PAMEN

#10

Energising the future

Dear reader,

Welcome to the tenth edition of our Damen Magazine.

In it, you will find a cross-section of what my 12,500 colleagues and I do every day: adding value to our customers' operations.

We do this in specific ways and in cooperation with a wide range of partners in the maritime supply chain. Damen Shipyards Group focuses on niche maritime markets. On workboats for towage, dredging, offshore, fishing, aquaculture, and other markets. On high-speed craft and maritime public transport. On ships for defence & security and on exclusive yachts.

A common thread running through this is our ambition to be the world's most sustainable maritime solutions provider. We want to deliver ships, solutions and services that have a positive impact on the environment and society while ensuring our long-term resilience.

You will see this ambition reflected in this magazine, with a strong focus on the energy transition and sustainability. Together with our customers, we are taking more and more steps in line with the Sustainable Development Goals of the United Nations. That's something we are proud of. Triton, our centralised IoT platform, helps us and our customers by analysing vessel profiles and making updates on system and overall asset health as well as opportunities to operate more efficiently and sustainably.

With this information, we can support our customers even better in the lifecycle management of their vessels. Thanks to our Service Hubs and repair yards, which can be found all over the world, we offer complete peace of mind so that our customers can focus on their core competences. As far as we are concerned, this cannot go far enough. For *'ship-as-a-service'*, you have come to the right place.

We also see this development in the field of naval vessels. We are now able to work for a large number of navies from around the world. That's something else we are very proud of, and proud that the Naval Component of the Belgian Armed Forces and the Royal Netherlands Navy have chosen Damen to build their latest generation of frigates. A strong defence is a basic requirement for stability, security and well-being.

I hope you enjoy reading our magazine!
As always, I wish you happy sailings. Look out for each other and may you have fair winds and following seas.

Arnout Damen
CEO

On the cover
Damen is proposing a major advance towards zero-emission wind farms with its concept design for a fully electric SOV. This novel class of offshore wind support vessel, based on Damen's proven Service Operations Vessel design, has been named the SOV E.

Get in touch
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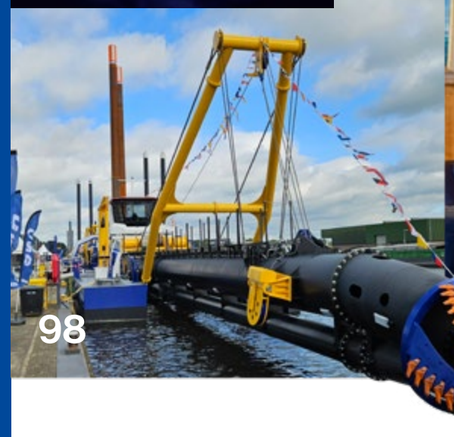
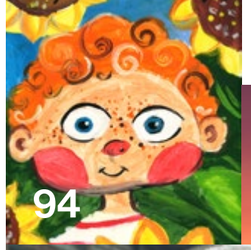
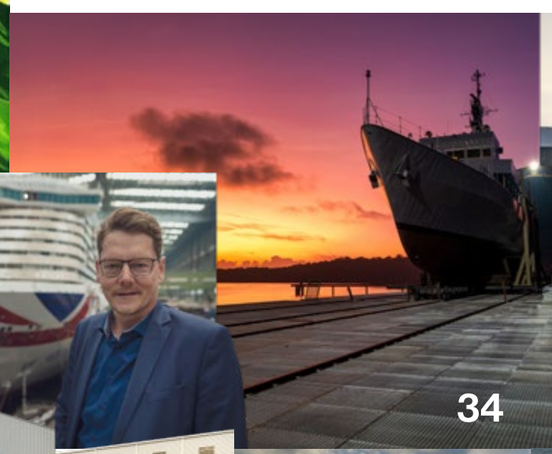
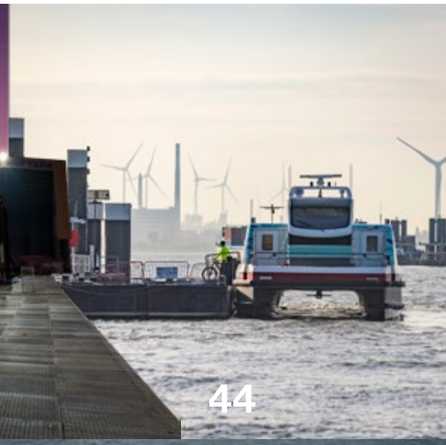
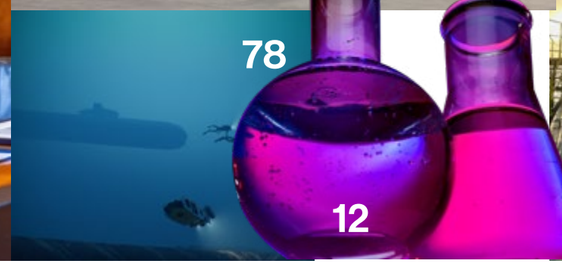
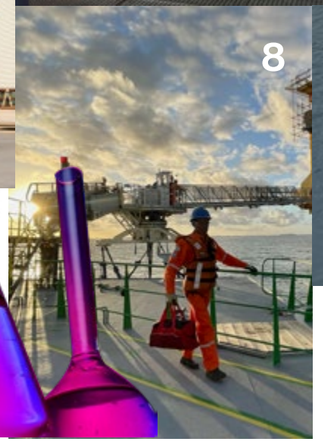












At your service

For over half a century, Damen Marine Services has operated Damen vessels, chartering them to clients. A lot has changed in the maritime sector over those years. To continue supporting its customers, the Damen Group has developed numerous additional solutions. In 2021 this has resulted in the creation of the new division Damen Financial Services (DFS), with a focus on helping companies to finance their vessels through various models.

Recently, it became apparent that there was a demand in the market for DFS to support clients with co-ownership and operations in joint venture structures. With this, there came a clear overlap with the work of Damen Marine Services (DMS). As a result, since last year, the two organisations have teamed up and are now working in concert to expand upon Damen's vessel as a service offering.

The full scope

Director Operations of DFS, and now also Managing Director of DMS, Erik van Sliedregt explains: "Broadly speaking, DFS has three models of financing currently adding up to a billion euros worth of vessels in total. There is Customer Finance, where we arrange the financing of a vessel, LeaseCo, where we organise leasing and then there's Corporate Finance. This is where DMS comes in. In this structure, we support clients with a wide range of services and even, if the situation requests and if it does not harm other clients of Damen, by forming a joint venture with them that sees us take on the responsibility by co-owning and/or operating the vessel."

"DMS provides the means for us to do this. We now have the scope to offer every aspect of a vessel as a service to our clients. With DMS and DFS combining forces, we can share with clients our knowledge of a vessel, access to an extensive network of maritime support services – both in-house and external – and our operational experience."

This, he continues, is undertaken on a flexible basis depending on the needs of the partner organisation and the specifics of the project. It can, however, include literally every aspect of a vessel's operation, from delivery to service and maintenance to crewing.

It's an arrangement that's already seen some success, with Damen forming joint venture partnerships with clients in the public transport and offshore crew supply markets.

So successful has the model proven thus far in fact, that DMS is planning to expand on it, rolling out its offer across additional sectors and growing its fleet.

"Our aim is to become the launching client, so to speak, for every first of class design Damen vessel, specifically in the green sector, and additionally to provide a frontrunner fleet to support Damen's sales", says Erik.

A boost for maritime innovation

This, he explains offers a number of potential benefits, not least of which is the presentation of maritime innovations.

"Damen is working towards new solutions all the time. What we see with new designs, though, is often there is initial reluctance in the market. It's understandable; who wants to be the first? Everyone wants something that is proven. With this model, however, we can provide operators with 'testing' access to innovative solutions without immediately purchasing them."

Sustainability: Close to the heart of Damen

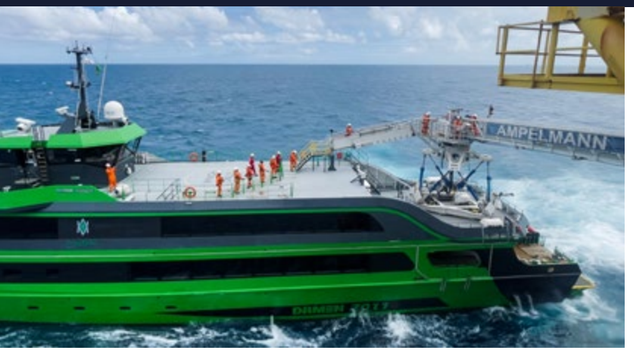
This, Erik explains, has wide implications, including for a matter very close to Damen's heart – sustainability.

"Our focus is on expanding the DMS fleet with more sustainable vessels. If we are going to ensure a green maritime future, then it is crucial that we get these innovations out there on the water. By putting these new designs into operation, we can demonstrate their effectiveness and reliability to other operators and accelerate the maritime energy transition."

It is in precisely this direction that DMS is headed in its next steps.

"We are very close to purchasing two fully-electric, zero emissions tugs to serve as frontrunners to our clients. These are exciting times, we really see the future in helping clients beyond the delivery of a vessel."

Aqua Helix: A successful Damen Financial Services case study in Brazilian waters



The *Aqua Helix* is the first Damen Fast Crew Supplier (FCS) 7011. The vessel offers a fast, cost-effective and, crucially, comfortable and safe alternative to helicopter transfers offshore for over 120 passengers at a time.

Damen has developed the vessel in close cooperation with industry partners including Ampelmann, whose S-type motion compensated walkway provides safe, efficient transfer of crew to and from offshore platforms. *Aqua Helix* also features a VEEM Gyrostabiliser to significantly reduce roll motions during DP operations.

The vessel is currently operating on a two+two-year contract in a joint venture with Compagnie Maritime Monégasque (CMM), Ampelmann and IM, for Petrobras in Brazil. Damen's partners and Petrobras are very happy with the vessel to date and the joint venture is in the process of financing a further two vessels.

CMM's CEO Christophe Vancauwenbergh says: "In 2014, Petrobras contacted us to discuss a crew transfer vessel as a result of increased demand for transportation. We have worked with Damen in the past and knew that they had developed the *Aqua Helix*. The vessel was perfectly suited to the demands of Petrobras, so we asked them if they wanted to offer the vessel. Damen Financial Services was willing to undertake this and with that, we were able to take our client along to see the ship in operation and demonstrate its capabilities."

The customer was not alone in being impressed by the vessel's performance. The crew are also very happy with the vessel, Christophe continues.

"The feedback from the crew has been good, they are very positive about the vessel. I was onboard myself a few weeks ago and, despite the wintery conditions in Brazil right now, the vessel was operating very well. Everyone is very happy."

The performance of the vessel, he says, is the result of its bringing together various technologies that ensure its ability to operate, even in harsh conditions.

"It's the combination of the DP system, the Ampelmann walkway and the VEEM Gyrostabilizer. This innovative, integrative approach improves stabilisation visibly and makes connection with a platform significantly safer, simpler and more comfortable for all on board."

CMM's CEO Christophe Vancauwenbergh

TUAN TRAN ANH AND ANH TRAN TUAN

Family Matters

Tuan Tran Anh and Anh Tran Tuan are colleagues at Damen Song Cam Shipyard. Tuan Tran Anh works in the electrical workshop. The 66-year old started his career at the Song Cam Shipyard, the partner yard that produces the hulls for vessels built at Damen Song Cam. In August 2015, he moved to Damen Song Cam, just two months after his son had begun in the mechanical workshop at the yard.

Appropriately enough for two employees of the Vietnamese yard where Damen workboats are produced in series, the pair share a love of tugs.

Tuan Tran Anh says, "As an electrician I am always impressed by the high standards of electrical safety you see on the vessels."

As may be expected, Anh Tran Tuan, take a more mechanical perspective. "I particularly like fitting thrusters to a tug, specifically to an Ice Class tug. Typically, thrusters on a tug don't exceed 20 tonnes, but with an Ice Class vessel, they're over 1,100 tonnes – that makes things challenging."

And if there's one thing the duo share in their work, it's a passion for a challenge. Tuan Tran Anh says, "I love the work I do as an electrician and, for me, the more challenging it is, the better. When it's challenging, it's fun and it gives me great satisfaction."

For Anh Tran Tuan, the challenge is frequently to be found in encountering things for the first time.

"I like new ship types because, naturally, the work is different, which makes it both more interesting and more challenging. It give me a really great feeling when we complete a challenging project."

Finding such enjoyment in their work, it seems that Tuan Tran Anh and Anh Tran Tuan are likely to remain colleagues for some time yet.

Tuan Tran Anh says, "Next year I will reach retirement age, but if possible, I would like to continue to work at the yard. There are so many benefits to working at Damen Song Cam that you don't get at other companies. Every day it's a pleasure to be here."

"I completely agree with my father," says Anh Tran Tuan. "Many of our colleagues share the same opinion. We all feel respected, which makes you want to become more involved in things. For example, if the company plans an event or some other activity, I will always volunteer to help. For sure, I will stay at Damen Song Cam for as long as possible."

ACHIEVING EMISSIONS-FREE SHIPPING BY 2050

Can it be done?

Professor Aykut I. Ölcer
Nippon Foundation Chair, Director of Maritime Research and Head of Maritime Energy Management at the World Maritime University.

In July 2023 the International Maritime Organization (IMO) adopted its Strategy on the Reduction of GHG (greenhouse gases) Emissions from Ships. Its goal is a reduction in carbon intensity as an average across international shipping of at least 40% by 2030. The IMO GHG Strategy also includes a new level of ambition relating to the uptake of zero or near-zero GHG emission technologies, fuels and other energy sources which should represent at least 5% of the energy used by international shipping by 2030 and ideally 10%. These interim goals form a key part of the overall aim of making global shipping carbon-neutral by around 2050.

Fit for 55

Also in July 2023, the Council of the EU adopted its own new regulation as part of its Fit for 55 package. The Fit for 55 initiative reflects the ambition to reduce net greenhouse gas emissions from all sources, including shipping, by at least 55% by 2030. The FuelEU maritime initiative is designed to provide legal certainty for ship operators and fuel producers and help kick-start the large-scale production of sustainable maritime fuels, thus substantially delivering on their climate targets at the European and global level.

"The EU Green Deal aims to achieve a 55% reduction in GHG emissions across the EU by 2030, and a carbon-neutral economy by 2050," explains Professor Aykut I. Ölcer, Nippon Foundation Chair, Director of Maritime Research and Head of Maritime Energy Management at the World Maritime University. "The Fit for 55 package supports the EU Green deal by introducing a suite of new regulations and taxes to incentivise the use of Renewable and Low carbon Fuels (RLFs) in the maritime transport sector."

However, Professor Ölcer highlighted that the cost of RLFs is substantially higher than traditional fossil fuels, and RLF markets and technology are still in the early stages of development.

Therefore, ports, shipping operators, and maritime transport consumers may experience cost increases as a result of the switch to RLFs. "Higher costs in the maritime transport sector may well have a negative impact on shipping prices, potentially affecting trade and port throughput, general price levels, aggregate demand, employment, and national output." He also noted that small open economies and island nations are particularly vulnerable to increases in marine fuel prices.

Achieving the goal

Professor Ölcer believes that achieving net-zero shipping around 2050 is feasible, albeit challenging, and will require a paradigm shift. "If the will is there and everyone is committed to success then it certainly should be feasible. But there is no simple solution or single technology that will deliver the dramatic reductions in CO_2 and other emissions that are required. Some solutions are relatively straightforward and can be implemented immediately, such as making more efficient use of the energy that is already available. This includes redesigning hulls and their appendages so as to reduce their resistance to the water and so making them more efficient. Slow steaming can also have a meaningful impact as less fuel is consumed for a given distance, and it can be implemented at any time.

More efficient engines and better performance management of the vessels themselves will ensure that vessels of all types operate at maximum efficiency and so minimise the energy required at any given time. Other solutions that are readily available today include the wider adoption of technologies such as Flettner rotors, wing sails and parafoils to harness the power of the wind.

Alternative fuels including methanol and biodiesel and the engines that will run on them are advancing rapidly and will bring reductions in CO_2 and other emissions in the short term, but their availability may be limited. It is therefore obvious to the shipping community that the long-term and most effective solution for permanently cutting GHG emissions is using renewable energy and sustainable technologies instead of conventional systems and fossil fuels. Therefore, a sustainable and clean hybrid system model with high potential for utilisation on vessels is needed at this stage. This will involve clean and inexhaustible energy sources such as wind, solar panels and perhaps ammonia and hydrogen, and highly efficient storage systems to capture the energy for use when those sources are not immediately accessible."

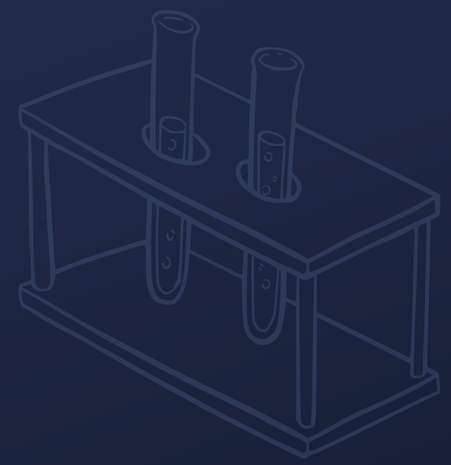
Sustainable fuels gather momentum

While the adoption of alternative fuels has been slower than many people would like, in the last few years progress has been made on all fronts and a number of significant milestones have been reached. This has been at all levels; technological, perceptual and financial. As of 2023, the rollout of sustainable propulsion and power generation across a wide range of vessel types is now within reach as the technology has advanced and a number of bottlenecks have been eased or removed altogether.

It's when, not if

One major advance is that almost all vessel owners and operators looking to buy new vessels are bringing up sustainable fuels early on in the conversation. With new assets having a lifetime of around 30 years, they fully appreciate that they need to prepare now for the combination of regulatory activity, changes in social attitudes and advances in technology that will make alternative fuels the logical choice. It is also now widely accepted that there will not be just one solution that suits everyone. Different operational profiles will suit different vessel types, based on the twin criteria of range and performance.

“Everyone that we speak to about newbuilds asks about sustainable fuels,” says Mijndert Wiesenekker, Sales Director Benelux at Damen Shipyards Group. “It is accepted that over the long term they will be the most economical option. This is supported by much better availability of finance for sustainable investments and a reluctance to invest in carbon intensive solutions that may end up being more expensive to operate and so rapidly lose their value.”



Gathering momentum

The increase in the momentum for change has come from various quarters, not least from the availability of finance and the progressive tightening of EU and IMO directives, but also from technological advances and the prospect of smaller vessels being included in the European emissions trading system. The current cut-off for vessels is no less than 5000 GT, but discussions are already underway about taking it down to 500 GT, and possibly 400 GT thereafter. Not all vessel types are included in the programme, however initiatives like these will ensure that carbon intensive solutions will no longer be attractive.

Government-ownership has been another positive factor, with local and national bodies often able to consider wider criteria in their purchase decisions than just profit. The harbour tug sector has benefited from this with a number of hybrid models now demonstrating their capabilities around Europe and Damen’s all-electric RSD-E Tug 2513 at work in Auckland, New Zealand.

This assistance and the subsequent demand has brought the price of sustainable harbour tugs down to near their conventional equivalents over their projected 30-year lifetime.

The alternatives

METHANOL is seen as a good, all-round fuel for a wide range of vessels. Among other advantages it can be burned in internal combustion engines, its main by-products being heat and water, and as it is a liquid it is easier to store than some of the alternatives. Although methanol itself is energy-intensive to produce, it does have momentum behind it with methanol engines already in advanced stages of development. Orders for more than 100 methanol-powered container ships have been placed.

BIO-DIESEL is increasingly seen as the sustainable, low-emission fuel of the future for very energy intensive vessels, with its high energy density and engines that are already in their third generation. At present it is generally blended with conventional diesel in varying proportions. However, Damen is already working on an order for a Combi Freighter 3800 that will run on 100% biodiesel (FAME).

AMMONIA is another ongoing contender for powering long distance vessels via combustion engines, with its only byproducts being water and nitrogen. However its production is energy intensive and so to be truly green its producers will require access to large amounts of surplus sustainable energy.

For the types of vessels that Damen builds, its toxicity is also a challenge.

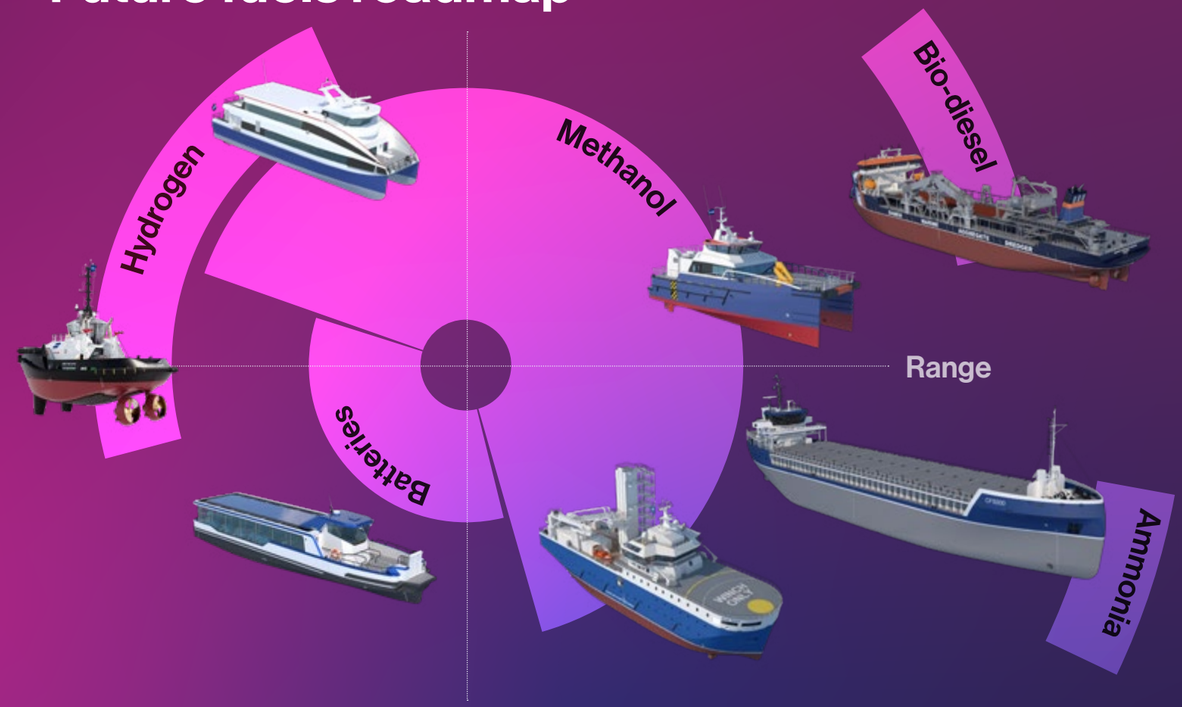
BATTERIES that are charged from shoreside facilities or other sources that draw on renewable energy, are now a reality for harbour tugs, ferries and other inshore vessel types including luxury yachts. For battery powered vessels, getting the right battery technology is very important. Presently, while they can deliver high performance for short periods, the race is on to perfect batteries that can enable extended periods of operations and also have lifetimes equal to the vessels in which they are fitted.

HYDROGEN has had much publicity as a potential fuel for all sorts of applications with the only by-product of its conversion into energy being water. However production, storage and safe combustion at scale plus its low energy density continues to present challenges as does its production, which also requires large amounts of energy. A number of hydrogen-powered vessels are already operational in niche applications such as ferries and inland waterway vessels.

Concordia Damen is currently building a 135-metre, 3,700 tonne inland waterway barge for Lenten Scheepvaart that will be powered by a 320 kW hydrogen fuel cell supplying 36 Ebusco batteries with a total capacity of 1100 kWh. These batteries will power twin 600 kW PMM E-motors. The vessel is being built under the WEVA project which is intended to demonstrate the feasibility of hydrogen-powered, zero emission vessels in the near future.

LNG, once seen as the fuel of the future, is now regarded as more of a transitional solution Not only is it a hydrocarbon with harmful by-products, it also has to be stored at high pressure and at -163 degrees centigrade, which introduces additional costs as well as safety and technical issues. Together these factors mean that in the long term it does not have a future as a mainstream source of energy for typical Damen ships.

Future fuels roadmap



For all alternative fuels the benchmark is the liquid hydrocarbons currently in use, which have an exceptional energy density along with being easy to store and transport. To replace hydrocarbons, trade-offs will need to be made and this will be best done with a range of potentially viable choices available. For example, methanol has many of the same properties, but ammonia will likely be cheaper. Having a number of fuels being developed and optimised over time extends the odds that solutions will be available to all, depending on their operational and financial goals.

Making the transition

While enthusiasm for making the transition to low-emission propulsion is growing, with clients lining up to be early adopters, the engines required are still under development and costs of the fuels are not yet commercially viable.

Meanwhile the development of methanol engines is proceeding but they are not yet available in commercial quantities, and green methanol has yet to achieve large-scale production. Damen maintains close contact with the OEMs with information flowing freely both ways. For electrical propulsion, the lack of availability of the necessary expertise to design, install and commission the systems that will control and monitor the new technology; software developers, automation experts and others, is a constraint for the shipbuilders.

“There’s a long way to go, but given recent progress in closing the performance gap between fossil fuels and advances in battery technology we feel optimistic about the road ahead,” says Mijndert. “The challenges of each fuel type still need to be fully explained and acceptance won over, but the trend is in the right direction. We feel that it is better to have a good solution rather than to compete to be the first. And at Damen our focus on standardised vessels enables us to justify investing in finding the right solutions for everyone as we know that we will be building them in series. Our policy is to take the time to get it right, and then act fast. One thing is for sure. It will end up being a mix of solutions. There will be no one-size-fits all, and that’s as it should be.”

Combat Support Ship

Den Helder is the new Combat Support Ship (CSS) being built by Damen Naval at the at Damen Shipyards Galati in Romania to support multiple naval missions of the Royal Netherlands Navy (RNLN).

With the CSS, the maritime supply capacity of the RNLN will be restored. The new ship will be used worldwide and will operate under high threat, protected by frigates. In addition, she will be used in the fight against drug trafficking, controlling refugee flows and providing emergency aid. The almost 200-metre-long ship will have a 75-person crew and capacity to take an additional 75 people on board. There will be room for several helicopters and around twenty containers.

Completion is scheduled for the second quarter of 2024. A year later, in 2025, the CSS must be operable.

It's a SCOOP water cleanup

Damen and Clewat collaborate in water cleanup with innovative vessel solution

There are currently over 150 million tons of plastic in our seas. You read that right. It's a lot of plastic, isn't it? Unfortunately, it gets worse. That amount is rising by 10 million tons each year.

Let's put that into perspective. If this continues at the current rate, by 2050 there will be more plastic than fish in the sea.

Reversing the trend

This information is provided by Finland-based Clewat on the company's website. Clewat – whose name is a portmanteau of clean and water – is aiming to make sure that this doesn't continue at the present rate.

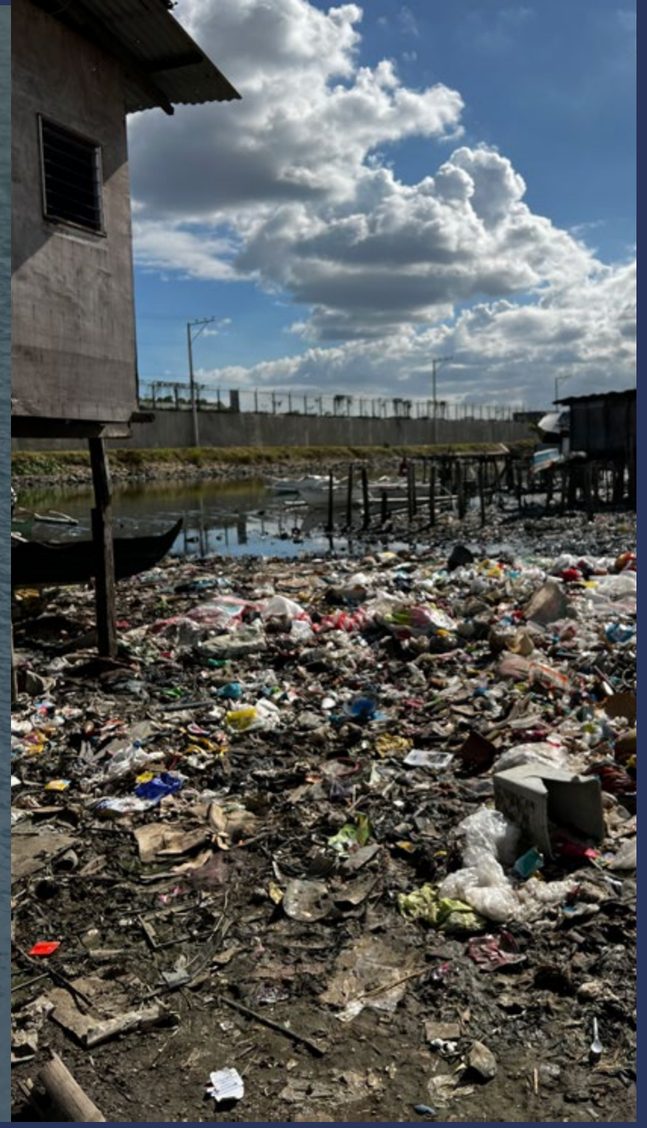
The company was founded in 2018 by Johannes Myllykoski. He'd seen the effects of the Gulf of Mexico oil spill in 2010 and was inspired to take action.

Over the next few years, Johannes invested thousands of hours of his time developing a solution that would be able to collect oil properly – the River Scooper. With that done, the thought occurred to him; if the device can collect oil from the water, what's to prevent it harvesting invasive plant species – or plastic?

Thinking global, acting local

Having rounded up a number of investors, Clewat got to work and soon attracted the attention of Chairman Marko Kärkkäinen.

"I saw the company on LinkedIn and realised I would be able to help them. I've worked for over 20 years in waste management, all over the world and, during that time, I've developed a strong network."



That network, Marko explains, is crucial to Clewat's success. The challenge posed by waste in the water is a global one. It therefore requires action to take place internationally, and frequently in countries where there is little infrastructure.

"We need to work together with local people and local governments. They can help us to overcome the cultural barriers we may face and ensure that the right infrastructure is in place locally. Governments can also play a valuable role in raising awareness of what we are trying to do."

The Solution

Also vital for the company's success is Johannes' creation – the Clean Sweeper. Clewat is currently operating three such vessels – one in the Philippines, one in Finland and one in Florida.

A pilot project in the Philippines, during which Clewat has collected over 2 million kilos of plastic waste since August 2022, makes it clear that the solution is effective, and already demand is growing. The company was looking for a way to grow its operation. There was a hurdle, however.

"We build the vessels ourselves, in Finland," states Marko of this significant achievement. "This has worked fine up to now, but we needed a way to scale-up, rapidly."

Scaling up

Thankfully, help was at hand. Both Clewat and Damen are participants in the Rotterdam-based PortXL initiative. This accelerator programme brings together start-ups, scale-ups, corporate parties and mentors, with the aim of fostering a spirit of innovation in the global maritime industry.

"We know there is potential for this to grow. There are areas with significant problems with invasive plant species and there is 2 billion euros worth of funding available for plastic cleanup in the seas. We have a solution that we know is effective. Now, with Damen, we have the opportunity we needed to scale up."

Big ambitions

This capacity to produce more vessels is essential for the future success of Clewat; the company has considerable ambitions.

"Our target is to operate hundreds of these vessels, all over the world, within the next few years."

Damen Financial Services is supporting Clewat in this vision by investing in the design and construction of the new standardised vessel, the River Scooper. Damen Financial Services will act as the owner of these assets, which are then leased for the operations.


Marko Kärkkäinen

Research contribution

The companies also collaborate with knowledge institutes, thereby contributing to research initiatives. A good example of this is their joint visit to the Massachusetts Institute of Technology (MIT) in 2022. Led by Nicaraguan Ambassador Ricardo Alvaro, Clewat and Damen met with the Department Head of Civil and Environmental Engineering, Professor Ali Jadbabaie to discuss possibility of collaboration in addressing plastic marine waste in the Gulf of Honduras, Malawi and the Philippines.

Professor Ali Jadbabaie: “Given the expertise of MIT Faculty on various aspects of marine waste valorisation, and the importance of the plastic waste problem, as well as the novel technologies developed by Clewat and Damen, my colleagues and I very much look forward to opportunities for improved research collaboration in the future.”

MIT Professor Ali Jadbabaie:

“My colleagues and I very much look forward to opportunities for improved research collaboration in the future.”

Getting into the water

For now, though, the aim is clear; to get the vessels into the water and start saving the seas, lakes and rivers from further plant and plastic pollution. Damen is already working towards this ambition. The first Damen-built River Scooper, designed by Damen Green Solutions and based on Clewat’s design, is under construction in Gorinchem and is scheduled for delivery end 2023. Following tests, the vessel will be deployed in a region such as the Philippines for its important work.

“In the future, we may be able to build our vessels out of the plastics that we harvest from the water.”

The River Scooper

The River Scooper is a straightforward solution. It is a catamaran with a scoop that collects waste as the vessel moves along. The vessel features a vacuum and filter system that removes the waste and then washes the water. The system can collect macro litter and micro plastics as small as 5mm and covers up to 200 m^3/h. With small adjustments to the scoop, the vessel can also collect invasive plants.

The vessel can fit inside a single container for easy transport anywhere in the world, by truck, train or ship.

Fully recyclable

The sustainable profile of the River Scooper is boosted by the material of which it is constructed – fully recyclable HDPE. This holds significant potential, as Marko explains.

“In the future, we may be able to build our vessels out of the plastics that we harvest from the water.”

The plant material that the company is harvesting is already frequently being put to good use, converted into fertiliser, animal feed or biofuels.

Furthermore, there are opportunities to evolve the vessel’s design to greater levels of sustainability. Currently, the River Scooper is a hybrid diesel-electric design. In the future, however, there is scope to develop a fully electric version, or one that sails on alternative, cleaner fuels.

Heading for a climate-neutral Europe

With the European Partnership on Zero Emission Waterborne Transport, setting up FuelEU Maritime and the inclusion of maritime transport under the emissions trading scheme (ETS), the European Commission has taken a few serious steps in recent years to make shipping more sustainable. Time for a heads up with the Clean Planet Director of the European Commission: Rosalinde van der Vlies.

"Shipping and shipbuilding are very important for Europe, and are therefore high on my agenda. Waterborne transport moves nearly 90% of all international trade, more than 75% of external EU trade, and 40% of the internal EU trade. Moreover, it allowed 400 million passengers to move between EU ports last year. Undeniably, the sector is of strategic relevance to a functional society.

Yet, shipping is almost entirely powered by fossil fuels, especially heavy fuel oils. In fact, if shipping was considered a country, it would be the sixth largest emitter of emissions (GHG), and its emissions are predicted to grow 35% by 2050, if we don't do anything."

"I am very pleased that the waterborne industry has committed six times more to support the activities of the partnership."

Growth strategy

"The European Green Deal is Europe's strategy with the ambition to make Europe the first climate-neutral continent in the world by 2050. All European Member States have agreed to a 55% reduction target of GHG emissions by 2030. It is clear that the European Green Deal is not only about sustainability, it is also our growth strategy. The Commission has recently published the Green Deal Industrial Plan to secure the EU's industrial lead in the fast-growing net-zero technology sector.

We are investing 530 million euros from Horizon Europe to the waterborne sector within the framework of the co-programmed European Partnership on Zero Emission Waterborne Transport. This Partnership is a key instrument in achieving the objectives of the European Green Deal, by developing and demonstrating deployable technological solutions for the decarbonisation and the elimination of other harmful emissions from waterborne transport. I am very pleased that the waterborne industry has committed six times more (around 3 billion euros) to support the activities of the partnership. Therefore, this partnership is a success story in terms of leverage for increased research and innovation activities, making Europe a frontrunner in zero-emission waterborne transport in an international context."

The fully electric tug *Sparky* in New Zealand

ROSALINDE VAN DER VLIES

Rosalinde van der Vlies has been Clean Planet Director since November 2020 in the Directorate for Research and Innovation of the European Commission in Brussels.

The Clean Planet's mission is to accelerate the green and digital transitions through EU R&I policies and investments in the areas of clean energy, mobility, nuclear safety and social innovations. The Clean Planet manages three EU programs, cluster 5 of Horizon Europe (15 billion euros), the Research Fund for Coal and Steel and the Euratom programme.

Fit for 55

"To deliver on the European Green Deal, the so-called Fit for 55 package includes a series of legislative measures to ensure that the laws in Europe support the green transition.
The most relevant measures for the waterborne sector include the extension of the EU ETS system to maritime transport, addressing energy savings on ships and putting a price to CO_2 emissions; FuelEU Maritime, addressing demand for alternative fuels and establishing limits on the GHG intensity of the energy used on board; and the Alternative Fuel Infrastructure Regulation, addressing distribution and obliging ports to supply shoreside power to ships.

The important driver for change will be adoption of renewable and low carbon fuels. However, it faces various challenges, including high cost of these fuels and low supply levels. The European regulatory framework, such as the new FuelEU Maritime in combination with the revised Energy Taxation Directive and the ETS, will improve this situation by providing a long term strategic ambition and legal certainty for industry. While the European Green Deal and the pieces of legislation I mentioned establish clear legal targets and objectives to overcome these obstacles, we in our directorate aim to translate the legal requirements into concrete actions and investments."

No silver bullet

"Shipping is a challenging industry to decarbonise, mainly because it is so diverse. What serves short sea shipping does not fit for deep sea shipping, different solutions may be better for cargo ships and other for passenger vessels. And let's not forget inland waterway transport. There is no silver bullet."

"Our overarching goal is to provide and demonstrate zero-emission solutions for all main ship types and services before 2030, which will enable zero-emission waterborne transport before 2050. To make this ambition operational, we divided it into three objectives: i) eliminate GHG emissions from new ships and retrofitted existing ships by means of sustainable alternative climate-neutral fuels, renewable energies, electrification and energy efficiency; ii) cutting coastal and inland pollution to air by at least 50% compared to current levels; iii) elimination of pollution to water – including harmful underwater noise – from ships. Everything we do in the context of our partnership covers at least one of these objectives.

Through all these activities we also contribute to the Horizon Europe Mission: Restore our Ocean and Waters, which aims to protect and restore the health of our oceans and waters through research and innovation, citizen engagement and blue investments by 2030."

Leadership

"Europe is a global leader in the construction of complex vessels, such as large cruise ships, offshore support vessels, ferries and mega-yachts. Shipbuilding is a key industry in a number of EU Member States, strongly connected with the excellence of the European waterborne transport infrastructure.
My hope for the sector is to maintain our leadership in these areas, and for the sector to become the most innovative, sustainable and competitive waterborne sector in the world."

"For example, Horizon Europe's Smart European Shipbuilding project aims to create integrated platforms that combine the most modern shipbuilding lifecycle management with computer-aided design, manufacturing, engineering and product data software. The overall goal is to improve efficiency in all production stages – from engineering to assembly and construction – at European shipyards. This has the potential to achieve up to a 30% time-saving in engineering and up to 20% time-saving in assembly and construction at European shipyards.

European shipyards are key in the integration of green technologies in the vessels, most notably when it comes to retrofitting or energy efficiency by design. For this reason, it is great to see that shipyards such as Damen are active members of our partnership and participate in various Horizon Europe projects on innovative manufacturing. Together we invest in developing innovative technologies that will put us in a frontrunner position for the manufacturing of the next generation of ships."

Peter van Terwisga (middle) at Sea Defence 2023 - Amsterdam.

Active in Europe

Damen is very active on a European level. The company was one of the driving forces behind the Zero Emission Waterborne Transport (ZEWT) co-programmed partnership (cPP). This results from Damen's active membership in Sea Europe, the European Association for shipbuilders and maritime equipment providers. Former Damen CEO René Berkvens has recently been elected Chairman of the association for a second term. Damen has, since its initiation also been represented in the Partnership Delegates Board, the board that is responsible for the communication between the ZEWT cPP and the European Commission, first by Peter van Terwisga and currently by Pieter Huyskens, Damen's RD&I Director.

Damen is also making good use of the funding made available in Europe, under the ZEWT partnership and outside the scope of ZEWT. Some examples of recently finalised and ongoing projects are listed on the right.

Projects under the Horizon programme:

- **LeanShips** – Finalised: LeanShips was crucial in the development of a lot of Damen's knowledge on electrical propulsion, more specifically for the electric version of Damen's tugs such as *Sparky*.
- **FLEXSHIP**: Flexible and modular large battery systems for safe on-board integration and operation of electric power.
- **HYPOBAT**: Ultra-fast charging solutions for maritime electric propulsion.
- **SEABAT**: High energy and high-power batteries for maritime use.
- **E-SHyIPS:** Hydrogen for maritime use.
- **POSEIDON:** Energy storage systems such as ultracapacitors and flywheels.
- **StasHH:** Heavy duty fuel cell development.
- **CirclesofLife:** Lifecycle assessment of circular vessels and reducing and measuring the impact of the shipyard.
- **NAVAIS – Finalised:** NAVAIS focused on the application of Model Based Systems Engineering (MBSE) as an approach to deal with the complexity and risks of sustainable solutions.

Projects under the European Defence Fund

- **EUROGUARD:** Scale up MBSE methodology as a standard way of working for naval shipbuilding.
- **dThor:** Structural health monitoring of naval vessels.
- **EDINAF:** European Naval Digital Ship Reference Architecture, integrating on board systems to achieve faster reactions and enhanced capabilities.
- **REACTS:** Satellite launching from naval vessels.

Project under the European Defence Industrial Development Program

- **SEA DEFENCE:** Technology roadmaps for next generation naval platforms.

Sustainability for life

Damen and MEYER cooperate on ship overhaul with a focus on increasing efficiency

Damen Shiprepair Amsterdam

Alexander Höfling - Managing Director MEYER RE

Damen has teamed up with MEYER Group subsidiary MEYER RE to offer shipping companies solutions to maximise the life and optimise the sustainability of their vessels. With MEYER RE the two companies are offering services that cover the entire lifecycle of a ship – from development and construction, through upgrades during operation, to recycling at the end of life.

A lot of trust

The partnership, says MEYER RE Managing Director Alexander Höfling, is a natural one, the two companies sharing a lot of features in common.

“For one thing, we are both family companies,” he says. “With this comes shared values and a common approach to doing business. The families know each other and there is a lot of trust there. It’s good to work with people who think the same way and have a proven way of working.

Then there’s the location. The MEYER RE headquarters in Papenburg, Germany is just three hours away from Damen’s repair yards in Rotterdam or the HQ in Gorinchem. We can easily jump in the car and meet with one another face to face.”

“The goal is to extend the life and make ships more environmentally friendly than ever before.”

The MEYER Group has been in operation for 227 years and is still led by the same family. Damen also enjoys a long history of almost 100 years and also remains under the guidance of the founding family.

Complementary skills

The companies offer complementary skills and expertise. MEYER has extensive experience in the development and building of seagoing and river going cruise ships, which are the sectors that MEYER RE is focused on. Meanwhile, Damen Shiprepair & Conversion operates cutting-edge repair facilities in strategic locations around the world and has a substantial expert workforce.

MEYER RE was founded following the downturn in the cruise market as result of the coronavirus pandemic. MEYER realised it needed to diversify. Though the company offered their competences to the revite market previously, it launched the company at this stage. The result is a collaboration offering a number of benefits to the clients of both companies.

Before embarking on a joint venture, both Damen and MEYER reached out to their clients to see what they thought of the idea. The idea, says Alexander, was well received in the market.

As such, it should come as no surprise that it has rapidly proven a success. With a number of projects behind it in the first year of operations, MEYER RE has contracts booked to take it into the foreseeable future.

More sustainable than ever before

One of the primary advantages is the opportunity the partnership offers for vessel operators to optimise on sustainable performance.

“The idea is not simply to lengthen a ship or put a new engine in,” states Alexander. “The goal is to extend the life and make ships more environmentally friendly than ever before. The re-engineering work we are doing and the new technology we are adding is aimed at increasing energy efficiency and reducing emissions.”

He explains that the efficiency of newbuilds coming onto the market is putting pressure on existing tonnage.

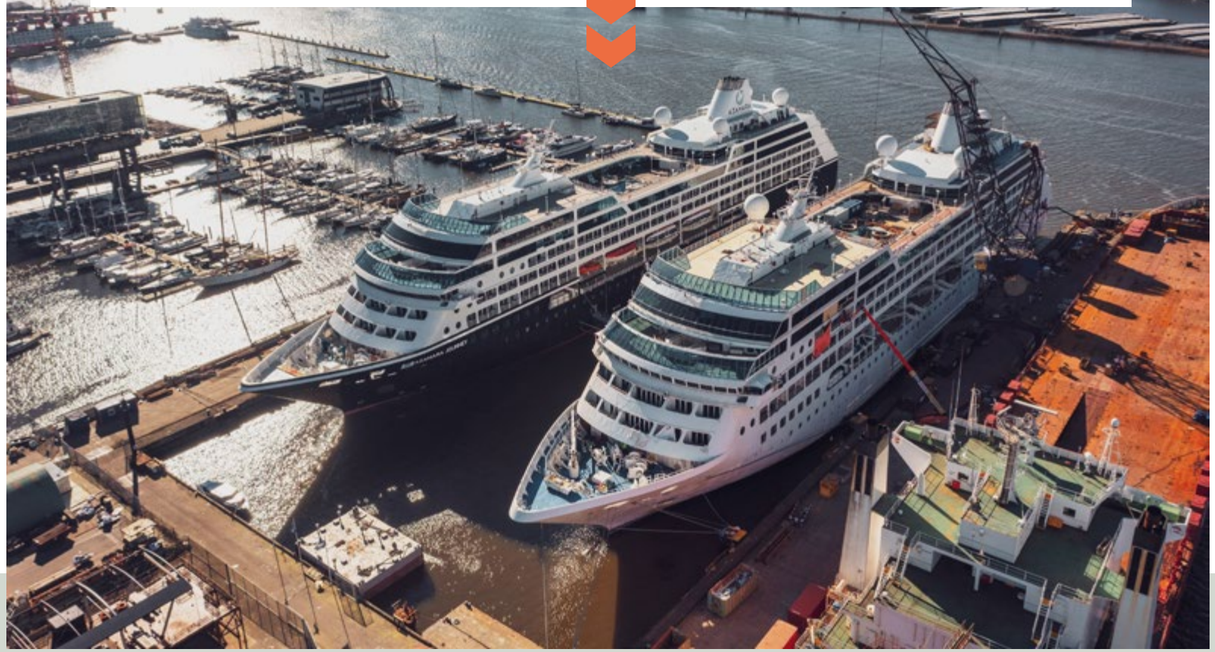
“You see this particularly in the cruise sector. During the pandemic, a lot of older vessels were taken out of service. Now, the fleet is relatively young and much cleaner, and you have tourists who would like to sail on the newest, most comfortable and cleanest vessels available.

The technology is already available – we’re incorporating it into our newbuilds. With MEYER RE we are offering people with existing vessels the chance to bring them into line with market requirements and regulations.”

Azamara: Onward to sustainability

In 2022, Damen Shiprepair Amsterdam undertook an extensive cruise ship refit for a vessel that would become the fourth in Azamara's fleet – the *Azamara Onward.* The 180-metre vessel underwent a broad scope of work including accommodation refurbishment and upgrade of passenger areas.

Also, Damen restructured the ballast water and fuel tanks, creating extra space for the bunkering of additional lower emissions marine grade diesel. The yard also upgraded the thrusters to allow for use of Environmentally Acceptable Lubricants, bringing the vessel up to the high standards of Azamara.



Maximum sustainability & uptime

The partnership's process is an active one that ensures clients are aware of the options available to them to improve the performance of their vessels.

"When a company has a slot booked at a Damen yard, we discuss the possibilities for upgrade with them. Should they decide to go ahead with the work, we can carry it out during a scheduled service. In this way, increased sustainability goes hand-in-hand with maximal uptime." Alexander is confident that the cooperation will be of increasing service to maritime sustainability in the future as technology continues to progress.

"It's really exciting to see how many suppliers are really adapting to this challenge and coming up with fantastic new ideas. At the beginning, you could have been forgiven for thinking the maritime energy transition wasn't possible, but there are so many things coming right now."

Damen has already booked several slots for large cruise vessels for 2024 and 2025. A number of these customers have indicated their desire to upgrade their vessels with the latest emission reducing technologies, often even further than the current emission demands and deadlines. MEYER, Damen and the cruise owners are working together to develop these plans.

"It's really exciting to see how many suppliers are really adapting to this challenge and coming up with fantastic new ideas."

Samuel de Champlain
A European dual-fuel milestone

Damen has for years already been working on the upgrade of vessels towards improved efficiency. In 2018, Damen Shiprepair Dunkerque carried out the conversion of the 117-metre, 8500 m³ trailing suction hopper dredger *Samuel de Champlain* to dual-fuel LNG and MPG, significantly lowering its emissions. The scope included the change of generators to dual-fuel modules and installation of onboard LNG storage facilities. The conversion was the first of its kind in Europe.

AIDAbella
A high quality debut for MEYER RE

The partnership quickly got a chance to prove its worth when, just one month after the agreement was concluded, the cruise ship *AIDAbella* had a collision while conducting a manoeuvre in the Port of Hamburg. The accident caused a crack in the vessel's hull. MEYER RE got quickly to work, with MEYER's Laser Center identifying and producing the necessary components and the company's ND Coatings team supplying the coatings. *AIDAbella*, meanwhile, headed to Damen Shiprepair Rotterdam for a fast, high-quality repair that got her rapidly underway again.

Damen Financial Services: three initiative supporting green retrofits

Damen Financial Services (DFS) has positioned itself at the forefront of sustainable retrofits. To support maritime decarbonisation, DFS has implemented three key initiatives. Amongst these, are supplier's credit facilities that enable owners to upgrade vessels with Damen solutions, thus maximising the lifetime of the ship. Additionally, DFS is working with Damen Digital Solutions to develop ESG-as-a-service. This will support vessel operators with the forthcoming non-financial reporting that is aimed at reducing emissions 55% by 2030 and achieving net zero by 2050.

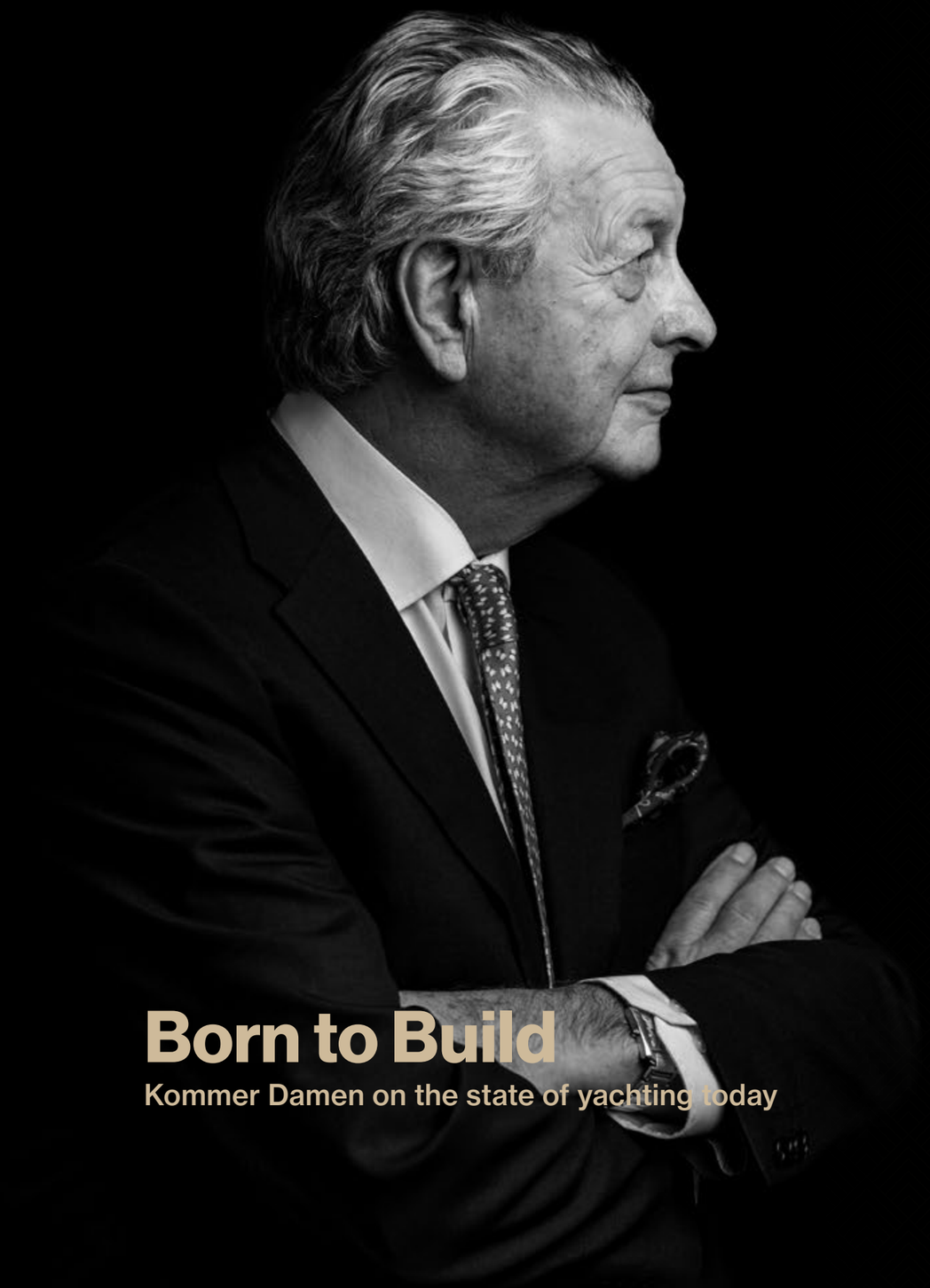
Thirdly, a notable stride towards transparency and market transformation comes from the development of an innovative green refit tool that clarifies emissions regulations and sustainable retrofit potential, stimulating their wider integration. Through its Green Refit Financing programme and commitment to sustainability, DFS aims to accelerate the transition towards a cleaner and more sustainable future for the maritime sector and contribute to the preservation of our planet for future generations.

Regulations: A driving force for sustainability

Regulations aimed at reducing maritime emissions are becoming increasingly stringent, providing significant challenges across the industry. There are numerous examples, including the Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CCI) that came into force at the beginning of 2023. These regulations require certain types and sizes of vessels to measure and collect data relating to their efficiency.

As of January 2025, FuelEU Maritime will pass into force. This aims at increasing the share of renewable and low-carbon fuels available for international maritime transport in the European Union (EU) and European Economic Area (EEA). Ships trading in the region will be required to comply with a set emissions limit (well-to-wake). Additionally, container vessels and cruise ships will need to use shore power in certain ports.

The regulations have implications, both for the newbuilding and for the refit and conversion of vessels in the coming years.



Born to Build

Kommer Damen on the state of yachting today

“It is not just our business. It is our life.”

Kommer Damen is not a man who needs much introduction. He has been the face and name associated with one of the world’s largest shipbuilding companies, the Damen Shipyards Group, for over 50 years. When he ventured into the yachting industry in 1991 with the acquisition of Amels, nobody could have predicted the success that would follow with his visionary build approach and the introduction of the Amels Limited Editions.

Kommer Damen still maintains an active role in the family business, managing relationships with clients, co-makers and investors, creating mutually beneficial partnerships. All those within the company share a deep sense of loyalty and commitment to work together. Employees, clients and co-makers all treat one another as if they are family.

How certain were you that your build approach would work in yachting?
"We were building serial ships in our commercial vessels branch and that was quite the success, so I expected the Limited Editions platform to also be successful. The platform allows you to build better boats. You can put much more effort in the design and development of the vessel, whilst still offering your clients a shorter delivery time."

How has the market changed over the last 20 plus years?
"We see a tendency to build larger. The largest yachts built in the 60s and 70s were about 40 to 45 metres and now we see the 60 and 80 metres yachts, like the ones we build. There is a demand for even bigger yachts as well, but I think that we, in the middle segment, are in the right range. And if we should decide to build larger yachts, we should do that semi-custom as well. It will come with its own set of challenges, there is more capital involved."

What shifts will we see in the future?
"Looking forward ten years from now, the main changes will be fuel related. Following the global tendency to try to have less impact on the environment, the way vessels are propelled will be different. Electrical, hydrogen, there definitely will be a change."

Are there advantages to being involved in the military, commercial and luxury sectors combined?
"The combination of the three sectors provides stability within the organisation and I embrace them equally. Operating in three sectors means we are less dependent on different market developments and can share knowledge and learnings. Being powerful in so many markets and being the market leader makes the company as a whole stronger. The military market is a typical market for high end military combat vessels and the market for commercial vessels is more competitive. Yachting is different than the other markets in the sense that it is also a consumer market. Very intriguing, it is the pearl in our chain of activities."

What are the challenges and gains of being a family business?
"The big advantage is that we can take decisions for the long run. We can invest in new developments which will take years before they are profitable. Our long-term perspective also comes with a responsibility and commitment to preserving the legacy and reputation of the company for future generations.

What has kept you motivated throughout your career?
"The challenges! Shipbuilding is a complicated business; its complexity requires specialised knowledge, while requirements, competition and cost price pose their own unique issues. For instance, can we build in a high labour cost environment like the Netherlands and still be competitive? That was a very difficult question. We created answers, and diverted a large part of our production to other countries. We are faced with new and different challenges all the time. It is exactly this problem-solving that can keep you interested in this business for your entire life."

Where do you think the success of the Amels Limited Editions lies?
"The build approach. Because you repeat the same thing, you have a lower cost price, also the engineering costs are divided over the series instead of being applied to one ship. It has enabled more lucrative deals with co-makers, who are happy to participate in the series build. And, what we now also see is the Limited Editions yachts have a higher resale value in the market, which is an important factor for our clients."

Which yacht would you choose to spend free time on with your family?
"No need to think twice – the Amels 80!"

Kenya takes to the blue water economy

In December 2021, the Damen-built Mombasa Shipyard formally opened at Mtongwe Naval Base, south of Mombasa, in Kenya, followed by the Kisumu shipyard in August 2022. The latter, which was also constructed with assistance from Damen, is a facility that will repair, refurbish and rehabilitate ships for use on Lake Victoria. We asked Major General Paul Owuor Otieno, the Director of Kenya Shipyards Limited (KSL), how things are developing.

At the opening of Mombasa Shipyard, then President Uhuru Kenyatta thanked the Kenya Defence Force and Damen for delivering the shipyard on budget and ahead of schedule. He said the project was a major milestone, not only for Kenya's navy and security organisations, but also for its blue water economy programme to develop the country's maritime sector, as it will also be able to build, refit, and repair civilian vessels.

In October 2023, the country celebrated the commissioning of its first domestically-built ship, the Uhuru II, which will operate on Lake Victoria transporting dry cargo and fuel. “It is not only a means of transportation but also a catalyst for economic growth and development in our region,” said Kenyan President William Ruto. “It will facilitate trade, create jobs, and open up opportunities for businesses to thrive.”

How do you envision Kenya’s future as a maritime nation?
Major General Paul Owuor Otieno: “Kenya has a coastline of about more than 300 nautical miles and is geopolitically and strategically located around the Horn of Africa. This presents great opportunities given economic potential and investments in maritime infrastructure.

Long-term friendship

“Damen has been a key industry player, contributing to Kenya’s maritime space by providing world-class maritime vessels such as tugs and pilot boats to the Kenya Ports Authority,” says Major General Paul Owuor Otieno. “Furthermore, Damen has undertaken the refit of naval vessels for the Kenyan Navy, as well as the construction of the Mombasa yard and rehabilitation of our Kisumu yard. In addition, Damen undertook the construction of the wagon ferry in partnership with KSL.

The partnership has not only contributed to training and capacity building but has also fostered long-term friendships between the two companies. KSL looks forward to a more fruitful engagement and partnership with Damen in which we can leverage Damen’s experience to become a world-class company as well, and spur economic growth in our region in line with our vision of being the leading catalyst of the development of the shipbuilding industry in Eastern Africa.”


Breaking ground


Under construction

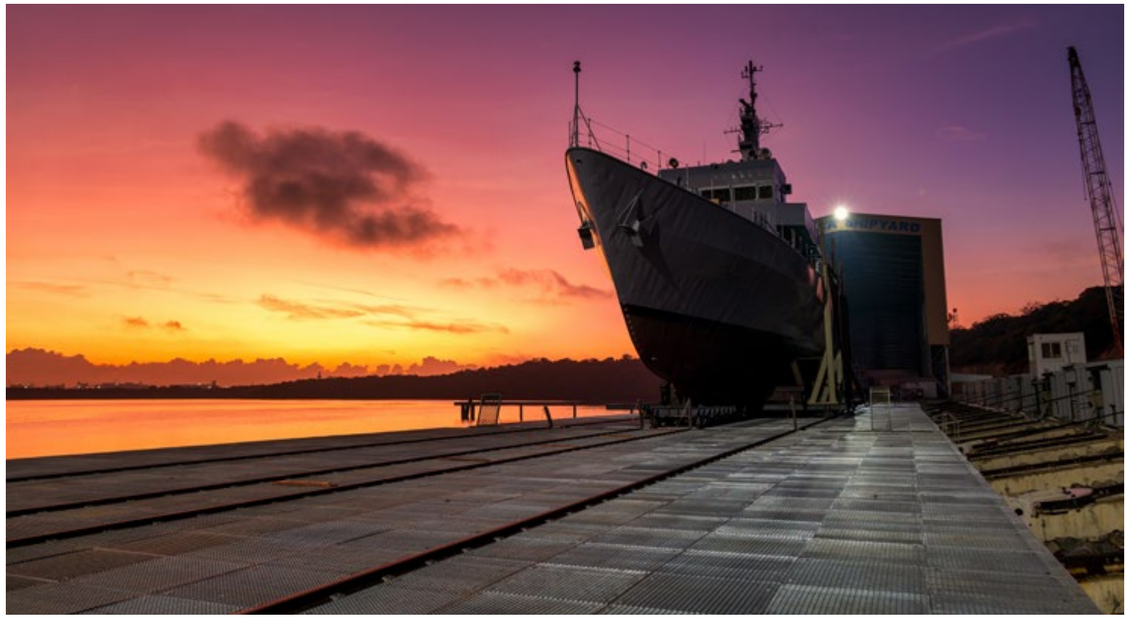
There are a number of key factors that influence Kenya's future as a maritime nation. Over the last 20 years, Kenya has deliberately invested in expanding its port facilities and infrastructure to position itself as the gateway to East Africa. The construction of new ports (such as the Lamu Port-South Sudan-Ethiopia Transport Corridor) and the development of maritime-related industries are a demonstration of the commitment of the government.

“Furthermore, successive governments have prioritised exploiting the potential of the blue economy to tackle unemployment and grow the country’s GDP. The development of key infrastructure such as special economic zones (Dongo Kundu) ports, harbours (Mombasa, Lamu and Kisumu) landing zones, training institutions, interconnectivity through roads and railway systems, shipyards and improving maritime security infrastructure affirms the current government trajectory towards making Kenya a maritime nation.

“The government has also been keen to protect the environment, marine ecosystems, and the sustainable use of ocean resources. Such measures include addressing environmental challenges such as plastic pollution and coral reef conservation.
Last but not least, the government is focusing on partnerships and international collaboration to enhance its maritime capabilities, especially in capacity-building, skills and knowledge and technology transfer.”

Capacity building

“What I really like about this project is that, in the context of capacity building, we have trained hundreds of people from Kenya in the various disciplines involved in running a shipyard,” says Thomas Kramer, who spent several years in Kenya as a Project Leader from Damen. “We worked with both men and women on a range of trainings in the areas of administrative control, welding and steel construction, even including heavy-duty equipment operations, purchasing and the set-up of warehousing. These are all jobs you can’t learn easily at school.”



What roles do the shipyards in Kisumu and Mombasa play in achieving this vision?

"Kisumu and Mombasa are considered strategic in terms of the exploitation, development, and sustainment of the blue economy. The shipyards play a pivotal role in laying the foundations for Kenya as a maritime nation. They support ship construction, maintenance, job creation and infrastructure development. KSL is gradually building its internal capacity given the fact that the shipbuilding and repair footprint in East Africa is very limited."

What implications does the development of the maritime sector hold for Kenya's economy and its population?

"The development of the maritime sector will lead to the economic growth of Kenya since it has the potential to stimulate trade and revenue generation. The development of ports, railways and harbours will boost Kenya's imports and exports, leading to economic growth. At the same time, the sustainable exploitation of the blue economy will create job opportunities and in turn contribute to the country's GDP.

The local community and population have positively embraced the two shipyards since they have created both direct and indirect employment in the two regions Mombasa and Kisumu. Furthermore, the business community has also positively embraced the government's initiative to establish and support the shipyards because of the potential boost for ancillary industries, which will benefit both parties."

Multidisciplinary

The support that Damen Shipyards Group has provided in the new construction of the yard in Mombasa, the revitalisation of the yard in Kisumu and the first concrete projects resulted from the collaboration of numerous units within in the group.

"The project was initiated and executed in close collaboration between Damen Group Sales and Damen Civil & Modular Constructions," explains Marcel Karsijns, Managing Director of Damen C&MC. "Through Damen Trading Suzhou, steel packages were delivered for Mombasa. Damen Marine Components supplied the necessary winches, including controls, and Damen Services was involved in the training of the staff at Kenya Shipyards Limited.

The first project in Mombasa, the refit of the patrol vessel *Shupavu*, was a joint venture involving KSL and Damen Harbour & Voyage. Albwardy Damen was also involved in first project in Kisumu. They supplied the steel packages required for the new construction of the ferry *Uhuru II*, the first domestically-built ship in Kenya."

My favourite project

Shupavu refit • Rik Duker

My favourite project took place in October 2021. The KNS vessel *Shupavu* was drydocked and completely emptied at the Mombasa Shipyard. The refit was carried out in collaboration with Kenya Shipyards Limited (KSL), the operator of the shipyard.

What I liked so much about this project was that it represented a significant challenge and required a lot of teamwork. Apart from the major steelworks, the engines, generators, electrical systems, navigation equipment– everything was renewed, including the interior.

Previously, Damen Shiprepair Vlissingen worked on the sister ship of the *Shupavu*. Now, the Kenyan Navy wanted to do the same with the Shupavu, but at their own shipyard. That was quite a unique situation, working at the client's shipyard. They'd never undertaken a refit process like this before, so there was less knowledge and experience than we were used to.

We did know the yard, however. Damen Civil & Modular Construction finalised the Mombasa Shipyard. This was the first project to be carried out at this yard. It was a typical Damen project, involving the local population. For that we had to provide a lot of training and collaboration. These were also the guiding principles during the refit of the KNS *Shupavu*.

There were logistical challenges with parts and equipment. Things didn't always go smoothly with the air freight. A shipment would arrive at the airport after two days, but it would take weeks for customs clearance and delivery. We constantly had to adjust our plans because parts didn't arrive on time. Some subcontractors had already booked their return flights and had to come back later to finish their work. That was frustrating at times, but that's how things work here.

It was quite an experience, and there was more involved than I had expected. For one thing, we had to provide practical training to employees, as well as classroom theory. We managed to optimise performance though, asking each other not 'does it fit your job description?' but 'can you do it?' That required a lot of flexibility from everyone. It was truly pioneering at times, and it demanded a lot of creativity.

We were sent here with the mission to 'get it done.' We are very proud that we succeeded, and it definitely left us wanting more. Working on a large project for months, building a close-knit team together, organising everything ourselves– that's really enjoyable to do.

Common ground

Over the past years, Boluda Towage has undergone a process of continual expansion. The company operates around 450 vessels in more than 100 ports in eighteen countries around Europe, Africa, Asia and Latin America. During its growth, the company has acquired a number of businesses and, in the process, a significant fleet of Damen vessels.

“The vessels are loved by the crews. If they know it’s a Damen tug, it doesn’t matter which model, they know what they are getting and that they will be comfortable. If you have nice vessels, it helps attract talent to work with you.”

Vicente Boluda Ceballos Vice President

Coming quickly to value the boats – as well as the close working relationship that developed with Damen – Boluda went on to commission a number of newbuilds, too. Today, the company operates the largest fleet of Damen vessels on the water.

Recently, Damen CEO Arnout Damen and Boluda Corporación Marítima Vice President Vicente Boluda Ceballos met in Rotterdam for the signing of a new contract. The meeting provided an ideal opportunity to catch up with them both about their vision on the past, present and future of towage as well as the ingredients to a successful long-term business relationship.

Standard setting

“I think it’s a very nice product,” begins Vicente, referring to Damen tugs. “They’ve set an industry standard. If you say, for example, ‘2810’, literally everyone knows what you are talking about – and how it performs. We’ve got an ASD Tug 2810 in our fleet that’s 26 years old and it’s still running well.” In addition to the reliable performance offered by the vessels, Vicente says that Damen tugs also provide support on the labour market.

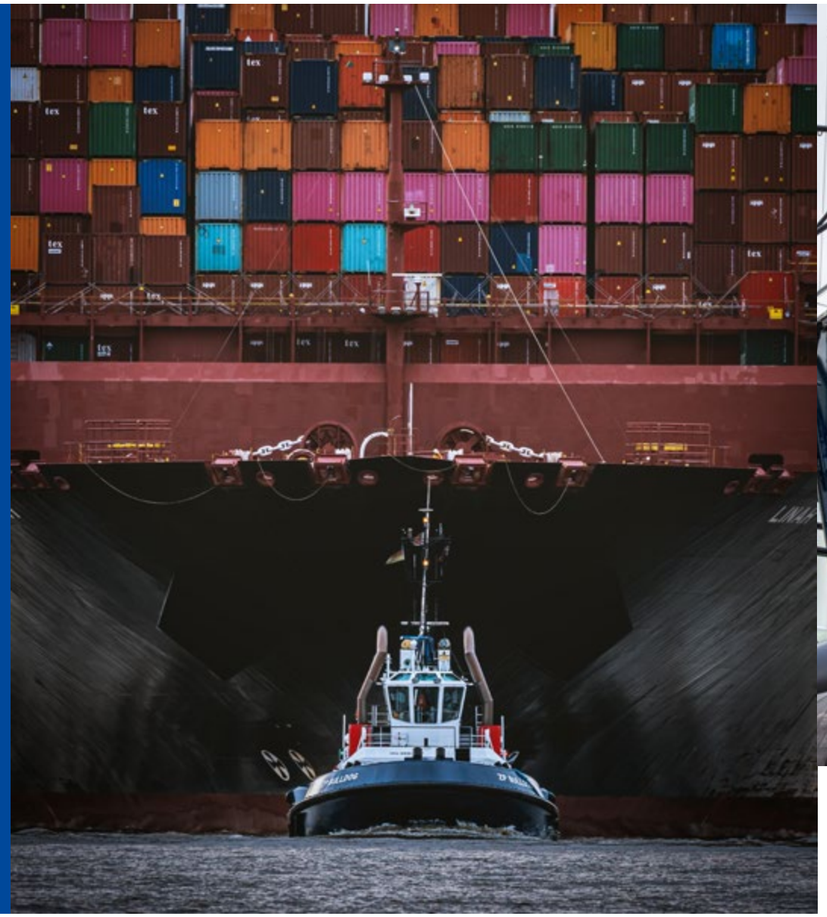
“The vessels are loved by the crews. If they know it’s a Damen tug, it doesn’t matter which model, they know what they are getting and that they will be comfortable. If you have nice vessels, it helps attract talent to work with you.” It is, however, not the product alone that Boluda places importance in, but also the ongoing relationship that the two companies enjoy, says Vicente.

Competitive advantage

“Our boats are not there to be looked at – they’re there to work. And the work they do is heavy. Plus, with all the new technologies and digitalisation the operation becomes much more complex, so things can go wrong from time to time. Then, the important thing is that you know, wherever you are in the world, that someone is going to pick up the phone and start looking for a solution. And that’s what we get with Damen. They get someone there and they get it fixed. This allows us to show our reliability as a competitive advantage.”

“In this sort of situation you have a relationship. You look one another in the eyes, and you shake hands. You know that if an issue arises, you will work together to solve it. It’s not about making a quick buck, it’s about building a relationship that will last, generation after generation.”

Arnout Damen CEO Damen Shipyards Group



Arnout signals his agreement – the ship is just the start. “For us as the shipbuilder, delivery is when the journey begins. After that, the client should start to earn with the boat. It’s key that they have maximum uptime. That’s why we place so much emphasis on services – that’s what keeps the boat going.”

For Boluda, with its diverse operations around the world, the aftersales support it requires from Damen can differ, but frequently includes vessel delivery, part packages, use of Service Hubs or provision of drydocking at a Damen repair location.

Shared philosophy

In addition to Damen’s products and services, there is another element to the strong relationship between the companies; a common philosophy.

“The fact that we are both family companies makes things a lot smoother,” states Vicente. “There is one decision maker on both sides, both of whom share a philosophy and who understand each other’s operation completely. That makes it easier – and quicker – to establish what can and cannot be done and where we are going.”

Again, Arnout agrees, saying, “In this sort of situation you have a relationship. You look one another in the eyes, and you shake hands. You know that if an issue arises, you will work together to solve it. It’s not about making a quick buck, it’s about building a relationship that will last, generation after generation.”

Ensuring product evolution

This long-term thinking that characterises both companies, is crucial for the development of Damen’s product portfolio, Arnout explains.

“Working together with a customer, as a partner, over a long period of time gives us valuable input and the knowledge. It’s important that the relationship is good, not only at the commercial level, but also at the technical level. Our guys from development speak to their captains, superintendents and fleet managers and get the feedback we need. We get to know how the client operates and what they need for the next generation of boats – not only the bollard pull, but also the sustainability. That’s key for our product evolution.”

The contract recently signed in Rotterdam is a case in point. With this, the companies have agreed to the joint development of Europe’s first methanol powered tug.

Invested in sustainability

Boluda has already invested considerably in greening its fleet, retrofitting existing tonnage with Damen’s NOx Emissions Reduction System and commissioning numerous IMO Tier III compliant newbuild vessels.

With Damen’s ambition to become the world’s most sustainable shipbuilder, it’s only logical that the two companies should pool their resources, a leading builder working with a leading operator to advance the maritime energy transition. As Vicente says, achieving the transition is going to require collaboration.

“Sustainability is the most important word in the maritime industry these days. But it’s going to require multiple party participation. It’s not only down to operators and builders, it’s also going to require authorities to make regulations to ensure there is a level playing field. And it’s going to need equipment manufacturers to think along, too.”

All options on the table

“Let’s be honest,” he continues, “if there is one thing that is clear at the moment, it’s that no one is really sure what the future will be. There is a large spectrum of possibility, but no one can pinpoint, which technology will, ultimately, be ‘the one’. Will it be synthetic fuels, will it be methanol? Electric propulsion is having some exciting results, but it is not applicable in every case. Right now, what’s important is that we work together. For the two of us, it’s about how to put systems in place for making the tugs more efficient. This way, we create the bridging solutions that will lead us, step by step, to the future.”

“All options are on the table,” rejoins Arnout. “We are holding regular discussions and brainstorms to maximise sustainability. With our relationship we can come up with ideas and test them. This will help us to develop cleaner ships. It’s going to take some time, but we will continue to work at it together. After all, we’re both interested in securing the future of our business and our industry for the next generation.”

You've got the water, we've got the boats

Public transport partnerships: the way forward to a green future

Over the last few years, Damen has set itself the goal of moving beyond 'just' the delivery of a vessel and offering support to its clients throughout the lifecycle of their assets. There are numerous ways in which that group has set about fulfilling its role of total maritime solutions provider; from repair & conversion to training, and from the supply of infrastructure for sustainable vessel operations to financial services.

An interesting example of the latter is Damen Financial Services' (DFS) increasing provision of vessels as a service. A case in point is the interaction DFS has had with the public transport sector. This, as DFS managing director Jan Willem van Helden explains, sees Damen becoming involved in every aspect of a ferry operation.

It's a model that has rapidly demonstrated success. It offers clear advantages to governments and local authorities in expanding their offering to taxpayers with the option of waterborne public transport. Together with the ferries that Damen delivers directly to its clients, this sees Damen ferries operating in countries all around the world. To date, DFS has taken on the responsibility – or partial responsibility – for 34 Damen ferries in several countries.

Accelerating public transport

"This represents the complete unburdening of the client," opens Jan Willem. "It means that the government or local authority is able to offer a public transport service without even having to know how to do it. We take the matter off their hands and make everything work."

It offers, he says, the opportunity to rapidly accelerate the implementation of a new public transportation service.

"That's what makes this unique. There are examples of governments planning a new ferry operation, but not knowing how many passengers they will serve and, consequently, what kind of vessel they will need, or what infrastructure. It can take a very long time to bring everything together and, even then, they still need to commission a boat. And then there is still a chance that the vessel selected proves not to be the most suitable one for the job at hand. This is an answer to all those challenges."

Standing by and ready to go

This is because Damen already has the boats standing by and ready to go. "We can deploy from the get-go. We can bring in a waterbus with a 100-passenger capacity and carry out a pilot operation. Within a very short space of time, you will have established whether the service is viable and will know precisely the type of boat you need to meet the needs of the concession. And, in the meantime, while it is being built, you can continue to run the service with our vessels."

Cleaning up these towns

The proposition is also helping regions to meet their ambitious sustainability goals, supporting the reduction in emissions in a number of ways.

"We can help governments make their cities cleaner," states Jan Willem. "We're taking people out of the car and getting them on to the water."

He goes on to say that, as well as lowering traffic pollution, Damen is able to offer hybrid and fully electric vessels, or those that sail on alternative fuels to further reduce environmental impact. The company already has a number of examples to its name, including fully electric vessels operating in Denmark and the Netherlands. In such cases, Damen is able to provide not only the ferry itself, but the consultancy surrounding the grid connection as well as the charging infrastructure, too.

"We can bring in a waterbus with a 100-passenger capacity and carry out a pilot operation. Within a very short space of time, you will have established whether the service is viable and will know precisely the type of boat you need to meet the needs of the concession."

Jeanette Baljeu and company at the christening of Ferry 2306 *Blue Venice*

Lending strength

An example of this is the Waterbus service provided by the Dutch province of Zuid-Holland. Following some initial complications in getting the service up and running, Damen and its partner, Purus Marine, were able to step in and help operate the service, providing comprehensive support that includes crewing and ongoing maintenance.

Jeanette Baljeu, Regional Minister of the Dutch province of Zuid-Holland, says, "These electric and hybrid ships from Damen are beautiful products and are very important for the future of public transport in the region. We are delighted that Damen and Purus have come on board the Waterbus project and have lent their strength to the service."

Active approach

In order to further promote maritime sustainability, Damen sees it as vital to expand the use of public transport on the water. That being the case, the company is proactively reaching out to a certain type of customer.

“We look to work with governments who do not have a service at the moment. It’s possible they don’t even know they want a service. We are approaching them and pointing out the potential benefits and offering a means to test it without incurring a risk. Then, if it works for them, they can take things further and issue a tender.”

At this stage, Damen can continue to support the operation if required, working hand-in-hand with a local ferry operator.

“If there is a local service provider, we can form a collaborative joint venture with them whereby we bring the boats, and they take care of the operational side of things. In this case, they retain the experience we have with the vessels and the access we can provide to a support network for vessel care during the lifecycle. It’s a win-win.

Currently we are working on refining the offers. Much like our vessels, we are creating something that is broadly standardised, but which is flexible enough to be adapted to individual requirements.”

HDPE water taxi

With its ambition to become the world’s most sustainable shipbuilder, Damen is continually seeking ways to make its vessels, and its construction processes, increasingly friendly to the environment. Frequently, given the ambitious emissions reductions targets encountered by governments, this relates to the public transport sector.

A recent example is DFS’ collaboration with internal partner Damen Civil & Modular Construction on the development of a water taxi constructed from High-Density Polyethylene (HDPE). The experiment is still underway, with a boat soon to be launched into the water. However, if it proves successful, it holds great potential for increased sustainability. Not only is HDPE 100% recyclable, it would also be possible to construct such vessels out of recycled plastic. With this project, Damen is hoping to learn more about the feasibility of using this material and apply it to the construction of increasingly sustainable vessels for the public transport and other maritime sectors in the future.

Meet the Multi Cat 1908 *Electric*

This vessel represents a powerful combination, pairing a quarter of a century of experience in Multi Cat construction with cutting-edge technology to make zero emissions workboat operations a reality.

The Multi Cat is a multi-purpose workboat designed for operations in both shallow and deeper waters. Over the years, Damen’s Multi Cats have gained a well-deserved reputation for reliability and efficiency. Now, with Damen’s ambitions firmly fixed on becoming the world’s most sustainable shipbuilder. The company has developed a fully electric version fit for the future.

Damen has designed the MuC 1908 E to operate inland, in harbour and along the coast, up to 20 nautical miles from shore, undertaking diverse tasks including pushing, towing, anchor handling, buoy recovery, surveying, bunker supply, waste/oil recovery and support duties.

Proven innovation

Despite its innovative character, the vessel is based on a proven platform; the Damen Multi Cat 1908, a vessel that has demonstrated its capabilities during over 25 years of successful operation.

Damen has also developed considerable experience in the delivery of electric and hybrid vessels, including tugs and ferries, examples of which can be found operating throughout the world.

The MuC 1908 E is able to operate for up to twelve hours on a single charge, bringing a full day’s work comfortably into range. The batteries are, additionally, able to power the vessel for up to a decade following delivery.

Connected ship technology

The Multi Cat also benefits from Damen’s experience in digitalisation. The vessel features Triton, Damen’s award-winning connected vessel platform.

Corporate Venturing: a sustainable future

Setting sail for a

Damen's Corporate Venturing Unit (CVU) embarks on a new course, by fully embracing the pioneering spirit of Damen.

The successful cooperation between Damen and sister-companies like Skoon, SolarDuck, Equinox and Lumina has fast-tracked the development of the Corporate Venturing unit. "Initially, we set a strategic focus on how we wanted to collaborate with startups and refined it along the way," says Jasper Schuringa, Head of Corporate Venturing.

Cooperation between a corporate and a start-up can be challenging, Jasper admits with a hearty chuckle. "But it's worth it. The involvement and input of creative, free-spirited entrepreneurs helps Damen maintain its traditional pioneering role."

Streamline

For the past several years, Jasper recounts, the corporate venturing unit has been building the necessary infrastructure. "We had to fine tune our strategic focus, organise the back-office and streamline our operations before we could take the next step. But we did, and I'm proud to say that Corporate Venturing is now an integral, full-fledged unit of Damen Maritime Ventures (DMV)." As a portfolio-oriented division focused on continuously building and improving strategic and relevant niche businesses, Damen Maritime Ventures offers the perfect organisational location for Damen's corporate venturing activities.

To celebrate its coming of age, and announce the new, more assertive strategy, DMV organised an event for start-ups in Amsterdam, which was attended by innovative entrepreneurs, investors, and ecosystem partners.

"We are casting the net much wider now, and at the same time have more focus," Jasper explains. "We are actively looking for start-ups, or even people with a great idea, for example at universities and research institutes."

However, as CEO Arnout Damen pointed out during a speech at the start-up event, the conditions for Damen stewardship have not been relaxed. "The companies we select each offer high-potential, 'on-edge' innovation and contribute to the core activities of Damen," Jasper elaborates.

Deal flow process

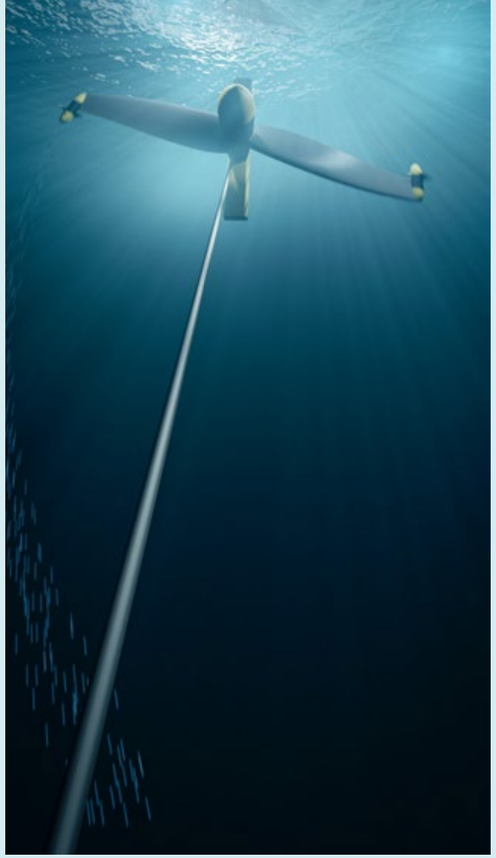
Since the beginning of this year the Corporate Venturing team reviewed over 90 companies. "Leads are received from many different angles", Jasper continues. "After analysing the idea, team, finances, growth potential, strategic alignment, company value, etc. Of all the start-ups, only three companies were found to be promising."

The team is currently analysing how to best shape Damen's involvement with these companies. "We are not venture capitalist, but a corporate venturing unit applying a smart capital approach," Jasper says. "This could entail a cash injection, but a large part of what Damen adds is in kind; expertise, research, facilities. Damen is not interested in taking over the whole startup company. We take a small stake, and we always make sure the start-up is able to retain its autonomy and thrive on its own entrepreneurial capabilities. We believe in giving entrepreneurs space, because to think out-of-the-box, and be innovative or even disruptive, that's what you need."

Over the past few years, Corporate Venturing also worked out its own role in the matchmaking process. "We act as liaison between Damen and the start-up," Jasper says. "We connect people and keep the overview but stay away from the day-to-day." The Head of Corporate Venturing pauses. "Otherwise, it just wouldn't be scalable." The commercial as well as funding successes of Skoon and SolarDuck show how a corporate such as Damen can add to, and have a synergy with the startup.

Pieter de Haas

Equinox: Going against the current



With the help of Damen Maritime Ventures, Equinox is developing a special turbine to convert the ocean currents into baseload energy.

The turbine is a large, two staged propellor, made of reinforced concrete and attached to an anchor like a balloon on a wire, turning gently to the ocean current. As Leonardo DaVinci once said, simplicity is the ultimate sophistication.

However, as with most great inventions, the current turbine was preceded by a learning curve, which ultimately led Pieter de Haas into deeper waters. “Technically, many previous projects were a success”, Pieter says. ”But financiers have a different perspective than technicians, and economically tidal energy just wasn’t viable.”

Tips

Pieter pivoted his efforts in the different projects and privately kept looking for a way to tap into the raw power of the ocean. “When I started looking into ocean currents, I quickly realised that although the tides might be more powerful, ocean currents are stable and consistent. Which not only means that –measured over time – they generate double the amount of energy, but that the risks involved are much lower.”

Working on the design in his spare time, Pieter concluded that the best way to catch the natural force of the current would be via a giant 50-metre-long rotor blade with two small turbines on its tips.

“The big blade drags the small propellors through the water, which power two conveniently sized generators, instead of a cumbersome giant generator. With a full load factor of 60-65%, compared to 30-35% for wind turbines and 12% for solar energy, it’s extremely energy efficient.”

Although the Equinox turbine requires a minimum water depth of at least 250 metres, Pieter also expects construction and maintenance costs to be much lower than, say, offshore wind, resulting in a relatively low cost of energy generation.

Funding

Pieter is currently working with the CVU to collect the necessary funding to fine-tune the design and build a pre-commercial version, which he expects to launch in three years. “The construction process is actually very similar to building a ship,” Pieter remarks. “You source the complicated components and assemble everything in a dock.” Pieter also praises the can-do mentality at Damen. “Whatever problem you encounter, there’s always someone to help you out.”

Eric van Genuchten

Lumina: Going places

Lumina (formerly known as Sensing360) creates photonic sensors to measure the pressure, pull or torque on (rotating) parts. The cooperation with Damen Ventures opens up a world of maritime applications.

“Serendipity, I suppose,” says Eric van Genuchten, sagely. The COO and co-founder of Lumina is explaining how Damen was looking for ways to measure the load on the winch of a ship, when he showed up to pitch the photonic sensor that he and two other entrepreneurs had developed over the past year.

In a barn in Brabant the three technicians had created a unique measurement tool for rotating systems, based on the interaction between light and electronics.

“Our sensors are able to reach places that were previously impossible to get to,” Eric explains. “You can fit up to 20 sensor positions into a fibre-optic cable as thick as hair and insert them, without altering the construction, into whatever component you need data on.“

Organically

Damen Corporate Venturing immediately recognised the potential for the maritime sector, Eric notes. “To get exact data on the pressure loading of a ship’s gear box, winch, hull or other rotating parts is of great added value for Damen’s clients. And for us, working with Damen opens up all kinds of new possibilities. Our cooperation grew organically, in line with the development of Damen Venturing as an integral part of the company. From the beginning our relationship was based on synergy, with both parties profiting from the exchange of knowledge.“

Three out of the five people who work at Lumina, are data scientists. “We have a lot of combined experience at Lumina,” Eric continues. “But not in the maritime sector and that’s where we see strong value in the corporation with Damen.“

Damen Triton

Lumina has been active for over five years in the renewable energy sector, mostly measuring the performance of wind turbines on a for-hire basis. After placing the sensors, the collected data is then analysed by specially designed software, in order to optimise a machine’s performance. “When you have all the data, you are able to make the machine safer, more efficient and more durable,” Eric posits. “But also legally, companies are increasingly expected to be precise about their output.”

One of Damen’s greatest assets is Damen Triton, its connected vessel platform developed by Damen Digital Solutions (DDSo), which collects information from thousands of data points, to create a comprehensive view of a ship’s workings. “Together with DDSo we’re integrating our sensors into the gear box, winch and hull to create new and unique sensor points which give clients better and more effective insights.”

Eric ends by pointing out; “It’s rare for such a big company like Damen to appreciate the entrepreneurial dynamic of a start-up and embrace the innovation to the fullest.“

Sustainable and digital future

The Corporate Venturing Unit (CVU)-team will continue scouting for startups that contribute to the Damen vision of becoming the most sustainable shipbuilder, also by means of digitalising vessels and services. Jasper Schuringa adds: “In order to be successful as a CVU you have to understand current and future market needs and technologies. Then, together with internal and external stakeholders, you have to develop a commercially viable proposition for next year as well as for over five to ten years. Innovation is a balancing act of vision, commerce, timing, teamwork and persistence.”

Johan de Witt gets a makeover

A new command centre and joint operations room, navigation bridge, technical control centre, freshwater system, decking, sprinkler system, mast and a fresh coat of navy grey paint: HNLMS *Johan de Witt* is ready for another fifteen years of service.

The 16th century leader of the Dutch Golden Age, known for his patriotism and fondness of the navy, would be proud of the line-up of companies that contributed to the overhaul of the amphibious transport ship of the Royal Netherlands Navy (RNLN) that bears his name.

At Damen's shipyard in Vlissingen-Oost, a consortium of 62 different Dutch companies led by Damen Naval gave the *Johan de Witt* a full midlife make-over, before she was transferred to the Dutch naval base in Den Helder, where Damen and the RNLN are currently dotting the i's and crossing the t's of the refurbishment.

Damen has a long standing working relationship with the RNLN, going back as far as 1878. The *Johan de Witt*, however, required a new approach, "We used the unique Damen ecosystem to create a new model for cooperation", Damen Naval's project director Fer Tummers explains.

A different approach

Although Damen was the main contractor, there was an intense collaboration with other companies during different phases of the project. "It was the first time that the Midlife Upgrade (MLU) was combined with the planned 15-year maintenance (BO)," says Fer, who worked over three and half years on the *Johan de Witt*. "Logistically, that requires a different approach. You have to work step-by-step, in phases. Because you can't shut down the whole ship."

One of the project's subcontractors was Den Breejen, a company with over 67 years of experience in marine paintwork. "With so many parties working on the same project, you need top-notch organisation," Den Breejen's Project Manager Pieter van Beurden points out. "Every company has a specific task, which can only be done in sequence. Otherwise, it won't work. Den Breejen alone had nearly 150 painters working on this project, so go figure. Given the amount of coordination this project required, it's impressive that the project was completed on schedule."

The timely delivery is especially remarkable given the scope of the MLU, which included up to 69 items, including the replacement of the communication systems, freshwater units, seawater pumps for firefighting and a multipronged sprinkler system.

For the engineering aspects of the MLU, Damen worked side by side with RH Marine, the leading navigation, communication, and control system integrator in the Netherlands.

50 state-of-the-art consoles

Besides developing and installing the software that controls and monitors most systems on board, including the alarm, propulsion, data distribution, radar and emergency power systems, RH Marine also redesigned the operational areas, including the bridge, technical centre, and command centre, which has been outfitted with 50 state-of-the-art consoles.

"When you can still look each other in the eyes after working together for three and half years," Jeffrey Bouwmeester, the project coordinator for RH Marine chuckles, "it was a very successful cooperation."

According to Jeffrey the shared on-site facilities at the Damen shipyard in Vlissingen-Oost played an important role in fostering the right working dynamic. "All the subcontractors were provided with their own offices at the Damen shipyard. So, we ran into each other at the coffee machine, discussed problems during lunch, etc. This not only improved communications but gave everyone the feeling that we're doing this together."

Like Damen, RH Marine has a long-standing relationship with the Dutch Navy. In fact, several RH Marine employees who contributed to the midlife overhaul of the *Johan de Witt* were also present when the ship was originally built, in conjunction with Damen Naval, between 2003 and 2007. “This kind of in-house knowledge is priceless,” Jeffrey notes.

Spoke Dutch

That everyone involved in the project is Dutch-speaking is also unique, the Project Manager stresses. “It’s just easier. You know exactly what everyone means.”

However, despite the security checks that are inevitably part of doing work for the RNLN, it was never a condition that all the participating companies should be Dutch. “In some other countries it would be,” Pieter van Beurden says matter-of-factly.

Competition from low-wage, or heavily subsidised, countries, is putting strains on the European maritime industry.

“The market is changing. It’s impossible to compete on price with some countries. The only way to distinguish yourself is by delivering the highest quality, on time.”

And even that, Pieter remarks, is no guarantee. The project manager of Den Breejen admits that, under the current conditions, it’s understandable that several European nations are prioritising their own marine industry, by awarding it tenders in face of EU-rules against favouritism. “Besides giving the local economy a boost, it’s also important to keep the know-how in the country. If we lose our craftsmanship and knowledge, it’s gone forever, which will also be a problem for the RNLN. With dwindling military budgets, the RNLN is increasingly reliant on the private sector. We have to cherish our maritime industry”, Pieter concludes. “The Netherlands was built on shipping.” Jeffrey agrees. “It’s what we’re good at.”

PETER & LARS VENIS

Family Matters

Peter and Lars Venis are a special Damen family duo; not only are they father and son, their respective roles also see them frequently working together.

“Almost everything that ends up on my printers comes from him!” says Peter, looking proudly at his son. Peter is a Repro Operator, who has worked at Damen since 1986.

Lars has recently joined the Marketing department in Gorinchem as a Graphic Designer.

“As a content creator, I am responsible for the design of newsletters, brochures and banners and am involved in designing exhibition stands. Much of what I make is printed in-house at my father's Repro department. The preliminary work comes from me and my father finishes it,” Lars explains.

Damen has been a constant presence in Lars’ life, since a very early age. Peter used to take him to visit the yard in Gorinchem as a young boy. Lars remembers his visits fondly, recalling how impressed he was at seeing the ships. Peter always hoped that Lars would find his way into the company.

“I have a real Damen heart and it made me proud when my son started working here,” he says. “Lars seems to be doing well. That makes me happy. I see that he fits in with Damen. He is there for everyone, he can work well with his colleagues.”

To develop such a way or working, Lars says, he didn’t have to look too far.

“We are both helpful. We are very similar in that respect. That is something I learned from home.”

Peter says he takes great pleasure in helping his customers; anyone who needs something printing is welcome. “If it helps us sell a ship they can come anytime, day or night!”

Like Damen itself, Peter is looking to the long-term and has a clear goal in sight.

“I’ve still got a few years to go, but I certainly want to reach my 40 years of service. I’m definitely going to get that parking space one of these days – for my bicycle,” he laughs.

That being the case, it looks like the duo are set to be colleagues for the foreseeable future. Lars is enjoying his work at Damen and is also looking ahead.

“I also have the ambition to stay at Damen for a long time, just like my father. I feel very comfortable at this company – and that is also because of him.”

Sailing heritage:
The return of the *Reiger* and the mail boat

Even at the time of her delivery in 1949, the *Reiger* was a ship to be proud of. The motor yacht was in private hands for decades, but has this year returned to Damen, where she will serve as a flagship to a collection of Damen heritage vessels. The *Reiger* still sails beautifully. It's as if time has stood still.

"Look, here it is," says Dina Damen. "Building number 157, July 1949." She points, clearly pleased, to a copy of her father's original construction number booklet. In its pages, Jan Damen wrote down by hand all new projects undertaken by the company, then known as Shipyard Gebr. J. & M. Damen in Hardinxveld.

Construction number 157, the *Reiger*, was a special ship, even then, says Dina as she tells her story at the shiny teak table in a sitting area of the *Reiger*.

"Every time I sail on the *Reiger*, I still experience a special feeling, even after all these years," says Dina. "As a child I was often on board when the vessel came to the yard for maintenance. I can still remember everything in detail, I can still see it happening. The *Reiger* was a very chic ship for that time, a real eye-catcher. Everyone was proud of her. My father was chief amongst them; to him, the *Reiger* was always a very beautiful boat."

Management vessel

The *Reiger* was no ordinary yacht, she was a management ship, built on behalf of Scheepssloperij Frank Rijsdijk in Hendrik-Ido-Ambacht. After the Second World War, the company flourished to the extent that the management could afford its own ship. "It was also a special project for Damen, because almost all the ships the company built at the time were workboats," says Dina. "This was an exception."

Though there are strong suspicions, it has not been established who was the designer of the *Reiger*. The use of materials and the construction method, however, are reminiscent of Henri Willem de Voogt, the designer of the royal yacht Piet Hein.
An eye-catching feature of the vessel is the use of teak throughout, not only in the indoor and outdoor seating areas, but also in the wheelhouse. With even the roof made of teak, the vessel exudes quality.

Slight renovation

Following around 25 years as a management vessel, the 14.7 x 3.25 metre, steel, diesel powered yacht passed into private ownership. At this point, she underwent a slight renovation. Space was made in the point at the fore of the vessel for two sleeping places. At the same time, the 65 hp diesel engine was switched for the 120 hp one she uses to this day.

What is particularly striking about the *Reiger* is that she remains in such excellent condition. This is largely thanks to her last owner, Thomas R. Hofhuis, who "spared no expense to keep the *Reiger* in excellent condition. He took very good care of her."

Damen Fleet Heritage

The purchase of the *Reiger* was made through Damen Financial Services, says director Erik van Sliedregt. Erik is an enthusiastic supporter of the Damen Fleet Heritage project, which is building a collection of iconic, historic Damen vessels. The idea is that the *Reiger* becomes the flagship of this fleet. Another vessel in the fleet is the Biesbosch mail boat and "more are on the way."

"I notice in my work that our clients really appreciate that Damen is a family business with a rich history," says Erik. "This is an excellent opportunity to do something beautiful with that heritage. On a vessel like the *Reiger* you can welcome guests and take them out on the water, she has a unique sailing heritage and is ready to use. It's our job to keep her in this condition."

He hopes to get retired Damen employees enthusiastic about helping to maintain the *Reiger*. The plan is to ultimately house the vessels of the Damen Fleet Heritage in a floating boathouse, combined with an exhibition area where Damen's corporate history collection can also be housed.

Dina, who manages the Damen Company Historical Collection Foundation, is very enthusiastic about this. "Visitors will certainly appreciate this," she says. "The *Reiger* and other iconic ships can actually help us to forge connections with our clients. And, at the same time, we are honouring my father."

The mail boat

In the early 1960s, the Biesbosch was still a remote area. To enter the area, water transportation was the only option. Contact with the outside world was often limited to a visit from the postman, the so-called 'water post'. The mail boat sailed into the Biesbosch throughout the year. It was fairly comfortable in the summer, but in the autumn and winter the water could get quite rough. The skipper/postman had to be constantly aware of the ebb and flow of the water, which was particularly apparent in the area before the Haringvliet estuary was closed off from the sea.

In 1960, postman Janus Driesprong purchased a new vessel from Damen, a bright red flatboat 6 metres long by 2.2 metres wide and equipped with a 33 hp engine.

Drimmelen was the home port of the vessel. From there, the postman sailed across the Amer to the Biesbosch, making deliveries six days a week. In addition to the post, he also took care of delivering newspapers, milk and bread to some of the most isolated residents of the Netherlands.

Queen Mary 2

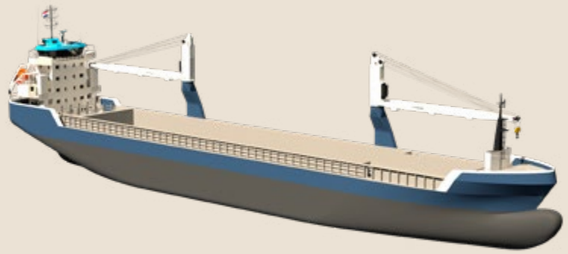
From October 23 – November 12, 2023 *Queen Mary 2* was in drydock at the Botlek facilities of Damen Shiprepair Rotterdam for an operational refit. The refit included technical maintenance and hotel refurbishment to the interior carpets and staterooms of Cunard's flagship.

"We are extremely proud to be entrusted by Cunard with the refit of *Queen Mary 2* at our facilities in Rotterdam," commented Rogier van der Laan, Damen Shiprepair & Conversion Global Cruise Product Manager. "The preparation and execution for the return to winter service after drydock of this most iconic ocean liner were a very important occasion for our organisation."

A concept for a Stan Patrol 4012 Carbon Flyer patrol vessel for the future.
Highly efficient due to the combination of lightweight and low energy consumption.

Ships of the future

A 135 metre hybrid river cruise ship by Concordia Damen



Our concept for a Combi Freighter 12000.

A Combi Freighter 3850, including ventifoils and battery power boxes.

Straight from our drawing boards. Not in the water... yet!

A 70 metre project by Damen Yachting

Based on the ideas of our client, the Portuguese Navy, Damen developed this multi-purpose vessel, which can also operate as a drone carrier. This is a solution for the increasing use of drone technology in combat. In addition to this function, the carrier is designed to fulfill a wide range of additional tasks, including auxiliary roles.

Our concept for an Azimuth Stern Drive 2613 Tug ...but on methanol.

Our new concept for a Floating Offshore Wind Support Vessel. The Damen FLOW-SV 400 is specially designed to install ground tackles for offshore turbine floaters.

The ‘cover model’ of this edition. The Service Operations Vessel (SOV) 7017 is the smaller sister of the successful ASV 9020. This novel class of offshore wind support vessel has been named the SOV E. Our SOVs flourish in specific jobs; the vessels serve to provide hotel functions and stepless access onto offshore wind farms and oil & gas structures for technicians.

BRINGING SUSTAINABILITY TOGETHER WITH THE GREEN SHIP MODEL

Dewi Wesselman - Sustainability and circular economy specialist

Connecting the dots

"Our ambitions are clear," states Damen's sustainability and circular economy specialist Dewi Wesselman. "We want to be the world's most sustainable maritime solutions provider. And to achieve that, we want to build our vessels cradle to cradle, and connect them to operate them emissions-free."

Such goals have stimulated diverse initiatives at Damen these past few years. Amongst the latest of these is the Green Ship Model. This describes, at a glance, the different roles performed throughout the Damen Shipyards Group and how the various teams interact with one another to further maritime sustainability.

"With the picture we can see – and show – what the different divisions in the group are doing from design, building, repair and maintenance, services and end-of-life solutions and how we bring all these activities together to add benefit for clients and help promote a cleaner, greener maritime industry."

For years already Damen has been working to improve the sustainable performance of the design of newbuild vessels. This has included experimenting with different construction materials, for example.

"Right now, we are considering looking at circular materials for the crew cabins of our Service Operations Vessel," Dewi says. "There are 80 cabins on board so, if we get this right, we're looking at a very nice achievement."

Damen Triton the enabler

A key component in the promotion of green operations is Damen Triton. The IoT solution collects data from sensors located around the vessel, which can be used to inform improvements in efficiency.

Dewi offers the example of two recently delivered Damen ferries featuring Damen Triton. Able to observe their speed and its relation to fuel consumption, the captains could adjust their sailing behaviour. The result was a 20% decrease in fuel consumption – and a corresponding reduction in emissions.

Crucially, Damen is now installing Damen Triton to existing tonnage, paving the way for green refit projects.

Informing decarbonisation

"With the information we gain from Damen Triton, we gain a clear picture of the vessel's operating profile. We can then advise clients of steps they can take to increase efficiency and decarbonise their operation."

Damen, with its wide range of decarbonisation solutions is then able to support the client in taking the next steps towards greater sustainability.

> **"We're working with many companies who provide sustainable solutions, such as assessing whether a vessel can benefit from wind assisted propulsion or carbon capture opportunities."**

"This really does encompass the entire Damen Group," says Dewi. "Damen Marine Components offers a range of energy saving solutions that can help increase efficiency and lower emissions. Damen Services offers, for example, shore power to enable emissions free hotel load in port, while Damen Financial Services offers a portfolio of solutions for the financing of vessel greening projects, and our Shiprepair and Conversion division is able to execute these green refit projects.

What we cannot do in-house, we can often do with partners. We're working with many companies who provide sustainable solutions, such as assessing whether a vessel can benefit from wind assisted propulsion, for example, or carbon capture opportunities."

Green Refit Tool

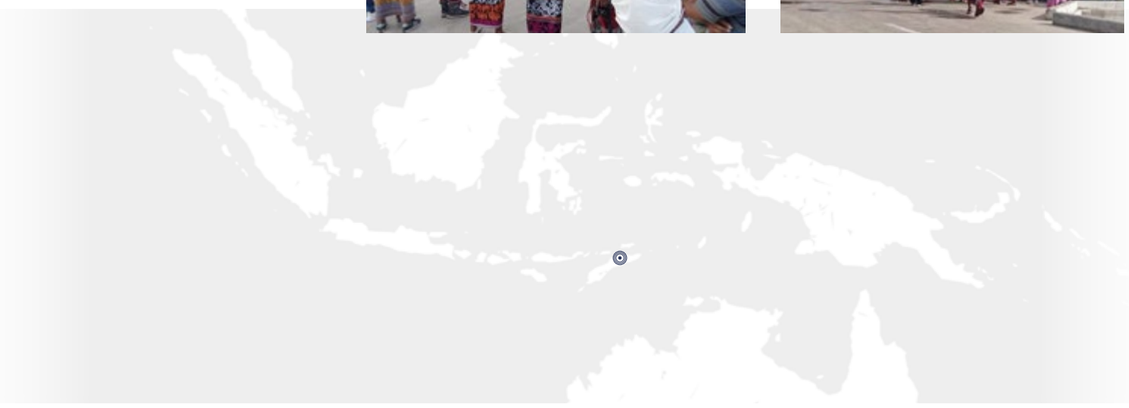
To support its efforts, Damen has created a Green Refit tool. To this can be added the data of the vessel's profile. The tool can then provide a clear picture of options that can be undertaken to facilitate greater efficiency and the resultant reduction in emissions that can be anticipated. It provides, for example, details of forthcoming legislation that will impact upon the vessel, as well as an indication of time taken to achieve a return on investment. Such information offers a vital contribution to ESG reporting and helps to secure investment opportunities.

"Next to operational efficiency, a benefit of a connected vessel is that it can enable predictive maintenance. We can advise clients when systems and components require replacement or refurbishment before efficiency is depleted. With this, we can enter into re-manufacturing agreements with suppliers. We can return, for example, the engine to the OEM. They can then make it as good as new, maintaining efficiency and minimising waste which is part of the cradle-to-cradle mindset."

Closing the loop

For Damen, this is just the beginning for the Green Ship Model. The company has plans to develop the model further, ensuring their offering truly encompasses the entire lifecycle of a vessel.

"Right now, we are looking at decommissioning of vessels," explains Dewi. "We have a pilot project in the pipeline at our Botlek yard in Rotterdam. With this, we will assess how we can undertake the responsible recycling of ships in the Netherlands and provide the steel for reuse, either in our own or another industry. This will really help us to close the loop."



Damen RoPax Ferry 6716

brings new opportunities to Timor-Leste

Improving public transport can have a significant positive impact on the economies and quality of life of regions that were previously difficult to access. In areas of low population density and challenging topography, ferries can be a cost-effective and versatile method of transporting people and vehicles from remote areas to economic and transport hubs.

A recent example of this is a new RoPax Ferry 6716 that Damen has built for APORTIL, the Port Authority of Timor-Leste in East Asia. The vessel has replaced a smaller and ageing vessel on a route between the Timor-Leste capital Dili, the Oecusse enclave and the island of Ataúro, thereby providing regular transportation for passengers, vehicles and goods along the north coast of the country.

The *Berlin-Ramelau*, named after Germany's capital city in recognition of that country's financial assistance with the project, and Timor-Leste's highest mountain, is expected to bring substantial economic and social benefits. Built to take up to 308 passengers plus private and commercial vehicles and cargo, it is increasing access to education and employment for those living in the outlying regions, as well as boosting internal trade. This is due not only to it being a larger vessel. The improved reliability and expanded capacity of the service gives confidence to its users and encourages increased commerce and interaction along its route.

The project was co-financed by the state of Timor-Leste and the government of Germany via the KfW Development Bank. KfW's involvement has also funded upgrades to the ferry terminals and their transport links.

"The ferry Berlin-Ramelau, funded in part by the Federal Republic of Germany with 6 million euros through KfW Development Bank, is a visible contribution to the nation building of this relatively young state," says Burkhard Hinz, Country Director of KfW Development Bank for Indonesia and Timor-Leste.

Burkhard Hinz

"The ferry is mainly operated by a Timorese crew, which additionally contributes to the social and economic development of the country by transporting people and goods. Thus, the *Berlin-Ramelau* allows the population of the Oecusse enclave to access government services including education and health care, markets and jobs in Dili. Moreover, during COVID-19, the *Berlin-Ramelau* became a lifeline for the people of Oecusse as the borders with Indonesia were closed."

With a population of just 1.3 million, the RoPax Ferry 6716 is a significant addition to the country's infrastructure: 67.3 metres long with a beam of 16 metres and a draught of 3.3 metres, it is capable of a maximum speed of ten knots. It is also very stable and combines high levels of comfort for the passengers with reliability and excellent operational performance for the operator.

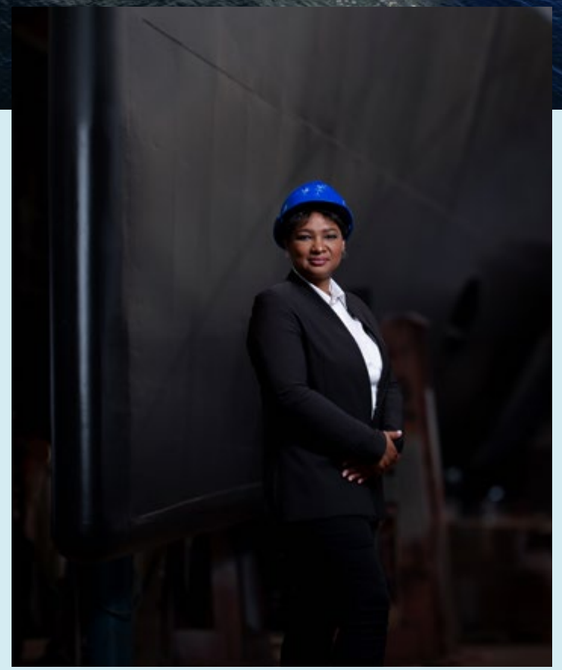
By connecting Dili with other ports along the coast it will improve their residents' access to the markets, education and institutions in Dili, improving their quality of life, as well as providing other important services to Timor-Leste. APORTIL is also undertaking works to improve and build support infrastructure so as to extract the maximum value from its investment.

Damen is experienced in supplying ferries to developing countries. In recent years it has delivered a series of coastal ferries to the government of Zanzibar to improve access to and from the islands of the Zanzibar archipelago. Improving the links between the islands and the mainland both supports the tourism industry as well as increasing mobility for the residents. On a larger scale, Damen built four, 35-metre RoPax ferries for Penang Port Sdn. Bhd., Malaysia. Again, this will improve communications between offshore islands and the regional hub of George Town.

Ferries of all sizes can have transformative effects on the communities they serve, and authorities around the world are increasingly looking to take advantage of the highways that in some places flow past their windows.

My favourite project

Project Biro • Hermoine Manuel



My favourite project is Project Biro – the three Multi Mission Inshore Patrol Vessels (MMIPV) that we are building at Damen Shipyards Cape Town for the South African Navy. One of the reasons this project is so special to me is that it was just getting underway when I first arrived at Damen in August 2019, allowing me to be involved at an early stage.

Project Biro has required a lot of cross-disciplinary coordination and teamwork. There has been a lot of knowledge sharing within the group. That's one of the great advantages about being part of Damen; no matter what issue arises, you can pick up the phone and someone, somewhere will know the answer.

What also excites me about Biro, as a Quality Manager, was the involvement of quality from start to finish. We touched every aspect of this build, creating a matrix to ensure the quality of almost 3,000 specification lines. This played an important role in keeping us on track and is a real feat of achievement for the yard.

The resulting progress we've made as a yard has been considerable. The increase in efficiency and quality between the first and second vessel were significant. Due to the lessons learned, we've created new work instructions and procedures that will help us on projects in the future. This is one of the benefits of building in series; the quality improves over successive generations.

It's not only we that benefit from this, however. Our suppliers and contractors too have experienced the advantages. Having to make components to the high standards required for Biro has helped them to develop their capabilities internally and they can now offer higher quality for their clients.

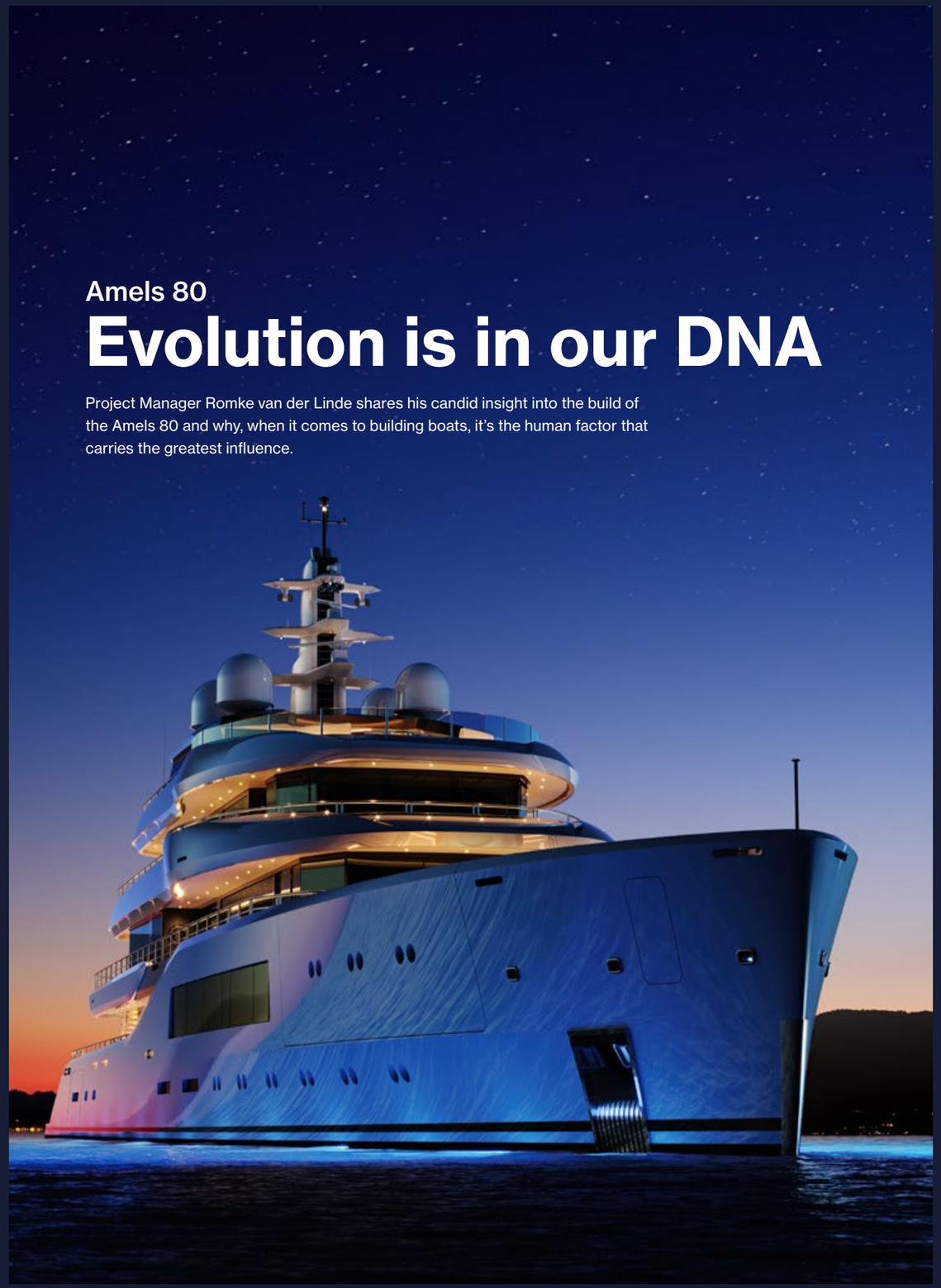
Another advantage has been the job creation. Biro has been directly responsible for new employment opportunities at Damen and at our suppliers and contractors. The results of this project will be felt for years to come.

I'm very proud to be part of this – and I'm sure everyone at the yard echoes this sentiment. Project Biro represents a significant moment in the maritime history of South Africa and the South African Navy. Whatever role you have played in the project, whether you're an engineer, a welder, or a quality inspector, by touching this project you've helped to deter poachers, aid in anti-pollution tasks and to protect our coast. The impact of Biro is massive. It's something we can tell our children about.

Amels 80

Evolution is in our DNA

Project Manager Romke van der Linde shares his candid insight into the build of the Amels 80 and why, when it comes to building boats, it's the human factor that carries the greatest influence.



"If you address a project very much from a business prospective while keeping to the letter of the contract, you will always be on the safe side. But I don't, I can't. That's not how I'm wired."

For many outside of the shipyard walls, the Amels 80 will no longer only be the design introduced some 18 months earlier. With the first hull of this new Limited Editions arriving in Vlissingen for outfitting, things are about to get and look very real. A milestone by no means underestimated by Romke van der Linden, an experienced Amels Project Manager leading the build.
"The way I look at this is different to what you might expect. It's a great moment, yes but I don't look at what we are doing through rose tinted glasses. I look at the reality. Boats aren't built by systems, boats aren't built by companies, boats aren't built by software, boats aren't built by machines. Boats are built by people. That is my motto. That's what it's all about."

This is an opinion based on 16 years with the company when he joined Damen Yachting from a very different industry, but one also focused on large-scale complex engineering projects. Taking on one of the early Amels 171s, Lady Nag Nag, his first project proved to be a major learning curve in the world of yacht building but one he embraced wholeheartedly and still turns to for inspiration.
"I always make a point of remembering the first time I came here, my first day. It's important to give new employees the opportunity to learn and develop. Install curiosity – what do you think, how do you look at the work and what do you have to do to get quality and reach positive results.
The answer is always to never cut corners but to make sure you do it right. That attitude has not changed, that has remained the same."

And whilst attitude may not have changed, logistics and capacity have. The yard has grown from having two projects on the go, to a current average of ten. This represents a serious change and growth over time that is not without challenge. "There are quite simply more people at the yard. We are five times bigger than when I joined so you are not working with the same people each time. You have to do everything you can to build up the team and to make sure the team is working well together, in such a way that they will come to you and address a problem if it arises so you can strive to solve it together. Of course mistakes can be made but that is what people learn from. There will always be challenges but it's how we handle them that matters."

Leading the build of the first of a new design comes with additional complexities such as the pressure of knowing that all learnings and findings are needed to feed back into the series. It would therefore be easy to approach this build with a very practical perspective, ignoring the emotion and focussing purely on operations and targets. This is a notion that Romke quickly dismisses. "It goes beyond making money, above making the deadline. If the human part, the people aspect, is working well, the project will run smoothly and the financials and quality will follow as a result. I guess we really only know if we succeeded fully when the second, third and fourth hull are also successful. But focussing on the goals with this build, it's much more people driven. You want the customer to be happy.
You want your team to be happy. You want to be stood together at the naming ceremony with your team saying we did this together, this was teamwork, the moment the champagne bottle hits the hull."

Romke van der Linde

“I pour my heart and soul into my work. It’s the only way I can work: fully committed with all I have. I can’t wait to get on board and, most importantly get the team on board, working together to watch the Amels 80 grow.”

Getting to that moment will come quickly. Set for delivery in 2025, the Amels 80 continues the Limited Editions promise of fast delivery, a trait proven over the years and through the legacy of over 40 Amels Limited Editions delivered to date. It is still, however, by no means easy.

“You cannot ignore the fact that you are not just building one boat. You have to build a lot of them. So you need to give more thought, more focus, more attention to the qualities. The concept of the boat needs to be a workable platform in the future. You have to convince your entire team so they are well aware of that. Every single detail is scrutinised and checked twice. At the same time you need to think practically of your other goal to build and deliver one boat for one owner. Something unique and special for them that meets their dream and vision. That means that sometimes you have to go back to the design process to make it work.”

Making it work is exactly what motivates Romke through every step of the build. Not just with the project team, but also with production, co-makers, crew and of course the client team as well.

“You have to look for partners who may not be the cheapest, but who are the best. The best for the platform. On top of going for top quality and the best technology, you have to go for the best team, the best people. You need to know what you are getting into and decide what you are willing and not willing to do. I like proven technology and making sure that the platform is correct, that the foundation is correct. There also have to be elements of give and take with the owner’s team. Have the same goal even if you are on different sides. I sometimes say to the owner’s rep: Every great Project Manager has a can of oil on his desk. If my can of oil is empty, then it needs to be filled. Give and take. That’s how I try to work so as not to get stuck in details.”

As the Amels 80 now moves into this next phase of her build, evolving from concept to reality and turning the details into the client’s dreams, we have the chance to look deep into the DNA that flows through this new 80-metre. Listening to Romke it’s clear, that like all best in class, this is a build whose DNA dates back through legacies, thrives on learning and will continue to grow. But what makes the real difference is that this is a build at the heart of which are the people.

“I pour my heart and soul into my work. It’s the only way I can work: fully committed with all I have. I can’t wait to get on board and, most importantly get the team on board, working together to watch the Amels 80 grow.”

AMELS 8001 AT A GLANCE

Amels 80 (80.00 metres / 261 ft)
Delivery 2025
2,175 GT
14 guests, 20 crew plus Captain
Interior Design by Sinot Yacht Architecture
Exterior Design by Espen Øino
Naval Architecture by Damen Yachting

Service Hubs
Thinking globally, acting locally

In the years since Damen opened its first Service Hub the network has become an important part of the group. Today, twelve hubs can be found across five continents with the latest addition to the portfolio, at the Damen Song Cam shipyard in Haiphong, Vietnam, opening its doors on 12th May 2023.

Michael Magee

“With their extensive resources here in the UAE, Damen is an easy choice for us given the quality of the vessels and the aftercare service they can provide in what is a tough environment.”

The hubs were initially established to undertake warranty work in regions where there were sufficient concentrations of Damen vessels to justify having technicians permanently located there. To begin with, they had no contact with existing Damen customers apart from those with new vessels. But as time went by, they began to receive requests for assistance from Damen owners not covered by the warrantees and expanded their activities to include general maintenance and trouble-shooting.

The hubs have grown in size and capabilities since then and acquired warehouses holding equipment and spare parts relevant to their local markets. The teams have also grown with upwards of 30 personnel in some locations and recently have expanded their service operations to include non-Damen built vessels. However, warranty work remains the core business.

Maintaining the advantage

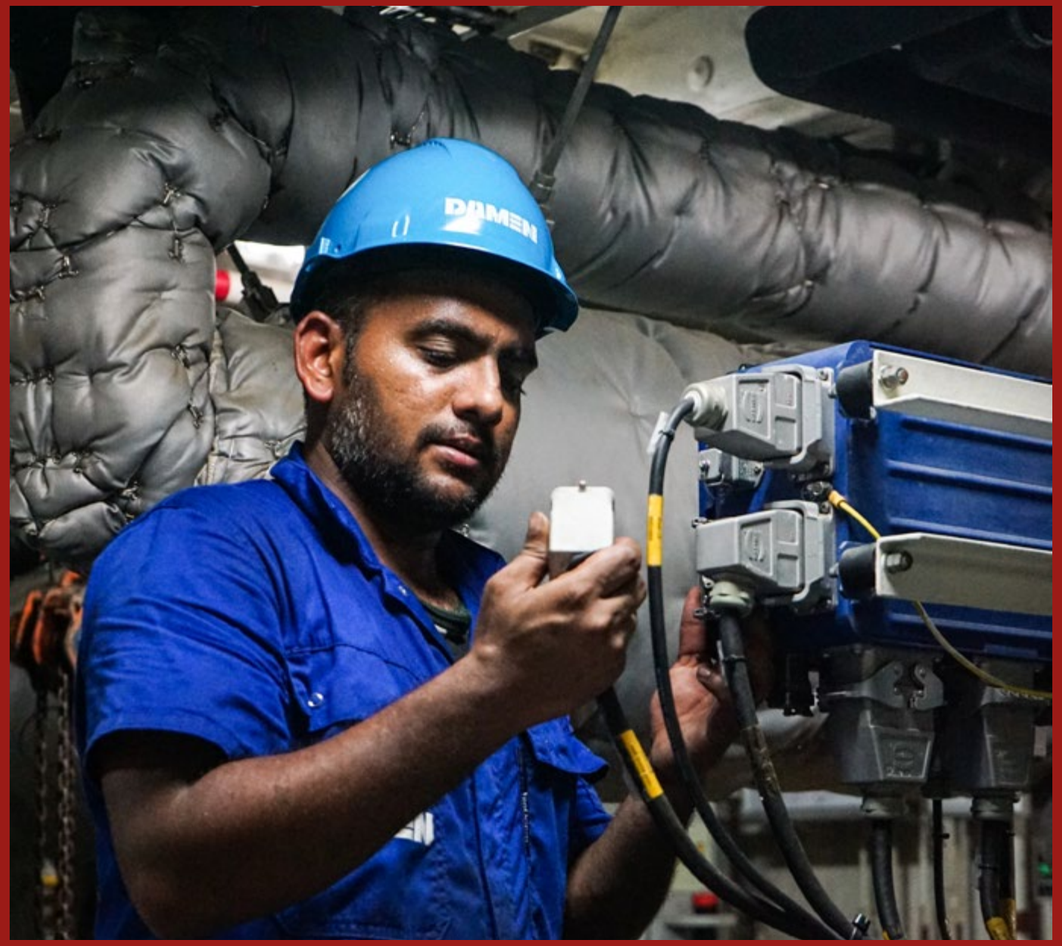
A significant factor in their success is that many of the technicians are recruited locally and trained to Damen standards. Their understanding of local working practices and their command of the local languages is an important contribution to delivering a first-class service; developing relationships, building confidence and minimising misunderstandings.

As the Service Hubs grow in size actions are being taken to ensure that they do not lose their entrepreneurial culture. Managers recognize that as the headcounts grow, further systems and procedures need to be established. This is to ensure that the hubs remain efficient and the customers continue to receive a first-class service. The key to success is to make sure that processes are in place without personnel finding them onerous and taking up too much of their time. More managerial staff are being recruited to ensure that personnel get the support they need, and more training programmes are provided in areas such as HSEQ. Maintaining the service levels that their customers have come to expect as they grow has required the hubs’ structures to evolve to keep themselves flexible and focused on their clients’ needs. Being located in close proximity of their clients is very fulfilling for the staff as they get to know them really well. They gain in-depth views of what is important to their customers, the conditions in which they operate, how their organisations work and what their clients demand of them. This knowledge that is accumulated over time enables the hubs to deliver a service that a centralised organisation simply cannot match.

Captain Michael Magee, Group Harbour Master of RAK Ports in Ras Al Khaimah, UAE, comments: “With their extensive resources here in the UAE, Damen is an easy choice for us given the quality of the vessels and the aftercare service they can provide in what is a tough environment. In 2018 we took delivery of our first tug built in the UAE, at Albwardy Damen. Having the resources of a Damen Service Hub on our doorstep was a contributory factor to that decision. Being able to make repairs quickly and easily saves time and money. No other tug makers have a facility nearby, and Damen has a skilled workforce and a good safety record.”

Looking ahead

As well as embedding the structures and systems that come with growth, the hubs are preparing themselves for the next generation of Damen vessels. For example, with Damen’s first E-Tug now operational, the hubs will be acquiring the skills and know-how required to maintain them in anticipation of more coming into service. Equipping local teams ahead of time with the knowledge and understanding that they will need from the outset is also part of the Service Hubs’ ethos and contributes to developing long term relationships with their clients.



Damen Services Middle East

Established in 2018 and based in Sharjah, UAE, Damen Services Middle East is one of the largest in the division with over 30 employees. The development of close relationships with their customers has certainly been a cornerstone of their success, with many of them located nearby. This allows the team to focus on the precise need of each client and individuals are encouraged to use their judgement when it comes to exploring new solutions. The environment in the Gulf presents its own challenges and the knowledge base that the hub has developed through continuous exposure is something that cannot be developed by engineers based on another continent.

The Middle East hub also has the advantage of having access to the resources of Albwardy Damen's shipyards, as well as supporting their newbuild programme with after-sales services.

Whether it is the yards or the hub that brings a new client on board, the initial point of contact for that client continues as the lead so as to maintain the continuity of the relationship.

Damen Services Middle East has seen strong growth over the past two years, working with some of the largest tug operators in the region. The combination of experience, convenience and the ability to deliver a consistent and comprehensive service using local technicians is attractive to local companies. It now works across a range of sectors including tugs and workboats, and also naval and security assets including offshore patrol vessels. Some projects involve even larger vessels. Whatever the job, the hub will marshal the resources required to make it a success.

My favourite project

RSD-E Tug 2513 • Cuong Nguyen Anh

When I was a student of Naval Architecture and Ocean Engineering, we used to have a saying. If you're an astronaut, you want to work on the International Space Station. If you're an IT specialist, you want to work for google. If you're a shipbuilder, you want to work for Damen.

I've been here for four years now and I'm very happy with my choice. I get to work on a wide variety of vessels – ASD Tugs 3212, 2813, 2811 & 2312, an ATD Tug 2412 and a RSD Tug 2513, as well as Stan Patrol vessels.

It's hard for me to select a particular favourite; they're all my favourites! I've learned so much working on each of these vessels, and each project is filled with memories of good times shared with colleagues.

A project that stands out to me is the last ATD Tug 2412, the *VB Orca*. It was a very challenging job. This was partially due to the fact that she was the last of her class. There was less room for mistakes. We had to get the materials orders right, for example, as any extras would be not be usable on a later project.

Another reason was that the project took place during the coronavirus pandemic. We had to keep people apart, so the team was running at 30-40% of its strength. We did it, though. I think that was the most meaningful project for me.

Perhaps my favourite vessel, though, if I have to choose just one, is the first RSD-E Tug 2513, *Sparky*. This is the most futuristic vessel I've come across during my time at Damen Song Cam Shipyard (DSCS).

The vessel is capable of delivering 70 tonnes of bollard pull, yet is completely electric and produces zero emissions.
As someone who is both a technology enthusiast and passionate about the environment, I'm very proud that my company has produced such a vessel. Even though I was not directly involved in the project myself, I'm proud of Damen's commitment to protecting the environment.

A new era is coming and my colleagues and I here at DSCS are looking forward to it with childlike enthusiasm!

Repair projects

Nordic Sira & Longbay

Damen Shiprepair Harlingen

Damen Shiprepair Harlingen has completed a scope of work to *Nordic Sund, Nordic Saga, Nordic Sira* and *Nordic Sola*. The tankers underwent hull repairs, propeller service, cargo line modification and had ballast water treatment systems installed according to IMO regulations. Furthermore, they were hydrojetted and painted (underwater area and topsides).


Wind Server


Dawn


Seajacks Scylla

Damen Shiprepair Amsterdam

Thejack-up *Wind Server* kicked off many more conversion, repair and construction projects to follow for the Dutch offshore wind sector. Furthermore, the yard worked hard on the transport and installation equipment of the jack-up *Seajacks Scylla* and made sure she is ready for her new assignment, installing wind turbines in the North Sea. Damen Shiprepair Amsterdam also completed the transformation of a Damen Platform Supply Vessel to a mission ship named *Dawn*, also known as Project Reform.


LCVP1604

Damen Shipyards Den Helder

The lander for Project Reform (LCVP1604) was finalised at Damen Shipyards Den Helder. The vessel is capable of transporting vehicles, cargo and people aboard the *Dawn* to the shore in crisis areas. *Dawn* is a mission ship converted from a Damen Platform Supply Vessel (see above).


Anuanua Moana

Damen Shiprepair Oranjewerf Amsterdam

Damen Shiprepair Oranjewerf undertook the successful large scale conversion of the ex-offshore supply vessel *Vos Satisfaction* to a deepsea mining vessel named *Anuanua Moana*.


Damen Shiprepair Harbour & Voyage

While 3,000 guests and staff stayed on board the 253-metre-long cruise ship *AIDASol*, a team of 35 specialists from Damen Shiprepair Harbour & Voyage replaced the crankshaft of a huge ten-cylinder marine engine.


Sky Princess


Aeolus


Seapeak Methane


OceanXplorer

Damen Shiprepair Rotterdam (DSR) & Damen Shiprepair Rotterdam, location Verolme

The *Sky Princess* was at DSR location Verolme for the installation of class certified parts for a new air lubrication system and a full painting programme. The project was successfully completed in just sixteen days. The *Seapeak Methane* was at DSR for a 32 ton bull gear exchange. The yard completed the full exchange, alignment checks, painting etc. in just 21 days, before the vessel went straight into the next project. The *Aeolus* of Van Oord was at DSR, location Verolme for a Huisman crane upgrade including the fabrication and installation of a new crane boom rest and spudcan adjustments. DSR also undertook the conversion of a platform supply vessel into the *OceanXplorer*, by using all the expertise within various Damen divisions. The *OceanXplorer* is equipped with everything it takes to uncover 98% of the underwater world of our oceans.

Damen Shiprepair Dunkerque

The *Hua Sheng Long* and *Hua Xing Long* are ABB Azipods equipped vessels that came to Damen Shiprepair Dunkerque (ABB certified yard) for maintenance including painting and mechanical works.

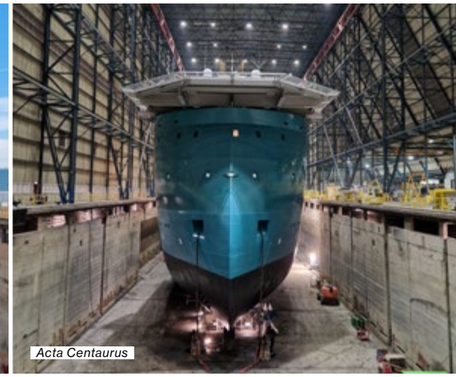

Hua Sheng Long


Höegh Esprenaza & Höegh Giant

Damen Shiprepair Brest

Damen Shiprepair Brest upgraded three, 294 metre Höegh LNG Floating Storage Regassification Units (FSRU) simultaneously.


HNLMS Friesland


Acta Centaurus

Damen Shiprepair Vlissingen

''Job well covered''. The *Acta Centaurus* came to the yard in Vlissingen for thrusters and valves overhaul including a fresh coat of paint and anti-fouling treatment. Damen-built Dutch patrol vessel *HNLMS Friesland* has become the first vessel to use Damen Shiprepair Vlissingen's high-capacity shore power supply on her arrival to the yard's drydock 1.


Zaruma

Damen Shiprepair Curaçao

Damen Shiprepair Curacao repaired the hauling rail and fabricated additional drydock blocks to dock the aframax crude oil tanker, *Zaruma*.

FUTURE OF THE ROYAL NETHERLANDS NAVY

The submarine is the frigate of the future

The only thing that doesn't change is change itself.
Even so, the transformation of the global landscape demonstrates that we are in an era of changes that are fundamental. Frank Bekkers, the programme director of The Hague Centre for Strategic Studies (HCSS) discusses the implications for the Netherlands, and specifically the Royal Netherlands Navy, in the wider context of safeguarding national sovereignty through European autonomy.

A Saab-Damen submarine operating with drones and divers.

Frank Bekkers

"We need to get our own defence up to scratch: to stand on our own two feet."

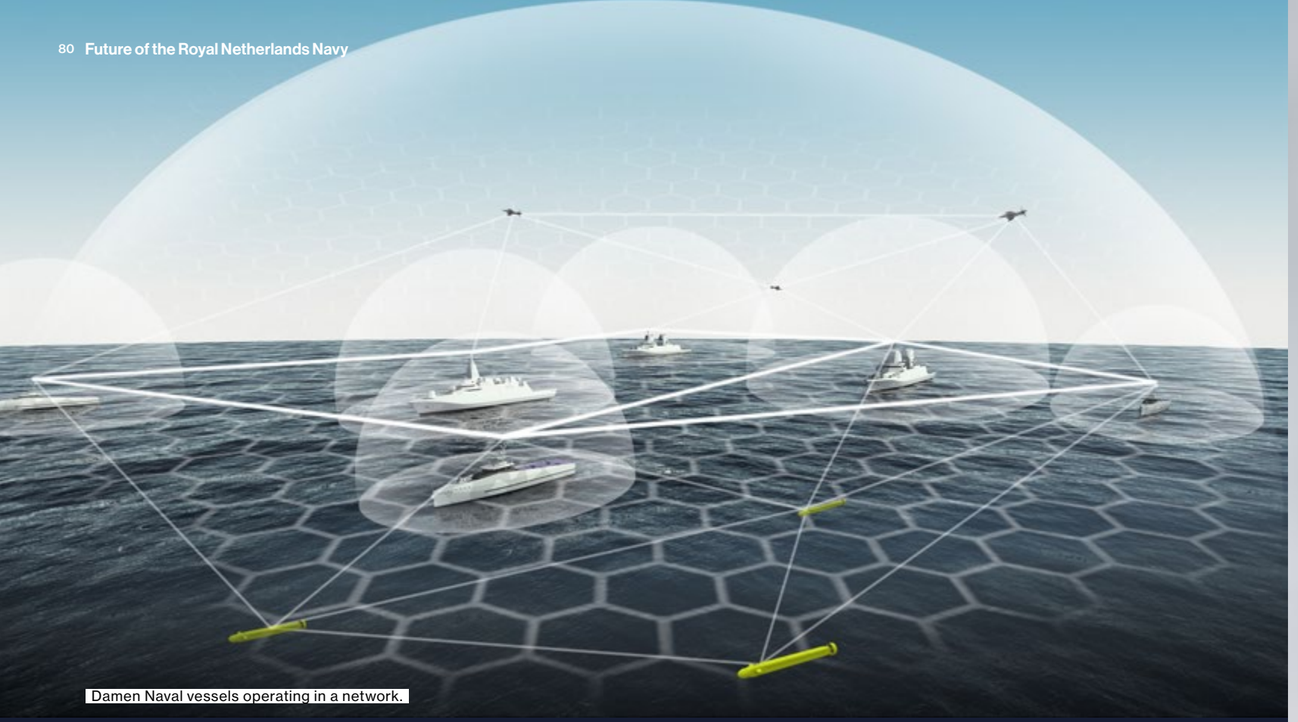
"The dominance of the West on the world stage is declining. For years, we have been able to rely on multilateral institutions such as the International Monetary Fund, the United Nations and the World Bank, certainly when it comes to prosperity and well-being. It is clear to see how that paradigm is under pressure. The East is on the rise, but so is the Global South. China is the leading voice calling for more influence in these institutions, which are thought to be too subservient to the interests of the West. And if that influence isn't granted, countries set up their own institutions, as in the case of China recently with the announcement of the expansion of the BRICS countries as a counterpart to the Western-oriented G7.

The intensity of the power struggle between the United States and China is all too clear. Processes of this kind often lead to war, but we can't really afford to go down that road. We are in a climate crisis that requires us to work together globally to address the problems. The same goes for migration, and the distribution of resources and prosperity. We really need a new world order for our overarching problems."

Chips and 6G

"At the same time, you can see the West thinking about 'de-risking'. How can we disconnect, or at least become more independent of production in, for example, China, and energy from Russia. That means not only commodities but also technology such as chips, 5G/6G and AI. A form of regionalisation is emerging, even though globalisation will not come to a halt. In an increasingly unsettled world, ensuring that the sea lines of communication remain open and secure is even more important. Which explains why Dutch Defence Minister Ollongren has announced that the Royal Netherlands Navy will from now on undertake a mission to the East every two years.

For Europe, this 'de-risking' applies not only to Asia but also to the United States, and specifically to our defence arrangements. We can't continue to rely on the US to protect Europe indefinitely. We need to get our own defence up to scratch, to stand on our own two feet. This applies to all aspects of modern warfare, including our own doctrine, networks and communication systems based on our own satellites and the like. We can only do that if Europe works together. The costs are too high for individual countries – even France and Germany. You can only continue to safeguard national sovereignty in a context of European autonomy. And if that European autonomy is not based on its own defence, a powerful European pillar as part of NATO, is meaningless."



Damen Naval vessels operating in a network.

Naval conglomerates

"I don't think that means one big European army. We will have national units acting in a coordinated way as part of a European network, following the example of NATO. Dutch Army brigades operating as part of German divisions are a good example. The European defence industry will have to keep up. Eventually, two or three major European naval conglomerates will be left over. As the Netherlands, you want to participate in that process from a position of strength. That means continuing to look after your OEMs and capabilities in that area.

Moving on from that, collaboration on the development and construction of platforms for defence will be indispensable. As in naval construction. Stand-alone vessels are less relevant. It's all about operating in a network. Interoperability is crucial in that respect. Moreover, there has to be a focus on economies of scale and innovative capacity. In terms of cost, it's simply much more efficient to build larger series. And one way of building up innovative capacity is to incorporate civilian technological developments in military applications, and vice-versa. It should be pointed out that Damen's success is also based in part on that principle."

"*Stand-alone* vessels are less relevant. It's all about operating in a network."

Brainport Eindhoven

"More funding is becoming available for defence in the Netherlands. That is a good development, and the Royal Netherlands Navy will also benefit. The workforce will not increase but there will be more investment in technology. An important development in this regard is digitalisation. And that doesn't mean replacing systems during a Mid-Life Update. Virtually continuous updates to software and systems will also be needed: 'technology insertion'. The functionality of military systems is also increasingly determined by software. And software can be updated relatively easily and remotely if necessary. In this regard, I expect new parties on board vessels to become increasingly important. The Silicon Valley-like companies or, in Dutch terms, Brainport Eindhoven. Accordingly, more continuous support will be required from builders like Damen, eventually resulting in a sort of 'ship-as-a-service' partnership.

As far as the vessels of the Royal Netherlands Navy are concerned, autonomous and underwater are the keywords. Autonomy is already emerging in mine countermeasures vessels. A mother ship equipped with multiple, small, mostly unmanned, drones. This is the future for all platforms. The balance between surface and underwater is shifting in the process. Thanks to the presence of sensors everywhere, including in space, surface vessels can always be detected and targeted with precision weapons at long range. That means that operations in conflict zones are becoming very high risk. So, there will be more underwater operations. The frigate of the future may well be a civilian mothership or a submarine with large numbers of satellite drones."

National Naval Construction Brainport

Richard Keulen, Director of Corporate Strategy and Innovation at Damen Naval, shares his thinking about Frank Bekkers' analysis.

"The insights presented by Frank Bekkers are confirmation for Damen Naval that we are following the right course. In part because of our strategic relationship with the defence sector, which is allowing us to anticipate some of the trends mentioned.

Our involvement in the Anti-Submarine Warfare Frigates (ASWF) programme has brought us back to building national, complex naval vessels. After all, it had been a long time since the Ducth Ministry of Defence had placed a frigate replacement order: the defence budget had been cut for years. Fortunately, we can now get to work with Defence again to build these modern frigates."

Genuine combat vessel

"The new frigate is a genuine combat vessel. With a wide range of Dutch companies, we are in the lead for the construction of this complex naval vessel, working together on the details of the developments described by HCSS.

In addition, our early involvement in innovation initiatives, such as Dutch Naval Design at the national level, and the European Defence Fund at the European level, has given us a clear direction. First of all to identify focus areas for Research, Development & Innovation (RD&I). But also for strategic planning relating to upcoming projects, particularly given the extensive plans to replace ships in almost the entire Royal Netherlands Navy over the next fifteen years.

In these times of escalating tensions and increasing security concerns, including at sea, it is reassuring for us to be involved in the discussion of these developments from our position as a national naval OEM. We believe that this discussion is also essential for the selection of the submarines of the future. We fully respect the decision-making process and considerations of our government, but we are also ready, with Saab and numerous Dutch companies, to shape the National Naval Construction Brainport."

Self-sufficient development and integration capability

"It is logical for us, as the Dutch naval construction cluster, to play a leading role here. After all, we are still the only defence sector in which the Netherlands has self-sufficient development and integration capability. That means we continue to be relevant at the European level as well."

The four ASW-frigates Damen is building for the Belgian and Dutch navies.

Working together for the safety of the world

Turkey's Feyz Group plans a future based on standardisation and sustainability

The CF 5000-design for the Feyz Group


Mr Engin Aynaci - General Manager of the Feyz Group

"From my heart, I can say that Damen's product is perfect," says Feyz Group General Manager Engin Aynaci.

His Istanbul-based company is a specialist in the dry cargo market, offering a comprehensive range of brokering and ship management services to the sector. The company has chosen Damen for an order for five cargo vessels; four Combi Freighters (CF) 3850 and a CF 5000. These will be the first newly built Damen cargo vessels delivered to a Turkish owner.

A passion for Dutch shipbuilding

Previously, however, second-hand Damen vessels have operated in the region. This is something Mr Aynaci knows all about. He first encountered Dutch shipbuilding during his studies at the State University of New York Maritime College (SUNY) when researching his thesis on how to improve ship management in the European short sea market.

"My studies led me to the Netherlands where the designs and engineering were of a very high quality. I decided there and then that if ever I entered this market, it would be with a Dutch vessel."

True to his word, when he began the Feyz Group in 2008, Mr Aynaci built up a fleet of seven vessels, amongst which is a Damen vessel.

"She's 25 years old and her condition is still outstanding. We do our best to keep her in tip-top shape, but really, it's Damen's philosophy of standardised shipbuilding that has made her so durable."

Inspired by standardisation

Series building, he explains, is a sure way to create a reliable platform that improves over successive generations. That's not the only benefit to standardised shipbuilding Mr Aynaci states.

"The people working with a standard vessel become very familiar with it. That goes for people throughout the chain – the crew, port authorities, stevedores. Everybody recognises it and knows what they are doing with it. The crew don't need additional training, they know where everything is and can work safer. That's particularly beneficial when there is commonality across a fleet. Stevedores and port authorities also recognise the vessel and can unload it faster. Standardisation increases safety and efficiency. Ultimately this equates to increased profitability."

The prime example of this is Damen's CF 3850, he says. "Everyone in the industry knows this vessel. It's been in the market for some time. I've chartered it myself. It's a very impressive boat. I had no doubts at all when placing my orders for four of these."

Towards a new generation

He does point out, however, that the existing fleet of CF 3850 vessels is ageing and that, like all vessels of their lifetime, consume relatively high volumes of fuel. Damen's answer to this has been to develop an all-new version of its successful design fit for the future. Optimised using computational fluid dynamics (CFD), the vessel offers significantly reduced resistance in the water and a range of options to increase efficiency.

These are a hybrid PTO PTI, space for batteries fore and aft, improved shore connection, preparation to sail with wind assisted propulsion and preparation to sail on 100% biodiesel. Damen has assessed the effects of each of these features and is able to predict how much fuel can be saved on an operation as a result. For example, use of batteries can reduce fuel consumption, and CO_2 emissions, by 23%, or 227 tons per year and NO_X and SO_X emissions by 21 and 23%, respectively.

"Everyone in the industry knows this vessel. It's been in the market for some time. I've chartered it myself. It's a very impressive boat. I had no doubts at all when placing my orders for four of these."

“As ship owners we always say, ‘safety first’. With that in mind, what could be more important than the safety of the world? We need to make a plan to preserve the world for future generations. I’m very optimistic about this. If we all work together, we can do it.”

Damen built *Sky Marine*: “She’s 25 years old and her condition is still outstanding.”

A foundation to build on

As a result of its increased efficiency, the new CF 3850 requires less power and produces significantly lower emissions. The new vessel is providing a foundation for Damen to build on. Working together with its partners in the industry, including clients like the Feyz Group, which will be the launching customer, Damen is developing the CF 5000.

“The CF 5000 incorporates a lot of features from the CF 3850 but is a bigger vessel. It pays the same attention to fuel efficiency and environmental stewardship. This is crucial for the future. There are new regulations and requirements coming, which the current fleet cannot meet. Damen has stepped forward and created a design that meets the demands of the market, offering substantially reduced fuel consumption and a lower environmental footprint.”

The client’s role in the development of the vessel involves providing Damen with in-depth input from the market.

“They listen to what we – and other stakeholders – have to say and based on that, go about developing a highly valuable vessel that meets all of these requirements with standardisation.”

Smart, connected, more sustainable

Going forwards, the group will continue to provide Damen with the input it needs to perfect the design. This will be done via Triton – Damen’s connected vessel platform. Triton collects and analyses data gathered from thousands of sensors located around the vessel relating to such things as engine performance indicators, fuel consumption, and maintenance requirements.

This makes Damen vessels smarter, providing not only a route to product evolution, but also offering a number of benefits to the operator. This includes a reduction in downtime through performing preventative maintenance, for example. If also enables the optimisation of operational efficiency, sailing the most efficient route and reducing emissions and fuel consumption yet further.

Installed onboard the Feyz Group’s CF 5000, Triton will provide data on the vessel’s operation, feeding it back to the company and to Damen. With this, Damen will be able to finetune the design, ensuring the increasingly sustainable performance of the design. Mr Aynaci says he is only too pleased to contribute to such a process.

“As ship owners we always say, ‘safety first’. With that in mind, what could be more important than the safety of the world? We need to make a plan to preserve the world for future generations. I’m very optimistic about this. If we all work together, we can do it.”

My favourite project

Interceptor 3007 • Görkem Güngör

The Damen Interceptor (DI) 3007 stands out to me as a favourite vessel. We cut first steel on the first in the series in July 2021. As it’s a prototype vessel, the DI 3007 has presented many challenges for us. The DI 3007 offers up to 6500 horsepower with three main engines and three water jets connected to them, which strengthen the vessel’s performance in deep seas with a speed of 40+ knots.

The first question before we began production was whether we could achieve 40 knots. When the day of the seatrials came we were all waiting, anxiously, to see if the vessel could reach the required speed. The trial was excellent, and everyone was very pleased to see the vessel get up to 42 knots – we’d not only reached, but exceeded our target!

Of course, it’s not only about the speed. During the production process we paid equal attention to quality standards and safety, both in terms of processes and onboard the DI 3007 itself. The result is a vessel that offers comfortable rest areas and accommodation for the crew. The operational profile is also well thought out, with a sound level of around just 70 decibels on the bridge and galley areas.

Of course, as with any new vessel, there’s a lot of learning, but thanks to the teamwork of all Damen Antalya employees and other stakeholders, we were able to complete the process in the best possible way. The experience has been very valuable, I think we’ve all learned a lot during the production – lessons that will come in very useful when we move forward constructing the next DI 3007 vessels in the series.

One of the most significant challenges during the project was the outbreak of war in Ukraine. The client who had commissioned the first vessel was based in Russia. As a result of international sanctions, we were unable to deliver the vessel. This underlines how important peace is to the world. This year marks the 100th anniversary of Turkey’s establishment as a country. It seems a good moment to remember a quote from our first national leader, who said, “Peace at home, peace in the world.”

Offshore wind is *coming of age*

The offshore wind business is booming. The engineers who design and build the servicing (C-SOV) and crew transportation (CTV) vessels weigh in on the challenges of a burgeoning industry.

"Demand is soaring. We're working round the clock to create stock, for fast delivery." Wijtze van de Leij, Damen's Sales Manager for offshore wind could not be more decisive in his assessment of the company's role in a market that – after several false starts – is now truly coming of age. In Northern and Western Europe, Wijtze explains, the offshore wind market is maturing, with orders to match. In the relatively new markets of Southern Europe, Asia and – tentatively – the US, the offshore wind business is growing at breakneck speed. "Most of the 21 crew transport vessels that we are currently building have already been pre-sold," Wijtze states.

It's much the same story for servicing vessels (C-SOV). Jelle Brantsma, Damen's Director of Offshore and Specialized Vessels (OSV) explains that of the seven 85+metre maintenance ships his division is building, four have already been sold, and three are under option. "We expect to double our output of ships by 2030," Jelle predicts.

The OSV division that Jelle heads is known for the unique, one-off ships it builds. With wind parks being installed farther and farther at sea, the Director explains, there has been increased focus on interior design, to create a home-away-from-home feeling at sea.

The changes in the offshore wind market have also given birth to a range of technical innovations on the ships. "The turbines are getting bigger," Joost Mathôt, Director of the Workboats division points out. "So we're building stronger ships, with greater capacity and range."

Fully electric

At the same time, Joost stresses, Damen is constantly working on building more connected and environmentally friendly ships. "Sustainability runs through everything we do. We expect to launch a fully electric Service Operation Vessels (SOVs) concept this year. But also Crew Transfer Vessels (CTVs) are now equipped with batteries. In the future these vessels can be equipped with methanol tanks, for which we are currently developing an engine together with Caterpillar."

Damen is also working hard to make recharging batteries at sea a reality. One of the spearpoints of Damen's policy is to install a universal plug on the turbines, which would offer any battery-powered boat, regardless of its origin, the possibility to take power directly from the offshore wind installations. "In the long run," Joost states. "It's better to work together."

CLIENT IN THE SPOTLIGHT: PURUS WIND

Purus and Damen Shipyards: a sustainable relationship

Brought together by a shared philosophy of sustainable maritime transportation services, Damen and Purus have recently expanded their cooperation in the offshore wind sector. Purus is a world leader in providing global energy customers with maritime services for the offshore wind and gas transport industries. The company owns and operates one of the world's largest and youngest fleets of ultra low-carbon gas carriers, construction service operation vessels (C-SOVs) and Crew Transfer Vessels (CTV). Earlier this year Purus ordered eight new low-emission vessels from Damen, including three Damen FCS 3210 hybrid CTVs and one 90-metre C-SOV. The CTVs are currently being built at the Damen Shipyards Antalya, Turkey and the C-SOV is under construction in Vietnam.

Purus and Damen have a longstanding and diverse relationship, based on a shared mission to decarbonise the maritime industry. The recent order of offshore wind vessels builds on an earlier order of three Damen Fast Crew Supplier 2710 offshore wind vessels. The two companies also successfully cooperated in the first fully electric Ferry 2306 in Dordrecht, the Netherlands.

Global presence

Yards & Companies

Australia
Damen Services - Brisbane
Knud E. Hansen - Perth

Bangladesh
Damen Service Hub Dhaka

Brazil
Damen Services - Rio de Janeiro

Canada
Damen Services - Victoria

China
Damen Shipyards Changde
Damen Yichang Shipyard
Damen Marine Components Jiangyin
Damen Trading Suzhou

Curaçao
Damen Shiprepair Curaçao

Denmark
Knud E. Hansen - Elsinore
Knud E. Hansen - Odense

Faroe Islands
Knud E. Hansen - Tórshavn

France
Damen Shiprepair Brest
Damen Shiprepair Dunkerque

Germany
Damen Services - Hamburg
Van der Velden Barkemeyer - Hamburg
Damen Naval Germany

Nigeria
Damen Services - Port Hartcourt

Oman
Albwardy Damen - Sohar

Panama
Damen Services - Central America

Poland
Damen Shipyards Kozle
Damen Shipyards Gdynia
Damen Engineering Gdansk
Damen Marine Components Gdansk

Romania
Damen Shipyards Galati
Damen Shipyards Mangalia
Damen Workforce Romania
Marine Engineering Galati

South Africa
Damen Shipyards Cape Town
Damen Services - Cape Town

Spain
Knud E. Hansen - Cádiz

Turkey
Damen Shipyards Antalya

Ukraine
Marine Design Engineering Mykolayiv

United Arab Emirates
Damen Services - Middle East
Albwardy Damen - Dubai
Albwardy Damen - Fujairah
Albwardy Damen - Sharjah

United Kingdom
Damen Services - Southampton
Knud E. Hansen - London

United States
Knud E. Hansen - Fort Lauderdale

Vietnam
Damen Song Cam Shipyard
Damen Services - South East Asia

The Netherlands

Gorinchem
Damen Shipyards Group
Damen Workboats
Damen Technical Cooperation
Damen Maritime Ventures
Damen Services
Damen Financial Services
Damen Shipyards Gorinchem
Damen Civil & Modular Construction
Damen Green Solutions
Damen Marine Services
Damen Cargo Vessels
Damen Offshore & Specialised Vessels
Bawat Damen
Damen Digital Solutions
Damen Trading & Chartering
Super Yacht Spares

Amsterdam
Damen Shiprepair Amsterdam
Damen Shiprepair Oranjewerf
Niron Staal Amsterdam

Den Helder
Damen Shipyards Den Helder

Drachten
Damen Cargo Vessels

Hardinxveld-Giessendam
Damen Shipyards Hardinxveld
Damen Marine Components

Harlingen
Damen Shiprepair Harlingen

Nijkerk
Damen Dredging Equipment

Rotterdam
Damen Shiprepair Rotterdam, location Verolme
Damen Harbour & Voyage Rotterdam

Schiedam
Damen Shiprepair & Conversion
Damen Shiprepair Rotterdam
Damen Anchor & Chain Factory

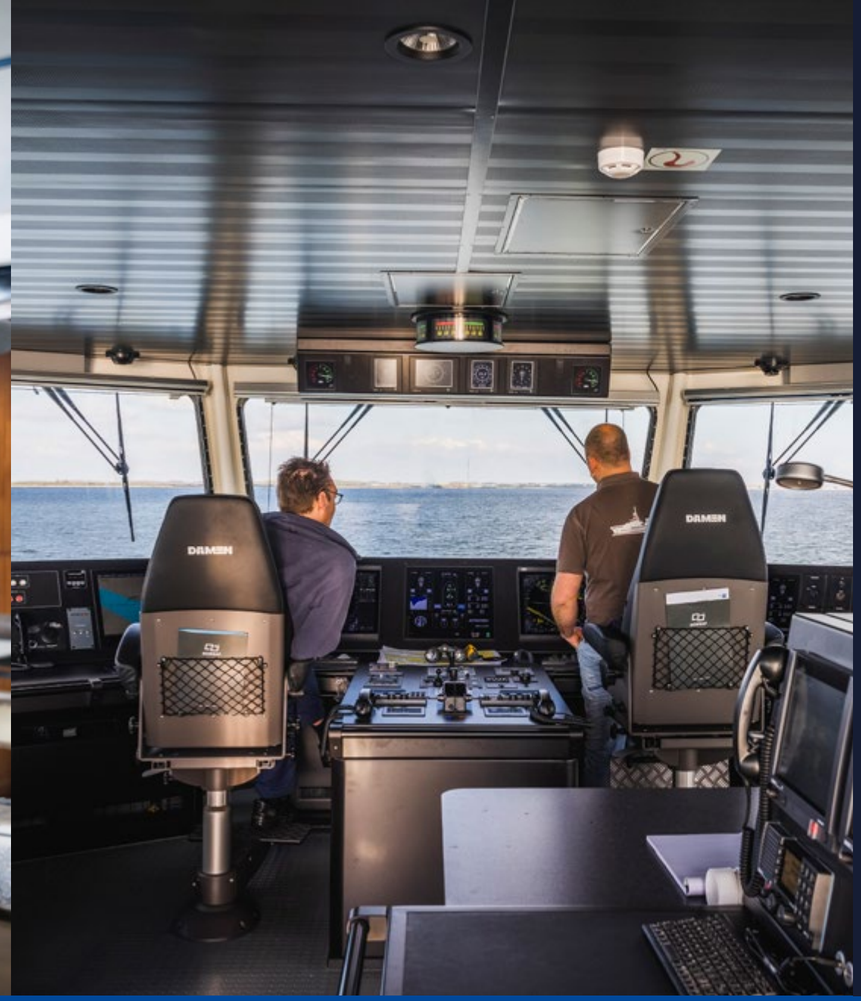
Stellendam
Damen Shipyards Maaskant

Texel
Damen Shipyards Den Helder - Oudeschild

Vlissingen
Damen Yachting
Damen Naval
Damen Shiprepair Vlissingen
Damen Schelde Marine Services

Werkendam
Concordia Damen

The Damen DNA



Mission

By expanding our leading position in standardisation and serial construction in shipbuilding, we provide our clients worldwide with state-of-the-art maritime solutions to responsibly and efficiently utilise the increasing possibilities in trade, food, energy and recreation that oceans, seas, lakes and rivers offer to humanity.

We are a family owned business and stand for fellowship, craftsmanship, entrepreneurship and stewardship. In every aspect of our business the next generation is our starting point.

Core values

Fellowship

Cooperation. Team above individual. One Damen. A family company.

Craftsmanship

Quality. State-of-the-art. Reliable products, reliable organisation. A deal is a deal.

Stewardship

Long-term focus. Sustainability. Corporate social responsibility. Family values.

Entrepreneurship

Client focused. Getting out and about. Thinking in opportunities. Providing solutions. Delivering added value. Inventiveness.

Purpose & vision

Seventy percent of the earth is made up of water. Water connects worlds and allows us to discover. To trade. To provide help. To produce food and generate energy. To relax and enjoy. In order to ensure global prosperity for next generations and keep the earth habitable with an ever-increasing world population, it is essential that we use the water and the seabed as optimally, but also as responsibly, as possible.

At Damen, we provide unprecedented maritime solutions to utilise and protect these possibilities. Versatile platforms that enable our customers worldwide to be successful. Inventive ships that raise the standard in terms of safety, reliability, efficiency, ease of use and sustainability. In fact, we want to become the most sustainable shipbuilders in the world. Our ambitions lie in circularity and zero-emission sailing. Digitalising our platforms is a precondition for achieving the latter.

In the previous century, we revolutionised shipbuilding. Thanks to standardisation and serial production, we were able to supply our customers faster with better ships. More than ninety years and 6,000 ships later, those pillars are unchanged. Their importance is only increasing in the light of zero-emission and digitalisation. It is not efficient to find new solutions for every ship to get them ‘green’ and ‘connected’.

Based on our vision of circular, cradle-to-cradle, building, we offer ship-as-a-Service concepts, in which clients pay for use and not for ownership. In this way we keep control over the entire product lifecycle: from design, engineering, construction and maintenance to the recycling of our ships.

We do not build our ships alone, but together with an extensive network of maritime partners worldwide. As a main contractor, we are system integrators par excellence.

That’s why we firmly believe in the power of sharing. It means that we also use our craftsmanship to build platforms at production facilities that are not ours. In this way, through knowledge transfer, we not only contribute to better, safer and more eco-friendly ships, but also to sustainable local development and prosperity.

As a family business, we operate independently of stock prices and hypes. Our playing field is the world. Our horizon is the long term. We firmly believe in fellowship, but also in the strength of the individual. Each colleague is focused on ensuring truly satisfied clients and making our contribution to a better world for the generations to come.

Kommer Damen in China

Kommer Damen, Chairman of Damen Shipyards Group, and Jan-Wim Dekker, Chief Commercial Officer visited Damen Marine Components (DMC) in Jiangyin. DMC manufacture products such as nozzles, winches and deck equipment, amongst other things. The company thoroughly tests all all marine equipment to secure the quality and durability of each winch.

Foundation Damen Support

Supporting Damen's Ukrainian employees and their families

The 24th of February 2022 is a date that has gone down in history. That morning, as missiles and airstrikes shattered the dawn, Russian tanks rolled across the Ukrainian border, sparking the most significant conflict in Europe since the end of the Second World War 77 years previously.

The humanitarian consequences were both immediate and considerable in scale. Amongst them was the displacement of as much as a third of the Ukrainian population, forced to flee their homes for safety abroad or in a quieter part of the land.

Setting out for a future of uncertainty

The evacuees included employees of Marine Design Engineering Mykolayiv (MDEM), a part of the Damen Shipyards Group since 2006, along with their families. Colleagues tell stories of having to flee in the dead of night, with just minutes to pack a suitcase, leaving homes and loved ones behind and setting out for a future of uncertainty.

The employees sought sanctuary in Romania and Poland. Amongst them was Mykolay Latushkin – known to all as Nick – and his family, who arrived in Romania, Galati during the first days of the war.

"We arrived at 4 o'clock and by 8 o'clock I was in the office. There I saw Michel (de Reus, Manager QC Damen Shipyards Galati (DSGa)) and a team of senior managers and employees working away with red eyes. We basically joined in and started helping."

Mykolay Latushkin a.k.a. Nick

Staying to help

"The way that the MDEM colleagues, under the leadership of Olena Zhukova, Executive Director of MDEM, organised themselves and took care of one another during the evacuation was admirable," states Nick.

However, it soon became clear, as the days passed and people continued to arrive, many of them traumatised by their experiences, that something more long-term needed to be done. Dana Cristea, the Finance Director of DSGa, suggested that there would need to be further support for establishing life and integration in Romania for the evacuees. Eduard Radu, who was an HR director of DSGa at that time, and his team were constantly in contact with community members, learning and supporting the needs on a daily basis.

"I discussed it with my wife. We could have gone somewhere else, but if our colleagues are here in Romania working hard, I wouldn't feel right to leave them behind," says Nick. We needed to stay here and help. We had to do something for our people."

By this stage, Annelies Damen had arrived in Galati to try to build a picture of what she – and Damen – could do to provide support.

Annelies Damen

"I've been to Mykolayiv many times. Some of these colleagues are people I've known for many years. As soon as I saw how serious the war was, I thought we have to do something."

Annelies spent some time, with the aid of a translator, speaking to the newly arrived families, establishing what they needed in order to rebuild their lives as well as possible in the circumstances. With this, she quickly hit upon the idea of starting a foundation through which Damen could reach out to its community.

"I saw the many initiatives that were taking place in the Netherlands and the success they were having. This made me think if we set up a foundation, we could reach out to the many people who have a warm heart for our company and who work on the vessels engineered by our Ukrainian colleagues and ask them to provide help."

Retreat for MDEM colleagues in Galati

Opening of the community center

Spreading the word

Foundation Damen Support was born. Since then, Annelies has not missed an opportunity to spread the word, whether via social media or by directly approaching suppliers and other stakeholders.

"I make sure that, whatever we do in the Netherlands, whether it's the Maritime Festival in Gorinchem, or an event we sponsor, I use it as a platform to tell the story of our employees and their families."

Outstanding generosity

Damen colleagues all over the world have also proven very willing to support the Foundation's work. A call for donations last Christmas saw employees donating money and requesting donations to be made in lieu of their traditional Christmas gift from the company. This initiative alone raised 60,000 euros for the Foundation. Thanks to the incredible generosity of the people in its network, Foundation Damen Support has raised in the region of 280,000 euros at the time of writing. The money has been put to good use in a number of initiatives.

Creating a sense of community

Amongst the first things that the foundation did was to set up a community centre in Galati for the families of employees working at the shipyard.

"We wanted to give people a space where they could self-organise and feel normal again," Nick says. "It's typical in Ukrainian culture to say, 'I'm OK', but in many cases people were not OK. Everyone had people and homes back in Ukraine. People were worried. When they first came, I saw children who were nervous, who couldn't smile. Some of them were stuttering. Some were sad, some were aggressive. Now I see kids smiling again, it's an amazing result."

The centre additionally provides part-time work for around 30 people, who undertake different tasks on behalf of the community. They, for example, deliver masterclasses for children in arts and crafts, practice yoga and physical exercise to help people feel good again.

"They are typically family members of MDEM employees," Nick explains. "Instead of sitting at home, alone with sad news, they get a sense of home here and are helping the community. There is a further benefit, too. Having been sparked by the Damen initiative, other partners have since joined in and are helping to provide support to a wider circle of Ukrainians."

Summer school 2023

Breaking down barriers

Having helped people find new homes and a sense of community, the Foundation has now moved on to a project phase. With this, it is helping the families to integrate with the wider community in their locality. One example of this is the sports programme that has been set up, with the support of HIAS. With currently more than 300 children, both Ukrainians and Romanians, participating in a range of sporting activities, the project provides an excellent means for breaking down barriers and allowing the Ukrainians to form new bonds of friendship.

The Foundation also set up a Summer School, giving the children the opportunity to spend a week in the Netherlands. Here, they took part in a packed programme that combined education with enjoyment. The children toured Damen's shipyards in Gorinchem and Vlissingen, and even had the opportunity to go aboard the largest yard ever built by Damen Yachting. They also visited museums, beaches and ate buffets at local restaurants.

"Nick, Michel and I went to visit the children," Annelies relates. "We could see they were feeling down. They were missing their friends – most of them were only doing schooling online, so they were missing contact with people their own age. I thought we had to do something about that, so we brought them to Holland to give them some connection. When they left, they were all telling me what a great time they had had, that it was the best trip of their lives. To be able to make that kind of a difference to people is really a wonderful thing."

The work goes on...

The work of the Foundation, however, is not done. The war goes on and the future continues to be uncertain for many. As winter approaches, with potential energy shortages in Ukraine, there is every possibility that more people will need support. To make this happen, we need you. If you would like to help Damen Foundation Support, and the families far from home, please donate today.

We've been able to put the smiles back on many faces. With your support, we can keep them there.

The next step in series-built cutter suction dredgers

When Damen Dredging Equipment (DDE) (formerly De Groot Nijkerk) became part of the Damen Shipyards Group, the principles of standardised shipbuilding were soon applied, enabling rapid access to proven equipment. In 2004, DDE began offering a range of Cutter Suction Dredgers (CSD) that were to become icons of the industry.

Since then, Damen has delivered over 250 dredgers from this successful series to clients around the world. As Damen's Product Director Dredging, Olivier Marcus, says, however, "There comes an end to the life of even the best products."

Time for a new generation

Explaining the need for a new generation of CSDs, Olivier points to the numerous technological advancements that have taken place over the last two decades.

Of at least equal importance is growing environmental awareness; today's dredgers must comply with increasingly stringent regulations.

A clean sheet

"There's another reason," Olivier explains. "Over the last 20 years, we've received some excellent feedback about our dredgers. This has come from clients, suppliers and from our own Services department. With this information we've been able to implement a process of continual product development. We've reached the stage now though, where the smartest, most efficient way forward is to start with a blank sheet of paper."

To that end, Olivier and his team got to work developing a whole new series of CSDs, ready for the future of dredging. With engineering complete, Damen is now undertaking construction of the first in the series, a brand new CSD600.

Ringing the changes

Applying its well-established modular approach, Damen has incorporated a plug and play strategy throughout the design, significantly improving the production process. For example, the hydraulic system is skid mounted at the OEM location. Here, it can be built up assembled and tested, in the most suitable environment, before being quickly and simply installed to the dredger with optimal efficiency.

Such modules have the additional benefit of being very easily transportable in a container, to even the remotest of locations.

"It means we can deliver the most critical parts already assembled and ready to go.

This way, we can facilitate building all over the world, whether by Damen or as part of the Damen Technical Cooperation (DTC) together with third parties," Olivier explains.

Driven by sustainability

Along with increased efficiency and mobility, there are additional advantages to the modular approach. For example, Sustainability has been a significant factor in driving the development of the new CSD range. The dredgers offer the option to change the engine room hood with the standard exhaust pipe and muffler for one with a complete EU Stage V emissions reduction system to meets the latest IMO regulations.

Additional steps towards sustainability include the dredgers' being prepared for fully electric operations. The planning for reduced impact on the environment, however, can be seen in every detail. It includes, for example, using significantly lower volumes of potentially polluting fluids. There is, for instance, very little grease involved, and hydraulic fluids have been reduced 50%.

Steps to safety

Safety is a further beneficiary of the CSDs' modular design and use of pre-assembled equipment. For instance, the winches were previously situated directly in front of the wheelhouse, a frequently used walking area. In the new series, they are located on top of the ladder, protecting operators from proximity to moving parts.

The new winch location has the further advantage of creating an open space between the wheelhouse and the ladder, perfect as a safe working or storage area. The deck, furthermore, features flush hatches to avoid risk of tripping.

Like sustainability, safety runs throughout the design. The operating cabin, for instance, is raised, providing clear views over the deck and area of operation. Steps and stairs – sloped wherever possible – give safe access to all parts of the dredger, while grease points have been located in easy to reach places. Furthermore, fixed railings keep crew apart from moving parts when their presence is not required, for instance, at the spud carriage manoeuvring system.

Maximising production

As well as increased safety and sustainability, one of Damen's principle aims with the new series has been to optimise production capability. To that end, the company has also produced an all-new dredge pump range with excellent suction capacity and high discharge pressure over long distances.
The new dredge pumps ensure maximal uptime, thanks to a large spherical passage and highly wear resistant materials. Damen offers a variety of materials for its pumps, to suit different soil types.

Compact cutters

Damen has made the new CSDs more compact than their predecessors. This has been achieved, in part, by using just one main engine that powers both the dredge pump and auxiliary equipment.

"Having just one engine, running optimally, rather than two that often run sub-optimally, allows for an increase in efficiency, offers additional space, demands less maintenance and is more sustainable."

Though compact, Damen has maintained the length of the CSD series. Combined with the high power of the winches, this leads to a large swing width, resulting in a high increase in productivity, with more time spent dredging and less on manoeuvring.

Your carriage awaits

"Another feature that boosts production is the spud carriage system, included as standard on the dredgers CSD 500 and above. With this, considerably less time is spent in resetting the spuds, resulting in a 15% increase in productivity," says Olivier.

Olivier Marcus

"You can have all the new equipment you want, but if the dredger is not a safe, comfortable place to work, you're not going to be productive"

Previously, such a system was only optional on a Damen CSD. However, the company noticed that the majority of operators required it.

"Because of this demand we decided to integrate the system into the basic design to add considerable cost-efficiency," Olivier explains.

In control

A next generation dredger naturally requires a next generation control system. The new CSD series features a revolutionary, user friendly system offering improvements in both ergonomics and efficiency.

"In the past, there was a huge array of switches and levers. With the new CSDS, we've gone to the next level. In place of the multiple control panels and analogue equipment, there's just a chair with two joysticks and touchscreen dredge and control displays. The dredging control system presents relevant, easy to read information, while the control system, integrated into the arm of the chair, offers easy access to frequently used controls.

Dredging in a digital world

In a further boost to efficiency, the human machine interface is connected to Triton, Damen's award-winning IoT solution. Triton provides a wide range of useful information to an onshore device, paving the way to improved operation, rapid troubleshooting, and increased uptime.

The digital connectivity does not end here, however. Previously, installing additional options and upgrades required considerable time and costs. Now, however, they are included in the software.

"Everything is already there," Olivier says. "The dredger can be upgraded at the flick of a switch, with no rewiring, no reconstruction and no downtime."

The CSDs are also available with a basic degree of automation, for example for the dredge pump, swing and spud manoeuvring, thereby further increasing efficiency.

Dredgers that will go on forever

Despite the development of the new series, the maxim 'if it's not broken, don't fix it,' holds true at Damen. The new CSD range applies the latest in digital and sustainable innovation, while continuing to draw on its Damen heritage.

"There were many features of the previous CSD range that retain relevancy for dredging today. For one thing, we've kept the focus on the operator. You can have all the new equipment you want, but if the dredger is not a safe, comfortable place to work, you're not going to be productive.

"Also, our CSDs have always been known for easy maintenance. Doing the tough work they do, in some of the harshest environments on Earth, this is crucial. Furthermore, we've kept the robustness. This new generation of CSDs have got the Damen solidity. These are dredgers that will go forever."

MICHAEL AND MICHEL CHIRINO

Family Matters

Michael Chirino, a Crane Operator and Forklift Driver, has worked at Damen Shiprepair Curacao for 32 years. The duration of his career is mainly due to his enjoyment of his job.

"I love my work!" he says. "What I like most is operating the crane. I sit, high up, in my own bubble, observing the surroundings, totally focused on the work."

During over three decades, Michael has certainly gained some memories from his work.

"The best project I can remember, was a vessel that came into our B-dock with a damaged front. I had to hold the front in place with the crane while it was welded off. After that, I had to hoist the new front in place for welding. It was an amazing project."

At 61 years of age, Michael is coming up to retirement. He hopes, however, to continue his involvement at the yard.

"I would like to pass on my knowledge and experience by coaching the younger generation. They are part of our bright future and we need to help them along to keep this amazing business alive."

Michael certainly has an interest in the continued success of the yard in the future; he is not the only member of his family to work there.

Fourteen years ago, his son, Michel, enrolled at the company school, gaining theoretical and practical experience over a three year period, before starting as a Mechanic.

"I will never forget the day I finished my studies at the school and was offered a permanent contract," he says. "It showed me that a positive attitude and hard work pay off."

Like his father, Michel also enjoys his work at the yard – particularly the diversity of tasks he is required to undertake.

"What I like most is that I get to learn every day. All jobs are different, so you gain a lot of experience and knowledge. I also enjoy the teamwork. I have some excellent colleagues. Working together makes everything easier to do and more fun."

Michel is not resting on his laurels; he has ambitions to reach his potential.

"My future perspective is to continue my personal growth. At the moment, I am enrolled in the Foreman course, which I am determined to complete. I want to continue on the road to success in the maritime industry."

IN THIS EDITION WE WOULD LIKE TO HIGHLIGHT TWO OF OUR REPAIR YARDS

Ships must sail

Oranjewerf

A yard that mostly services the local Dutch shipping industry.

Oranjewerf's main markets include oil & gas vessels (e.g. supply, support, research and diving), offshore wind (e.g. fast crew supply vessels), dredging, fishing vessels, tankers/general cargo, river cruise vessels, coasters, tugs, inland vessels and houseboats.

Berths	Length	Beam	Max. draft	Lifting capacity	Cranes	Cranage
Berth 1	100 m	–	4.0 m	–	mobile	16 t
Berth 2	135 m	–	6.5 m	–	2	10 t, 10 t
Berth 3	80 m	–	7.5 m	–	1	16 t
Berth 4	135 m	–	8.0 m	–	2	10 t, 5 t
Berth 5	36 m	–	3.0 m	–	1	10 t
Berth 6	65 m	–	2.5 m	–	mobile	4 t

Docks	Length	Beam	Max. draft	Lifting capacity	Cranes	Cranage
Floating Dock 1	135 m	22.5 m	7.2 m	6000	3	16 t, 10 t, 10 t

Other facilities	Length	Beam	Max. draft	Lifting capacity	Cranes	Cranage
Slipway 1	100 m	11.6 m	2.6 m	1700	1	12 t

Damen Shiprepair Brest

One of Europe's biggest yards with respect to dock size. It is specialised in LNG tanker maintenance and refits as well as the ultra large cruise ship refits. Damen Shiprepair Brest is a well-established repair yard with modern facilities. It has three drydocks, the largest being 420 x 80 metres, which is one of the biggest in Europe. This allows the yard to accommodate almost any ship in the world.

Hundreds of vessels have been serviced over the past 25 years ranging from LNG carriers, crude oil, product and shuttle tankers, to cruise ships, ferries, oil rigs, bulk carriers and container vessels.

Berths	Length	Beam	Max. draft	Lifting capacity	Cranes	Cranage
Berth 1	320 m	-	8.5 m	-	2	90 t, 12 t
Berth 4	400 m	-	9.3 m	-	3	100 t, 15 t, 15t

Dryocks	Length	Beam	Max. draft	Lifting capacity	Cranes	Cranage
Drydock 1	225 m	26.6 m	6.3 m	-	1	30 t
Drydock 2	338 m	53 m	9.5 m	-	3	90 t, 12 t, 20 t
Drydock 3	420 m	80 m	10.1 m	-	3	100 t, 15 t, 15t

Other facilities

Mobile cranes: 2x 100 t, 1x 120 t, 2x 40 t.

A next generation vessel

The ASD Tug 2111

The Azimuth Stern Drive (ASD) Tug 2111 is the latest vessel in Damen's Compact Tugs range. Just 21 metres long, yet packing up to 50 tonnes of bollard pull, the tug has been designed to operate in ports and harbours, in even the tightest of spaces.

To ensure her capability to do this, Damen has created a vessel that is highly agile and manoeuvrable, thanks to her patented Damen Twin Fin skeg and azimuth thrusters.

Safe, sustainable, reliable & efficient

Like all vessels in the Damen Compact Tugs range, the ASD Tug 2111 incorporates the latest in safety, efficiency, reliability and sustainability.

Taking safety as an example, the vessel offers 360-degree visibility from the wheelhouse. With this, operators have a clear view over the surrounding water, as well as the fore and aft deck. Meanwhile, a high freeboard ensures that any water on deck is kept to an absolute minimum.

The tug also features ample tumblehome, allowing her to get safely up close to an assisted vessel. The towing operation is made safer still, courtesy of her single, sheltered winch which keeps decks obstacle free. Maintenance is minimised with Damen's closed loop keel cooling system. With this, onboard sea water is reduced, keeping corrosion at bay and ensuring the tug's optimal condition for the long-term.

Prepared for upgrade

The ASD Tug 2111 comes with IMO Tier II compliant engines as standard and can be quickly upgraded to IMO Tier III with a Damen Marine Emissions Reduction System, for which the vessel is pre-prepared.

The vessel also features an electrical generation system that draws on excess power from the engines to further reduce fuel consumption and emissions. Following the launch of the new model, Damen set about constructing a number of ASD Tugs 2111 for stock. Clients have been quick to take advantage of the rapid delivery time that this offers.

Rapid delivery from stock

One of the first orders for the ASD Tug 2111 came from Port Marlborough New Zealand (PMNZ). The company's new tug will operate in Picton Harbour, providing towage to inter-island and freight ferries, manoeuvring the vessels around the harbour's finger jetties.

Notably, the harbour is expected to begin operating new ferries to provide an important connection to the road and rail links between the country's North and South Islands. In both cases, the operations will call upon the vessels' agility, shallow draught and bollard pull. Damen has also signed a contract with Hamburg-based Neue Schleppdampschiffsreederei Louis Meyer GmbH Co. KG. The vessel will operate on a long-term charter with the company's client Emder Schlepp-Betrieb GmbH (ESB) in the Port of Emden, one of the top three car transportation ports in Europe.

Currently, Damen has a further six ASD Tugs 2111 under construction at Damen Shipyards Changde in China.

Plans for the future

The story does not end here, however. Having completed the design for the conventional propulsion ASD Tug 2111, Damen is now turning its attention to a future-focused cleaner, greener version.

Damen has the ambition to become the world's most sustainable maritime solutions provider. The company has already built a track record in the delivery of full electric, zero emissions vessels. This includes a number of ferries, operating in busy city centres, as well as the RSD-E Tug 2513. Building on this success, Damen is planning to build a fully electric ASD Tug 2111.

"This gives us a firm foundation to build from as we prepare for a fully electric version. The ASD 2111 is truly a next generation tug."

Erik van Schaik, Product Manager Tugs Damen, says: "The maritime energy transition is happening now, and we are proud to be a part of it. However, it will not take place overnight. It will be a continual journey, and we intend to get there one step at a time. The ASD Tug 2111 is an example of our approach. This new, compact vessel already represents increased efficiency and sustainability."

My favourite project

Seaspan project • Kevin Saloga

My favourite project? That's an easy one. It's the Seaspan project. This was two RoRo ferries Damen built for Seaspan in British Columbia, Canada. The vessels transport goods to Vancouver Island from the mainland. Seaspan is responsible for transporting over 70% of goods to the island.

There are many things that make this project stand out to me. For one thing, I was involved in it from the outset. I was there in Romania when Damen Services Canada put together a large commissioning team. The beginning of the project was a memorable time. It was the coronavirus pandemic and everyone had to be tested every day before being allowed on board.

With all this going on, we also had to meet some very tight deadlines. The team was committed though, and very well co-ordinated. Thanks to their dedication, we got the vessels ready in time to go to Canada.

At that stage, I went with one of the vessels to cover the warranty part of the project. This required that I was onboard every day for the first six months of operation. For unique vessels such as these, that's of real benefit to both Damen and the client.

What makes these vessels so unique is the technology involved. Seaspan, like Damen, is very committed to sustainability. They are looking into different types of alternative fuels and have implemented use of fully electric vehicles at their terminals. To reduce the environmental impact of these new vessels, Seaspan required a duel fuel, LNG propulsion system. This was new to me, but the deeper I became involved, the more fascinating I found it.

The system uses two MAN generator sets, each producing 4,770kW, and two battery banks with a total capacity of 2,034MWh. During normal operations, one generator set is in use, running on LNG. The batteries provide peak shaving capabilities, or additional power when required – for instance, to reach the vessels' top speed of 16.4 knots. The vessels only use diesel fuel for backup.

A further factor in this project, was the very good relationship we had with the client. They treated us very well on board. We felt like part of their team and they really appreciated the work we were doing to keep their operation going. They were very happy with the quality of the vessels. It was a huge compliment for our team.

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