd. "Overall, the shipment consisted of 1 500 pieces of A60 hinged and close to 170 pieces of A60 sliding fire doors. By now, they have all been installed."

"Certain new types of fire doors were included in the shipment. In principle, however, Parmarine has delivered the same kind of fire doors to St. Nazaire shipyard for the past 20 years. Our first shipment to STX France took place in 1994."

Formerly, Parmarine Ltd also supplied ship cabins to St. Nazaire. Nowadays cabins for STX France are being manufactured locally, as is the case at various other European shipyards.





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The third Oasis class ship is now in the final stages of production.

R&D TEAMWORK AT THE SHIPYARD

According to Mr. Kallio, Parmarine has participated in the 'Harmony of the Seas' project right from the start.

"Over the years, we have built up a good relationship with the shipyard. If new solutions are needed, we can do R&D work together with the shipyard personnel as necessary."

"In the early years we used to handle the installation of the fire doors as well – but nowadays the installation work has been carried out by the shipyard with their own local subcontractors," says Kallio.

In the case of 'Harmony of the Seas,'

the first fire doors were shipped from Parmarine's factory in Leppävirta to France in the early spring of 2014.

"This was a significant order for us. STX France is one of Parmarine's main customers, with a 25 percent share of the production total of our Leppävirta factory," Kallio mentions.

MARKETS ABROAD LOOKING GOOD

Practically similar fire doors – with some minor alterations – will be supplied from Parmarine Ltd for the Harmony's forthcoming sister ship, Oasis-4.

"The production of fire doors for the

newer ship are already underway and a number of doors have already been delivered, covering around 30 to 40 percent of the total," Kallio recounts.

"Building of Oasis-4 is proceeding very smoothly."

Kallio assures that the shipments of Finnish marine subcontractors to shipyards abroad are on a rising curve.

"More than 40 cruise ships have been ordered from the shipyards and almost all of them will be built in Europe. More and more Finnish companies are entering this market, on account of their shipbuilding know-how and with help from the knowledgeable subcontractor networks."

"The future is looking brighter for Finnish subcontractors in the overseas market. Of course there will always be tough competition – but I believe we can manage quite well," Kallio affirms.

AIR-CONDITIONING FOR THE OASIS-4

Koja Marine was one of the first subcontractors to receive an order for the 'Harmony of the Seas.' The company supplied extensive air-conditioning systems.

For use aboard this ship, the airconditioning units were designed for low energy consumption. For instance, air conditioning can be controlled to operate in accordance with the passenger flow at different sections of the ship.

For Oasis-4, Koja Marine will deliver more equipment and systems.

"The contract for the air-conditioning systems for Oasis-4 was signed already in late 2014," notes Koja Marine's Director Esko Nousiainen.

"The project for

the new ship is gaining speed. We have already delivered quite a lot of the air-conditioning equipment."

"For the most part, the air-conditioning systems will be similar to those that were delivered for the 'Harmony of the Seas,' with perhaps some slight differences in details," Nousiainen recounts.

FIRE RESISTANT SHIP CEILINGS

Based in Nummela in Finland, Lautex Oy manufactures metal ceilings from such materials as aluminium and steel.

The future is looking brighter for Finnish subcontractors in the overseas market.

> Sales Director Kari Välimaa explains that Lautex ceilings are widely used in the shipbuilding industry as they are lightweight and fireproof.

> "Lautex has taken part in the 'Harmony of the Seas' project from the early stages onwards," he says.



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"We design, manufacture and deliver ceilings for ships. Installation work is usually handled by a separate subcontractor."

In late 2015, Lautex's last shipments for the 'Harmony of the Seas' were underway. The very last ones had been scheduled for December.

"The ceilings have some new types of decorative surfaces, but we have delivered largely similar kinds of ceilings to other ships in previous years. Lautex suspended ceilings have been certified to fire resistance classes C, B-0 and B-15, thus meeting the requirements of the official authorities," explains Välimaa.

Aboard the ship, the spaces with Lautex ceilings include the Jazz Club, Comedy Club, Diamond Club, Park West Gallery, the Cardroom, and all of the public toilet facilities.

For Lautex, ship ceilings add up to more than 50 percent of the annual turnover.

Currently, the bidding competition for the ceiling deliveries for the next ship Oasis-4 is ongoing. Lautex is taking part in the bidding. Contracts will be finalised during the spring of 2016.

"The shipbuilding markets abroad are on the rise," Välimaa rejoices.



Change with the Times CLASSIFICATION SOCIETIES ARE EMBRACING THEIR NEW, EXPANDING ROLES

by: SAMI J. ANTEROINEN photo: JANNE VALKONEN, DNVGL

Classification societies are key players in making sure that ships operate safely and with minimal harm to the environment. As new technologies are developed, also the classification professionals must broaden their expertise. One of the new hit trends in the industry is the use of Liquefied Natural Gas (LNG).



Environmental concerns are on the top of maritime agenda just about everywhere right now.

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"As the infrastructure keeps developing, it becomes easier to deploy," says Olli Kaljala, Marine Chief Executive (Finland and Baltic States) for Bureau Veritas.

O lli Kaljala, Marine Chief Executive (Finland and Baltic States) for Bureau Veritas, comments that the use of LNG will increase on passenger ships, especially on ferries on regularly scheduled routes.

"As the infrastructure keeps developing, it becomes easier to deploy," he says.

From the classifier's perspective, using LNG brings some new issues to the limelight, as there are things such as gas tanks and transfer systems to consider. In connection to a LNG ship project, risk evaluations are made for both the ship and the LNG terminal on the shore.

"To give a proper foundation for further planning and ship design, all risk areas are mapped out in relation to the handling of gas in the terminal, and as the gas is placed onboard and as it's stored and moved within the ship," says Kaljala.

GREEN EDGE

Using LNG as fuel is only one example of the rising environmental awareness within the marine industry. Kaljala acknowledges that the significance of the environmental issues is increasing all the time, largely driven by the evolving legislation:

"A great number of the new regulations and laws relate to the environment and its safekeeping. This is something that is even magnified when one is pursuing new operating areas such as the Arctic," Kaljala says, adding that a classification society deals with safety – and looking out for nature's interests is part of the job.

Seppo Liukkonen, Station Manager of DNVGL Helsinki, agrees with his colleague: environmental concerns are on the top of maritime agenda just about everywhere right now.

"Finland is in the forefront of this movement, since the Baltic Sea is a very special case to operate on and the regulations are strict," he says.

EYE ON ARCTIC

With regards to the Arctic areas, Liukkonen does not see real problems from the classification point of view:

"The challenges are basically the same as with other ships operating in non-Arctic areas, with focus being strictly on safety. Of course, the Arctic conditions such as cold temperatures, presence of ice, darkness and remoteness have to be taken into account. And if an accident should take place, it is clear that it would be harder to mitigate damages in the Arctic," he points out.

International Association of Classification Societies (IACS) defines the purpose of a classification society as providing classification and statutory services and assistance to the maritime industry and regulatory bodies, as regards maritime safety and pollution prevention, based on the accumulation of maritime knowledge and technology.

The objective of ship classification is to verify the structural strength and integrity of essential parts of the ship's hull, and the reliability and function of the propulsion and steering systems, power generation and those other features and auxiliary systems which have been built into the ship in order to maintain essential services



"As classification societies are seeking to become more efficient, one must learn to serve the customer better and better," says Seppo Liukkonen, Station Manager of DNVGL Helsinki.

on board. Today, the vast majority of commercial ships are built to and surveyed for compliance with the standards laid down by classification societies.

SAFETY IS A TEAM SPORT

Nevertheless, classification is only one element within the maritime safety regime. Others with a responsibility for (or interest in promoting) maritime safety include shipowners, shipbuilders, flag state administrations, port state control authorities, underwriters, shipping financiers, charterers, and of course, seafarers.

Olli Kaljala comments that classification societies operate under a mandate from flag states, as well, and represent state officials in reviews which consider such issues as marine safety, seaworthiness and conservation of marine environment.

"The scope of the mandate varies from one flag state to another. This primary role has remained quite unchanged, but lately we have seen a development where numerous flag states have expanded the authority of the classification societies, and in effect, the role of the classifiers has grown."

LISTEN TO THE CUSTOMER

Seppo Liukkonen observes that another thing that is changing within the classification societies is customer-orientation. With over 50 classification societies worldwide, the competition can be brutal:

"As classification societies are seeking to become more efficient, one must learn to serve the customer better and better," he says. Taking an additional advisory role is part of this process: it is not enough anymore if classification societies go around reading the rulebook, they must offer real support to the customer.

"We must find ways to do this so that we do not hinder the progress of the industry as such – and still remain true to our core commitment which is safety."

With over 50 classification societies worldwide, the competition can be brutal.

GOING DIGITAL

Both Kaljala and Liukkonen note that information technology poses challenges to the expertise of the classifiers. Kaljala notes that education is the key here:

"We are constantly developing our in-house training and tools for surveyors, and utilising more and more ICT opportunities along the way."

Liukkonen admits freely that "old-school" classifiers are a far cry from digital experts:

"The emerging digital tools are something totally new in the industry, but fortunately the younger generation is learning how to use them – and eventually, the entire maritime will be transformed," he believes.

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New maritime ICT applications boosted by the MERIT project

AR 36

by: MERJA KIHL AND ARI MONONEN photo: PHOTOALTO On the first of November 2014, the MERIT project was officially started in Finland. Funded by the Ministry of Employment and the Economy in Finland and coordinated by the Industry and Trade office of the City of Helsinki, the project features new ICT technologies and their increased use in the Finnish marine industries.

> MERIT may lead to new job opportunities in marine industries for young ICT graduates.



"New technology could help to prevent accidents at sea," Merja Salmi-Lindgren says.

W ithin the Finnish maritime cluster, the general consensus is that the MERIT project has given an excellent boost to the utilisation of digital applications in the maritime industries.

"MERIT has also highlighted the fact that in the field of information systems, the marine cluster has been a versatile operator and indeed one of the forerunners," says Ms. Merja Salmi-Lindgren, Secretary General for Finnish Marine Industries (Meriteollisuus ry).

"Another good thing is that information and communication technologies are subjects of high interest for the young generation. Consequently, MERIT may lead to new job opportunities in marine industries for young ICT graduates."

The Finnish maritime industry is currently suffering from a lack of knowledgeable new personnel. Vigorous professionals with ICT diplomas and the right know-how would stand in good stead.

A NATIONWIDE PROJECT

According to Salmi-Lindgren, the Finnish Marine Industries expect a lot from the MERIT project.

The applications that up to now have shown up in the maritime industries have been installed aboard passenger ships rather than cargo vessels. "The project has received quite a lot of publicity and it has consequently attracted plenty of participants from all sectors of the maritime cluster," she notes.

"It is a good thing that the City of Helsinki has been active in boosting the MERIT project and thereby combining the efforts of numerous national experts on maritime issues. MERIT has now become a nationwide industrial project."

"The next phase is to develop the 'Sea of Intelligence' – that is, to figure out how ICT technologies could be put to better use to benefit seafaring and the maritime industries."

She expects that new rules and regulations may be needed before ICT technologies can be utilised to their full extent in shipping.

"There is no doubt that new technology could help to prevent accidents at sea. With high-tech applications, new safety systems for ships can be developed and also tested better than previously, in order to avoid the faults that often are inherent in newly launched systems and software."

"Furthermore, maritime safety systems can now be made more user-friendly than in earlier years. They can also help to reduce harmful emissions to the environment and to cut down energy consumption aboard ships."

"There are a lot of things that can be done better with modern ICT knowhow. To speed up new applications, public funding has a crucial role," Salmi-Lindgren emphasises.

INNOVATION AND COOPERATION

In the next phase, tangible new projects relating to ICT and the marine industry will be launched by numerous companies.

"This in turn will lead to increasing cooperation. With eager innovation and a cooperative spirit, results are bound to emerge. Also, companies will begin to see and understand the possibilities that are within reach," says Salmi-Lindgren.

In her view, the main possibilities could be found in the fields of maritime safety, operationality of systems and equipment, and increased efficiency.

"All these would lead to improve-

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ments in the competitiveness of the entire Finnish ICT sector, and not just within the maritime industries."

"New markets could be found for the applications of the ICT development companies. This could happen in a time frame of the next few years," she expects.

"After small achievements, bigger ones will follow. Right now, we should create a more comprehensive network of cooperation for the maritime cluster, and keep it in good shape."

PLENTY OF POTENTIAL FOR NEW TECHNOLOGY

Finnish Maritime Association – in Finnish 'Meriliitto' – is a maritime co-operation forum that enhances the importance to the nation of shipping and other maritime activities, and its goal is to enhance the interest in and knowledge and appreciation on the maritime sectors. The activities of the association cover the entire country.

Mr. Mikko Niini, Chairman of the Finnish Maritime Association and Board member in two Finnish shipping companies, ESL Shipping and Navidom Ltd., notes that digitalisation is now in fashion in all fields of business, with the aim of being able to utilise huge 'Big Data' types of data banks for promoting business and efficiency.

"In comparison with other industries, ICT systems have so far not been used to their full extent in the marine industry. However, there is plenty of potential for the utilisation of new information technology," Niini says.

He also points out that the applications that up to now have shown up in the maritime industries have been installed aboard passenger ships rather than cargo vessels.

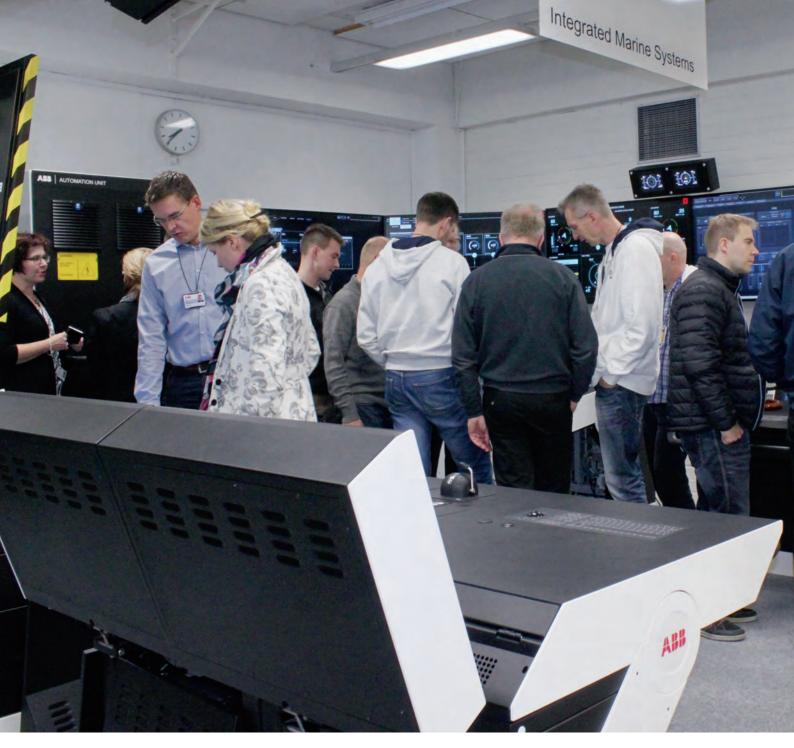
"However, the new ICT systems are gradually gaining headway also in the services and documentation of cargo shipping industries. It is great that the City of Helsinki has particularly promoted the services of the marine industries and worked for the creation of a hub of maritime services in the Helsinki region. This is an idea that is taking things in the right direction."

"The Ministry of Employment and the Economy has funded the MERIT project for a limited period of time. A lot will depend on how quickly the companies will launch new projects of their own. At the very least, the MERIT project is a good catalyst basis for further development," Niini sums up.

New maritime laboratory opened in Helsinki

by: MERJA KIHL AND ARI MONONEN photos: ABB

In the autumn of 2015, ABB opened a new testing laboratory for maritime systems and solutions in Helsinki. The new facility will boost the R&D capabilities of ABB's Marine and Ports unit.



Visitors exploring the new laboratory on the open house day.

S ituated in Vuosaari in eastern Helsinki, the new laboratory has already strengthened ABB's research and development commitment in the domain of maritime engineering. The laboratory was built close to ABB's Azipod® propulsor factory.

"Design work for the new laboratory started in early 2014. Construction of the lab has been a quick and smooth process," says Antti Matilainen, Product Development Manager at ABB.

By late November 2015, all of the lab-

The new R&D laboratory is the first step towards creating a ship simulator which will utilise ABB Marine's automation solutions.



oratory's hardware had been put together and several applications were ready to run.

The official opening of the laboratory was celebrated on October 7th, 2015.

TEST-DRIVEN DEVELOPMENT AND CO-CREATION

According to Mr. Matilainen, the new R&D laboratory is the first step towards creating a ship simulator which will utilise ABB Marine's automation solutions.

"The simulator will incorporate ice

modeling, in order to enable the testing of systems intended for arctic conditions," he mentions.

As the laboratory will mainly be utilised for the simulated testing of steering and automation systems, it will not be equipped with an actual water tank.

"The installation of the simulators has been started. When finished, the lab will be a true-to-life testing environment for machinery processes and operating of various kinds of maritime systems. Consequently, it will be quite helpful in our



INDUSTRY MARINE BUSINESS

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test-driven development work," Matilainen notes.

"We are testing the usability of systems to make the work of the ship operators as easy as possible. Testing new ideas together with customers will speed up our development process by screening out unfeasible concepts quickly, and help us develop workable solutions even further."

HELSINKI SIGNIFICANT IN R&D OPERATIONS

Helsinki was chosen as the site for the new laboratory as ABB already has a lot of marine design and R&D personnel in Finland.

"We needed to build the laboratory in an environment where new prototypes can be constructed and new ideas tested without delay. This made Helsinki a natural choice," Matilainen explains.

ABB has maritime engineering units also in Norway, China, Singapore, and Italy.

"The unit in Helsinki is responsible for the automation R&D within the global Marine and Ports business unit."

Mr. Mikko Lepistö, Vice President of software and automation operations at ABB, confirms that the company's Helsinki unit is particularly experienced in the domain of R&D for software, automation systems, and Azipod[®] solutions.

"Our Helsinki unit has plenty of know-how in this sector of ABB's product portfolio and therefore has a big role in our R&D operations," Lepistö points out.



RMC shipyard in Rauma modernised Silja Serenade

by: MERJA KIHL JA ARI MONONEN photo: WIKIMEDIA



In November 2015, RMC carried out a large-scale overhaul for the cruise ferry Silja Serenade. Negotiations for new significant projects are ongoing. R auma Marine Constructions (RMC) has been building up a network of marine contractors for long-term cooperation.

One forthcoming project for RMC is to team up with the defence material supplier Patria for the possible building of future warships as defined in the Finnish Defence Forces' Squadron 2020 project.

It has been estimated by the Navy that six of the current Finnish warships will be decommissioned in the 2020s. Therefore, new ships – initially four of them – need to be built between the years 2019 and 2024. Orders for the new Navy ships will probably be placed between 2016 and 2017.

Cooperation between RMC and Patria is still in its early stages but it is expected to benefit both companies, if and when the Navy's ship projects are realised.

RESTRUCTURING AND MODIFICATION

As to civil vessels, RMC has been busy with extensive ship overhauls.

On the 10th of November 2015, the cruise ferry Silja Serenade was docked at Rauma Marine Constructions shipyard in Rauma for periodic maintenance and modifications.

"In principle, the Silja Serenade was taken in for a so-called technical docking," explains Mr. Markku Uusitalo, Production Manager for Rauma Marine Constructions (RMC).

"The shipping company Tallink-Silja wished to combine this docking period with some restructuring and modification work to be carried out at the ship's public spaces as well as in cabins."

These new modifications were a continuation of the renewals that were started in early 2014 when the Silja Serenade was docked for the same reason.

RENEWAL WORK FOR ELECTRONICS SYSTEMS

According to Mr. Uusitalo, the external surfaces of the Silja Serenade's Promenade



The Silja Serenade leaves Helsinki harbour.

The Silja Serenade was taken in for a so-called technical docking.

deck were remodeled so as to create a unity of style with the shipping company's other large car ferries, such as the Silja Symphony.

"Furthermore, the ship's former Children's World section was converted into a café for the Promenade deck. At the same time, the old cosmetics shop was rebuilt and will become the new Children's World on the ship."

"Also, 60 of the Deluxe cabins were completely refurbished. The surfaces for the cabin bulkheads and floors were replaced, as were all the furniture and carpets. Only the ceiling panels were left as they were," Uusitalo recounts.

All of the ventilation channels were cleaned.

"Fire alarm sensors were replaced

with newer models. Also, the ship's telecommunications system was updated. The electronics installations were carried out by the shipping company's own team."

For the technical docking, the Silja Serenade was subjected to a general overhaul. The underwater part of the hull was inspected, as were the bow propellers and rear thrusters. Bearings were replaced and new fire-extinguisher sprinkler pipes were installed on the vehicle deck.

Approximately 300 persons took part in the overhaul and modification work, including RMC's own personnel of 40 shipbuilding professionals. The docking lasted until 22nd November, 2015.

"During the docking, a new 'laughing seal' logo was installed on the ship's chimney," Uusitalo mentions.



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Marine subcontractors face tough competition

by: MERJA KIHL AND ARI MONONEN photo: TALLINK SILJA



A new comprehensive report on marine subcontractor networks in Finland has been published by the University of Turku.

The report outlines what is required of contemporary maritime subcontractors. It is not an easy job.

n recent years, some Finnish researchers have looked closely into the interactive communication between marine subcontractors and their principals, with a view to developing the operation of the chains of subcontractors more efficiently than before.

One example of such research is the 'Report on the Subcontractor Networks in the Maritime Industry in 2015' published

by the Brahea Centre, an affiliate of the University of Turku.

The report describes how many Finnish marine subcontractors have a positive attitude and invest in the development of the maritime cluster, even while faced with shipyard closures and other adversities.

Competition can be tough. Reliable, knowledgeable and quality-conscious operators who work efficiently and according to schedule probably have what is needed for subcontractor work, particularly if they possess specialised know-how and expertise.

The Finnish maritime industry has lived through times of rapid change.

MORE WORKLOAD FOR SUBCONTRACTORS

Co-author of the report, researcher Talvikki Välimaa from the University of Turku, notes that work for the report was started in March 2015.

"The Brahea Centre's *Merilogis* project had been ongoing since 2013. The project brought to our attention the fact that many small operators in the maritime and logistics industries were in need of new kinds of work orders but were lacking in networking experience," she recounts.

"The new report outlines what is required of maritime subcontractors of today. Being a subcontractror is no easy task – but not an impossible one. It is not all about being cost-efficient. There are other factors that determine who can succeed."

One crucial point is process management.

"The Finnish maritime industry has lived through times of rapid change. This has resulted in increased networking, and now things seem to be changing for the better for the industry."

"However, there is really nothing new in the networking of subcontractors. Shipbuilders tend to delegate more and more work to subcontractors, all the while keeping control of the entirety of the shipbuilding process," Välimaa mentions.

GO-GETTERS GET THE JOBS

Even though many Finnish subcontractors in the maritime cluster are experienced and skilled, not all of them are yet taking part in international networks.

"It seems that especially the larger subcontractor companies have taken their share of the export markets, partly due to compelling circumstances," says Välimaa.

Obviously, active and energetic subcontractors have been the ones most likely to succeed abroad. Being too shy or unassuming is not recommended.

"When you are a new operator in the maritime cluster, it is unlikely that anyone will come to your doorstep and fetch you to the shipyard. You will need to prove that you have the right know-how for the job," Välimaa emphasises. Marine research facilities of the Brahea Centre of the University of Turku are located in the ITC building.

photo:

HANNA OKSANEN/UNIVERSITY

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TURKL





Pierpaolo Barbone, President of Wärtsilä Services, comments that we are all living in the "age of disruptive innovations" – and this applies also to the marine business.

Start-ups at Sea?

WÄRTSILÄ LAUNCHES INNOVATION CONTEST TO BOOST MARITIME DIGITAL REVOLUTION

by: SAMI J. ANTEROINEN photo: WÄRTSILÄ

"Disruption" is not a term usually linked with the marine industry – actually, one might think that this is a reference to a ship in trouble. Nevertheless, there are those industry pioneers who feel that "rocking the boat" – so to speak – can lead to increased momentum and better business opportunities.

W ith this in mind, the Finnish industrial powerhouse Wärtsilä launched an innovation contest – by the name of Wärtsilä Marine Mastermind – aimed at start-up companies and entrepreneurs. Kicking off at the November start-up event Slush, the purpose of the contest is to find new and unique digital services for the marine industry. The contest is open for existing companies as well as for aspiring entrepreneurs.

It comes as little surprise that Wärtsilä is the mastermind behind the Mastermind contest. A globally known forerunner in the utilisation of digital technologies in the marine and energy industries, Wärtsilä is aiming to deploy the contest as means to building closer relationships with international start-ups – and discovering interesting digital business opportunities together along the way.

REDEFINING VALUE

The target here is to develop a new value adding digital service or solution in collaboration with start-ups in order to support the growth of Wärtsilä's customers' business. The winner also gets a chance to become part of the highly international marine business. The date for submissions to Wärtsilä expires on 31 December 2015.

Pierpaolo Barbone, President of Wärtsilä Services, comments that we are

all living in the "age of disruptive innovations" – and this applies also to the marine business. Start-ups are playing a vital role in this, so naturally Wärtsilä is interested in pursuing closer collaboration with the coders and their ilk.

Pierpaolo is convinced that the marine industry provides an enormous

or enhance safety, says Tero Hottinen, General Manager, Business Innovation at Wärtsilä Services.

The best ideas will be showcased to the jury in February and the winner will be announced in March 2016.

The winner of the contest will get to experience a 30-day agile "Lean Innova-

The marine industry provides an enormous amount of possibilities for new product and service innovations.

amount of possibilities for new product and service innovations.

"Already today, Wärtsilä's innovations increase the predictability of maintenance requirements, optimise the use of vessels' equipment and even enable the utilisation of virtual reality in remote support," he says.

TAP INTO THE POTENTIAL

But what's coming up next? – Well, the innovations Wärtsilä is looking for in the contest can for instance bring efficiency gains, better usability, improve transparency of operations to the customer tion Lab" product or service development sprint supported by Shift Actions. The sprint focuses on the challenges of innovation, development of the concept for commercialisation, its prototyping, as well as the business plan and its implementation plan. The goal is to use the concrete idea in the future together with Wärtsilä.

"The key criteria that we will emphasise during evaluation are the usability of the solution within the marine business, innovativeness, customer focus and the business potential and scalability of the solution," says Hottinen who is in charge of the innovation contest.

NEW ON BOARD

Aker Arctic designs a polar research vessel for PIRIOU shipyard

A new Polar Logistics Vessel will be built by PIRIOU shipyard and Aker Arctic is making a basic design for the vessel. Aker Arctic will also provide technical support in hull and ice-related matters to the shipyard during the construction of the vessel in Concarneau, France. The 72-metre Polar Logistics Vessel is a logistics ship and patrol icebreaker that can accommodate up to 60 persons on board, carry 1 200 tonnes of cargo and fit one helicopter. It will be jointly owned and operated by the French Southern and Antarctic Lands (Terres australes et antarctiques françaises, TAAF) administration, the French Polar Institute (Institut Polaire Francais Paul-Émile Victor, IPEV) and the French Navy. The new vessel will replace the existing patrol vessel L'Albatros and the polar logistics vessel L'Astrolabe.

The new Polar Logistics Vessel will be built by PIRIOU shipyard in Concarneau, France, and delivered in early summer 2017. It will be deployed to the Indian Ocean in autumn 2017 and carry out the first supply mission to the Dumont d'Urville Station in Adélie Land, Antarctica, in winter 2018. The Polar Logistics Vessel is based on a concept developed by Marine Assistance (France). The icebreaking capability will be verified by model tests at Aker Arctic's ice model basin in Helsinki, Finland. In addition to performing the basic design of the new Polar Logistics Vessel, Aker Arctic will support the shipyard during the design and construction of the vessel in the special requirements of building an icegoing vessel. Fourteen weeks of on-site engineering support in Concarneau, France, is included in the contract.

ABOUT AKER ARCTIC TECHNOLOGY INC:

Aker Arctic is an independent company that specializes in the development, design, engineering and testing services for the ice-going vessels, icebreakers and offshore marine structures and ports. Aker Arctic's head office is located in Helsinki Finland.

More information: www.akerarctic.fi

Wenda products for shipboard safety and style



w enda ltd. specialises in composite technology. The Company designs and manufactures lightweight structures for ships according to customer specifications. "When the goal is to make a structure that is durable and strong but also lightweight, the solution is composites. On ships, light weight and corrosion resistance are crucial, and that makes composites the right choice for a wide variety of applications", says the Company CEO Jan Forsbom.

The latest additions to Wenda shipboard products include a new type of deck seat, a new deck light fixture, a brand new life jacket container product line and IceStop ice prevention system.

A RELIABLE LIFE JACKET CONTAINER PRODUCT LINE

Wenda is proud to present a new life jacket container product line with an abundant selection of life jacket containers in different sizes and shapes. The containers can be installed on ceilings or as benches, boxes or cabinets, and all the models have an opening mechanism that is reliable as well as fast and easy to operate.

AN ELEGANT DECK SEAT

Wenda has developed a new elegant deck seat with several installation options to choose from. The seats can be installed separately or in groups, and the installation is very fast and easy. Several colors available.

A HIGH QUALITY DECK LIGHT FIXTURE

The Wenda reliable deck light fixture is easy to install and use. All the materials are corrosion-proof and the product is available in several colors.

ICESTOP ICE PREVENTION SYSTEM

An unique solution is designed to keep decks unfrozen on artic ships. IceStop is unbeaten in ease of installation and maintenance.

More information:

sales@wenda.fi, www.wenda.fi, www.icestop.fi

NEW ON BOARD

Vertical Wind Turbines Power LNG Terminal Safety Buoys

Ś winoujście, Poland – Vertical wind turbines supplied by Windside Production have been installed to power the channel entry-marker buoys for Poland's new LNG terminal at Świnoujście on the Baltic Sea operated by Polskie LNG S.A. This is one example of several small-scale projects by Oy Windside Production Ltd proving the viability of Windside's vertical-axis turbine systems to provide reliable power to micro-grids in severe & remote locations.



Windside turbines were selected due to their ability to oper-

ate unattended in all wind & weather conditions for over 30 years with minimal annual maintenance. Together with solar panels & an energy storage system, the hybrid renewabale energy system will deliver reliable power to the navigational & safety systems on the channel marker buoys. System design & integration was a joint effort of Windside Production & local Polish partner Antara.

In several cases, using hybrid wind / solar will compensate or reduces diesel consumption, pollution, and CO2 emissions by lowering the electrical load on the diesel generators. Furthermore, diesel generator lifespan & re-supply periods are extended, thus reducing overall operational expenditures.

Temperature is not any problem at sea, on the contrary to Pole regions, but wind speeds may go up over 50m/s. As a rule, in areas of extreme and harsh weather conditions Marine customers look for reliability and long lasting equipment for their purposes.

Windside has over 30 years of design, engineering, manufacturing, and successful deployments to the world's most difficult terrain and most demanding environments, proving beyond a doubt the quality & durability of Windside vertical wind turbines.

LY LY

More information: www.windside.com

Windside is used for Harbours, light houses, vessels, telecom, radars etc.

Operates from 2m/s up to 60m/s Specifically designed for low cut-in wind speeds and no cut-out at extreme wind speeds.

30+ year offshore lifespan

Built of heavy duty reinforced fiberglass, marine-grade aluminium, hardened steel, fully galvanized frames, high-quality bearings, and sealed electronics.

Up to 5 years maintenance-free Optional automatic lubrication system extends maintenance intervals to 5 years

Soundless, vibration-free, safe Perfectly silent, less than 5dB & balanced for zero vibration. Safe to touch at all speeds.

Patented technology

Member of IALA

The latest from Ensto Lighting

E nsto's mission has always been to provide new LED solutions to help lighting designers and architects give shape to their visions.

This is why two new product lines have been recently added to Ensto's wide catalogue of LED lighting solutions. These new additions combine the well-known quality of the LED source with SDCM < 2 MacAdam ellipses and CRI >90 @ CCT >2700K with new and innovative technical features.

The first product line features a recessed linear fixture supplying a flux of 1386 Lm/m with a 3000K CCT (Correlated Color Temperature) and is equipped with a double system of linear optical devices. The first device is a biconvex lens with a divergence angle of 30° directing the light beam to another microprismatic surface which, in turn, provides a controlled diffusion to reduce UGR (Unified Glare Rating). The structure also features another screening element which makes the device particularly suitable for wall washer effects and light projections. The device is ideal for hotel area and in multiple modular combinations it can give shape to unique effects in public spaces – this follows Ensto's tradition of designing products which allow costumers maximum flexibility to choose aesthetic and lighting details.

Our second solution is perfect for those new trends in architecture which employ lighting colours as dynamic elements accommodating the ever-changing scenarios of personal taste and lifestyle.

This is a 20W downlight fixture which can change its colour temperature from 1600K to 3000K following a specific curve adjustable with a 1–10V analog interface or a leading edge phase cut dimmer. By dimming light intensity we change the chromaticity, thus producing the warm and relaxing atmosphere of sunsets. We all know how important is light in our daily lives and how essential is a peculiar illumination to enjoy romantic dinners or when carrying out house chores. Outside the residential, this device is perfect for movie theatres and other performance venues, as well as restaurants and other leisure spaces.

More information: www.ensto.com

NEW ON BOARD



Digitalisation of the maritime industry and future energy solutions in the spotlight at NaviGate in Turku

Professionals from the maritime industry and maritime logistics will gather at the Turku Fair and Congress Center in May 2016. The maritime expo NaviGate takes place every two years and features keynote speeches by leaders in the industry. Approximately 200 exhibitors will be present at the expo, which will take place the 18th and 19th of May, 2016.

N aviGate is a maritime, logistics and recruiting event and an important meeting place. According to a survey of visitors at NaviGate 2014, 65 per cent attended with the aim of networking, and roughly 90 per cent said they intend to participate in the next expo as well.

The main topics that will be discussed in the upcoming NaviGate seminars are the digitalisation of the maritime industry and future energy solutions. Taking place in Turku at the same time as NaviGate is the European Maritime Day (EMD) conference, which also collaborates with NaviGate. Visitors will shuttle between both events.

The parties participating in NaviGate represent major companies and operators in the industry. These include the City of Turku, the Port of Turku, Enterprise Europe Network, LOGY, SKAL, Meyer Turku, Elomatic, Wärtsilä, the Turku Chamber of Commerce, Finnish Marine Industries, University of Turku, and Royal Caribbean Cruises, to name a few.



More information: www.navigate.fi, krista.ahonen@turunmessukeskus.fi



ABLEMANS OY

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Contact Person

Hannu Petäjäsuvanto Managing Director hannu.petajasuvanto@ablemans.fi

Facts & Figures

Turnover:EUR 7,1 millionPersonnel:12Established:1987

Specialty Areas

Steel and Aluminium structures Shipbuilding – Shiprepairing – Conversions – Outfitting. Large capacity



See page 27 and 42

Aker Arctic

ABLEMANS

AKER ARCTIC TECHNOLOGY INC

Merenkulkijankatu 6 FI-00980 Helsinki, Finland Phone +358 10 323 6300 Fax +358 10 323 6400 info@akerarctic.fi www.akerarctic.fi

Contact Person Reko-Antti Suojan

Reko-Antti Suojanen, Managing Director reko-antti.suojanen@akerarctic.fi

2005

EUR 10 million

Facts & Figures

Turnover: Established:

Specialty Areas

Aker Arctic Technology Inc (Aker Arctic) is an independent company specialising in the development, design, engineering and testing services for the ice going vessels, icebreakers and offshore marine structures and ports. Our head office is located in Helsinki, Vuosaari Maritime Business park area.

The past references include 60 per cent of all the world's icebreakers, many Arctic or Antarctic research vessels and quite a number of different types of cargo vessels and concepts of offshore structures.

9

ARCTIA SHIPPING LTD

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Contact Person

Tero Vauraste CEO & President tero.vauraste@arctia.fi

Facts & Figures

Turnover:EUR 61,3 millionPersonnel:260Established:2010

Specialty Areas

Arctia Shipping carries over 100 years of working expertise in winter navigation. We offer ice-management, icebreaking and offshore services. Our icebreakers have oil spill response equipment and well trained staff. Our fleet consists of four Baltic icebreakers, three Arctic multipurpose icebreakers and a harbor icebreaker. We will have the world's first LNG powered icebreaker in 2016.

Consulting
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Machinery

1 2

ACM-TRADING LTD

Ketunleivänkuja 4 Fl-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 Specialty Areas

Complete PUSHPIN®-ATB-Coupler System for Pusher Tug and Barge combinations. Available models 2 or 3 pin executions, with electropneumatic 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.

2

ANTTI-TEOLLISUUS OY, ANTTI MARINE

Koskentie 89 FI-25340 Kanunki Finland Phone +358 2 774 4700 Fax +358 2 774 4777 www.antti-teollisuus.fi

Contact Person

Toni Leino Sales Manager toni.leino@antti-teollisuus.fi

Specialty Areas

Cabin, Accommodation & Interior fire doors for marine and off-shore applications. Antti doors are available in C, B-15 and B-30 class with MED & USCG approvals.

2 5 6 7

AUTROSAFE OY

Uranuksenkuja 10 FI-01480 Vantaa, Finland Phone +358 9 2709 0120 Fax +358 9 2709 0129 autrosafe@autrosafe.fi www.autrosafe.fi

Contact Person

Jussi Kujanpää Product Manager jussi.kujanpaa@autrosafe.fi

Facts & Figures

Turnover:EUR 2,3 millionPersonnel:9Established:1995Parent Company:Copertura Oy

Specialty Areas

Temperature sensors, pressure transducers Fire alarm and Engine alarm systems Wikrolux Led-technic based safety and guiding lights Electrical sounders and flash alarms Autrosafe Light Signal Columns

> 4. Materials 5. Safety 6. Systems





ACM-TRADING Ltd



9

BUREAU VERITAS

Hermannin rantatie 10 FI-00580 Helsinki Finland Phone +358 10 830 8630 Fax +358 10 830 8690 helsinki@fi.bureauveritas.com www.bureauveritas.com

Contact Person

Olli Kaljala Chief Executive olli.kaljala@fi.bureauveritas.com

Facts & Figures

Personnel: 50 Established: 1984 (Finland) Parent Company: Bureau Veritas SA (est. 1828)

Specialty Areas

Survey of ships & ship equipment, classification of newbuildings Inspection of industrial products & goods for international trade Certification of management systems against international standards

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EVAC OY

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Eva

Cleantech Solutions.

Anywhere.

FORESHIP

Contact Person

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Facts & Figures Turnover: EUR 65,5 million

Specialty Areas

Evac is a global company that designs, manufactures and markets environmentally friendly water, waste and wastewater collection and treatment systems for the shipbuilding, offshore and construction industries.

Skilled personnel, professional design and high-quality technical solutions have facilitated continuous growth, both in turnover and market share.

9

FORESHIP LTD

Hitsaajankatu 4 A Fl-00810 Helsinki Finland Phone +358 20 730 9090 Fax +358 20 730 9091 office@foreship.com www.foreship.com

Contact Persons

Markus Aarnio SVP Ship Technology markus.aarnio@foreship.com Lauri Haavisto Managing Director lauri.haavisto@foreship.com

Specialty Areas

Foreship's Naval Architects and Marine Engineers are specialised in challenging conversion and newbuilding concept designs. Foreship has also extensive CFD capabilities and state-of-the art hull form references.

1. Consulting

- 2. Equipment
- 3. Machinery



5. Safety

6. Systems

BUREAU

VERITAS

CHAMPION DOOR

Hopeatie 2 FI-85500 Nivala Finland Phone +358 8 445 8800 Fax +358 8 442 956 info@championdoor.com www.championdoor.com

Contact Person

Jukka-Pekka Hakkarainen Export Manager jp.hakkarainen@championdoor.com

Facts & Figures

Turnover:EUR 9,5 millionPersonnel:48Established:1992

Specialty Areas

Very large shipyard fold-up doors, size of one door can be as large as 40 x 35 metres. Doors can be also manufactured in special frame widths with no wind or size limitations.



EXIT-PAINIKE KY

P.O. Box 78 FI-61801 Kauhajoki Finland Phone +358 6 231 4034 Fax +358 6 231 4112 exitpainike@exitpainike.fi www.exitpainike.fi

Contact Person Timo Hakala

Specialty Areas

EXIT 6000 series emergency doors EXIT panic device



MARINE

256

HALTON MARINE OY

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Contact Person

Tommi Rantanen

Facts & FiguresTurnover:EUR 189 million (Halton)Personnel:1 350Established:1969Parent Company:Halton

Specialty Areas

High-quality ventilation systems specifically designed for demanding marine, navy and oil & gas markets. Main product groups: Cabin Ventilation, Galley Ventilation, Fire dampers, Air intake products, Airflow Management and Air Distribution products.

7. Turnkey Deliveries
8. Yards
9. Other

CHAMPIONDOOR

1 3 8

JTK POWER OY

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

Contact Person

Timo Viitala Managing Director timo.viitala@jtk-power.fi

Facts & Figures

Turnover:EUR 22 millionPersonnel:82 in Finland, 11 in ChinaEstablished: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.

2 7

JUKOVA CORPORATION OY

Jukovantie 20 FI-21430 Yliskulma Finland Phone +358 10 474 444 Fax +358 10 474 4290 jukova@jukova.com www.jukova.com

Contact Person Stefan Sundblom stefan.sundblom@jukova.com

Specialty Areas Modular balconies

Sliding doors Balcony divider walls Glass railings

KAEFER OY

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janne.sirvio@kaefer.fi

Facts & FiguresTurnover:EUR 25 millionPersonnel:75Established:1977

Parent Company: KAEFER GmbH Subsidiaries & Representatives

KAEFER GmbH

Specialty Areas Interior outfitting in passenger vessels Turnkey solutions in galleys, pantries, catering areas All type of insulation solutions in marine industry

2 3 7

KONEPAJA HÄKKINEN OY



Konekuja 4, FI-21200 Raisio, Finland Phone +358 20 781 3400 Fax +358 20 781 3402 konepaja.hakkinen@konepajahakkinen.fi www.konepajahakkinen.fi

Contact Persons

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Facts & Figures Turnover:

EUR 46 million 360

Personnel: 360 Established: 1980 Parent Company: Konepaja Häkkinen Oy

Subsidiaries & Representatives

Tikkakosken Konepaja Oy and Rautpohjan Konepaja Oy

Specialty Areas

The most valued long term partner in supply of demanding machined casting, forging and welded steel components for energy, inshore, offshore, subsea, maritime, mining, pulp and paper industries. Focus area medium and large size demanding components as well as small and medium batch products manufacturing's before mentioned industrial sectors.

Consulting
Equipment
Machinery



Air. On land and sea.

Jukov

ROJA MARINE

(Lentokentänkatu 7) FI-33101 Tampere Finland Phone +358 3 282 5111 marine@koja.fi www.koja.fi

Contact Person

6

Esko Nousiainen Director esko.nousiainen@koja.fi

Facts & Figures

Turnover:EUR 60 millionPersonnel:232Established:1935Parent Company:Koja 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

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LAIVAKONE OY

Uranuksenkuja 1 C Fl-01480 Vantaa Finland

Posenerstr. 1 a D-23554 Lübeck Germany

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

Contact Person Harri Elonen

Facts & FiguresPersonnel:20Established:1969

Specialty Areas

Ship engine repairs and services In-Situ machining

> 4. Materials 5. Safety 6. Systems

7. Turnkey Deliveries 8. Yards 9. Other

Laivakone Oy

KAEFER

N Power

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OY LINDAB AB

Juvan teollisuuskatu 3 FI-02920 Espoo, Finland Phone +358 20 785 1010 www.lindab.fi

Contact Person Piia Kyrönlahti, +358 20 785 1010

Facts & Figures

Turnover: SEK 6 656 million (2012) Personnel: 4 300 Established: 1959 Parent Company: Lindab Group

Specialty Areas

Insulated and non-insulated duct and fittings Acoustic solutions Bulkhead penetrations Dampers and measuring units Air terminals Fans

Lindab develop the most innovative and simplified constructions on the market. Our energy efficient solutions will change the way of designing ships and bring the best indoor climate onboard.

2 3 6 7

MARINE DIESEL FINLAND OY

Eteläkaari 10 FI-22420 Lieto Finland Phone +358 20 510 6900 Fax +358 2 253 9121 marine.diesel@wihuri.fi

Contact Persons Markus Hjerppe Mika Aaltonen

Facts & FiguresPersonnel:40Established:1992

Specialty Areas

Main- and auxiliary engine repair and service Total overhaul of all type of engines Mechanical engineering On-site machining Conservation works after engine room fire or flooding Well equipped workshop in Lieto CAT dealer, Kemel seals and bearings, Ingersoll Rand service

1 8

MEYER TURKU OY

P.O. Box 666 (Telakkakatu 1) FI-20101 Turku Finland Phone +358 10 6700 info@meyerturku.fi www.meyerturku.fi

Contact Person

Tapani Mylly Communication Manager tapani.mylly@meyerturku.fi

Specialty Areas

Meyer Turku employs 1 500 persons and specialises in building highly complex, innovative and environmentally friendly cruise ships, carpassenger ferries and special vessels. The design and construction of the ships are supported by the subsidiaries of Meyer Turku: Pikkio Works Oy, which is a Cabin Factory in Pikkiö, Shipbuilding Completion Oy, which provides turnkey solutions to public spaces in ships, and ENG'nD Oy, which is an engineering company offering services for shipbuilding and offshore.

1. Consulting

- 2. Equipment
- 3. Machinery



LLOYD'S REGISTER EMEA

Aleksanterinkatu 48 A FI-00100 Helsinki Finland Phone +358 20 791 8300 helsinki@lr.org www.lr.org

Contact Persons

Päivi Björkestam Field Operation Manager Niklas Rönnberg Marine Client Manager

Facts & Figures

Personnel: 30 Established: 1957 (Finland) Parent Company: Lloyd's Register Group Limited

Specialty Areas

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

2

METOS OY AB

Ahjonkaarre FI-04220 Kerava Finland Phone +358 20 439 13 Fax +358 20 439 4432 metos.marine@metos.com www.metos.com

Contact Person

Taina Salonen Director, Marine Sales taina.salonen@metos.com

Facts & FiguresPersonnel:700Established:1922Parent Company:Ali Group

Specialty Areas Galley equipment Laundry equipment



OILON OY

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

Contact Person

Jani Kurikka jani.kurikka@oilon.com Facts & Figures

Turnover: EUR 70 million Personnel: 360 Established: 1961

Specialty Areas

Oil & gas burners for marine applications

7. Turnkey Deliveries
8. Yards
9. Other



Lloyd's

Register



OT



4. Materials

5. Safety

6. Systems

URKU

ARINE DIESEL

FINLAND OY

ONNINEN OY

PO Box 109 FI-01301 Vantaa Finland Phone +358 20 485 5111 +358 20 485 5500 Fax www.onninen.fi www.onninen.com

Contact Person Martti Lehti

Area Sales Director martti.lehti@onninen.com

Facts & Figures

Personnel: 3 000 Established: 1913

Specialty Areas

Onninen provides comprehensive materials services to contractors, industry public organisations and technical product retailers. We are a family-owned company and have operated in the industry since 1913. We have 3 000 employees in our Finnish, Swedish, Norwegian, Polish, Russian, Baltic and Kazakhstan operations.

POCADEL OY

Korpelantie 229 FI-21570 Sauvo Finland Phone +358 2 477 2950 +358 2 477 2971 Fax pocadel@pocadel.fi . www.pocadel.fi

Contact Person

Markku Riekki markku.riekki@pocadel.fi

Facts & Figures Established: 1997

Specialty Areas

Fire rated B15 - A60 glass doors and partitions for marine and offshore use: Hinged Doors – Sliding Doors – Super Wide Tandem Doors – Butt Joint Walls



3

PATRIA AVIATION ENGINE BUSINESS UNIT

Patria

Linnavuorentie 2 FI-37240 Linnavuori, Finland Phone +358 40 869 2800 +358 20 469 2801 Fax www.patria.fi

Contact Person

Seppo Tamminen General Manager Diesel Engine Business seppo.tamminen@patria.fi

Facts & Figures

Turnover: EUR 20 million Personnel: 165 Established: 1947 Parent Company: Patria Oyj

Specialty Areas

Maintenance and overhaul of high speed diesel engines and related equipment up to 6 000 kW Authorised MTU Service dealer Maintenance and overhaul of industrial and marine gas turbines Special repairs of parts for diesel engines and gas turbines

PORKKA FINLAND OY

P.O. Box 127 FI-33101 Tampere Finland Phone +358 20 555 512 Fax +358 20 555 5288 www.porkka.fi

Contact Person Petri Hiilloste porkkapanel@huurre.com

Facts & Figures

Turnover: EUR 26 million Personnel: 170 1962 Parent Company: Huurre Group Oy

Walk-in rooms in galleys/pantries Insulated fire doors A60, for cold stores

RAUMA INTERIOR OY

Hallitie 8 FI-26510 Rauma Finland Phone +358 2 8387 8200 info@raumainterior.fi www.raumainterior.fi www.messin.fi

Contact Person

Kari Wendelin Managing Director kari.wendelin@raumainterior.fi

Specialty Areas

Designed fixed and free-standing furniture in various materials especially for passenger & crew cabins, but also for restaurants, nightclubs, coffee shops, conference rooms (wardrobes & racks, dressing tables, cabinets, coffee tables, desks, TV-stands, beds in wood and metal, nightstands, sofas, resin coated dining tables, bardesks, decorative columns etc.)



1. Consulting

2. Equipment

3. Machinery

1 4 5 7

RENOTECH OY

Sampsankatu 4 B FI-20520 Turku, Finland Phone +358 10 830 1600 +358 2 254 3745 Fax rt@renotech.fi www.renotech.fi

Contact Person Bob Talling, +358 50 558 1806 bt@renotech.fi

Facts & Figures

Turnover: EUR 1 million Personnel: 1994 Established:

Specialty Areas

MED Certified products, B + D. GRG decorative wall and ceiling elements, mouldings and sculpture work. DGG light-weight gypsum board. Renopur decorative surface finishes, paint effects, marbling, wood graining, gilding, paintings and art work. Stonemix textured mouldings and finishes. Renofix non-combustible glues. Fireshield acoustic and fire proofing. Renolmage silk printing and 3-D release films. Acoustic flooring and floor screeds. B-15 elements and draught stop.

> 4. Materials 5. Safety 6. Systems







PORKKA

Advanced Material Technology



2 4

REXEL FINLAND OY

P.O. Box 360 FI-05801 Hyvinkää Finland Phone +358 10 509 311 Fax +358 10 509 3222 marine.sales(a)rexel.fi www.rexel.fi

Contact Person

Karri Westermark Area Manager, Marine Industrial Services karri.westermark(a)rexel.fi

Facts & Figures

Turnover:EUR 195 million (2014)Personnel:300 (2014)Established:1913Parent Company:Rexel Group

Specialty Areas

Electrical wholesaling; Electrical items such as electrical installation materials, cables, cable racks, cable penetrations and seals. Also deliveries of all electrical items for marine business.

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S.A. SVENDSEN OY

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

Contact Person

Kimmo Räisänen Managing Director kimmo.raisanen@sasvendsen.com

5

1981

Facts & Figures

Turnover: Personnel: Established:

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

EUR 9,7 million



Finland

2

ROLLS-ROYCE OY AB

P.O. Box 220 FI-26101 Rauma Finland Phone +358 2 837 91 Fax +358 2 8379 4804 rolls-royce.finland@rolls-royce.com www.rolls-royce.com/marine

Contact Person

Liisa Snellman Communications liisa.snellman@rolls-royce.com

Facts & Figures

Turnover: EUR 614 million Established: 1988 Parent Company: Rolls-Royce plc

Subsidiaries & Representatives

Rolls-Royce worldwide sales and service network

Specialty Areas

Thrusters, propulsion systems, winch systems, stabilizers, steering gears, bearings



SBA INTERIOR LTD

Hållsnäsintie 99 Fl-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 12 million Personnel: 70 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 and a 50 mm A-60 class light weight non-bearing bulkhead panel as well as a 20mm B-15 class Extension Screen. Another branch of SBA is subcontracting for metal industry.

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SEAKING LTD

Valimotie 13b B, Fl-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: approx. 350 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.

1. Consulting

- 2. Equipment
- 3. Machinery



4. Materials

5. Safety

6. Systems

9

OY SIKA FINLAND AB

P.O. Box 49 FI-02921 Espoo Finland Phone +358 9 511 431 Fax +358 9 5114 3300 sika.finland@fi.sika.com www.sika.com

Contact Person

Kai Winqvist Industry Manager winqvist.kai@fi.sika.com

Facts & Figures

Turnover:EUR 31,4 millionPersonnel:46Established:1985Parent Company:Sika AG

Specialty Areas

Sealing – Bonding – Acoustic Damping – Reinforcing - Protecting

7. Turnkey Deliveries
8. Yards
9. Other

BUILDING TRUST



Rolls-Royce



🕅 S.A.Svendsen Oy

STEERPROP LTD

PO Box 217 FI-26101 Rauma Finland Phone +358 2 8387 7900 +358 2 8387 7910 Fax 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.



TEBUL OY

2

Luumäentie 2 FI-21420 Lieto Finland Phone +358 50 540 6031 +358 2 489 9299 Fax 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

TEKNIKUM OY

FI-38310 Sastamala Finland Phone +358 3 513 5311 www.teknikum.com

Contact Person

Mikko Esko mikko.esko@teknikum.com

Facts & Figures

Turnover: EUR 46,7 million Personnel: 273 Established: 1989 Parent Company: Teknikum Group Ltd.

Specialty Areas

Rubber lining for steel pipes against seawater corrosion. Rubber hoses, bellows and connection hoses for shipbuilding and offshore industry. Moreover we offer customised rubber products for different industry sectors.





Contact Persons

Hiientie 17, FI-92160 Raahe, Finland

+358 8 265 8805

3 9

TEVO OY

tevo@tevo.fi

www.tevo.fi

Fax

Timo Norvasto, Sales Manager, Lokomo Steel, Tampere timo.norvasto@tevolokomo.fi Ari Viinikkala, Deputy MD, Bronze foundry, Turenki ari.viinikkala@tevo.fi Pekka Launonen, Dir. Engineering Works, Raahe pekka.launonen@tevo.fi

Facts & Figures

Turnover: Personnel: Established:

8

EUR 21 million, Lokomo 25 million 120, Lokomo 130 1974, Lokomo 1915

Specialty Areas

Manufacturing and Service of Marine Propellers in steel and bronze. Offshore steel constructions and special welding.

2 4

TRAFOTEK OY

Kaarinantie 700 FI-20540 Turku Finland Phone +358 2 275 9200 +358 2 275 9210 Fax info@trafotek.fi www.trafotek.fi

Contact Person

Timo Heikkinen timo.heikkinen@trafotek.fi

Facts & Figures

Turnover: FUR 70 million Personnel: 400 Established: 1983

Specialty Areas

Ship and offshore transformers up to 12 MVA Electrical filters and reactors

> 1. Consulting 2. Equipment 3. Machinery

TRAFOTEK



Telakkatie 8 FI-23500 Uusikaupunki Finland Phone +358 2 846 4600 +358 2 841 4347 Fax tyovene@tyovene.com www.tyovene.com

Contact Person Juha Granovist

Facts & Figures Turnover[.] EUR 30 million approx. Personnel 80 Established: 1987

Specialty Areas

Building of aluminium workboats, such as Pilot Cutters, Oil Combat Vessels, Service Ships for Channels Building of small steel vessels, such as Road Ferries, Offshore Patrol Vessels, Passenger Vessels for commuter traffic

> 4. Materials 5. Safety 6. Systems



CTEBUL[®]

TYÖVENE OY

OY VALLILA CONTRACT AB

Nilsiänkatu 15 FI-00510 Helsinki Finland Phone +358 20 776 7700 Fax +358 20 776 7701 projekti@vallilainterior.fi www.vallilainterior.fi

Contact Person Miku Berner miku.berner@vallilainterior.fi

Facts & Figures

Turnover:EUR 37 millionPersonnel:135Established:1935

Specialty Areas

Textile design Textile full turnkey solutions, measuring, sewing, installation All system solutions, electrical and manual Large collections on Imo certified fabrics

2

WINDSIDE PRODUCTION OY LTD

Porthanintie 2 FI-44500 Viitasaari Finland Phone +358 20 835 0700 Fax +358 20 835 0701 sales@windside.com www.windside.com

Contact Person

Sara-Maaria Asp Export Manager sara@windside.com

Specialty Areas

NOTES

Windside wind turbines for battery charging are safe, soundless and ecological solution for energy production wherever energy is needed. They meet the requirements of the demanding professional use in the harshest of environments. Their unique features ensure reability, high effiency, long life span, durability and an absolute minimum of maintenance. All the advantages of the turbine together with the beautiful design, enables almost limitless use of Windside.



Vallila Interior

WENDA OY Tuulissuonkuja 1

FI-21420 Lieto Finland Phone +358 2 487 0258 sales@wenda.fi www.wenda.fi www.icestop.fi

Contact Person

2 4 5 6

Jan Forsbom Managing Director jan.forsbom@wenda.fi

Facts & Figures Established: 1995

Specialty Areas

Wenda Itd. specialises in composite technology. The Company designs and manufactures lightweight structures and products for ships according to customer specifications. The latest additions to Wenda shipboard products include a new type of deck seat, a new deck light fixture, a brand new life jacket container product line and lceStop ice prevention system. IceStop is a unique system to keep decks unfrozen on arctic ships.

1 5

VTT TECHNICAL RESEARCH CENTRE OF FINLAND LTD

P.O. Box 1 000 FI-02044 VTT Finland Phone +358 20 722 429

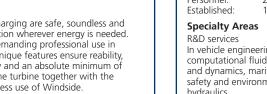
Phone +358 20 722 4294 Fax +358 20 722 4815 www.vtt.fi

Contact Person

Seppo Kivimaa, seppo.kivimaa@vtt.fi

Facts & FiguresTurnover:EUR 251 millionPersonnel:2 375Established:1942

In vehicle engineering VTT offers expertise in model and full-scale tests, computational fluid dynamics, structural monitoring, structural integrity and dynamics, maritime simulations and virtual prototyping, maritime safety and environmental engineering, small craft design analysis, hydraulics.







See page 43

WENDA

ICESTOP

www.icestop.fi

DSITES

Consulting
Equipment

3. Machinery



7. Turnkey Deliveries 8. Yards 9. Other





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