60 YEARS NOR-SHIPPING

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SCANDINAVIAN MARITIME INDUSTRY 2025

A LITTLE EXCURSION INTO PORT CONSTRUCTION ...

PIRS RUDOWY (ORE PIER), NORTHERN PORT OF GDANSK, POLAND

Total approx.: 1,900 piles
Total area approx.: 12,500 m²
Realisation:
Part I: 2014 - 2018
Part II: 2019 - 2025

Corrosion Protection

GT Poland Ltd. Sp. z o.o.
design, construction, inspection and repair of maritime structures

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Peter Tamm
Publisher

Setting sail on the digital tide: HANSA.news goes global

Nor-Shipping is much more than a maritime trade fair – it is a significant international forum encompassing the entire maritime value chain. It epitomizes the spirit of innovation, technological leadership, and the deeply rooted maritime culture of Scandinavia. Over six decades, Nor-Shipping has established itself as a strategic meeting point for decision-makers from shipping companies, shipyards, suppliers, research institutions, and policymakers. Scandinavian shipping is globally recognized as a driving force for sustainability, digitalization, and technical excellence – topics we cover with both respect and journalistic rigor.

With the launch of our new international brand, HANSA.news global, TAMM Media is making a clear statement: maritime journalism requires fresh, cross-border perspectives. Shipping, shipbuilding, and related technologies are inherently international, as are the challenges our industry faces. As a German and European specialist publisher, we see it as our responsibility not only to document discussions on innovation, regulation, and competitiveness but also to actively shape them – knowledgeably, critically, and independently.

The European maritime industry – from shipyards and equipment manufacturers to maritime service providers – needs visibility on the international stage. With our editorial and publishing expertise, we aim to contribute to strengthening Europe's position as a competitive, sustainable, and reliable partner in the global maritime landscape.

Our platform, HANSA.news global, offers up-to-date news on our website, a daily newsletter summarizing key developments, and the biweekly podcast "HANSA.newscast by Janne Silden," featuring in-depth conversations with industry experts on topics such as shipbuilding technology, sustainability, and market trends.

This special edition for Nor-Shipping is therefore not only a tribute to the Scandinavian maritime ecosystem but also a statement: for quality in specialist journalism, for internationality in thematic focus, and for our ambition to be a journalistic voice in the international maritime discourse.

We wish you an engaging read and look forward to exchanging ideas with you – about your projects, developments, and perspectives.

Anna Wroblewski
Editor-in-Chief – HANSA.news.global

Scandinavia sets the pace

When it comes to protecting the marine environment, the Scandinavian countries often take a leading role. They are trendsetters in areas such as decarbonisation, digitalisation, and autonomous shipping.

There are many examples. A look at Denmark reveals a true flagship project: the "Laura Maersk". The 2,100 TEU container vessel, commissioned in 2023, was the first of its kind worldwide to run on methanol. It was soon followed by additional vessels from the Maersk fleet. The Danish shipping company aims to operate at least 25 methanol-powered container ships by 2027.

And this example is setting a precedent. In late 2024, Finnish shipping company ESL Shipping announced its plan to build bulk carriers with a deadweight capacity of 17,000 tonnes, powered entirely by green methanol – making them fully fossil-free. These vessels are scheduled to enter service by 2028.

But the Finns are not only known for designing environmentally friendly ships – they are also pioneers in the field of remote-controlled and autonomous shipping. Back in 2018, they attracted international attention when the ferry "Falco" became the world's first vessel to complete a journey fully autonomously. During a demonstration voyage, the 53.8-metre-long ferry navigated independently between Parainen and Nauvo in the archipelago south of Turku.

Finnish companies and research institutes are paving the way here. But their Norwegian neighbours also have impressive credentials in autonomous shipping. Around three years ago, they launched the "Yara Birkeland", the world's first autonomous and fully electric container ship. Since then, the 80-metre, 120 TEU vessel has completed more than 250 voyages between the ports of Porsgrunn and Brevik – saving around 1,000 tonnes of CO_2 annually.

Projects like these are revolutionising the maritime sector – though not in isolation. Many of them involve suppliers from across Europe. Maersk's methanol vessels, for example, are powered by dual-fuel engines from a German-Danish manufacturer. The "Yara Birkeland" uses batteries from Switzerland, deck equipment from Finland, and a fire protection system from the United Kingdom – to name just a few examples.

Just as innovative and international as these projects is this year's Nor-Shipping exhibition. In Lillestrøm and at numerous events around Oslo, companies from Europe and around the world will come together to present and discuss solutions for a cleaner, forward-looking maritime industry. This edition offers a preview of what's to come, with a strong focus on Nor-Shipping and the Scandinavian market – and perhaps soon, we'll be reporting on more groundbreaking shipbuilding projects from the region.

Three ways to navigate the green transition

How are Denmark, Finland and Norway shaping the future of shipping? The national shipowner associations share insights into the current composition and development of their fleets, the growing role of alternative fuels such as LNG, methanol and hydrogen, and the influence of emerging technologies and environmental regulations. From standout vessel projects to funding – this is how three maritime nations are navigating the green and digital transition.

The maritime industries of Denmark, Finland, and Norway are at the forefront of global efforts to decarbonise and modernise shipping. While their fleets differ in composition and development, all three countries are investing in cleaner propulsion systems and advanced digital solutions. Regulatory pressure, state support, and a shared ambition for climate leadership are accelerating innovation across the region.

Denmark

There are, in total, 750 Danish-flagged ships in Denmark. The fleet in this Scandinavian country is highly diversified. According to figures from January from Danish Shipping, the largest segments are chemical/product tankers (137) and container ships (134). Passenger RoRo vessels (70), standby safety vessels (36), tugs (31), and general cargo ships (29) also make up substantial parts of the fleet. Other notable segments include passenger ships, trailing suction hopper dredgers, anchor handling tug supply vessels, RoRo cargo ships, LPG tankers,

Scandlines operates one of the world's largest fleets of hybrid ferries (© Scandlines)

"Laura Maersk", the worlds' first methanol-powered container ship, sets a benchmark for sustainbke shipping (© Bremenports)

and offshore crew/supply vessels. This composition highlights Denmark's strength not only in core cargo transport but also in maritime services and offshore energy operations.

Asked about technological trends within the fleet, Nina Porst, Executive Director of Climate, Environment and Security at Danish Shipping, says: "Over the past five years, energy efficiency in vessels has been a top priority. The focus has not only been on technical improvements but also on optimising operational performance. Many of the readily available technical enhancements have already been implemented, making it increasingly challenging to identify new initiatives for further efficiency gains."

Technical modifications have ranged from major vessel conversions – such as new bulbous bows and propellers – to optimising internal energy consumption by improving pump efficiency and closely monitoring engine conditions. The latter has driven the development of more advanced monitoring systems, some of which operate online and can detect issues in real time. "While AI is being incorporated into these systems to some extent, its implementation is still in the early stages", reports Porst.

"Biofouling management is receiving increased attention", underlines the Executive Director of Climate, Environment and Security. "While it has long been part of fuel optimisation efforts, it is now also recognised as a significant factor in the spread of invasive species, requiring stricter oversight and management. The biggest current challenge is the transition to low-carbon fuels, which necessitates new engines and fuel systems." This shift is primarily taking place in newly built ships, as retrofitting existing vessels is both complex and costly. "In the coming years, existing ships will rely on biofuel blends to meet EU and IMO requirements", states Porst.

It's clear to her that climate and environmental regulations play a crucial role in driving the transition towards zero-emission shipping. "However, the cost of decarbonisation is substantial, and without clear regulations and enforcement, progress is unlikely to occur at the pace required to meet the political goal of net-zero emissions by 2050", knows Porst.

A ship project that sets an example for the Danish industry is the world's first methanol-powered container ship sailing under the Danish flag. Maersk's feeder ship, "Laura Maersk", was contracted in 2021 and delivered in 2023. The 172-metre-long vessel, with a capacity of 2,100 TEU, made its maiden voyage to Copenhagen, where it was officially named by EU Commission President Ursula von der Leyen. "The ship marked a major milestone in sustainable shipping and in Maersk's commitment to achieving zero emissions by 2040", emphasises Porst. Since then, "Laura Maersk" has been operating on Maersk's network in the Baltic Sea.

Further, Maersk has 15 methanol-powered containerships in the orderbook. Of these, 9 will be Danish-flagged, while the other 6 will be Singaporean-flagged. The Danish-flagged containerships will all have a gross tonnage of 172,000 and a capacity of around 16,000 TEU (Twenty-foot Equivalent Units) each.

"In the domestic market, there is an increasing adoption of electrical propulsion systems on RoPax vessels", reports Porst.

"Newbuild vessels are now being designed with 100% electric propulsion. For example, Scandlines is constructing a 1,200 lane-metre RoPax ship that will complete crossings in 45 minutes, powered by a 10 MWh battery system, with an in-port charging time of only 12 minutes. Hybrid solutions have also been in use on RoPax vessels in Denmark for several years, implemented both on newbuilds and through retrofits."

Also, subsidies play a role in the Danish market: "There are a few examples", says Porst. "Scandlines has received EU funding to install scrubbers. The Øresund Line has received funding to electrify ferry operations. And Terntank has received funds from the EU's TEN-T programme for LNG-powered ships. This list might not be completely exhaustive, but these are the most prominent examples."

Finland

In Finland, the shipping fleet is also diversified into several key segments. RoPax ferries, RoRo vessels, and dry bulk carriers form the backbone of the fleet, while specialised oil and chemical tankers cover niche market needs. A narrow container segment, primarily composed of short sea shipping feeders, supports regional trade, and state-owned icebreakers ensure navigation through harsh winter conditions. "All segments have remained fairly stable in recent years", reports Tiina Tuurnala, CEO of the Finnish Shipowners' Association.

Concerning alternative propulsion systems, members of the Association are using and developing, for instance, LNG and biogas, methanol, biofuels from waste, wind, and electricity.

Automation, digitisation, and AI are increasingly transforming the Finnish shipping industry. For instance, ESL Shipping's Virtual Arrival system uses real-time data and optimisation to adjust vessel speeds when berths are delayed, resulting in an average CO_2 reduction of 24%. "Finland has been at the international forefront of developing remote piloting technology", emphasises Tuurnala. "According to the Pilotage Act, remote piloting has been possible in Finland since 2019." There are several tests ongoing. „We are developing advanced ice analytics using artificial intelligence, in collaboration with the Finnish company Awake."

© ESL Shippin

The Finnish company ESL Shipping has developed a fossil-free, methanol-powered handysize bulk carrier

Members of the Finnish Shipowners' Association have been pioneers in responsible shipping and many emission reduction measures have been implemented before regulation. "Naturally, for example, EU ETS and FuelEU Maritime speed up the green transition in shipping. But the challenge at the moment is the availability of fossil-free fuels – and at a competitive price", says Tuurnala. "We hope that the availability of green fuels will be promoted both at EU level and nationally. We also support the global pricing mechanism and we hope that after difficult negotiations a satisfactory decision will be reached at the IMO this year."

There are several special ship projects and initiatives that set an example for the industry in Finland. "A prime example is ESL Shipping's development of fossil-free methanol-powered handysize bulk carriers, a project designed to support the Nordic green transition and drive innovation in sustainable shipping", underlines the CEO.

Other examples are the Meriaura EcoVoy concept, which promotes sustainable maritime transport. The icebreaker "Polaris" is recognised as the most environmentally friendly vessel in its class. "Wasaline Aurora Bothnia" operates on a combination of LNG, biogas, and electricity to enhance energy efficiency. Langh Ship implements carbon capture technology to significantly reduce its emissions.

"And we have also several Green Corridors", adds Tuurnala. "Examples are Viking Line, RMC, Åbo Akademi and Kempower, which are developing a carbon-neutral sea route between Stockholm and Turku, along which freight and passengers travel in a carbon-neutral manner. And the Helsinki–Tallinn Green Corridor is an initiative advancing towards a climate-neutral maritime journey between Finland and Estonia." Another example is bio-waste, which is collected from "Viking Glory", "Viking Grace", and "Viking XPRS" and then transported ashore for biogas production.

Asked if members receive subsidies for the implementation of particularly innovative or environmentally friendly projects, Tuurnala says: "Yes, some of our members receive government support – typically in the form of subsidies – especially when they act as ecosystem partners. This funding is generally allocated for research and development and innovative projects, such as the Fuse initiative for climate-neutral shipping."

Norway

According to the Maritime Outlook, published by the Norwegian Shipowners' Association on 1 April, the Nordic country is the fifth largest among the world's shipping nations, ranked by value. At the beginning of 2025, the value of the total world fleet was estimated at just over USD 1,500 billion, of which the ten largest shipping nations hold 70 percent. Norway occupies fifth place among these nations behind China, Greece, Japan, and the US, and is followed by Singapore, South Korea, and Germany. The offshore segment has the highest value in the fleet. The total value of Norway's fleet is estimated at USD 81 billion.

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"Clipper Eris", owned by the Norwegian company Solvang, was the world's first vessel with on-board carbon capture and storage

© Solvang

In 2024, the Norwegian-controlled foreign-going fleet experienced growth in the number of ships and a decline in tonnage. As stated in the report, shipowners sold more than 100 ships, while vessel availability shows that 120 ships were purchased or delivered as newbuilds. Several smaller offshore vessels have been added to the fleet, while a larger share of tonnage has been sold in the tanker and dry cargo segments. 2024 is the first year since 2019, and before the pandemic, that the fleet has seen a positive net increase in the number of vessels. As of January 2025, the fleet numbers a total of 1,610 ships with a total tonnage of 42.7 million deadweight tonnes. At the same time last year, the fleet comprised 1,585 ships of 43 million deadweight tonnes.

The composition of the Norwegian-controlled foreign-going fleet shows that the dry cargo segment is the largest, measured by number of ships. According to the report, RoRo car carriers make up a substantial proportion of this segment. The offshore service segment is the second largest, followed by the chemical tanker segment. The foreign-going shipowners' order book currently consists of 143 ships, which is an increase of almost 25 percent compared with the same time last year. The value of the order book is NOK 140 billion, or USD 12 billion.

As reported by the association, the countries where most newbuilding work is carried out are China and South Korea – and this is also where most investments take place. In Norway, eight ships are currently under construction, all of which are either offshore vessels or offshore wind vessels. Over 50 percent of vessels in the order book are dry cargo vessels, a large share of which consists of RoRo car carriers, as well as tonnage for the short sea segment. In addition, 26 gas carriers (LNG) are under construction, along with more than 20 ships that will be deployed in the offshore wind market. The estimated timeframe for delivery of the ships in the order book is from this year until 2028.

In 2020, the Norwegian Shipowners' Association's members adopted a climate strategy with specific targets for 2030 and 2050. Member shipowners aim to reduce their greenhouse gas emissions by 50 percent per unit by 2030, compared with 2008 levels. As of 2030, members will only order vessels equipped with zero-emission technology. This aligns with the overall aim of achieving a climate-neutral fleet by 2050.

Whereas, according to DNV's Maritime Forecast to 2050, the uptake of alternative fuels in the world fleet is two percent, the Norwegian Shipowners' Association member fleet is already at 15 percent. In 2025, the Association published its first climate report, providing an overview of technology adoption and fuel use, as well as the distribution of activities and emissions across ship types, regions, and regulatory frameworks.

The author:
Claudia Behrend, Freelance Journalist


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International collaboration is key to future global success

In the first week of June, the maritime industry turns its attention to Norway, where the international trade fair Nor-Shipping takes place. For 60 years, this industry event has highlighted trends and provided visitors with a platform for exchange. Exhibition Director Sidsel Norvik spoke with HANSA about the highlights of this year's edition.

Sidsel Norvik – Director at Nor-Shipping

HANSA: With the 30th edition of Nor-Shipping approaching, this year marks a special milestone for the event. Looking at the exhibition and supporting programme, what are your top three highlights? Or is there a particular feature or event you're especially looking forward to?

Sidsel Norvik: Nor-Shipping is built on three key pillars. 1) An outstanding exhibition, showcasing the latest innovations, technologies, designs, and developments from across the global maritime industry. 2) An industry-leading conference programme, covering a broad range of vital segments within maritime. 3) A second-to-none networking programme, featuring BBQs, daily AfterWork gatherings, and an unforgettable Anniversary Party on Thursday night.

Together, these pillars create a dynamic five-day, around-the-clock experience that sets Nor-Shipping apart on the global stage.

If I were attending Nor-Shipping as a representative of a shipping company, which part of the programme should I absolutely not miss? And what would you recommend for someone from the maritime supply industry?

Regardless of whether you represent a shipping or supply company, the Ocean Leadership Conference is a must-attend event! Be sure to also explore the full conference programme, as we're offering a variety of sessions you won't want to miss.

This year's programme features focused topics such as the Offshore Wind Conference, Ship Autonomy & AI Summit, Maritime Hydrogen Conference, and the Offshore Aquaculture Conference. In addition, we will have our popular Blue Talks, which feature one-hour sessions and discussion panels on specific topics related to sustainable business development across the ocean space. This year, the Blue Talk stage will host more than 14 topical keynotes and debates throughout the week.

New for the 2025 programme are the LNG Conference, the Deepsea Minerals Conference, and the Ocean Invest Conference, all taking place within the main conference arena at Nova Spektrum, Lillestrøm.

I would absolutely recommend spending at least a day or two at the exhibition, and make sure to join the daily AfterWork events, the BBQ, and the 60th Anniversary Party to get the full Nor-Shipping experience and connect with the industry.

The Norwegian maritime sector is known for its innovation and is considered a pioneer in areas such as digitalisation, decarbonisation, and autonomous shipping. With Nor-Shipping bringing together visitors and exhibitors from all over the world – and with its strong connections to maritime markets in places like Singapore and Brazil – what do you think other nations can learn from the

Norwegian maritime industry? And is there perhaps something Norway could learn from others in return?

Norway has long been a global frontrunner in shipbuilding, digitalisation, decarbonisation, and autonomous shipping, thanks to its long-standing maritime heritage. This rich history has helped pave the way for the creation and evolution of Nor-Shipping. Norwegian maritime clusters proudly showcase their excellence at Nor-Shipping events, while also participating in other major industry events like SMM to share insights, gain knowledge, and stay ahead of the curve.

One of Norway's greatest strengths is its aim to foster a collaborative maritime ecosystem. We strive to maintain strong ties between government, academia, technology providers, and shipowners, in order to create fertile ground for innovation and sustainability.

This cross-sector approach, combined with a future-focused regulatory mindset, has helped Norway stay at the forefront of maritime transformation and innovation.

However, we believe that international collaboration is key to future global success. Nor-Shipping is committed to supporting this vision by providing an international arena that builds bridges and encourages cooperation, innovation, and knowledge-sharing. By hosting events like this, we can enable countries not only to share their experiences, but also to learn from one another and build partnerships.

To further strengthen our international platform, Nor-Shipping will continue to host country-specific seminars on strategic markets, such as Singapore and Brazil. We will also introduce new seminars on India and China this year, further building on our commitment to being a leading global meeting place for the maritime industry.

Over the past 60 years, the maritime industry has overcome numerous technological challenges and developed groundbreaking products and solutions. In your view, what will be the key trend that shapes the industry most over the coming decades?

With the historic climate agreement adopted by the IMO just over a week ago, shipping has become the first industry to face a globally established price on greenhouse gas emissions. The new regulations place limitations on emissions from fuel used on board ships and require companies to pay for emissions exceeding a certain threshold. Additional costs will apply if a ship does not meet minimum emission reduction targets, while vessels using net-zero fuels or technologies will be financially rewarded.

This will, of course, be a central topic at Nor-Shipping. Discussions will focus on the range of green fuels, their availability, fuel-agnostic vessels, and the broader infrastructure needed to support the transition. While engines and technologies are already in place, and ships are being built to run on fuels like ammonia and methanol, the real bottlenecks are fuel availability and port infrastructure.

Although green fuels are the long-term goal, immediate action to reduce emissions from the existing fleet is equally critical. Wind-assisted propulsion, onboard CCS, air lubrication on hulls, waste heat recovery systems, battery hybridisation, greater utilisation of shore power, digitalisation, speed, route and performance optimisation, as well as 'just-in-time arrivals', are all important action points that can unlock significant benefits.

Getting the combination right will not only accelerate progress but also deliver significant returns and help shape the industry for decades to come.

Interview by Anna Wroblewski

Sixty years as the maritime hotspot in Scandinavia

The year 1965 marked a series of historic milestones: it was the year humans first ventured into space, satellites were launched into orbit – and the very first Nor-Shipping exhibition opened its doors to the maritime world.

Since 1965, Nor-Shipping has been one of the most important maritime trade fairs worldwide. Every two years in June, the event gathers the "who's who" of the industry in Oslo. Ever since, representatives from shipping and shipbuilding have not only been coming to discover the latest trends, but also to participate in numerous events surrounding Nor-Shipping.

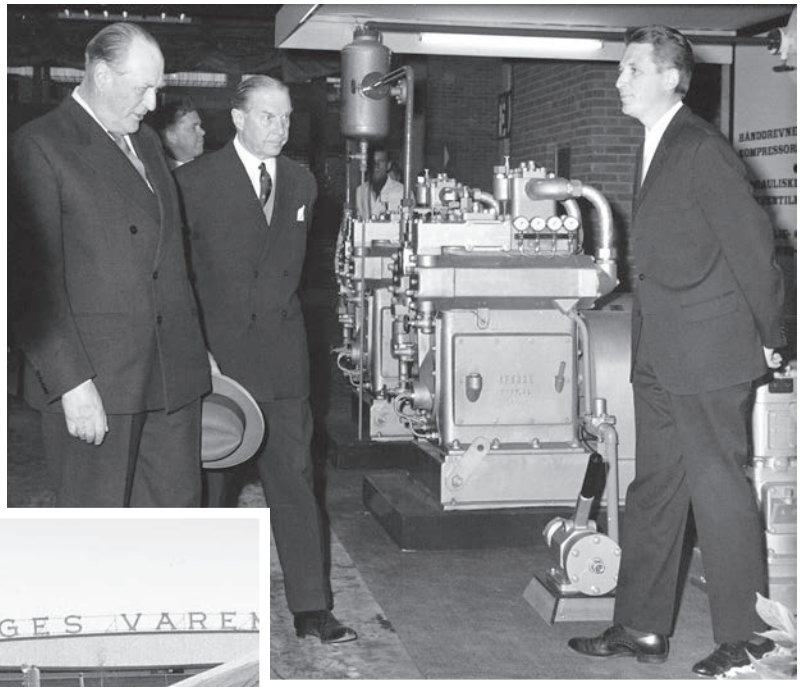
However, the origins of the exhibition date back even further. The forerunner to Nor-Shipping was the "Deck and Engine Room" exhibition, first organised in the early 1960s by Norwegian Industrial Fairs (today known as NOVA Spektrum) in collaboration with the magazine Skip.

The first two events were national in scope, focusing on Norwegian seafarers and their welfare. The potential for an international shipping exhibition in Norway was recognised by Norwegian shipowner and publisher Per Selvig. He approached Edvard Mowinckel-Larsen, who was then leading the Norwegian Industrial Fairs, and proposed a broader, more internationally focused event.

With the support of Selvig's maritime magazine, the event was rebranded as the first International Shipping Exhibition and was officially opened in Oslo in May 1965. A downturn in the shipping industry in the late 1960s led to a delay in organising the next exhibition, which was eventually postponed until the end of May 1968. The name Nor-Shipping – now a globally recognised brand – was used for the first time at the third international event in 1971. Since then, Nor-Shipping has been organised every two years.

Today, Nor-Shipping is one of the world's leading events – not only for shipping but for the entire ocean economy. Major political and industry decision-makers from across the globe come together to network, collaborate, and do business. During "Nor-Shipping Week", they not only visit the 21,000-square-metre exhibition space in Lillestrøm, but also attend a wide range of conferences featuring top-level speakers. Across Oslo and the surrounding region, many key side events are held, such as the famous barbecue in Høvik. Aker Brygge in the city centre transforms into the largest after-work venue.

One unmissable event this year is the 60th Anniversary Party at the Astrup Fearnley Museum in Tjuvholmen – where six decades of Nor-Shipping history will be celebrated. ■



For over 60 years, Nor-Shipping has been a stage for maritime innovation and industry trends – while welcoming numerous prominent guests from business, politics, and technology (© Nor-Shipping)

Shaping the future of the maritime world

This year marks the 60th anniversary of Nor-Shipping, one of the world's leading maritime trade fairs, taking place from 2 to 6 June in Oslo. While honouring its long-standing legacy, the event is focused on making the industry #FutureProof.

© Nor-Shipping

From 2 to 6 June, the maritime industry will once again gather at Nor-Shipping in Oslo

Since its inception in 1965, Nor-Shipping has evolved into a leading international arena for maritime innovation, regulation, and business development. As the event marks its 60th anniversary in 2025, it continues to serve as a platform for addressing the most pressing challenges and opportunities in global shipping. Taking place from 2–6 June across Oslo and Lillestrøm, this year's theme, #FutureProof, reflects a focus on resilience and long-term strategy.

Against a backdrop of decarbonisation, digitalisation, and geopolitical uncertainty, Nor-Shipping 2025 will bring together stakeholders from across the industry to explore practical pathways for change. The exhibition at NOVA Spektrum is nearly fully booked, with new areas such as the Upper Deck, Ocean Campus, and a dedicated Startup Area expanding the event's reach to academia and entrepreneurs.

The programme includes established conferences like the Ocean Leadership Conference (3 June), Blue Talks, and the International Ship Autonomy & Sustainability Summit, alongside new additions such as an LNG Event, Ocean Invest finance forum, and one of the first Seabed Minerals conferences. Participation from countries including China and India, both hosting large national pavilions, underlines Nor-Shipping's increasingly global profile.

Key themes include the industry's path to decarbonisation, the operationalisation of autonomous systems, and the need for workforce renewal. Topics such as carbon capture corridors, hydrogen propulsion, AI-assisted navigation, and recruitment strategies will be addressed through panels, demonstrations, and educational outreach, including the Career Port and partnerships via Ocean Campus.

Beyond the formal agenda, Nor-Shipping also offers extensive networking opportunities. From the Nor-Shipping BBQ (hosted by DNV) to daily AfterWork@AkerBrygge events and the anniversary celebration at Oslo's Astrup Fearnley Museum (5 June), the programme recognises the value of informal exchange in a people-driven industry.

With a record number of international participants expected, Nor-Shipping 2025 aims to provide both insight and direction – helping the maritime sector navigate complexity and prepare for the future.

The following exhibitor previews present selected highlights from companies showcasing their innovations at this year's Nor-Shipping. ■

© Nor-Shipping

The Nor-Shipping will include a series of panel sessions and expert discussions

ABB MARINE & PORTS

New propulsion system to be unveiled

At Nor-Shipping, ABB Marine & Ports is preparing to unveil an innovative new propulsion system that offers optimised efficiency to support a zero-emission maritime future. Further details will be available in due course.

ABB Marine & Ports will also host a technical seminar and several presentations. Company representatives at the booth will be available to discuss topics including maritime safety, efficiency, sustainability, and security across the entire lifecycle of a vessel.

Highlights will include the recent Marin performance verification of ABB's advanced propulsion concept Dynafin, an expanded portfolio of ABB Marine & Ports Routing Services, and broader application of ABB Onboard DC Grid for energy management with batteries and fuel cells.

ABB will also present the latest developments in lifecycle management and outline the ongoing strategy for its Oversea Fleet Support Service, developed in partnership with Wallenius Marine.

Hall D | D03-41

ABS

Decarbonisation and safety in focus


© ABS

According to ABS, Nor-Shipping has always played a vital role in fostering collaboration and innovation, not only within the renowned Scandinavian maritime sector but also on a global scale.As one of the leading providers of classification and technical advisory services for the maritime industry, ABS works closely with industry leaders around the world and values Nor-Shipping's ability to bring together deep insights and expertise.

Today, the maritime industry needs this type of collaboration more than ever, as it faces an unprecedented transformation and the complex challenges that come with it. ABS specialists will be present at Nor-Shipping to discuss some of the most pressing topics in the sector's journey toward net-zero emissions, including alternative fuels, carbon capture and transport, and digitalisation.

Another key focus for ABS in Oslo will be the evolving regulatory landscape – particularly the outcomes of the 83rd session of the International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC).

As alternative fuels and energy sources reach commercial maturity, it is crucial that crews are fully prepared to handle and operate these new fuels and energy-efficiency technologies safely.

ABS specialists will also be available to present ABS Training Solutions – a programme offering tailored learning experiences covering the full range of maritime operations, supported by state-of-the-art training centres in key maritime hubs.

Further topics of focus for ABS during Nor-Shipping include the latest developments in the cruise sector, shuttle tankers, and the organisation's ongoing contract research and development efforts. **Hall D | D02-24**

ANKERI
Scaling shipping through data and collaboration

The Reykjavík-based company Ankeri is participating in this year's exhibition with a focus on one central theme – how to harness the value of maritime data. Ankeri's cloud-based software platform transforms the way commercial, operational, and technical ship data is managed, offering seamless solutions for both internal users and external stakeholders. Through its modular approach to software delivery, Ankeri provides a scalable solution tailored to a wide range of operational needs.

The platform is designed to increase efficiency, reduce emissions, and support better decision-making. Its core features include:

- Data Consolidation: Integration of ship data from various sources, including sensors and reports, to provide a comprehensive overview of fleet performance.
- Operations & Decarbonisation: Tools for managing charter agreements, emissions reporting (e.g. EU Emissions Trading System), and calculating the Carbon Intensity Indicator (CII).
- Strategy & Simulation: Scenario analysis to evaluate fleet performance under different operating conditions and support strategic planning.
- Collaboration: Secure workspaces that enable data sharing between internal teams and external partners.

A prime example of Ankeri's solutions in action is its partnership with Hapag-Lloyd. Since 2018, the global container carrier has been using Ankeri's technology to monitor and optimise the energy efficiency of its fleet. In March 2024, the collaboration was expanded further to support the company's decarbonisation strategy. **Hall D | D2-27**

AP SENSING
Early fire risk detection at sea

At Nor-Shipping this June, AP Sensing will showcase its Linear Heat Detection (LHD) N45-Series, an adaptable fiber optic-based solution that helps prevent fires on large container ships, vessels, car carriers etc. By identifying critical temperature changes at an early stage, the system helps to reduce the risk of serious fire incidents.

As maritime transport grows more complex, with electric vehicles and high-risk cargo posing new challenges, traditional detection methods often fall short. The LHD N45-Series provides continuous, real-time temperature monitoring along the entire length of a passive fiber optic sensor cable. This allows it to detect critical heat development early on, enabling faster response and helping to prevent incidents altogether.

Unaffected by humidity, salty water, oil, dust, airflow, or electromagnetic interference, the system operates reliably even in the harshest conditions, including RoRo and LoLo decks. The fiber optic sensor cables can withstand temperatures up to 750 °C as per IEC 60331-25 and delivers accurate localization of thermal anomalies down to a few meters.

With up to 16 km range per channel and four channels per device, the system easily monitors large or multi-deck vessels. Its fast measurement rates - down to one second - and up to 2,000 configurable zones per channel ensure precise, customizable coverage. SmartVision software offers intuitive visualization, analytics, and easy integration with ship management systems.

While used across multiple industries, from tunnels to power plants, the LHD N45-Series offers clear advantages for marine safety. It meets international standards including SOLAS, and holds certifications from DNV, UL, FM, ATEX, and SIL2. The system is virtually maintenance-free and designed for long-term performance.

AP Sensing invited visitors at Nor-Shipping to learn how early heat detection could transform fire safety on board through real-time insight and precise monitoring. **Hall T | T01-07c**

MARINE HYBRID SOLUTIONS (MHS)
Focus on smarter energy systems

Marine Hybrid Solutions (MHS) is set to make its debut at Nor-Shipping 2025. Founded in late 2023 by Anlegg og Marine Service, Baumüller Anlagen-Systemtechnik GmbH & Co. KG, and Nogva Holding, MHS brings together decades of experience in engineering, systems integration, and service.

The company notes that every system it delivers begins as a digital model, enabling simulations of real-world performance before physical components are built. This approach is intended to help customers reduce fuel consumption, lower total cost of ownership, and make well-founded design decisions early in the development process. By using simulations, digital twins, and real-time analytics, MHS claims to support vessel operators in better understanding and more efficiently running their energy systems. Its services are said to span from concept design through to onboard troubleshooting.

At Nor-Shipping, MHS will be showcasing how its design optimisation tools and digital twin technology can support better decision-making – from initial concept to day-to-day operations. **Hall B | B01-40**

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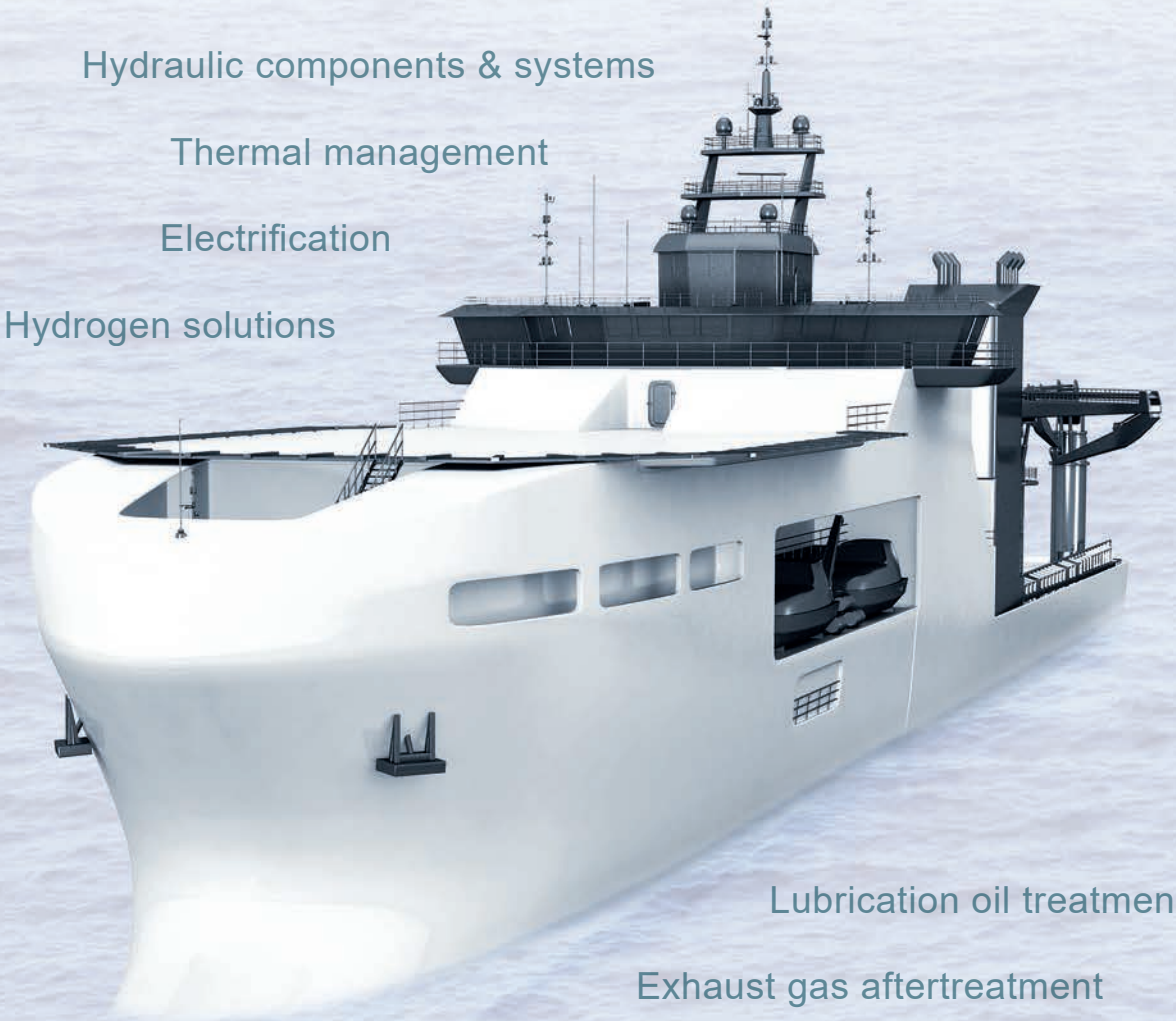

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BERG PROPULSION

Propulsion and control solutions for efficient, reliable vessel performance

© Berg Propulsion

Berg Propulsion is a Swedish company specializing in propulsion technologies, electrical integration, and energy efficiency solutions for commercial and naval vessels. The company designs and manufactures controllable- and fixed-pitch propellers, azimuth thrusters, and transverse thrusters, as well as vessel control and maneuvering systems. Berg's solutions are aimed at optimizing fuel consumption, improving vessel maneuverability, and supporting future fuel adoption.

In an exemplary retrofit project earlier this year in Norway, Berg Propulsion significantly upgraded the 2008-built coaster Terneskjaer, operated by Lighthouse Ship Management. The work included the installation of a high-efficiency diesel-electric propulsion system, integration of a new gearbox and permanent magnet motors with Berg's MPC800 control system, optimized propeller blades, and a nozzle to improve thrust – especially at low speeds. The retrofit led to a 33% reduction in fuel costs, giving the vessel a renewed competitive edge and significantly lowering its carbon intensity.

Berg's commitment to sustainability was recently underscored by the launch of its GreenForge production option, allowing shipowners to select climate-neutral propeller shafts. Three RoRo vessels being built for Louis Dreyfus Armateurs (LDA), scheduled for delivery from 2026, will feature the world's first propeller shafts manufactured from recycled scrap steel and forged using renewable electricity and fossil-free biogas such as rDME or bio-propane.

Berg Propulsion maintains a global presence through direct sales and service offices in China, Singapore, Türkiye, and the United Arab Emirates, supported by a worldwide network of dealers and service partners.

Hall E | E02-18

CLASSNK

Supporting decarbonisation in shipping

ClassNK is a ship classification society committed to safer and cleaner seas. It provides high-quality services and supports its clients 24/7 through a global network of professionals at 130 exclusive surveyor offices. The Society's register includes approximately 270 million gross tons, representing around 20% of the world's merchant fleet.

In 2023, the IMO revised its GHG Strategy. Under this strategy, new regulations to reduce GHG emissions are to be introduced that incur additional costs, with the goal of achieving net-zero GHG emissions from international shipping by, or around 2050. Discussions continued in developing "Mid-term measures for reduction of GHG emissions" for achieving the levels of ambition set out in this strategy, and consequently, draft regulations on the measures were approved at MEPC 83 held in April this year. These comprise the concepts of "regulating GHG fuel intensity of the fuel used by a ship (GFI regulations)" and "accelerating decarbonization through the IMO Net-Zero Fund" as their two pillars.

ClassNK aims to facilitate a smooth transition to zero-emission through its "ClassNK Transition Support Services," using the knowledge gained from participating in various demonstration projects for energy efficiency improvement technologies, onboard CCS and GHG emissions verification as well as issuing an Approval in Principle (AiP) for alternative fuels ships. These services offer a comprehensive menu of solutions to support clients in reducing GHG emissions and propose optimal strategies tailored to clients' needs. ClassNK encourages stakeholders to utilize its "ClassNK Transition Support Services" to successfully reduce GHG emissions.

Hall B | B02-10i

DNV
Safety remains a key focus area

As the main sponsor of Nor-Shipping 2025, DNV will participate in a week of industry discussions, technical insights, and knowledge exchange. The programme will cover a broad range of topics, from maritime safety and environmental regulations to the energy transition and emerging technologies – areas currently shaping developments in the shipping sector.

Safety remains a key area of focus. On the opening day, DNV plans to publish its latest report, Maritime Safety Trends, which examines current safety challenges and outlines approaches to fostering a robust safety culture. The findings will be available at the DNV booth, where subject matter experts will be on hand for further discussion.

In addition, the classification society will organise several events, including informal sessions at Lekter'n in Aker Brygge, held in cooperation with partners and clients. These sessions aim to provide an open forum for dialogue on topics such as green shipping, maritime careers, data-driven innovation, and the role of enabling technologies.

DNV representatives, including members of the leadership team and technical experts, will also take part in panel discussions and keynotes throughout the official Nor-Shipping programme. These contributions will address subjects such as the maritime energy transition, cybersecurity, data governance, innovation, and safety. Throughout the week, DNV personnel will be available for conversation and technical exchange at the exhibition booth.

Hall D | D02-12

ENDRESS+HAUSER
Measuring instruments and systems

© Endress+Hauser

Endress+Hauser will present its expanded marine instrumentation and analysis portfolio at Nor-Shipping 2025, following the integration of Sick AG's marine solutions from March 2025. The move consolidates a broad range of measurement technologies under one provider, covering sensors, systems, software, and services for maritime applications.

The company's product range includes flow, level, pressure, and temperature measurement, as well as solutions for liquid and gas analysis, emission monitoring, and CO_2 capture and storage. Key technologies include electromagnetic, Coriolis, and ultrasonic flow meters, radar and ultrasonic level sensors, and analytical instruments for pH, conductivity, and dissolved oxygen.

Endress+Hauser will be available at Nor-Shipping to discuss how its combined offering supports operational efficiency, regulatory compliance, and digitalisation across the maritime sector.

Hall T | T01-07b

FINNØY GEAR & PROPELLER
Propulsion solutions for demanding vessels

Finnøy Gear & Propeller AS, a Norwegian specialist in propulsion systems with over 140 years of experience, will showcase its 2-Speed gearbox technology at Nor-Shipping 2025. The solution is designed to optimise propeller speed under changing operational conditions, helping to improve fuel efficiency and reduce emissions – particularly for vessels operating in multiple modes, such as trawlers, wellboats, and offshore support ships.

Finnøy supplies complete propulsion packages, including controllable pitch propellers, gearboxes, shaft lines, and control systems, all engineered and manufactured in Norway. The company also provides lifecycle services, including spare parts, upgrades, and modernisation support.

Recent projects include deliveries to vessels such as Ecofive, Havbryn, and new wellboats for Rostein AS, as well as international contracts in Canada, the UK, India, and Italy.

Hall E | E04-14

GIBDOCK
Showcasing strategic ship repair expertise

Gibraltar-based Gibdock will participate in Nor-Shipping 2025, presenting its capabilities in ship repair, refit, and marine engineering. Located at the gateway between the Atlantic and the Mediterranean, the yard services a wide range of vessel types including offshore units, LNG carriers, tankers, bulkers, ferries, and cruise ships.


© Gibdock

Facilities include three dry docks (up to Panamax size), 1 km of deep-water wharfage, high-capacity cranes, and 7,000 m² of covered workshops. Services cover mechanical and engine repairs, steel and pipework, electrical and propulsion work, retrofits, blasting and painting.

The dedicated fabrication area Pad 1, with a 12 t/m² load-bearing capacity, supports land-based construction for complex projects such as LNG retrofits and scrubber installations. Recent work includes tank fabrication for GibOil and structural components for emission reduction systems.

Gibdock operates year-round, supported by a dry climate and a certified team. The yard meets international QHSE standards, holds UK Cyber Essentials certification, and complies with ISPS requirements.

Hall D | D03-29

JEOL
Additive Manufacturing with Electron Beam

At Nor-Shipping 2025, JEOL will present its latest developments in metal additive manufacturing, with a focus on its Electron Beam Powder Bed Fusion (EB-PBF) technology and the JAM-5200EBM 3D printer. Designed for high-performance applications, the system enables the production of complex metal parts with high precision and material integrity.

Key advantages include optimised microstructure control for alloys such as Alloy 718, contributing to improved mechanical performance and extended component life. Applications span turbine blades, maritime components, heat exchangers, and structural parts.

JEOL's EB-PBF system offers high-speed, low-defect manufacturing with reduced post-processing requirements, supported by in-situ monitoring and thermal control. This approach addresses common challenges such as cracking and residual stress, supporting more reliable additive production in demanding environments.

Hall T | T01-08a


© JEOL

KOREAN REGISTER

Spearheading maritime safety

© KR

Recognised by 80 flag administrations and with a history spanning more than 65 years, the Korean Register (KR) describes itself as a long-standing classification society offering services in maritime safety, innovation, and environmental protection.

According to KR, its role goes beyond traditional classification. The organisation states that it provides digital solutions and integrated decarbonisation strategies aimed at supporting maritime stakeholders as they adapt to changing regulations, safety requirements, and sustainability targets.

KR reports that it has developed digital tools designed to improve fleet management and operational efficiency. The KR-CON database, for example, offers access to the latest IMO conventions and is expected to include a beta version of an AI-powered chatbot starting in June, aimed at improving usability. In addition, the KR Real360 simulator, based on virtual reality, is intended to support faster and more intuitive onboard training by providing panoramic ship familiarisation. Ongoing digitalisation efforts, the organisation notes, also include research into AI-based hull damage detection and condition-based maintenance (CBM) systems for engines and generators.

As the industry works to meet increasingly strict greenhouse gas (GHG) reduction targets, KR states that it continues to develop services related to alternative fuels and energy-efficient technologies. Its KR-GEARs platform is said to support shipping companies in managing fleet emissions data and maintaining compliance with evolving regulatory frameworks. KR also highlights its experience in alternative propulsion systems and lifecycle assessment tools intended to support more informed decision-making around sustainability.

At its stand, KR plans to showcase its recent developments, where experts will be available for discussions. The organisation also announced it will host signing ceremonies highlighting technical cooperation and innovation with international maritime partners.

Hall D | D04-18

MACGREGOR

Integrated maritime and offshore solutions

At Nor-Shipping 2025, MacGregor will showcase a comprehensive range of solutions designed to meet the evolving needs of the maritime and offshore energy sectors. The company's portfolio includes cargo access and handling systems, offshore loading equipment, motion-compensated cranes, and all-electric gangways for offshore transfer.

Key technologies on display will cover:

- Cargo access systems for RoRo, RoPax, cruise, navy and bulk segments
- Deck equipment such as cranes, hatch covers, stowage systems, and steering gear
- Offshore loading systems for crude and product transfer
- Active Heave Compensated (AHC) cranes for precise subsea operations
- Horizon gangways supporting offshore wind operations

MacGregor's global service offering supports long-term performance through maintenance, modernisation, digital tools, and round-the-clock technical support. **Hall E | E03-55**

OSWALD
Electric motors for newbuilds and refits


© Oswald

At Nor-Shipping 2025, Oswald – a family-owned German company with over 100 years of experience in electric machinery – will present its custom-engineered electric motors and generators for maritime and offshore applications. The company supports the electrification of coastal, inland, and river vessels up to approximately 200 metres in length, offering solutions for both newbuilds and retrofits.

Oswald's motors are particularly suitable for the transition from diesel to hybrid or fully electric propulsion systems, providing high efficiency, tailored designs, and integrated components such as brakes or thrust bearings. All systems are tested in-house in cooperation with classification societies. More than 100 vessels currently operate with Oswald's direct-drive systems up to 2 MW for main propulsion, thrusters, or pod drives.

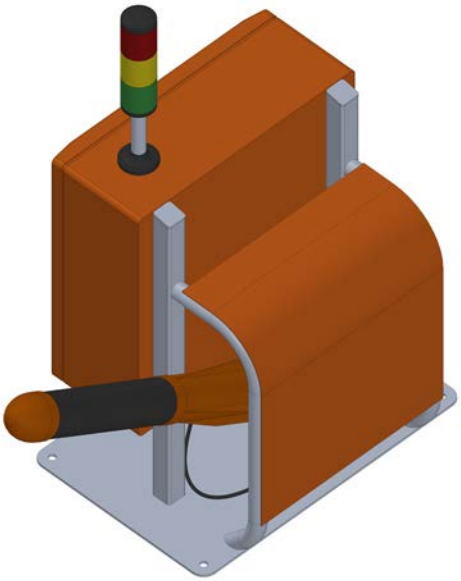
Projects include ferries, tankers, pilot and push boats, as well as hotel and container vessels. Notable references include the hybrid inland ships Bacchus and Sendo Mare, the fishing vessel MDV-1 Immanuel, the IJ veer ferry series in Amsterdam, and the Norwegian hybrid vessel Vision of the Fjords.

Oswald supports a holistic approach to hybridisation, working closely with system integration partners to ensure coordinated planning and implementation – from energy generation to propulsion and cooling. Beyond maritime, Oswald also develops motors and generators for industrial and commercial vehicles.

Hall T | T01-08b

RESTECH
Remote launcher TI debuts at Nor-Shipping

Established in 1989, Restech is the inventor of the Pneumatic Line Thrower (PLT). At this year's Nor-Shipping, the company will showcase a scale model of its upcoming innovation in remote launcher technology – the Remote Launcher TI.


© Restech

Developed in response to growing demand for greater flexibility in towing and mooring operations from service operation vessel (SOV) owners in the offshore industry, the competitively priced Remote Launcher TI is designed to work seamlessly with an emergency towline as a fixed line thrower.

The scale model offers insight into the potential of a purpose-built remote launcher that can be brought to market at a significantly lower cost than the project-specific solutions Restech has previously developed for individual clients.

The company believes that proven remote launchers may also find future application on autonomous vessels, whether for mooring or emergency operations. Visitors are also encouraged to learn more about Restech's latest PLT Solas line thrower, developed specifically to comply with IMO SOLAS 74/96 regulations. With no expiry date, it can be safely stored on board for the vessel's entire operational life.

The PLT Multi is a versatile, air-powered line thrower for use at sea and on land, offering ten interchangeable projectiles with varying lines and ranges.

The PLT Mini, the lightest and most compact option in the range, features nine projectiles and is also suitable for maritime and land-based use.

Restech is qualified under the Achilles Joint Qualification System for suppliers to the oil industry in Norway and Denmark. Its quality management system is certified to ISO 9001 by DNV.

Hall C04 | 29b

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RINA
Driving decarbonisation in maritime sector


© RINA / Getty

RINA, a multinational company with a global network of more than 6,200 professionals, describes itself as a trusted partner supporting clients in achieving sustainable growth through specialised expertise.

The classification society has announced its participation in Nor-Shipping 2025, which it refers to as a key global forum for maritime innovation and excellence. According to RINA, its focus is on advancing decarbonisation in the maritime sector and contributing to a more sustainable future through its multidisciplinary capabilities. RINA states that it is working to transform how shipping companies manage operations. Its range of digital tools and professional services is designed to improve operational efficiency, support automation, and enhance performance across maritime activities.

The company highlights several core service areas it plans to showcase at Nor-Shipping:

- SERTICA Fleet Management System
- Decarbonisation Solutions
- Marine Consulting
- Maritime Cybersecurity
- Ship Project Engineering
- Technical Advisory Services

RINA has indicated that it will use the event to present its service portfolio and to engage in discussions about current and future challenges in the sector, particularly regarding sustainability and operational efficiency.

Hall D | D03-36

SKF
Water-lubricated sterntube bearings

SKF Marine states that its expertise lies in the development, design, and manufacture of essential marine systems. According to the company, its range of marine solutions is intended to offer reliable, intelligent, and environmentally responsible products and services that support efficient vessel operation. The product portfolio includes stabilisers, shaft components such as Simplex seals and OK couplings, as well as oil treatment systems like RecondOil.

One of SKF Marine's more recent developments is the Simplex BlueRun, a water-lubricated sterntube bearing. The company explains that this system is designed to help shipowners comply with increasingly strict environmental regulations, including the Polar Code and VGP2013. It is also intended to contribute to both sustainability and cost-efficiency goals by reducing operational and environmental impact.

According to SKF, the BlueRun system replaces traditional oil lubrication in sterntubes with water, which helps to lower CO_2 emissions, minimise the risk of oil spills, and remove the need for oil storage, handling, and disposal – factors that can add both complexity and cost to vessel operations. The bearing is offered as part of a complete package that includes Simplex water-lubricated sterntube seals.


© SKF

SKF notes that the material used in the BlueRun system was developed in-house and has already been used successfully in various demanding environments for over two decades before being applied to sterntubes.

The company states that its marine technologies and services are designed to support improved operational performance and reduced environmental impact, contributing to safer and more cost-effective shipping. According to SKF, thousands of vessels currently rely on its systems.

Hall E | E03-51


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SONOVE
Upgraded PC platforms on display

At this year's Nor-Shipping, Sonove will present its latest developments in maritime computing, including the upgraded MPC box platform and selected models from its M2 and M2C series.

Based in Germany, the company specialises in type-approved Panel PCs, Box PCs, and monitors for navigation and automation systems.

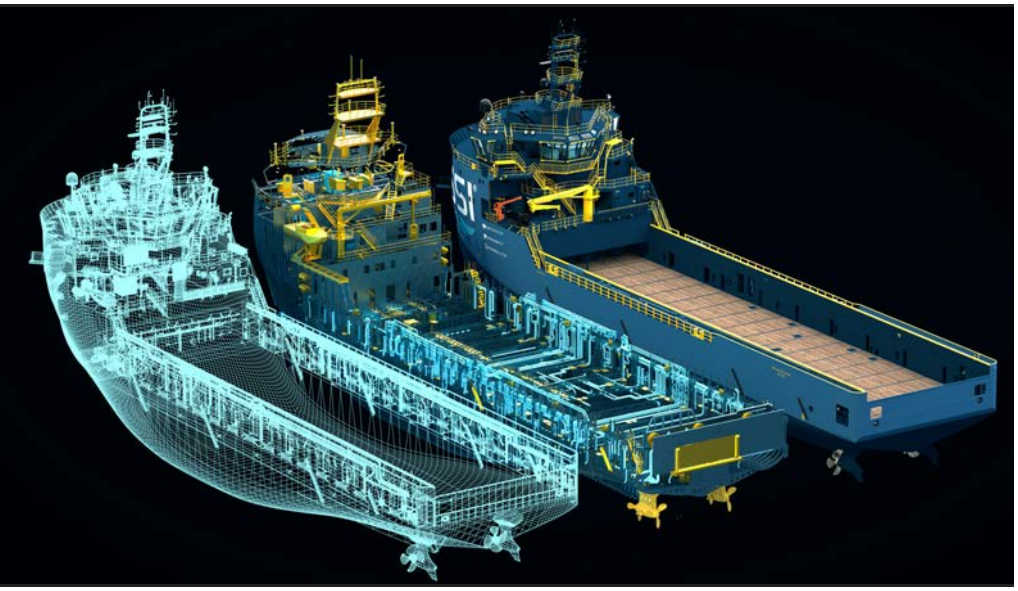
The updated MPC box platform integrates 13th and 10th generation Intel processors, enhanced cooling, and a ruggedised design for challenging marine environments. It supports extensive configuration options, including multiple interfaces, storage capacities, power supplies, operating systems, and optional GPU or CAN card extensions.

For fanless applications, Sonove will display M2 box PCs in two sizes, equipped with Intel® processors from the 6th to 11th generation. These systems offer the same flexible configuration approach in a compact, passive-cooled design.

Also on show are Panel PCs and monitors from the M2 and M2C series, which share the same technical core as the M2 boxes. The M2 range features LED displays from 18.5« to 27« with high-bright or multi-touch options, while the M2C series offers 15« to 19« displays with classic bezels and optional resistive touch functionality.

Hall C | C01-01g

SSI
Driving innovation with digital solutions in shipbuilding



© SSI

SSI, a company specialising in shipbuilding software and services, is providing digital solutions for the shipbuilding industry for over 35 years. The company states that its focus is on applying emerging technologies specifically in the context of ship design, engineering, construction, and lifecycle support.

SSI has developed an open Digital Shipbuilding Platform, which integrates two core solutions: SSI ShipConstructor and ShipbuildingPLM. Together, these tools serve as a central source of project data across the shipbuilding lifecycle and act as a hub for connecting additional systems within a shipyard.

ShipConstructor is a 3D solution for ship design and construction that covers all design phases – from basic and functional design to detailed and production-level planning. The system is built with an open architecture that supports integration and collaboration. According to SSI, the platform supports the modelling of hulls, structures, mechanical systems, outfitting, and electrical components. As part of the wider digital platform, it is designed to function as a "work in progress" tool, enabling engineering teams to continue working with minimal disruption to their established processes.

ShipbuildingPLM, described by SSI as the first product lifecycle management system tailored specifically for shipbuilding, is built on the Aras Innovator platform. Unlike general-purpose PLM systems, it comes pre-configured with data models, workflows, and processes relevant to shipbuilding. SSI suggests this enables shipyards to begin implementing PLM practices more quickly and effectively.

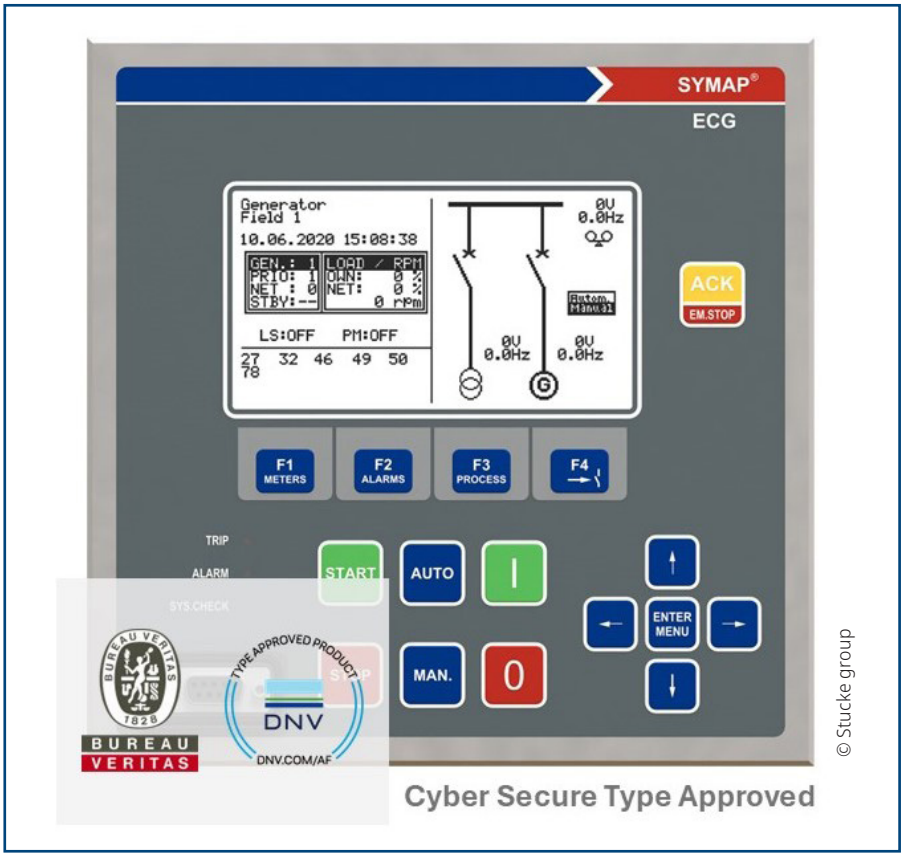
Within the digital platform, ShipbuildingPLM acts as a central repository for manufacturing data. It is intended to enable users across the shipyard to access, visualise, and navigate product information in a consistent, released state – whether across a single vessel or an entire class. Additionally, it is positioned as a connector between other enterprise systems, such as ERP/MRP, planning software, and owner/operator platforms.

At Nor-Shipping the company will provide insights into its digital platform and the integration of engineering and lifecycle data in shipbuilding operations.

Hall T | T01-46

STUCKE GROUP

Protection and control of energy systems



© Stucke group

At Nor-Shipping, Stucke Group is exhibiting its products and solutions for the maritime and offshore markets. The company ensures energy availability both on land and at sea through its network protection and control systems. All products – including software development – are manufactured exclusively in Hamburg.

The multifunctional protection and control systems provide engine control as well as comprehensive protection functionality for generators, motors, transformers and other feeder lines, including differential and grid protection. Additional features include power management, DP system logic, and arc protection for low-, medium- and high-voltage systems. These solutions are suitable for gas and diesel engines, gensets, power units, and hybrid systems. With over 40,000 systems installed, Stucke has established itself as a market leader.

Stucke's customers include system integrators, shipyards, shipowners and managers, designers, operators of power plants, and sites generating renewable or emergency energy. For the maritime sector, the company offers solutions for all types of ships, vessels, and offshore applications. One of its protection and control devices is specifically designed as a retrofit solution.

According to the company, Stucke's control and protection devices are not only customisable, flexibly programmable and expandable, but also innovative and robust. They are type-certified and comply with relevant cyber security standards.

Stucke Group operates offices in Germany, Serbia, India, China and Korea, and is supported by a global network of sales and service representatives. Product training, service, and support – including repairs and spare parts – are available worldwide.

Hall C | C01-02d

TGE MARINE

The gas experts present innovations for sustainable shipping

© TGE Marine

TGE Marine is one of the leading providers of innovative liquefied gas systems, specialising in the design, engineering and supply of cargo handling systems and storage tanks for a wide range of vessels, including liquefied gas carriers, bunker ships and Floating Storage Regasification Units (FSRUs). With over 45 years of expertise in the marine industry, TGE Marine has established itself as a trusted partner in the development of advanced fuel gas systems and cryogenic solutions.

Operating under Engineering, Procurement and Construction Supervision (EPCS) agreements, TGE Marine offers tailored solutions for LNG, ammonia (NH_3) and future fuels. The company is actively engaged in alternative fuel systems and CO_2 transport for Carbon Capture and Storage (CCS) projects, driving the maritime industry's transition towards a more sustainable future. TGE Marine is recognised for its technical expertise and innovative approach, developing ammonia fuel gas systems, CO_2 carriers, LNG carriers, LPG/ammonia carriers, shuttle tankers and bunker vessels.

As an experienced independent provider of fuel gas systems, TGE Marine works closely with leading engine manufacturers to ensure compatibility with all major engine types, including 2-stroke, 4-stroke, and both high- and low-pressure engines. This broad capability enables TGE Marine to deliver future-proof, cost-effective solutions that support performance optimisation and compliance with evolving maritime regulations.

TGE Marine is committed to providing end-to-end support throughout the entire lifecycle of each vessel. Its dedicated service team offers operational support, training and performance optimisation to ensure smooth and efficient project execution.

Through continuous innovation, TGE Marine empowers the maritime industry to reduce its environmental footprint while maximising operational efficiency – supporting the global shift towards greener shipping.

TGE Marine is also pleased to announce that its sole shareholder, Mitsui E&S, will be present at Nor-Shipping (B02-10a, Japan Pavilion).

Hall C | C02-12a

THE SWITCH

Innovations in PM machines and marine power electronics


© The Switch

At Nor-Shipping 2025, The Switch – part of the BEMAC Group – will present its portfolio of permanent magnet machines (PMMs) and marine power electronics, developed for system integrators and OEMs across the shipping and offshore sectors.

The company has delivered more than 400 inline shaft generators for large ocean-going vessels, underlining its position in the field of PMM technology. In addition to shaft generators, The Switch supplies permanent magnet propulsion motors for electric vessels, supporting efforts to improve fuel efficiency and reduce emissions.

With over two decades of experience, The Switch has deployed more than 1,500 marine-specific single drives and DC-Hubs on vessels worldwide. The DC-Hub is designed for flexible integration of batteries and other alternative energy sources into DC distribution systems.

The company also offers standard marine drives up to 6 MW, specifically designed for the maritime environment. Additional protection devices help ensure stable operation across various energy configurations, including hybrid and future energy systems.

The Switch›s solutions are engineered to support efficient, scalable electrification across a range of vessel types and operating profiles.

Hall D | D03-24h

Piening Propeller

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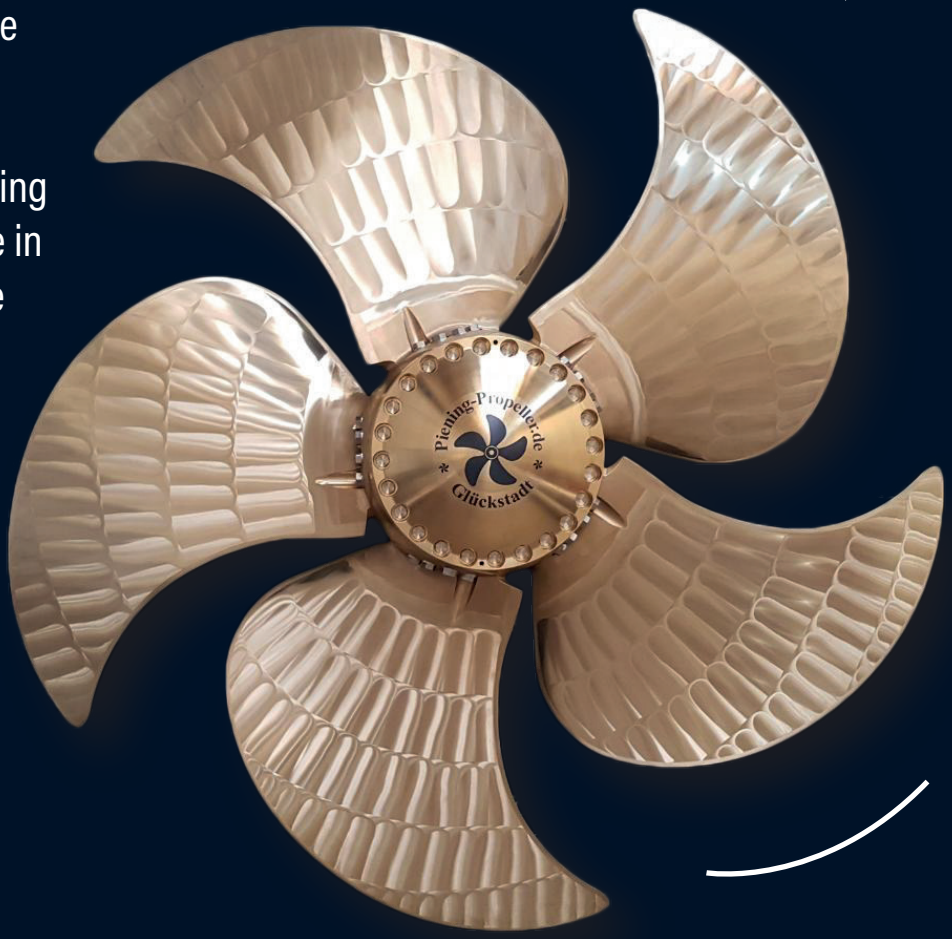
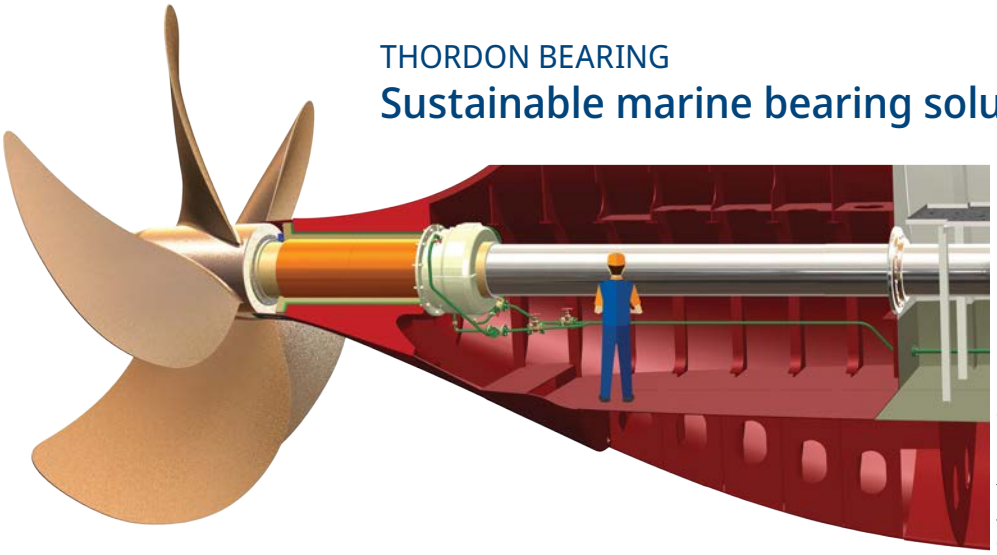


SERVICE FOR ALL BRANDS OF CPP
Contact: service@piening-propeller.de

THORDON BEARING

Sustainable marine bearing solutions



© Thordon Bearings

Thordon Bearings is a manufacturer of pollution-free, open seawater-lubricated propeller shaft bearings, grease-free rudder bearings, deck equipment bearings, shaft coatings, and shaft seals for the global marine market.

The T-BOSS propeller shaft bearing system is the next evolution of zero risk propeller shaft lines - eliminating oil discharges while delivering the lowest operating costs with all maintenance done without drydocking the vessel. Seawater lubrication for propeller shafts is recommended by the U.S. Environmental Protection Agency.

Aside from immediate savings in lubricating oil, ship operators can save more than US$1 million in through-life operational costs. This is based on reduced fuel consumption, reduced drydocking and maintenance costs, and associated loss of earnings; shaft alignment optimization, lower bearing wear rates, better EEDI; and a potential increase in cargo carrying capacity. The arrangement also reduces the risk of environmental fines related to sterntube oil pollution to zero.

ABS granted Approval in Principle (AIP) to CSSC – SDARI (Shanghai Merchant Ship Design & Research Institute) for a sterntubeless ship, stating that the conceptual engineering as proposed is feasible for the intended application. The AIP was based on the use of Thordon's T-BOSS COMPAC seawater-lubricated single aft bearing.

TheT-BOSSsystemisanenvironmentally responsible choice, but also proven to last! The COMPAC seawater lubricated propeller shaft bearings used in the T-BOSS System are installed in over 500 tankers, bulk carriers, dry cargo vessels, ferries, cruise ships, and container ships. Thordon also offers a Lifetime COMPAC Bearing Wearlife Guarantee, unmatched in the marine industry!

For deck equipment applications like winches, fairleads, davits, and door ramps, our ThorPlas-Blue self-lubricating bearings can be easily installed in virtually any application currently using greased bronze. Our grease-free deck equipment bearings enhance crew safety while eliminating the risk of grease contaminating our oceans, seas, and rivers.

Hall E | E04-16

VETH PROPULSION

Ice Class 1B thrusters for operations in first-year ice

Veth Propulsion, by Twin Disc, will showcase its latest Ice Class 1B azimuth thruster range at this year's Nor-Shipping. Building on decades of experience in marine propulsion, the company has developed thrusters specifically designed for moderate ice conditions, suitable for use in first-year ice up to 60 cm thick with icebreaker assistance.

According to the compnay, the new thrusters are available in three configurations – twin propeller, ducted, and open propeller – each optimised for specific operational profiles. The twin propeller system is suited to ferries operating in shallow waters; the ducted version offers higher bollard pull for pushers; and the open propeller design minimises ice build-up, improving water displacement in icy environments.

Key features include a compact gearbox, efficient housing, and the option for electric L-Drive integration. Durability is enhanced through a propeller design that enables continued operation even if a blade is damaged. An integrated mass disk deflects ice, while a built-in oil pump operates only at optimal viscosity to ensure reliable performance in low temperatures.

Designed with maintainability in mind, the system allows for quick access to components, supporting efficient servicing. Initial orders reflect growing confidence in the product's suitability for ice-class operations.

Hall D | D05-40

© Veth

VIKING
New developments in maritime safety

At Nor-Shipping, Viking Life-Saving Equipment will present several new developments in maritime safety, reflecting its ongoing response to evolving regulatory requirements and operational risks. The company supports approximately 25,000 vessels through its "compliance as a service" Ship Owner Agreement, underpinned by a global network of more than 280 certified service stations.

Among the products on display will be the YouSafe Torch, a fire suit certified to EN469:2020 Level 2 standards. The suit meets updated EU requirements effective from June 2025, including classifications for radiant and convective heat resistance (X2), water penetration (Y2), and breathability (Z2). The Y2 rating addresses growing concerns about electrical fires and includes enhanced protection against steam burns and chemical exposure.

With fire safety regulations in transition, visitors are also encouraged to seek information on the upcoming ban on firefighting foams containing PFOS, which applies to all new ships from 1 January 2026. Existing vessels must comply by their next scheduled survey.

Also featured will be the YouSafe Twist, a constant wear immersion suit developed with a focus on regulatory compliance and affordability.

© Viking

Another key highlight is the new VNJY lifeboat series for 40 and 52 persons. Designed with a compact footprint, the lifeboats feature a shortened, widened hull, a forward steering position for increased internal space, and a reduced overall weight – approximately 400 kg lighter than earlier models.

Hall C | C03-36b

WÄRTSILÄ
Carbon capture and shore power technologies in focus

© Wärtsilä

At Nor-Shipping, Wärtsilä will showcase its decarbonisation solutions and participate in expert panels on decarbonisation, future fuels and ship electrification.

Over the five days, visitors to the Wärtsilä stand will be able to explore how its integrated offerings – from onboard carbon capture (CCS) to shore-to-ship power – are helping the maritime industry meet the most ambitious emissions targets proposed to date. During the exhibition, Wärtsilä will also host a "Meet the Experts: CCS" session, guiding attendees through its latest pilot projects, modular capture units, and retrofit options for both newbuilds and existing vessels.

Furthermore, the company will join DNVs panel to discuss vessel-scale carbon management, regulatory developments and real-world case studies. Attendees will gain insight into how Wärtsilä's capture technologies are being validated against DNV's rigorous risk and compliance framework – and will have the opportunity to ask their own questions about what it takes to make shipboard carbon capture both technically feasible and commercially viable.

Wärtsilä will also participate in the 'Future Fuels and Ship Electrification' panel, exploring the practicalities of alternative marine fuels, battery systems and smart grid integration.

Wärtsilä's experts will be available throughout the event to discuss applications of alternative fuels such as ammonia and LNG, as well as digital twin strategies for the zero-emission fleet of the future.

Hall D | 03-40

German-Norwegian opportunities in the Maritime Industry

Norway leads in maritime innovation – but Germany also brings strong expertise. Andreas Sollohub Stensaker from the German-Norwegian Chamber of Commerce explains how both countries can benefit from each other and what German companies should consider when entering the Norwegian market.

© AHK

Andreas Sollohub Stensaker, Advisor, Stakeholder Relations & Energy

HANSA: As a representative of the German-Norwegian Chamber of Commerce, you are familiar with the maritime industries of both countries. Norway is considered a pioneer in areas such as autonomous shipping, digitalisation, CCS storage, and shore power – just to name a few. Do you agree with this view? And if so, what could German companies do to catch up?

Andreas Sollohub Stensaker: Norway certainly has various flagship projects in the areas you mentioned. For example, the entire Trondheim Fjord was designated as a test area for autonomous shipping as early as 2016. Companies, research institutions, and authorities work closely together there. Significant expertise is located on-site, with technology clusters and research institutions like the Ocean Autonomy Cluster, NTNU, and SINTEF Ocean. In the field of CCS, Norway currently plays a leading role: in June, the Langskip project will be launched, representing the entire value chain for CCS – from capture to transport and storage.

Regarding shore power, I can point to the Norwegian shipping company Color Line. The first shore power facility in Oslo became operational as early as 2011. Since 2017, Color Line has used this green energy in the four Norwegian ports visited by its ships. In 2018, the construction of the shore power facility at the Kiel Norwegenkai began.

That said, these are all showcase projects. However, I would like to emphasise that Norway does not hold this pioneering role alone. Germany equally possesses innovative technologies and research institutions. Far more important than competition are collaboration and projects in which both countries can evolve together. This leads to long-term success, which is also the focus of our work. For instance, a delegation trip we organised from Norway visited the Fraunhofer Centre for Maritime Logistics and Services (CML) in Hamburg. We also maintain contact with the German Aerospace Centre (DLR), which, through observation satellites, has a direct link to logistics in the maritime sector. These are just two examples of outstanding German achievements.

How can the AHK support German maritime companies in learning from Norwegian players?

We always work bilaterally and see ourselves as a link and networking platform for companies, stakeholders, and actors from both countries. Our bilateral working groups offer excellent opportunities for exchange and collaboration. Our network is connected with companies and clusters such as the Maritime Cluster Northern Germany, Blue Maritime Cluster, Ocean Hyway Cluster, and Ocean Autonomy Cluster.

In May, for example, we organised a business delegation trip to Norway for German companies on the topic of autonomous systems in Norway's maritime economy. Alongside company visits, there was a presentation and networking event and B2B meetings.

Companies benefit not only from large projects but also from smaller-scale exchanges. That's why we launched an apprenticeship mobility network to promote the exchange of German and

Norwegian apprentices in each other's countries. These are concrete examples where we see both sides benefiting from knowledge transfer.

If I am a German company interested in the Norwegian market, what would you recommend? What would be the first right steps to enter the market?

Your starting position is already good: German companies have a reputation for being reliable partners and delivering quality work. However, a common mistake would be to equate the Norwegian market with the German one. Despite many similarities, there are differences that need to be considered. The AHK Norway supports interested companies with a wide range of services. We offer classic entry consultations with market information, potential and target group analyses, as well as matchmaking services and business initiation and study trips.

The maritime industry is global. Are there areas where you collaborate across countries with other AHKs?

We generally observe that cross-border cooperation, especially in Northern Europe, is becoming increasingly important. This applies to areas from energy infrastructure in the North Sea to cooperation in defence.

In March, we organised a German-Norwegian Maritime Conference together with the Kiel Chamber of Commerce and Industry, and last year we collaborated with other AHKs in the Nordic countries as well as the Netherlands and Ireland in various formats. All participants benefit from the network of foreign chambers of commerce and market expertise in various sectors and countries.

Looking ahead: what do you see as the biggest challenges for the maritime industry, and do they present opportunities for German-Norwegian cooperation?

As in other sectors, digitalisation is a challenge for the entire industry. In the maritime sector, propulsion technologies and fuels, as well as the utilisation of potential energy savings, are additional concerns from our perspective. It's becoming clear that in the future, we will see much more diversity to meet decarbonisation goals and the varying demands. Ensuring that all these types of fuels, such as hydrogen, are available in sufficient quantities is not simple. Norway has the opportunity to position itself as a reliable partner here, while Germany can offer the market needed to establish the industry.

Interview by Anna Wroblewski

Why Norway complements Germany's maritime ambitions

Norwegian-German collaboration in maritime innovation is more than technical - it's about aligning mindsets, systems, and strategies. This article explores how momentum, trust, and engineering logic converge to deliver scalable outcomes. *By Janne Silden*

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Not just a handshake – a strategic fit built on trust and pragmatism

The maritime industry is not short on innovation. In recent years, the sector has seen significant progress - digital platforms, automation, emissions reduction technologies, and cross-sector integration. What it now faces is not a lack of ideas, but the challenge of translating innovation into consistent, scalable implementation.

One of the clearest examples of this innovation-implementation gap can be seen in Germany: a technically advanced, highly structured maritime ecosystem where progress often remains confined to strategy and pilot projects. Not for lack of capability, but due to the systemic friction between innovation and execution.

Smart port technologies have been piloted in Hamburg for several years, yet broader rollout remains slow. Most recently, in March 2025, the Port of Hamburg launched a new €2.3 million 5G pilot project at the HHLA Container Terminal Altenwerder, aimed at testing next-generation port logistics. The initiative is set to run until mid-2026, highlighting both the city's ongoing innovation efforts and the extended timelines still common in implementation.

Meanwhile, Nordic countries are pushing ahead with tangible rollouts. The Nordic Fuel Transition Roadmap, initiated in 2022, aims to establish the first green shipping corridor by 2025. Denmark, in particular, has expanded hydrogen production for e-methanol, enabling low-emission fuel solutions that are already being integrated into maritime operations.

This contrast does not reflect a difference in competence, but in momentum. This is where Norway enters – not as a competitor, but as a complementary force.

Norwegian maritime companies bring a different operational rhythm. With flatter hierarchies, direct communication, and a pragmatic approach to innovation, they are well-positioned to support implementation where others stall. Their strength lies not in challenging German expertise, but in aligning with it and turning technical potential into practical outcomes.

In areas like digital infrastructure, decarbonization, and system integration, this partnership becomes more than a business case. It becomes a lever for progress. For German stakeholders, the opportunity is clear: by collaborating with Norwegian partners who are already deploying solutions in Nordic waters, momentum can be regained without compromising precision. For Norwegian companies, Germany offers more than market access: it provides the scale, infrastructure, and investment depth needed to turn proven solutions into lasting industry standards.

Case studies in maritime integration

The strategic fit between Germany's structured approach and Norway's dynamic execution is exemplified by the partnership between Höegh LNG and Deutsche ReGas. In July 2024, these companies announced plans to develop the world's first floating hydrogen import terminal in Lubmin, Germany. This terminal will utilize Höegh LNG's innovative ammonia-to-hydrogen cracker technology, embedded into a barge system, to produce approximately 30,000 tons of hydrogen annually. The

hydrogen will be fed into Germany's core network through an existing feed-in point at the Lubmin port, strengthening the country's position in green energy.

This collaboration demonstrates how Norwegian innovation and agility can complement German infrastructure and ambition. While Germany provides the industrial base and market for green hydrogen, Norway contributes cutting-edge technology and a pragmatic approach to implementation. Such partnerships not only accelerate the energy transition but also create scalable models for future projects.

Another example of effective collaboration is the development of autonomous, battery-electric ferries for Fjord1, one of Norway's key ferry operators. These vessels, designed by HAV Design and built at Tersan Shipyard, are equipped with German-built Schottel EcoPellers: high-efficiency propulsion units designed to optimize maneuverability and energy use in demanding operational environments.

This project reflects a clear division of expertise: Norway brings experience in operational autonomy, battery integration, and service implementation, while Germany contributes specialized propulsion technology and decades of hydrodynamic research. Together, these systems enable reliable, emission-free operation in coastal conditions.

These examples show how technical and operational strengths can be successfully aligned. But even with a solid strategic fit, not every collaboration runs smoothly. As maritime systems grow more complex, the deciding factor is no longer just engineering capability – it's how people interpret risk, decision-making, and progress itself.

The role of cultural logic

One often overlooked barrier in cross-border projects is the underlying logic that shapes how each side approaches innovation. German engineering culture emphasizes structure, accountability, and risk minimization. Systems are built not just for performance, but for responsibility – anticipating what could go wrong and designing against it. Norwegian innovation culture, by contrast, is shaped by trust, flat hierarchies, and a higher tolerance for uncertainty. Iteration is seen not as a sign of weakness, but as a natural step in development.

These mindsets influence not only project timelines, but also how ideas are communicated and decisions are made. When Norwegian teams move quickly, it can be misread as premature execution. When German stakeholders ask for additional validation, Norwegians may interpret it as hesitation. Neither is wrong, but without cultural translation, even aligned objectives can stall.

The risk is not hypothetical. A well-documented example from outside the maritime sector is the Iridium satellite project that involved technical experts from over 20 countries and failed despite its technological ambition. One of the key reasons was not the complexity of the system, but the complexity of communication. Misaligned expectations, cultural misunderstandings, and unclear ownership structures undermined execution, even when the technical components were sound.

The maritime sector is not immune to these dynamics. As projects grow more complex – integrating autonomy, decarbonization, and cross-sector digitalization – the role of human alignment becomes more critical. Translating intent across different cultural and professional systems is no longer a soft skill. It is a success factor.

This is where maritime collaboration finds its edge. Coordination -across technologies, timelines, and cultural logics – is not a bonus. It is the backbone. As Norway and Germany navigate digitization, decarbonization, and resilience, the competitive advantage lies not just in innovation itself, but in alignment.

The systems are in place. The innovations are ready. What remains is connection – between cultures, between expectations, and between those who can translate complexity into movement. ■

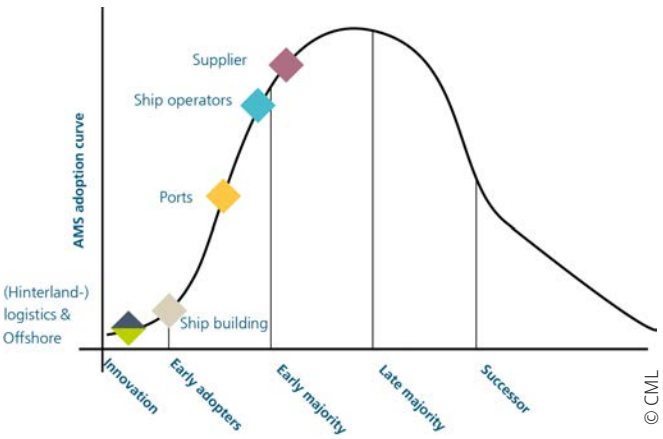
Autonomous shipping: An emerging market in Europe?

Autonomous maritime technologies are moving from research into practice. Maritime Autonomous Surface Ships (MASS) offer new opportunities for the industry – but how ready is Europe to adopt them? This article looks at the current developments and the industry's response to this emerging market.

This June, the maritime community will gather again at Nor-Shipping in Oslo, one of the leading international maritime trade fairs. For four years, Nor-Shipping is now also home to the annual European "Ship Autonomy and Sustainability Summit", a high-level gathering of policy-makers and industry leaders paving the way for autonomous shipping. This year on the 5th June 2025, the 6th edition will take place discussing the current developments in autonomous ship operations not regulated by IMO as well as the application of AI in autonomous ships and its link to the role of human operators.

But what is the current status of autonomous and unmanned shipping in maritime industry? How far has this technology progressed, since its first largely recognized appearance in the 2013 European MUNIN project, the Rolls-Royce AAWA initiative and DNV's ReVolt concept? This has been the focus of the study "Analysis, Evaluation, and Outlook of the Future Market for Autonomous Maritime Systems (AMS)" commissioned by the German Maritime Centre (GMC), conducted in 2023 by BM Bergmann-Marine GmbH together with Fraunhofer.

The study focuses on examining the German and European market players in the field of autonomous maritime systems (AMS). Based on market research followed by an industry survey among 52 actors, the emerging AMS market was identified, characterized, described, and analyzed for trends. This study investigates the market potential and evaluates possible entry barriers from the perspective of the maritime industry for the evolving market. Participants were exclusively from maritime industrial actors with a good mixture of active and passive actors divided into the segments manufacturers, ports, ship operators, ship building, offshore and (hinterland) logistics.



Relative adoption of AMS innovations within the market of the various sub-segments

The AMS market is growing internationally

In the realm of AMS, high levels of technological maturity have been achieved, along with the product readiness of individual systems. Both nationally and internationally, efforts are actively underway to develop a binding legal framework for AMS. Simultaneously, the commercial market is currently evolving. In this study, AMS encompasses all systems, products, and concepts related to civilian Maritime Autonomous Surface Ships (MASS), small Autonomous or Unmanned Surface Vessels and Automated Navigation in Inland waters.

Worldwide, 127 AMS activities by 269 industrial players have been identified in 2023, with in total 125 industrial actors from Europe. Nearly half of these activities are already specific product offerings in the emerging AMS market. Primarily, these activities are associated with the application fields of research, exploration, surveying, dry cargo transportation, or passenger transportation. Additionally, a cluster of use cases around remote operation has been identified.

European players are embracing the market

A significant portion of the participants share the view of an expected annual AMS market growth rate of 10% or sees the market potential even more optimistically. Five European companies have even planned market leadership in the AMS domain as a strategic goal. Most other, including the German participants, plan to incorporate AMS into their offering portfolio merely as a byproduct or optional service. About half of all companies surveyed consider the profitability for all autonomy levels as "high or very high".

Across the board, the most significant market entry barrier is considered to be the matter of Legal Frameworks and Regulations. In comparison to other European participants, German participants perceive approval and classification issues as an additional hurdle. According to the survey results, Regulatory Uncertainties are the most significant external challenges for companies. Financial Risks follow in second place. It must be noted, that participants from the Shipping

Measured AMS commitment per sub-segment in the context of this study

segment remarkably hold a contrasting opinion and perceives these challenges as less significant than all other segments. However, all segments do agree again that the biggest internal challenges for AMS, apart from lacking regulations, primarily involve the "Shortage of Skilled Personnel and Capital Intensity". While the former is considered an implementation barrier, providing a technical solution for crew shortages is at the same time becoming a motivation for AMS activities to enable growth. Thus, this external factor is a weakness and an opportunity for the emergence of AMS at the same time.

Regarding hurdles, establishing standards of reliability and classification rules should be highlighted as a necessity, as they are needed to develop the right technologies today, to be compliant with future regulations. Additionally, regulatory challenges are a central concern for fully unmanned operations, necessitating new regulatory instruments and legal clarifications, such as the role of the ship master and licensing procedures. Currently binding regulations like Minimum Safe Manning Requirements (MSMR) highlight the need for updated or reinterpreted regulations to facilitate the deployment of unmanned ship operations.

AMS technology is advancing in Europe

The study also rated the level of autonomous maritime technology adoption for different maritime segments based on the responses coming from all segments. Therefore, it used Roger's diffusion theory, which classified different technology adopter categories, like e.g. innovators, early adopters or early majority.

On the one hand, there are the more engaged segments as "Ship Operators, Manufacturers and even Ports", which mirrored their high number of AMS activities also in general engagement of the actors in this survey, while the other segments "Shipbuilding, Offshore and (Hinterland) Logistics" have been more reluctant in terms of opinion communication. The study's interpretation is that only individual actors are already knowledgeable enough to properly assess AMS adoption decisions in these segments, which is indicating an earlier stage of technology adoption than for the other segments. Overall, the state of the adopter categories in Europe is thus assigned per segment as follows (in the order of decreasing technology adoption):

1. Manufacturers: the Early Majority has entered AMS
2. Ship Operators: at transition stage from Early Adopters to Early Majority
3. Ports: the Early Adopters are considered to be active in this segment
4. Shipbuilding: at the transition stage from individual Innovators to the Early Majority
5. (Hinterland) logistics: only individual innovators are active in this market
6. Offshore: only individual innovators are active in this market

Overall, it can be considered that this technology is thus driven by shipping operators and manufacturers end emerging along the maritime value chain to other segments.

The AMS market needs support to grow

Autonomous Maritime Technology feasibility is not in question anymore. Given external drivers like shortages of skilled personnel, growth demands and sustainability requirements, proceeding with AMS is also favorable for making the maritime transportation future-proof. But how?

The area of regulatory uncertainty, in particular the topic of legal framework and regulations, uniformly represents the greatest barrier from the point of view of the companies surveyed. Within the higher adopted segments "Ship Operators, Manufacturers and Ports", ensuring (intermediate) regulatory certainty for the application of AMS is in contrast important for further industrial actors to make technology investment decisions. This can e.g. be facilitated by better international harmonization of national exceptions during the transition phase or by active communication of intended regulatory adjustments by the current draft of the MASS code by the respective administrations. Politics can indeed support by investment programs during the transition phase (as e.g. by modernization funding in Germany for inland vessels) and establishment of future-proof maritime education including or even tailored to AMS technology. All this should follow a step-by-step approach focusing initially on enabling the AMS use cases prioritized by industry to ensure a high impact on the emerging market and thus to foster the adoption of AMS.

Therefore, internationally recognized events like the Ship Autonomy and Sustainability Summit are important, as they do connect the relevant regulators and industrial actors to ensure mutual understanding finally facilitating that regulation goes in line with industry demands and that innovation investment is driven in areas, where regulation is likely to adapt. This is crucial for Autonomous Maritime Technologies in Europe to emerge from technology innovation to commercial markets.

The author:
Hans-Christoph Burmeister, Head of Department Sea Traffic and Nautical Solutions, Fraunhofer-Center for Maritime Logistics and Services CML

The next battleground in maritime efficiency

As shipping firms chart a course through the twin pressures of decarbonisation and digitalisation, one competitive edge is proving decisive: high-quality, high-frequency data.

With regulators tightening emissions reporting requirements and markets demanding ever-greater efficiency, the ability to accurately measure – and act on – operational data in real time is reshaping the maritime industry.

Traditionally reliant on static noon reports and manual observation, vessel operators are rapidly adopting continuous data streams that offer far deeper insight into performance. From fuel consumption to shaft power and hydrodynamic efficiency, high-frequency data (HFD) enables granular analysis that can unlock substantial savings – but only if the data can be trusted.

At sea, every tonne of fuel matters. In recent years, maritime companies have deployed thousands of sensors across fleets, capturing engine performance, propulsion efficiency, and environmental conditions in real time. Unlike traditional noon reporting, which provides just one data point per day, HFD can generate hundreds of thousands of data points per vessel per day.

The difference is striking. With high-frequency data, operators can see changes in performance as they happen and make precise adjustments to optimise fuel use, routing, and maintenance schedules.

Regulation raises the stakes

While the economic incentives are clear, regulatory developments are adding urgency to the HFD conversation. The European Union's Emissions Trading System (EU ETS) is now being extended to cover maritime emissions, alongside existing mechanisms such as FuelEU and the IMO's Data Collection System (DCS).

These regulations demand not only precise emissions data but also transparency and auditability. As such, companies can no longer afford to rely on manual logs or data prone to human error. When the cost of emissions is monetised, data becomes not just an operational tool but a financial asset.

Moreover, as the chartering market places increasing weight on emissions intensity – and as decarbonisation targets loom – high-integrity data is becoming a source of competitive differentiation.

Casper Jensen, CEO at Danelec

© Danelec

Data quality is the key

As squeezing out fuel savings on voyages will grow in importance, precise predictions based on high frequent data are required.

Yet the shift to HFD also introduces a less visible, but critical risk: data quality. Sensors, no matter how advanced, are subject to environmental degradation, calibration drift, power disruptions, and mechanical failures. Biofouling on speed logs, signal interruptions from unplugged transmission cables, and frozen values from malfunctioning flow meters are just some of the anomalies that can skew performance metrics and mislead decision-makers.

If operators are using flawed inputs to optimise routes or calculate emissions, the consequences can be serious – from unnecessary fuel costs to regulatory non-compliance. Historically, identifying these issues relied on manual checks by fleet analysts – a laborious and error-prone process. But as data volumes scale, automation is becoming essential.

Automating trust

To address this, Danelec has developed a Data Quality module providing ship operators with real-time visibility into the reliability of sensor data, ensuring that only accurate, high-frequency information informs key decisions. By incorporating built-in data validation, automated outlier detection, and alerting mechanisms, the module enables fleet managers to proactively manage data quality across vessels.

The result is a system where operators can trust the data that drives performance monitoring, fuel optimization, and regulatory compliance – without the burden of manual checks or the risk of oversight. By flagging anomalies early and

continuously validating inputs, the Data Quality module forms the backbone of a more efficient and data-confident maritime operation.

According to internal research, the solution saves nearly 200 operational hours per ship per year, representing both direct cost reductions and indirect gains in performance and compliance assurance. The goal is to let the data speak for itself – but only once it's been cleaned, verified, and continuously monitored.

15,000 vessels equipped

With over 15,000 vessels equipped and 1.5 trillion data points captured in 2024 alone, Danelec is positioning itself as an end-to-end provider in maritime data management. Its systems offer secure transmission from onboard systems to cloud-based analytics platforms, enabling seamless integration across fleet operations.

What sets Danelec apart is its agnostic platform – meaning it can ingest data from third-party sensors and legacy equipment, avoiding costly retrofits for operators with diverse fleets.

This flexibility is key as shipowners modernise incrementally while seeking to avoid stranded assets. Digitalisation doesn't need to be operationally disruptive. It needs to be reliable, cost-effective, and compliant from day one.

The data dividend

As shipping margins remain thin and environmental accountability grows, high-quality HFD is fast becoming a strategic asset. Operators who master this capability can fine-tune performance, reduce carbon output, and demonstrate compliance with minimal overhead. Perhaps most significantly, HFD enables a shift from reactive operations to predictive optimisation. Instead of fixing problems after they occur, vessels can now be managed proactively – with early-warning systems flagging inefficiencies before they translate into costs.

In the long run, the winners in shipping will be those who not only collect more data but also trust it. And that trust must be earned – through automation, intelligence, and relentless attention to quality.

The author:
Casper Jensen, CEO at Danelec

Adding value to the power of nature

Wind-assisted propulsion is becoming increasingly important for shipping. Kongsberg Maritime has developed K-Sail, a system that seamlessly integrates wind technology into ship control to maximise efficiency and savings. From 2025, K-Sail will be used for the first time by Terntank.

The Swedish shipping company Terntank is Kongsberg's first customer for the K-Sail wind power system

A variety of wind technologies have gained popularity over the past decade, offering ship owners a relatively 'quick fix' in terms of tapping into the power nature to help reduce fuel consumption, and emissions on a range of merchant ships.

Kongsberg Maritime, with its experience of integrating technologies across thousands of ships, has developed a new system to integrate wind-assist solutions. More than simply enabling the 'bolt-on' of wind technology, K-Sail, optimises the use of wind technology as part of a fully integrated ship system, and crucially, adds value to any investment in wind technology.

Henrik Alpo Sjöblom, who has a background in aeronautical engineering, is well-versed in airflow dynamics and the interactions between wind and solid surfaces. "Wind-assist technologies are great way of providing thrust to boost the propulsive power of a ship. Wind is essentially a free source of energy, but managing the way it is used, alongside all the other variable systems on ship is the key to maximising the use of this natural resource", says the Vice President Business Concepts at Kongsberg Maritime.

"K-Sail is a solution where we make different ship equipment play with each other, better. Putting a sail on a ship is of course not new. But the essence of using it successfully lies in the integration of these sails into the ship's systems," he explains.

Managing the unpredictable

When a ship is equipped with a wide range of systems that are well-integrated, the components work together efficiently and support optimal vessel operation. The crew is familiar with the setup, and operational routines are established. However, introducing a variable element such as suction sails can disrupt this integration. Challenges often arise, such as unintended increases in engine speed due to additional thrust, which then require adjustments to steering and power management systems.

K-Sail addresses these integration challenges with a holistic approach that ensures seamless coordination between all onboard systems. The company plans the entire energy setup and voyage in advance, using an integrated energy management system that accounts for weather forecasts, including wind, currents, and wave conditions.

While shipowners can choose from various wind-assist technologies – each with specific characteristics – these systems are typically added onto existing vessels or incorporated into new builds without full integration. K-Sail advocates for a more effective use of such technologies by embedding them as part of a unified, system-wide solution.

Versatility and integration

One of the key features of K-Sail is its versatility. The system operates independently of the sail type chosen by the shipowner and is compatible with all common wind-assist technologies. It can even be applied effectively on vessels with high windage, such as car carriers, without the use of sails.

The integration process involves analysing the vessel and its operational route, selecting the appropriate sail technology, and then optimizing the ship's systems around this technology. The optimisation process for K-Sail is comprehensive and divided into five key areas.

First, the analysis phase involves understanding the vessel's operational parameters and selecting the appropriate sail technology. This step is crucial for tailoring the solution to the specific needs of the ship and its route. Next, steering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The first of five tankers for Terntanks is already on order

optimisation is performed to adjust the steering system, accommodating the additional thrust generated by the sails. This ensures that the vessel maintains optimal manoeuvrability and control.

Following this, propulsion optimisation is carried out to ensure that the propeller operates efficiently with the added wind propulsion. This step maximises the propulsion system's performance, contributing to overall fuel savings. Power management is another critical area, where the power generated by the sails is balanced with the ship's energy requirements. This involves integrating the sails into the ship's energy management systems to ensure seamless operation.

Finally, voyage optimisation uses AI and real-time data to optimize the vessel's route and speed for maximum efficiency. By considering factors such as wind, currents, and waves, this step ensures that the vessel operates at peak efficiency throughout its journey. K-Sail provides real time analysis of all these variable factors.

Wind power driving Terntank's eco journey

One Kongsberg customer that not only sees the benefit of investing in wind technology, but in full integration is Terntank, a Swedish ship owner operating a fleet of chemical tankers. In 2025, the first of five it has on order, will utilise wind power – first reference for K-Sail.

"We looked at the vessel, saw how it operated, tested different sail technologies, and realised that for the specific operation of the Terntank vessels, the best solution was VentoFoil[tm] suction wings from eConowind. The five tankers are also of Kongsberg Maritime design – NVC 615 – so that level of integration is definitely one of a 'whole-ship' approach", explains Henrik Alpo Sjöblom.

The integration of K-Sail into Terntank's vessel resulted in significant fuel savings and improved operational efficiency. We achieved a net saving from 9% to 15% with a fairly small investment. K-Sail is about adding value and optimising any investment in wind-assist technology, offering a sustainable and efficient solution for shipowners. Its versatility makes it suitable for various types of vessels, including cargo ships, cruise vessels, and offshore platforms. Through smart integration K-Sail optimises voyages, saves fuel, cuts emissions, and reduces operating costs.

Per Egil Vedlog, Chief Designer, Ship Design Solutions at Kongsberg Maritime, sees a growing trend for cleaner, more efficient cargo ships, and has been leading the development of Terntank's fleet designs. He says: "We are embracing the fuel transition and a big desire to adopt sustainable technologies. Our new chemical tanker designs for Terntank really are the next generation of cargo ship, with a combination of energy saving technologies.

"The NVC 615 is based on our super-efficient hull form, and features progressive steps to improve efficiency, through the use of methanol fuel, batteries and now wind assisted propulsion on the final five. These will be highly efficient ships and will have an Energy Efficiency Design Index above 40% below the 2025 Phase 3 requirements." ■

Wind Technologies at a glance

Flettner Rotors: These cylindrical sails harness wind energy through the Magnus effect, creating a force perpendicular to the wind direction. Flettner Rotors are known for their high performance on a small footprint and can be easily retrofitted to older vessels. K-Sail can integrate Flettner Rotors into the ship's propulsion and steering systems, ensuring optimal performance and fuel savings.

Suction Sails: Suction sails use an aerodynamic thicker wing profile to generate lift, maximising efficiency. These sails are particularly effective for general cargo ships. K-Sail supports the integration of suction sails by optimising the ship's power management and energy systems to complement the additional thrust provided by the sails.

Soft Sails: Traditional soft sails are still widely used and can be adapted for modern commercial vessels. K-Sail can integrate soft sails into the ship's existing systems, ensuring they work in tandem with the propulsion and steering mechanisms.

Rigid Sails: Rigid sails, such as WindWings and OceanWings, offer a robust and efficient solution for wind propulsion. These sails are designed to withstand harsh maritime conditions and provide significant fuel savings. K-Sail can integrate rigid sails into the ship's energy management systems, optimising their performance and ensuring seamless operation.

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Maritime transition with new propulsion solutions

Rolls-Royce, under its mtu brand, is developing propulsion and automation solutions to support the maritime sector in the shift towards lower emissions. These include systems for renewable and alternative fuels, hybrid propulsion, and advanced automation. Current projects range from gas and methanol engines to integrated hybrid systems for ferries and workboats.

In June 2024, the Italian shipping company Liberty Lines launched the world's first hybrid fast ferry of this category and size in Trapani, Sicily, powered by a mtu hybrid propulsion system

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The mtu NautIQ Foresight equipment health management system is ensuring the "Halunder Jet" catamaran can shuttle back and forth between Hamburg and Heligoland with maximum uptime and minimum fuel consumption

Under the mtu product brand, Rolls-Royce offers new propulsion, automation, and service solutions that support the maritime industry in the energy transition and already ensure reliable and efficient fleet operation. These include combustion engines approved and tested for renewable diesel, engines being developed for methanol operation, exhaust aftertreatment systems, hybrid systems, gas engines, automation, and bridge systems.

The company has approved mtu's most important diesel engines (Series 2000 and 4000), including large engines (Series 1163 and 8000), for operation with sustainable fuels such as renewable diesel (HVO). The fuel can be used without any engine modifications. HVO is already being used successfully, for example, by Californian ferry operator Golden Gate Ferry, which runs its six mtu-powered ferries on renewable diesel.

E-methanol as future fuel

For the future, Rolls-Royce sees e-methanol as one of the most promising marine fuels. With "green" methanol from renewable energy, CO_2-neutral ship operation is possible. Harmful emissions such as nitrogen oxides and particulates can also be significantly reduced. Compared to other sustainable fuels like hydrogen, methane, and ammonia, methanol offers the highest energy density when considering tank systems.

Rolls-Royce is currently developing methanol propulsion concepts for yachts and workboats. Within the publicly funded MeOHmare project, the company is focusing on single-fuel technology, which will be tested on a single-cylinder bench and a full-engine test stand. Rolls-Royce is also working on dual-fuel concepts, considered a useful bridging technology.

Powered by gas engines

Rolls-Royce is equipping four new German customs vessels with 15 mtu gas engines, providing both propulsion and, in some cases, on-board power. The advantages of mtu gas engines include low exhaust and noise emissions as well as dynamic performance.

These engines already meet IMO III emission standards without the need for aftertreatment. Particulate mass is below detection limits, and nitrogen oxide emissions are minimal. Thanks to the double-walled gas system design, the engine room can be configured similarly to diesel-driven systems.

mtu gas engines already power tugs and ferries in Europe and Asia. Operators such as Rederij Doeksen in the Netherlands

value their quiet operation, low vibration, lack of odours, and absence of black smoke. The municipal utility in Constance has operated its latest Lake Constance ferry climate-neutrally with mtu gas engines and biogas since July 2024. The world's first LNG-powered hybrid tug from Sembcorp Marine in Singapore also features two mtu gas engines.

Ferries sailing with hybrid systems

Rolls-Royce also supports customers in hybridising their propulsion systems. Hybrid propulsion, combining combustion engines, batteries, and electric drives, allows for fully emission-free local operation in ports. Since June 2024, Italian operator Liberty Lines has deployed the first six of nine fast ferries equipped with mtu hybrid propulsion. The electric drive is used for zero-emission harbour operations and as a booster. All components are managed by the mtu NautIQ Blue Vision NG control and monitoring system, while the mtu NautIQ Foresight equipment health management system monitors the first two ships.

From bridge to propeller

The mtu NautIQ automation family is designed for newbuilds and easy retrofitting on older vessels, offering monitoring and control solutions from bridge to propeller. mtu NautIQ Master is the latest generation of Rolls-Royce's Integrated Platform Management System, tailored to meet the complex automation needs of modern specialised vessels.

All mtu NautIQ products are based on advanced software platforms, allowing easy integration or upgrades of hardware, software, and auxiliaries over a vessel's lifetime, reducing obsolescence risk and supporting long-term reliability and planning.

Rolls-Royce has recently partnered with the Singapore Institute of Technology to develop innovative technologies for equipment health management and fleet optimisation for harbour crafts, autonomous ships, and hybrid vessels. The aim is to enhance availability, reduce fuel consumption, and minimise emissions in hybrid and electric ships and entire fleets. ■

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Arctic Alliance: Can shipbuilding cooperation withstand strategic pressures?

The U.S., Canada, and Finland have bold goals under the ICE Pact – but without real industrial collaboration, they may fall short. As Arctic relevance grows, Denis Morais, CEO of SSI, calls for a shipbuilding alliance to build lasting capability.

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The United States and Canada have made no secret of their intention to expand their icebreaking fleets, with plans to build the new tonnage domestically. The U.S. has signaled it could need up to 40 new icebreaking vessels, in addition to ice-class support ships for high-north operations. Canada is likewise seeking to replace and expand its fleet, with demand projected to exceed 20 new ice-capable vessels.

For both countries, the need is commercial as well as strategic. The gradual opening of the Northwest Passage is expected to boost merchant shipping in the coming decades, though navigation will continue to require icebreaking assistance. Strategically, all Arctic nations – regardless of current geopolitical tensions – recognize the polar region's growing importance for defense and economic development.

While the U.S. and Canada possess domestic shipyard capacity, they must rely on international partners for specialized technical expertise – chiefly from Finland. The existing Icebreaker Collaboration Effort (ICE) agreement between the three countries shows a willingness to cooperate, but currently amounts to little more than a memorandum of understanding. It lacks the clear commitments needed to design and build the ships in question.

The core challenge for North America lies in acquiring the knowledge to scale up icebreaker production and build a sustainable domestic industry. Beyond simply meeting today's vessel demand, both countries aim to foster long-term industrial resilience. Finland, a global leader in icebreaking technology, constructs over half of the world's ice-capable vessels. Its deep expertise represents a strategic opportunity for broader collaboration.

How to leverage Finnish expertise?

Although the contexts differ, an Arctic shipbuilding alliance could take cues from the AUKUS partnership model, which formalizes cooperation, capacity sharing, and industrial integration through committed milestones and stakeholder engagement. Adapting a similar model would encourage ICE Pact nations to shift from goodwill to concrete action.

The pressing question is how to leverage Finnish expertise to enable the U.S. and Canada to build not just ships, but sovereign capacity. Pursuing this goal in isolation – without shared knowledge, distributed supply chains, or collaborative strategy – risks falling short. None of the involved nations seek to merely import finished vessels; each wants to develop a robust, self-reliant shipbuilding ecosystem.

Of course, challenges abound. In today's climate of trade friction and geopolitical uncertainty, international cooperation can seem either optimistic or naïve. Yet over the next decade and beyond, such alliances may be essential for sustainable progress. Rising and falling trade barriers may slow development, but they could also incentivize long-term investment under firm commitments.

To succeed, the U.S. and Canada must bring together government and industry players – including designers, shipbuilders, and suppliers – into a unified strategy, as Finland has demonstrated. A truly effective Arctic Shipbuilding Alliance would coordinate shipyards and technical expertise to enable the efficient production of icebreaking vessels, while also building national capabilities in labor, technology, and supply chain resilience.

In the early stages, this might involve outsourcing design and construction activities. But over time, deeper cooperation would help all three countries gain the autonomy and capacity to meet future needs independently. This approach goes beyond political cycles. It fosters mutual growth, equitable benefit-sharing, and strategic industrial development. By working together, these nations can build not just icebreakers, but a resilient and future-ready shipbuilding alliance. ■

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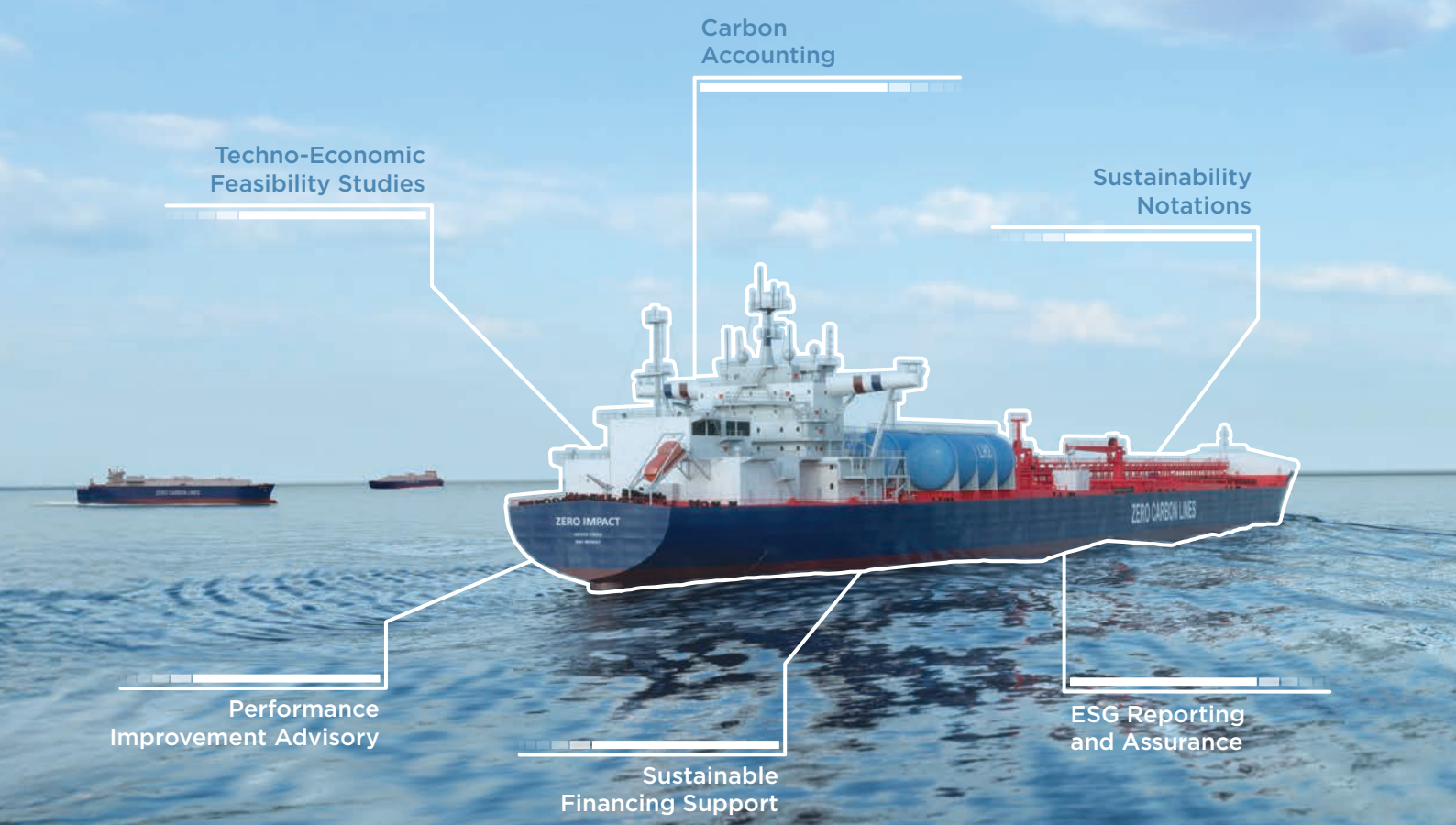

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