The next generation
Dear reader,

I am proud to present to you our annual magazine. I hope it will provide you with a pleasant distraction in what are, for many, difficult times.

The photo on the cover gives a good impression of the condition of today’s shipping and shipbuilding markets and Damen’s position in it. We face dark clouds in a lot of segments in our industry, mainly caused by Covid-19. For instance in the cruise sector and the offshore oil & gas sector. Nobody knows when the pandemic will be over and the world economy will start to recover. On the other hand, offshore wind is growing and the energy transition is feeding the demand for sustainable solutions in our industry.

The vessel on the cover, a Damen Fast Crew Supplier (FCS) 2710, is an example of our strengths. An innovative design based on the Twin Axe concept, taking the benefits of the patented Sea Axe hull shape for increased comfort, safety, optimal performance in waves and fuel reduction. These characteristics, combined with low OPEX and excellent after-sales services have made us world market leader in the offshore wind segment.

This ship, which we build in serial production, is also a good example of how our future looks. We will focus on our core. In the previous century, we revolutionised shipbuilding. Thanks to standardisation we were able to supply our customers faster with better ships. In the light of the mega-trends of our time, zero emissions and digitalisation, the importance of standardisation is only increasing. It is not efficient to find new solutions for every ship to get them ‘green’ and ‘connected’. Digitalising our platforms is a precondition for achieving our goal to become the most sustainable shipbuilder in the world.

We are committed to actively cooperating in order to achieve the Sustainable Development Goals of the United Nations. As an organisation, we are focusing on seven goals, which, through our work, we have a direct influence on: Sustainable Cities & Communities, Responsible Production & Consumption, Climate Action, Life Below Water, Affordable & Green Energy, Decent Work & Economic Growth and Industry, Innovation & Infrastructure.

Why is our focus so firmly fixed on a sustainable future? Because at Damen we not only provide maritime solutions that enable our customers worldwide to be successful. We not only deliver innovative ships that raise the standard in terms of safety, reliability, efficiency and ease of use. More than this, in every aspect of our business the next generation is our starting point.

Our course is straight, the waves are high. We’d like to thank our customers and stakeholders and together we will go full steam ahead when the storm has died down. As one team we are ready 24/7 to provide you with information, spare parts and financial solutions to keep your business running.

All these topics are further explored in our magazine. I hope you enjoy reading it.

Arnout Damen
CEO
Arun Sidharthan

Function: Production support manager
Location: Albwardy Damen, UAE
Working at Damen since 2018

Arun sees the benefits of combining Damen’s hallmark standardisation with digitalisation to ensure continued relevance for the future.

“The standardisation of our products and designs, combined with the integration of drawings with ERP software makes our engineering and building processes simpler and faster. We recently digitalised our pipe ship – this has improved quality, traceability and efficiency.

“Also, the collaborative way we work as colleagues and the support we get from management – analysing and solving issues as a team makes it a pleasure to be part of the Damen family.”

Annebeth Trepels

Function: Trainee purchaser
Location: Damen Naval, the Netherlands
Working at Damen since 2019

Annebeth is currently working towards ERP implementation at Damen Schelde Naval Shipbuilding.

“ERP is not just a system – it involves the whole organisation and has a big impact on our way of working. Implementing this smoothly, taking into account current and future projects, makes this challenging and interesting.

“Every day is different here, it’s a constant challenge. I’ve learned a lot. It’s nice to see so many people working together in one big project for years. It’s a great team of people that make it work every time.”
Laurent takes pleasure in a job well done and a satisfied customer.

"The best reward we can have is a happy customer and a ship leaving the yard after a successful docking – safely, on time, on budget and to high quality – especially during the challenges of the coronavirus.

"Making this happen is down to the spirit of cohesion we have. I feel lucky and proud to work with such experienced colleagues, who I can learn from. That’s the best asset a project manager can have."

Zeynep, the pleasure of working at Damen comes from the diversity – both of the products she works on and the colleagues she works with.

“We have Fast Crew Suppliers, Yacht Support Vessels, Pilot Boats, Interceptors…. as a naval architect, working on so many vessels gives me a great opportunity to improve myself. As does being part of such an international organisation. Damen gives me the chance to work with people from all around the world, with extensive knowledge. This is a precious experience for me.”
MESSAGE FROM THE BOARD

Fit for the future in the maritime century

Marc van Heyningen (left) and Jan-Wim Dekker talk about readying Damen for the future.
Jan-Wim Dekker is the longest-serving member of the Executive Board (EB) after Arnout Damen. He has been part of the Board of Directors since November 2014.

Marc van Heyningen still has the fewest flying hours on the EB of Damen Shipyards Group. As of April 1st, 2020, he holds the position of chief operations officer (COO). A great opportunity to bring the ‘tried-and-tested’ and the ‘new kid on the block’ together for an interview about Damen in uncertain times.

“We have paid our tuition fees.” chief commercial officer (CCO) Jan-Wim Dekker makes no bones about it. After a slight loss in 2018, the Damen Shipyards Group figures for 2019 turned dark red. “We were a very successful company; we grew tremendously. It created an atmosphere of unbridled enthusiasm: ‘we can do that’. A real entrepreneurial spirit, but without enough focus on the risks. Fortunately, we realised this in time, but not without sustaining a number of significant dents and scratches.”

In 2019, the organisation was revitalised and divided into more manageable divisions. Responsibilities were assigned more clearly and additional control mechanisms were created, such as a Project Risk Board that supports the EB in identifying project-related risks during the bid process of new potential projects. This also supports managing those risks during the term of the projects. The balance sheet was adjusted and provisions were taken. All with the aim of being able to draw a big line under the past by the close of financial year 2019 and to steam ahead into the future with full speed. Jan-Wim: “That was successful in itself, but then the coronavirus presented itself, which of course hasn’t made it any easier.”

Catching up
“The positive thing about the situation in recent months is that our digital collaboration and digital solutions have accelerated enormously,” continues Jan-Wim. “But that of course does not outweigh the drop in demand. You can see that the business community is very restrained, this impacts especially our repair yards and the Workboats Division. New investments are being postponed. We will undoubtedly catch up later, but now we miss the turnover. We also suffer from this in yacht building, but less so. However, the order book from governments, such as for defence projects, continues to do well.”
Message from the Board

As a result, the group’s order portfolio glitches that have happened in the past, organisation. We will be more selective core strength of focusing on building offshore projects, you have a healthy especially on a number of the larger active in multiple maritime markets has Damen’s diversification strategy. “Being Marc van Heyningen picks up by praising Damen’s diversification strategy. “Being active in multiple maritime markets has served Damen very well.

As a result, the group’s order portfolio is more balanced. If you look past the glitches that have happened in the past, especially on a number of the larger offshore projects, you have a healthy company with a similarly healthy strategy and order book at its core.”

Marc can therefore fully agree with the sharpened course that was started in 2019. “We are returning to our core strength of focusing on building standardised ships in series combined with a strong sales and service organisation. We will be more selective with one-off projects with improved risk/reward balance. The overall aim is to become the most sustainable and digital shipbuilder in the world. To achieve this, the focus is ‘back to the core’, on the aspects that have made Damen great and that are essential to make shipping greener and connected.”

**Major investments**

To further support that course, Damen is on the eve of a number of major investments. For example, a completely new 3D CAD-PDM system is being rolled out to better manage and access documents such as working drawings, designs and test results. Internally, but also for customers. In addition, the current Enterprise Resource Planning platform is also being replaced by SAP. “This strengthens our process side, which leads to even better insight into all our projects, among other things,” explains Marc enthusiastically. When asked whether it is better to stop now instead of investing, the two directors immediately deny this. Jan-Wim: “Certainly not. It is important to stay fit for the future. The importance of the maritime industry will increase in the 21st century. The world population continues to increase; it is getting busier on the land. Sea levels are also rising. It is logical that more and more people are turning to water for transport. In addition, more and more applications are being found for the water and the seabed. From energy generation via floating solar panels and tidal current to aquaculture and seabed mining. The future for the maritime sector, shipbuilding and maritime services is bright in this century and Damen is excellently positioned to serve those markets.”

**Ship-as-a-Service**

Marc: “Damen is also very well positioned within that spectrum. Thanks to our focus on digitalisation and sustainability, for example through cradle-to-cradle construction, we are able to provide more and more services around a ship. Servitisation, which leads to operational lease, where you as a user only have to supply the crew and fuel. We will arrange all the rest. Complete customer care. Well, you may still have to clean the ship, but we are really moving towards Ship-as-a-Service concepts.”

Damen’s footprint is also of decisive importance, Jan-Wim adds. “We are the only shipbuilder to have yards worldwide. In addition, through Damen Technical Cooperation (DTC), we are also particularly adept at building or assembling ships designed by us at third party yards; including modular packages. Finally, we have an installed base of more than 6,500 ships, supported by more than twenty Service Hubs on all continents. From Nassau in the Bahamas to St. Petersburg and from Brisbane ‘down under’ to Rio de Janeiro and Djibouti. In short, let the future come. We are more than ready for it.”

**Special start**

“I came on board in the middle of the Covid-19 lockdown in the Netherlands,” says Marc van Heyningen about his start as COO. “That was quite difficult. We couldn’t travel and face to face meetings were restricted. Nevertheless, we found ways to make the introduction successful. Online a lot, but also making a visit and meeting where possible. Everything within the social distancing guidelines of course. The click with the company and the people of Damen was there almost immediately. Everyone is accessible, the culture informal and down to earth. That really appeals to me. This immediately became crystal clear when I first met with Arnout at his home and we sat at the kitchen table discussing all current company issues. A great start!”

Marc van Heyningen picks up by praising Damen’s diversification strategy. “Being active in multiple maritime markets has served Damen very well.

“Despite the economic consequences of coronavirus, you mostly remember the personal impact,” reflects Jan-Wim Dekker. “It is very sad that a colleague in Romania passed away as a result of the Covid-19 pandemic and there are also those who have been seriously ill. Also, the repatriation of more than 200 employees to their home country was a challenge — because it meant taking people off projects that were nearly finished. But at Damen, health and safety are paramount. After all, it is all about the teamwork. People make the difference. That also makes it very difficult to implement restructuring programmes, as happened in 2020. It’s necessary, but still tough for the entire organisation. After all, we are One Damen.”
Annelies Damen has been managing Group Real Estate as well as being involved with Damen Yachting’s projects and marketing for more than twenty years.

She also served for eleven years as a Non-Executive Board member, before joining the Supervisory Board, in which she uses her experience to closely monitor and stimulate strategy development in order to keep Damen Shipyards Group fit for the future.

Whilst Damen’s family business is firmly fixed in ship and yacht building, Annelies’ passion lies in art, travel and professional photography. Two worlds she creatively combines in her role at Damen Yachting, leading the interior design concepts for internal projects and working with clients. She draws on her experiences from travel, love of architecture and knowledge of the art world as elements of inspiration to influence design choices and create evocative spaces to excite the imagination of clients.
Damen is proud of its values as a family company, amongst which its long-term vision. This is based on commitment to the next generation; securing success and developing sustainable solutions. Damen places importance on stimulating innovation, quality, opportunity and enjoyment for employees. Are these values aspects of Damen culture or of family business generally?

Damen speaks to Albert Jan Thomassen, executive director of Family Business Network Netherlands (FBNed).
Network of inspiration
Family Businesses play an important role in the Dutch economy, making up around 71% of total operations, responsible for just under half of all employment and around 30% GDP.

Representing interests of family businesses in the Netherlands is FBNed. Membership accounts for 58 billion euro annual turnover and employment of more than 235,000 people worldwide.

Kommer Damen was a founder member of the Dutch chapter of the international Family Business Network, which has sister organisations operating in 34 countries. FBNed provides an inspirational network for family businesses and opportunities to meet, to learn, to exchange information and stimulate development.

FBNed lobbies – in the Hague and in Brussels – protecting the interests and environment in which family companies operate.

Proudly sustainable
Albert Jan explains, “Family businesses are usually very proud, but also very modest. They are not always good at promoting themselves. Consequently, those in authority have a tendency, when thinking about business, to think of large corporates or, when thinking of innovation, of start-ups. It’s important to highlight the benefits family businesses bring to society.

“Family businesses are looking to protect business for the next generation. This means securing work for their employees. Family businesses in this respect are very responsible; more sustainable.

“Family businesses want to make sufficient profit, not maximum profit – continuity is more important.”

Growing relevance
“Because of such values, family ownership will become more important in future. Certainly, in Europe we see movement towards responsible stakeholder capitalism, where assets are not viewed as disposable, but as something to see us into the future.

“Typically, family businesses pay out less in dividends than a public company. This means family businesses have more investment power, which in turn drives innovation.”

Innovation is important to a family business. It helps secure the future and guards against challenges faced in a family business culture.

Increasing pace of transformation
“Sometimes you see inertia,” says Albert Jan. “There can be a sense of ‘we know what is good’, based on earlier successes.

“Family businesses want to make sufficient profit, not maximum profit – continuity is more important than profits. That is why sustainability is often a natural ingredient of the company’s DNA.”

“Today, the pace has increased with technical and digital development. Families as a system benefit from safety – not too much turmoil. Nowadays, if you want to thrive you have to cope with turmoil. The pace of change a family is used to and the pace in business move further apart. Where you might once have expected a strategic change every generation, there are now several changes.”

One factor helping family businesses to orient themselves in a changing world is modern employment culture.

“In terms of employment, some family businesses expect a lot of loyalty – even that people will stay for life. This is at odds with modern employment culture. We see expectations changing in some families as realisation of this becomes more widely understood.”

Here too though lies challenge – the typical family business is not necessarily the best at promoting itself on the labour market.

“Family businesses suffer from a lack of visibility in terms of attracting employees. It’s the tendency towards modesty. This can result in losing out on top talent who go the way of large corporates that shout loudest.”

From success to succession
One of the biggest challenges facing any family business is succession. This is a particularly pertinent subject at Damen this year, with Arnout Damen taking on the role of CEO in January – just as the company was undergoing a large-scale restructure.

“When I read in the news about Arnout’s succession I was particularly impressed by the fact that he was prepared to adjust, to prepare for the future. Part of that will be about building his own team, a team that works for him. This is more important now than in previous generations.

“In the previous generation, the head of the company was simply the boss. But nowadays the family CEO has to discuss things and align with his fellow directors, with his siblings and with stakeholders. Society is more used to collaboration and dialogue, family businesses will adapt to that.”

Albert Jan Thomassen
Executive director of FBNed

Albert Jan Thomassen was founding president of the Family Business Network International and the International Family Enterprise Research Academy (IFERA). He is a fellow of IFERA and the Family Firm Institute (FFI). He is member of the management committee of European Family Businesses in Brussels and the Polaris Committee of FBN International.
Ambitious goals

No subject is more topical in the maritime industry right now than that of sustainability. It’s literally to be found wherever you turn; this year’s World Oceans Day had the theme of Innovation for a Sustainable Ocean. The UN’s maritime division, the International Maritime Organization’s (IMO) World Maritime Theme for 2020 is Sustainable Shipping for a Sustainable Planet.
Decisive decade of action

Proposing the theme, IMO secretary-general Kitack Lim said, “I believe this theme will provide flexibility to the secretariat and the member states in highlighting the myriad topics and challenges in meeting the 2030 Sustainable Agenda... 2020 will mark the beginning of a decade of action and delivery. It will be a decisive decade, not only for shipping, but life on the planet.”

One thing is for sure, if we are to live more sustainably, shipping is going to have to play an important role. With over 11 billion tonnes of goods shipped each year and rising relevance for maritime roles in food and energy production, the industry is a key stakeholder. As Mr Lim said: “Here at the IMO, ensuring safe, secure, sustainable shipping is our core mission, recognising that shipping itself is the carrier of world trade and vital to sustainable development.”

Looking further ahead

In addition to its work towards the UN’s 2030 agenda and its associated Sustainable Development Goals, the IMO and its member states have set themselves an ambitious goal – the reduction of greenhouse gases in shipping by at least 50% by 2050 compared to 2008 levels.

“The shipping industry, with the support of the IMO regulatory framework, has already started the transition towards this sustainable future,” said Mr Lim, going on to explain the many different ways in which the industry is approaching the matter. “We have adapted and continue to develop measures to cut greenhouse gas emissions, reduce the Sulphur content of ships’ oil, implement the Ballast Water Management Convention, protect the polar regions, reduce marine litter, improve the efficiency of shipping through the electronic exchange of information, meet the challenges of digitalisation of shipping and enhance the participation of women in the maritime community.”

Amongst these multiple challenges, there is one that stands out, according to Mr Lim. “Climate change is the biggest issue facing the maritime industry, impacting everything from the ship design to engine and fuel choice, as well as operational procedure.”

Fuelling the future

Within the climate change challenge, one aspect takes precedence – the search for alternative fuels. Edmund Hughes, the IMO’s former head of air pollution and energy efficiency and now director of his own consultancy, Green Marine Associates, agrees with this assessment.

“The IMO strategy talks about going from 300 million tonnes of carbon fuel a year to zero in 80 years – that’s maybe three ship lifecycles – and at least 50% reduction by 2050. The only way that’s going to be achieved is with alternative fuels.”
However, he says that previous experience suggests that such shifts take time.

“It’s a huge challenge. For example, we’ve been talking for years about gas as a fuel for ships and it’s required investment from companies and for the technology to be made available, it’s required regulatory changes. It’s taken 20 years until we start to see penetration of gas in the market.

“Already there’s been some analysis done via the Global Maritime Forum on alternative fuels and this found production and supply would cost between 1 and 1.4 trillion dollars – just to achieve the 2050 ambition.”

Collaborate, regulate, innovate

The maritime energy transition, Mr Hughes says is going to require both collaboration and legislation. “To achieve this there are going to have to be partnerships with stakeholders in and outside the sector. The shipping companies alone are not going to be able to deliver the necessary infrastructure. And there is going to have to be regulation to give certainty to the market – that allows the market to maintain the level playing field, which is vital to shipping. This is why the IMO strategy, even though it’s not mandatory, is so important, because it’s a clear sign of intent from the governments of the world that this is where shipping has to go.

“The transition could be a real opportunity for some countries. There are developing countries in Africa, for example, that have access to a lot of solar power. Or it could be South America where they’ve got abundant natural resources. There is the potential for countries that are net importers of energy to become net exporters. That changes the game completely. Finding energy is a key for many governments and they will take this seriously if there is real potential. Shipping could be the vehicle from which they develop these fuels. And at some point they are going to have to get those fuels away and I would guess this is going to be by ship.”

According to the IMO, technological innovation is going to play a central role in the industry’s search for alternative fuel and other sustainable solutions – an assessment with which Damen wholeheartedly agrees. Damen, for example, is working towards becoming the world’s most digitally connected shipbuilder. Already the results of these efforts are paying off, resulting in more efficient shipping operations with reduced fuel consumption and emissions.
Mr Lim: “It has been said that the next 10 or 20 years will see as much change in shipping as we have experienced in the past 100 years. The integration of new and advancing technologies is a key strategic direction for IMO.”

Mr Lim has stated his opinion that advancements in technologies – including digitalisation – will usher in structural changes in the industry, enhancing not only environmental protection, but also safety improved traffic management.

Implementing industrial innovation is not without its challenges though, especially given the long lifecycle of ships.

Sharing the burden, spreading the risk
Mr Hughes: “Shipping is a conservative sector. People don’t necessarily want to be the leader of the pack in spending money on new technology and new fuels that are not yet tested and proven. You build ships for 20-30 years – sometimes even longer.

“Having said that, there will be those out there who recognise innovation as part of their DNA, who will want to be the leaders. They may have to take a risk or two, but I’m sure some will be prepared to do that because they recognise it will bring a competitive advantage in the long run.”

Here, he says, the shipyards and equipment manufacturers have an important role to play.

“Thereir role is vital. These ships are going to require new technology to enable them to operate more efficiently. It’s very difficult though, because the shipyards and OEMs have got to serve the current market demands as well.

“The only way for this to be done is for yards and equipment manufacturers to work very closely with their core customers and make sure they are meeting their goals. I’m not saying this is impossible, but it’s certainly a challenge and there is a need for everyone to work together.”

“Edmund Hughes, director of Green Marine Associated and former head of pollution and energy efficiency at the IMO.

“There will be those out there who recognise innovation as part of their DNA, who will want to be the leaders.”

Concordia Damen’s Parsifal tanker is a new design powered by LNG.
Shipping has always been a relatively sustainable modality. However, the realisation has dawned that it can and must be even greener. Partly under the leadership of Damen, the search for zero emission shipping has been opened across the board. Spoiler alert: there is no single silver bullet.
Harley-Davidson Livewire, Elon Musk and the Nikola Truck... For the superficial newspaper reader, making transport more sustainable is tantamount to electrifying transport. “That is certainly a good solution; also for shipping,” explains Peter van Terwisga, director group’s research at Damen. But you can’t beat physics. Due to the capacity and weight of batteries, electric propulsion only offers a solution for short routes and when there is no need to sail too fast. It is a good solution for ferries, for example, as Damen has already shown in its projects in Canada and Denmark. However, if you want to be able to bridge longer distances, such as by sea, then you have to look at other solutions.”

Well to wake
Even without the ‘greening’ that is now being implemented in shipbuilding and shipping, water transport is already relatively sustainable. Calculated on the basis of a ton of cargo transported per kilometre, the emission of CO₂ and other harmful emissions is already on average four times lower than transport by road. It is undoubtedly one of the reasons why the sustainability virus in the maritime world only developed ‘late’. However, it is now all hands on deck in this area as well. “There is a growing realisation that zero emissions is not a nice-to-have, but a need-to-have,” says Mark Lansiaux, sustainability program manager at Damen. “On the other hand, it is also becoming increasingly clear that there is no one-size-fits-all approach to this challenge. There is no single silver bullet. It’s not about hanging everything on electrification. The road to green shipping, with zero or almost zero harmful emissions, will consist of a mix of options and measures that are different for each situation. The ship and the propulsion are part of this. Ultimately, it is all about the footprint from well to wake.”

Damen takes a holistic approach to sustainability. “Regardless of the energy carrier, it is extremely important to make ships themselves as energy efficient as possible. For example, we are experimenting with innovative hull shapes and various air lubrication systems that save us 5 to 15 percent in fuel alone. But what is also still an interesting concept, depending on the development of fuel prices, is the use of wind-assisted propulsion via rotors or sails. In short sea shipping, for example, you can significantly reduce the need for fuel.”

Sailing speed
Another aspect to which a lot of attention is paid within Damen is to achieve a more efficient use of the ships. “Digitalisation plays an essential role in this,” continues Mark. “With Damen Digital we have already connected or prepared more than 250 ships. This makes them ready to send all the information needed to analyse and improve ship operations. You need that constant stream of information about the performance of a ship to be able to determine the optimal, economical and most sustainable sailing speed, for example.”

In addition to the above aspects, the question of what will become the fuel of the future is also the subject of much discussion and of a large part of the R&D budget within Damen. Principal research engineer Erik-Jan Boonen: “That is not just a technical question that will be answered by the shipbuilders. The entire chain must ultimately go along with this worldwide. From regulations and classification to the energy infrastructure and bunker options. Unfortunately we don’t have a crystal ball to see what it will be. But if you look at the possibilities, you calculate in hours with electric propulsion. With hydrogen you can start counting in days, but with methanol you are even talking about weeks that you can stay at sea.”

With Damen Digital we have already connected or prepared more than 250 ships.

Most easy alcohol
“We do not rule out anything, but methanol certainly holds great promise as a clean and pragmatic fuel for long routes. It’s the most easy alcohol and already available around the world. Under normal circumstances it is liquid and therefore easy to store. In addition, it dissolves in water, so in case of a spill there is no burden on the environment. Obviously there are also challenges in the application. For example, it currently takes up two and a half times as much space in terms of volume as diesel and is already combustible at low temperatures. Obviously, this creates extra risks on a ship, but these are all things we can adapt to.”
In terms of planning horizon, Erik-Jan estimates that a ship built by Damen will run on methanol within three years. “We are already working hard on that. For example, we are one of the partners in Green Maritime Methanol, a joint industry project with research organisation TNO, the Delft University of Technology and the Dutch Defence Academy, among others.” Together with the Dutch Ministry of Defence, a design study for a hydrographic recording vessel is also underway and a joint pilot is running with marine contractor Van Oord to see to what extent cable-laying vessel Nexus could run on methanol and what the difference in costs and performance would then be, compared to diesel.

Robust, ripe and ready
“Extensive research in this area is indispensable,” says Peter. “It is up to us to estimate whether alternative fuels are robust, ripe and ready. If we put immature solutions on the market too early, it will irrevocably cost customers. However, the time is right to develop and implement sustainable solutions more quickly. The demand now really comes from ship operators who see that something needs to change. It goes without saying that innovation in sustainable technology involves investments. But if you consider that in a pair of shoes of 50 euros, the costs for sea transport from Asia to Europe make up only 25 cents of that, then there is certainly room for green investments for the future of our Earth.”
My Favourite vessel is a one-off project; the Windermere Lake Cruises vessel, MV Swift. Rightly, we talk a lot about standardisation at Damen – it’s our trademark and the reason for our success. Sometimes though I think people hear ‘standard’ and get the idea we do the same thing over and over. Nothing could be further from the truth – and this project show that clearly. Here, we use standardised processes, standardised systems – proven technologies – to create something totally unique. It has to be this way; the client is based on an inland lake with no access from the water. Damen Technical Cooperation (DTC) is the only way to do this. With DTC we can build anywhere in the world – even, as in this case, the client’s car park on the lakeside.

I’m also proud of the sustainable element of this project. The client’s operation is in the Lake District National Park, a World Heritage Site. Their business is one of the most popular tourist attractions in the UK. As such they are playing an important part in maintaining the local economy and stimulating local employment – in turn, ensuring the preservation of this outstandingly beautiful area.
A digital and sustainable future for dredging

Dredging, like many maritime sectors, will grow in relevance in the future. Faced with changes in climate, some countries are already preparing for rising sea levels. Defensive water projects are taking place in Bangladesh and dikes raised in the Netherlands.

At the same time, populations are rising – and with 40% of the global population living within 100 kilometres of the coast there are clear implications; land will have to be reclaimed.

Naturally, these people will require food and to trade, so ports, harbours and connected waterways will have to be maintained.

As a company deeply rooted in Dutch tradition, a track record in dredging and a keen focus on sustainability, Damen is well positioned to make a difference within this vision of the future. The shipyards group aims to apply its well-tested practice of standardisation, combined with increasing levels of electrification and digitalisation, to achieve its goals.
Striding & striving for sustainability
Damen Dredging product director Olivier Marcus says the company has made good strides towards more sustainability.

“Take trailing suction hopper dredgers (TSHD) as an example. These are often found operating in and around ports. So at one level they are contributing towards sustainability – ensuring the flow of goods vital to prosperity on land. However, they also produce emissions in urban areas. We have approached this situation head-on; our dredgers and equipment are equipped for IMO Tier III. They do not use ballast water so there is no danger of them spreading alien species as they travel between ports.”

Trends in the industry are also helping to ensure greater sustainability, he says.

“What we notice is that there is a growth in countries and ports seeking self-sufficiency in dredging – acquiring their own equipment and taking care of the maintenance of domestic assets. This means less international distribution of dredging equipment and, therefore, reduced emissions.

“Larger dredging companies, who previously took care of these contracts are specialising increasingly in larger projects such as land reclamation.”

Battery powered MADness
Damen is also busy developing sustainable solutions for the second generation of its Marine Aggregate Dredgers (MAD), hopper dredgers that mine aggregates for construction. “Though these dredgers are working offshore, their operations also include work in urban areas,” explains Olivier. “When they have collected their payload they come inland to offload, sailing, for example, up the River Thames into London. To reduce emissions during this part of the operation, we are developing hybrid propulsion systems. This sees the MAD operating on full electric when sailing inland, charging while offloading and then using conventional diesel propulsion at sea.”

Here, Damen’s experience in the construction of electric vessels in other sectors – harbour towage and ferries – means the company can take on a role that goes beyond only that of shipbuilding. Operating as integrator with full responsibility for project execution, Damen can take care of, for example, the installation of charging infrastructure.

Non-nuclear density and flow measurement
Another nod at sustainability is the company’s CombiMeter. This bucks the industry trend of using radioactive meters to measure flow and density and instead uses electromagnetic flow and electrical resistance tomography. “We developed the CombiMeter for the first MAD. This development helps in enabling the dredger to achieve ECO notation from Lloyd’s Register – the first marine aggregate dredger in the UK to boast such classification.”
Moving forward with stationary dredgers
Stationary dredgers – cutter suction dredgers (CSD) – lend themselves to sustainable operations, Olivier says.

“They are already connected to the shore by a discharge pipeline, so it’s easy to imagine this containing an electrical connection. We see this becoming popular in the mining sectors. Damen has already developed and built fully electric CSDs. It’s an excellent solution for urban areas where it is desirable to minimise emissions and noise.”

Damen is always working on its standard range of CSDs of which over 300 have been sold. The aim with these developments is to increase sustainability, uptime and efficiency. “The new CSDs will, as standard, meet IMO Tier II regulations and can be easily upgraded with an option package to IMO Tier III or EU stage V for use on inland waterways.”

Modular solutions for hydro-power
In addition to urban operations, dredgers also have the potential to spearhead sustainable operations in more remote locations.

“Hydroelectric dams provide an excellent opportunity for clean dredging. For one thing, the ongoing maintenance of the dams is essential – if they silt up they cannot generate so much clean energy, so dredging is continual. When you consider that the hydropower dams can provide the dredger with its own cleanly generated electricity, the cycle of sustainability is complete. We’ve developed modular DOP dredgers in order to serve this market – our modular dredgers can be transported to the remotest locations and assembled on site.”

Building efficiency with automation
Digitalisation plays a core role in increasing the sustainability of Damen’s dredgers.

“By giving our dredgers a greater level of digital connectivity we can, for example, provide them with a high degree of automation. The result of this is a higher rate of production, with less fuel consumption, therefore less emissions. Naturally, with automation the operator is also freed up to concentrate on optimising efficiency also.”

Sandy – your digital dredging consultant
Digitalisation relates not only to the dredgers themselves. For instance, a few years ago, Damen launched Sandy – a free online advisory tool (www.dredgefinder.com) that helps contractors find the correct equipment for a dredging project. With just a few simple mouse clicks, Sandy is able to accurately calculate the perfect tools for individual projects.

Making the difference with data
Perhaps the key digital feature in Damen Dredging Equipment’s arsenal though, is Triton. Named for a Greek god of the sea, Triton is a remote monitoring tool that enables Damen to assist in troubleshooting and maintenance and, besides that, along with its clients, to retrieve data from a dredger during operations. With this information, operational efficiency can be optimised and wear of components identified so that they can be replaced pre-failure, maximising uptime. Triton offers more advantages, states Olivier.

“With remote monitoring we can analyse customers’ requirements and make sure we are supplying them with the equipment that most effectively meets their needs. We can also offer training to operators, working with Damen dredging equipment, all around the world, without the need for travel – yet again reducing our carbon footprint and that of our clients. This helps distinguish Damen’s offer and represents a great way to ensure our customers are able to get the best from their dredging operations.”
Sebastian Jankowski

Sebastian's favourite part about working at Damen is the teamwork he enjoys with his colleagues.

"Thanks to this, the work is pleasant and well organised – any issues that arise can be quickly solved. Also, as a younger employee, I benefit from the experience of those who have served longer than me. This helps to deepen my knowledge.

"I also like the variety. Every day is something different. Right now I am working on a prototype so there is a lot to consider. We have to amend the design and implement the changes. Again, by collaborating, we are able to overcome these challenges."

Function: Pipe worker assistant
Location: Damen Shipyards Gdynia, Poland
Working at Damen since 2008

Mandy Willemsen

For Mandy, one of the benefits of working at Damen is the opportunities for development.

"Within five years, I have had several opportunities to grow within the company," she says.

In her current role she is improving processes and services to ensure colleagues across the organisation of a reliable IT environment within which to conduct their work.

"I always found the IT domain to be fascinating. It’s a dynamic, innovative world to be in. I find it rewarding to deliver a service, improve it and see that it makes colleagues both happy and more efficient."

Function: IT&IM service delivery analyst
Location: Damen Shipyards Gorinchem, the Netherlands
Working at Damen since 2015
“The important thing is not to stop questioning.” A quote famously attributed to Albert Einstein, and a trait becoming ever more integral to the ambition behind a growing number of superyacht clients looking to use their yachts as a platform for discovery and scientific-rich adventures. Across Damen Yachting’s entire portfolio, owners are proving that there is most definitely science to superyachting.
Scientific discovery

Leading the field in privately funded discovery is Rob McCallum of EYOS Expeditions, whose expedition expertise has seen him lead countless private yacht journeys to the farthest reaches of our planet for a new wave of clients searching for answers. He was the leader of the recent Five Deeps Expedition – the world’s first manned expedition to the deepest point in each of the five oceans – and Ring of Fire Expedition. He has led 95% of all expeditions into the hadal zone (the ocean below 6,000 metres). And, together with EYOS, he was a design partner in the development of the Damen Yachting SeaXplorer range, providing over 150 design items gained from hard-won experience in the field.

“On another dive project the life process of chemosynthesis, previously unknown to man, was discovered with submersible dives at hydrothermal ocean vents.”

“We know so little about our oceans. Anything below 1,000 metres, you’re likely to be the first human ever there. During the last decade we saw a privately funded dive project kick off what became the discovery of an entirely new underwater world called the Rariphotic. On another dive project the life process of chemosynthesis, previously unknown to man, was discovered with submersible dives at hydrothermal ocean vents.”

Cutting-edge

Whilst Rob may lead expeditions, it’s often, as he explains, the clients’ desire to delve deeper and deeper that is the driving force behind them, in turn even leading to ground-breaking discoveries.

“Just last year, EYOS supported expeditions, collected 400,000 samples, identified 40 species new to science so far, and I expect that will become hundreds of new species. This is world class, cutting-edge science. The potential benefit to humanity of that knowledge is huge. There could be the key to treat cancer or multiple sclerosis somewhere in the ocean. Everybody benefits from better science and I believe the most profound ocean discoveries over the next 20 years will be privately funded. Certainly at EYOS we’ve seen a sharp increase in client interest in scientific discovery across all levels during the last five years. Our clients are intellectually curious, very intelligent individuals, and they have the money to act. Sometimes they start out funding programmes at arm’s length, but seeing the results, they get sucked into it. It’s fascinating. It’s a wonderful feeling to solve some of the mysteries of the world.”

Each to their own

Deep sea exploration is not for everyone of course but that’s not to say superyacht owners cannot get involved on another level. Some opt for citizen science where trips onboard are made engaging, fun and inspirational as families and guests contribute to scientific observation of migratory species, such as whales and bird life.

There is private science where owners or charter guests fund, or partly fund, a research project, accommodating professional scientists on board with a (small) improvised laboratory making the yacht an important tool to observe nature; from water temperature fluctuations to biomass distribution such as phytoplankton. And then there is ocean science philanthropy whereby owners push the limits of scientific knowledge with their own endeavours – as hands-on as you like. Missions of discovery with a full team of specialists to, for example, find new species, chart unknown seabed territories, and change our understanding of our planet.

Work-life balance

Of course, if you’re a scientist yourself like the owner of the 55-metre Amels Limited Editions Gene Machine, a lab bench on board seems like an essential modification. Since 2018, science at sea has been a family project with the owner’s daughter studying Earth’s smallest self-replicating organism, bacteriophage, which is densely concentrated in seawater. The owner has also invited molecular biologists on the Amels 180 to help develop enzymes to breakdown plastics in the oceans. Lab work stepped up during the coronavirus crisis, with an onboard team to create an inexpensive, at-home Covid-19 Nucleic Acid Test diagnostic tool. The lab now extends into the lounge area and includes equipment to create test kit components.

Scientific configurations

Science is fast becoming an integral part of design throughout the Damen Yachting portfolio. With an impressive 2,560 Gross Tonnes of volume, the SeaXplorer 75, just like her sister ship...
La Datcha, is the perfect platform to tailor for scientific endeavours without compromising luxury spaces. The Yacht Support 65 has a multi-functional scientific configuration deeming her ready to provide scientific support without interrupting the luxury experience of the mother yacht. Think operational requirements for discovery such as ocean mapping sonar and a hangar for the safe storage of all equipment. Think labs equipped for sample storage and examination or media studios for editing film and imagery or communications. There is also space to store observation equipment such as submersibles for deep-water and space for helicopters or seaplanes for spotting wildlife, and large multi-role tenders and RHIBs for dive support and coastal observations. The configuration allows for accommodation of specialist crew and storage for all their gear, whilst still maintaining private suites for the owner or VIP guests. And finally, the large cool and dry stores, garbage management and laundry services guarantee autonomous operations.

“I believe the most profound ocean discoveries over the next 20 years will be privately funded.”

Whether superyacht owners are looking to shine a light on the ocean’s mysteries in a bid to enlighten their understanding of the world, truly explore remote coastlines, chart huge unexplored deep-seabed territories or carry out scientific research on board, the big question remains; just how far will superyacht owners take science on board?
Mariia Lagun

Function: Project manager engineering shipbuilding
Location: Marine Design Engineering Mykolayiv, Ukraine
Working at Damen since 2013

Mariia feels that, along with the collaboration she enjoys with her colleagues, one of the best things about working at Damen is the high value placed on the employee.

“At Damen encourages us to learn, grow and become the best. There are plenty of opportunities to develop, with courses, seminars and e-learning. This is very motivating. Besides this, I am very proud of our products. We are all doing our best to deliver the best quality in the shortest timeframes. For me, every new project is a chance to prove our creativity and professionalism.”

Le Kim Diem

Function: Team leader E & A commissioning
Location: Damen Song Cam Shipyard, Vietnam
Working at Damen since 2010

Diem is part of the Commissioning and Sea Trials team at Damen Song Cam that is working towards greater autonomy – something that has been given fresh impetus by the coronavirus pandemic.

“Our department is doing very well with the commissioning and testing of systems, work for which we used to hire external support. The positive feedback we are getting from our clients about our products confirms the value of our contribution. Our achievements motivate us to try and deliver even better results. We are very proud of our department – and proud of Damen Song Cam.”
How Damen is supporting the South African shipbuilding industry

As a family-owned company, Damen’s commitment to corporate social responsibility has always been instinctive. Caring for the long-term sustainability of the company is part of its DNA. A tangible overview of these strategies can be found in Damen’s Corporate Social Responsibility Reports. These annual reports document the many ways in which the company is taking steps to further cement social, economic and environmental responsibility into its daily activities. These steps can be found throughout Damen’s scope of products and services; from green innovations to responsible production methods. This article looks at one specific example of how Damen supports local entrepreneurship by fostering future talent.
The story begins in South Africa, where Damen Shipyards Cape Town has long operated with the mantra of ‘building in Africa, for Africa’. Delivering more than 40 vessels throughout the African continent, the yard’s working philosophy is very much centred on using local services and local materials to build world-class ships. Last year Damen’s Cape Town yard took this approach a step further by giving local company Africa Projects Consultants an interest-free loan to buy a CNC controlled pipe-bending machine.

Speed & quality
Africa Projects Consultants is a South African company that delivers engineering and production services to the South African shipbuilding and ship repair sectors. Although the company was only established in 2018, it is in fact highly experienced; its directors have cumulated more than 60 years of experience working in the ship repair and oil & gas sectors.

The acquisition of the pipe-bending machine has had a double impact on the production output of Africa Project Consultants. The company’s managing director, Refaan Hendricks, sums the situation up best: “The new machine has dramatically improved quality and reduced the time and cost involved in bending pipes. Currently, pipe bending of thick wall pipes involves manually welding together two pipes and an elbow – a process which can take almost a full working day. This technologically-advanced machine will not only increase the speed at which the pipe bending and fabrication can be done, it will increase the quality significantly. It is amazing to see these thick-walled pipes being bent in a matter of seconds.”

The addition of pipe bending services (mild steel or stainless steel pipes 40 millimetres to 140 millimetres in diameter) has therefore enabled Africa Projects Consultants to become more competitive by delivering products with a higher quality product within quicker turnaround times.

Bringing stability
These advantages have given Africa Projects Consultants access to some major projects, the most notable of which has been the South African Navy’s Project Biro. This was set up to develop South Africa’s maritime security. Damen Shipyards Cape Town is main contractor on Project Biro, after receiving the contract from Armscor (the South African Department of Defence acquisition agency). The contract requires of Damen not only the building of three 62-metre long Inshore Patrol Vessels, but also local job creation and the development of a sustainable maritime industry in South Africa. In line with these contractual obligations, and in addition to the loan, Damen has subcontracted pipe bending, shop fabrication, and small steelworks to Africa Projects Consultants.
Looking at the long-term outlook for the company’s growth, Ivan Neethling, Africa Projects Consultants accountant, turns to the United Nations Sustainable Development Goals to measure the three parameters of job creation, training and economy. “We currently have 80 employees working for Africa Projects Consultants,” he says. “These include skilled, semi-skilled and administrative staff – as well as workplace apprentices. Training is very important; we have established our own in-house training programme, and our apprentices are associated with the Swift Academy here in South Africa. Considering the unemployment levels in South Africa, bringing stability like this is crucial.”

The long-term perspective
Of course, the future of Africa Projects Consultants is not limited to working with Damen on Project Biro. From its 1,700m² facilities, the company is anticipating sustained growth and development in areas such as ship repair, shop manufacturing, mechanical and electrical repairs and installation.

Furthermore, the cooperation with Damen and resultant transfer of technology will open the way to more than just shipyards. It will allow Africa Projects Consultants to offer services to other industries such as mining, refrigeration, manufacturing, automotive, chemical, agriculture and construction. Opening doors to a long and prosperous future.

Thinking globally, acting locally
Damen has been promoting local industry participation for many years. While this includes contracting local suppliers to work at its own yards, it also involves Damen Technical Cooperation (DTC), which enables Damen vessels to be built at literally any shipyard on the planet. The quality of these vessels is assured; with more than 1,000 projects undertaken, DTC’s track record is solid.

Nurturing local industry also has socio-economic implications as Damen’s customised solutions allow long term job creation, local content, and transfer of technology. Whether Damen brings in more local suppliers to its own yards or builds with DTC, the impact on the local supply chain is enormous. This results in the automatic retention of strategic capabilities that are often necessary in governmental projects, and retention of local skills for prolonged lifecycle support and logistics purposes. Furthermore, seeing the extent to which local businesses develop and communities thrive, the value of Damen’s approach cannot be overestimated.
After being a Non-Executive Board member for eleven years, Bear Damen retired from Damen’s One Tier Board this year. He remains involved with the company in a broad sense. But the field of marketing and PR is what appeals to his knowledge most, given the wide spectrum of activities he performs outside Damen Shipyards Group.

With a background in graphic design, art direction and typography, Bear successfully ran a record label for five years during and after his studies in Arnhem and London. This venture left him building a high-end and relatively low-key creative haven and recording studio in Amsterdam. Still operative today, many producers and artists worldwide find their way to this unique studio. Simultaneously in 2014, Bear refocused towards his life-long passion and started writing and directing films, music videos, and commercials across Europe and the US. He is also co-founder, partner and director at Couscous Film Productions in Los Angeles and is currently working on mostly narrative projects.
Building a sustainable maritime capability in South Africa

Damen aims not only to build high quality ships for its clients, but to provide them with a comprehensive solution. In the following two articles, we hear from Captain Motsene of the South African Navy and Lieutenant Commander Gayle of the Jamaica Defence Force, how Damen has delivered different solutions tailored to the individual requirements of their organisations.

"In order to better serve our clients, Damen has created a centralised point dedicated to the optimally efficient provision of maritime security solutions. Covering every possible aspect of a security project, Damen Maritime Security Solutions (DMSS) takes a versatile approach to solution provision, in order to tailor its offering entirely to the needs of the customer," said Marijke Winiarski, DMSS process coordinator.
Like many countries, South Africa is looking at ways to maximise use of the opportunities presented by its maritime environment. Given the country’s 2,850 kilometre coastline, 1.5 million km² exclusive economic zone and significant offshore energy sector, this makes sense. The South African Government has formalised these aims with Operation Phakisa.

Unlocking the potential of the seas
Phakisa aims to unlock the economic potential of South Africa; growing GDP and stimulating employment. Phakisa, says Captain Motsene, is redefining the way the government looks at the maritime industry. For one thing, to make the most of its maritime interests, South Africa must be able to protect them. South Africa’s EEZ features some of the busiest maritime traffic zones in the world – notably around the Cape. It also has extensive fishing grounds that need to be policed. Furthermore, most South African maritime trade passes through the Mozambican Channel – an area susceptible to piracy. The same area is host to oil and gas reserves that South Africa has invested in significantly and which are of importance to both its economy and that of Mozambique.

The way Damen, Armscor and the South African Navy worked together to design the vessels ensures their capability.

"It’s complex to select where you want to be, to spread your resources in such a way as to cover as much area as possible," says Captain Motsene. “We cannot afford to have disturbances in the maritime industry. This would affect not only South Africa, but also inland countries within the Southern Hemisphere. There is great interest in making sure that we are sustainable at sea.”

Rising to the challenge
“The three Multi-Mission Inshore Patrol Vessels (MMIPV) that Damen Shipyards Cape Town (DSCT) is building for Project BIRO play a very important role in this. The project aims to give the navy increased capability to conduct cost-effective, focused operations against threats and challenges in the maritime domain. It’s a significant challenge, and not only due to South Africa’s vast area of responsibility. The way that Damen, Armscor and the South African Navy have worked together to design the vessels, ensures their capability to fulfil all the roles that the navy requires, as well as their ability to interact with other entities like the South African Police Maritime Wing and customs.”

Project BIRO though, is about so much more than the delivery of three vessels. It’s also about South Africa developing and maintaining its own maritime capabilities. Damen, as full service provider of Maritime Security Solutions, is able to provide this.

A solution suited to South Africa
“Armscor’s process for selection follows a merit system to make sure the successful bidder meets all the criteria in order to be awarded the contract. Damen provided a solution that understood and embraced South Africa’s specific requirements; a total solution consisting of the local construction of the three Inshore Patrol Vessels, through which thousands of jobs would be created and retained. A solution that ensured the development and maintenance of strategic capabilities, whilst at the same time ensuring the local availability of lifecycle support.”

Part of meeting these requirements includes using South African suppliers as much as possible. You can read more about an example of this on page 30.

A maritime partnership
"I’ve seen a lot of professionalism at Damen Shipyards Cape Town,” continues Captain Motsene. The equipment that Damen has invested in and particularly the amount of training they have provided to give South Africa the capabilities it requires, gives me full confidence. We are now discussing maintenance with Damen – not only of the IPVs, but of other navy vessels as well. Based on my experience with Damen over the last two years, I hope to see the partnership between our organisations continue to develop.

"During the recent keel-laying of the second vessel for Project Biro, the Chief of the South African Navy, Rear Admiral Hlongwane, said that he had the confidence to tell the South African people that we selected a good partner. I agree with that. We have a good partnership. We’ve learned a lot and I think South Africa has benefited a lot just from these three vessels. I hope there will be more in the future.”

(Left to right) Captain Motsene and Rear Admiral Hlongwane of the South African Navy at the keel-laying of the second IPV.
Collaborative commonality in the Caribbean
When the Jamaica Defence Force (JDF) approached Damen for new maritime capabilities, it had a number of requirements. One of these was that it be able to fulfil its role in supporting regional cooperation for patrol and humanitarian relief operations. For this, it was important to the JDF to have commonality with other coast guard agencies in the region.

**Complementary capabilities**

“Pertaining to the procurement of ships it makes sense that not all countries in the region procure the same capability, especially with regards to HADR (high availability disaster recovery),” explains Lieutenant Commander Alvin Gayle of the JDF. “Given the fact that countries in the region are particularly close to each other, if we do they could end up duplicating capability instead of enhancing capability with dissimilar assets. If we look at the Bahamas, for example, they procured a Damen Landing Craft 5612, or Roll On Roll Off as it’s commonly nicknamed, hence the JDF decided to purchase a Damen Fast Crew Supply (FCS) Vessel 5009. The result is the delivery of two divergent, yet complementary, capabilities.

“I have to say, a job well done by Damen.”

“When the region suffers from disasters you find that all nations will pool their resources and help the affected countries. When Dominica experienced Hurricane Maria in 2017, a hurricane that went from a Cat 1 to a Cat 5 overnight, a number of Caribbean nations were there assisting with the HADR efforts. Of note was the presence of Damen-built ships operated by the Bahamas, Barbados, Jamaica and Trinidad & Tobago with complementary capabilities. Admittedly it was great to see all those Damen OPVs out in the eastern Caribbean working on a single mission.”

**Setting standards in cooperation**

Such collaboration is aided by Damen’s practice of standardisation. It is not unusual for crew from one agency to serve aboard a vessel operated by another – it is, therefore imperative that they know their way around the ship. With Damen patrol vessels operating with the Bahamas Defence Force and the coastguards of the USA (Sentinel Class – Damen-designed 4708 built by Bollinger), Trinidad & Tobago, St Vincent & the Grenadines and Barbados, Damen was able to ensure the JDF of this required commonality.

Front line intensity

The requirement for collaboration is given increased impetus by the Caribbean’s location on the Hurricane Belt – something which is posing more and more of a challenge as the region finds itself on the front line in the battle against climate change. Something which, says Commander Gayle, is already observable.

“Over the last decade we have experienced a number of records with regards to the hurricanes in the region. We have experienced the costliest and most powerful hurricanes to make landfall.”

“One of the worst hurricanes we had was Gilbert back in ’88 – that was a Cat 3 (after leaving Jamaica, Gilbert reached Category 5), but we’ve been having quite a few Cat 4s passing close to us in the more recent past.” This, he points out, affects Jamaica’s potential for economic stability and growth.

“Given that 50% of the population lives within 1 mile of the coastal zone and that we are heavily dependent on the tourism industry, this is a serious consideration. Infrastructure, whether it be the telecommunications network, energy delivery transportation, is affected, as is the coastal eco system – we have quite a lot of artisanal fishing.”

**Changing the game**

Another area on which the JDF and its neighbouring agencies are focusing attention is the increasing of maritime domain awareness. To that end, the JDF has placed orders with Damen for two Stan Patrol 4207 vessels and two FCS 5009 Patrol vessel to complement its existing two Stan Patrols 4207. As part of the earlier contract in 2016, Damen also accepted the JDF’s older vessels in part exchange and went on to arrange their resale elsewhere.

“Increasing our awareness of our maritime domain will allow the Force to conduct more targeted and intelligence-led patrols and as such more timely and appropriate responses to law enforcement and maritime safety missions. Enhancing our fleet capability with these Damen Patrol Vessels plays a key role in this.

“The vessels provide us with the capability to remain at sea longer and give us a wider range of communication capabilities. Notably, the Stan Patrol 4207 with the stern launch RHIB gives us increased on board intercept capability with the ability to launch and recover in higher sea states than we were previously capable.”

**Job well done**

“When we took delivery of our first Stan Patrol 4207 vessels in 2005 it was already a great vessel,” concludes Commander Gayle. “Over time, Damen has taken into consideration our recommendations and has incorporated them into the current design. I have to say, a job well done by Damen.”
OceanX, the ocean exploration initiative founded by Ray Dalio and son Mark, has pointed out that, while humans have livestreamed broadcasts from the moon and beamed back images from Mars, over 80% of our terrestrial oceans are unmapped and unexplored. To that end, OceanX is on a mission – to explore the ocean and bring it back to the world.

**Lighting up the darkness**

The initiative combines science, technology and media in order to build a global community engaged with understanding, enjoying and – crucially – protecting our oceans.

OceanX’s numerous notable achievements include discovering a new species of shark, capturing the first ever footage of the giant squid, exploring the deep ocean around Antarctic and sending a submarine 1,000 metres down to reveal sights previously unseen by humanity. OceanX’s performance of the world’s first study of biofluorescent marine life led to the discovery of no less than 180 new biofluorescent species.

**A flagship for a new generation of exploration**

Amongst the tools in OceanX’s kit is R/V OceanXplorer. This vessel builds on the legacy of OceanX’s first vessel – M/V Alucia – and takes things to the next level. OceanXplorer is a ship built to inspire the next generation of ocean explorers. The vessel, previously named Alucia2, has recently completed her extensive rebuild at Damen Shiprepair Rotterdam (DSR). Following this, she is the most advanced exploration, research and media vessel ever built.
OceanXplorer features a 40-ton A-frame from which are launched a range of submersibles, sonar arrays, two manned Triton submersibles and an ROV and AUV, each of which can dive to depths of up to 1,000 metres for up to eight hours. Exploring undersea locations in ways no human has before.

The vessel also hosts a helicopter with a climate-controlled hangar and a real-time content creation and distribution media centre. The underwater optical modem is just one item of equipment that contributes to that. Able to livestream never before seen footage and data from the submersibles direct to social media platforms and classrooms.

Going where no human has gone before
OceanXplorer will conduct surveys of a largely unexplored eco-system, creating high resolution 3D maps, including of the sea floor. This data will facilitate the launching of the ROV and/or submersibles that will collect biological, geographical and chemical data, as well as live samples that can be brought on board into the vessel’s cold tank area and wet lab for closer investigation.

The vessel’s outstanding research capability is paired with Hollywood quality production facilities that push the boundaries of nature cinematography.

Mission control is like the central nervous system, where mission logistics meet scientific and media data collected from anywhere on the vessel and under the water. Here, the OceanX team reviews materials.

An OceanX crew member looks on as the ship’s ROV is prepared for launch.
With such materials and information, scientists from marine institutions around the world will be able to conduct groundbreaking research leading to exciting new discoveries. The capabilities at their disposal include state-of-the-art laboratories suited to DNA sequencing, thus establishing whether a sample represents the discovery of a new species.

**Sharing the knowledge – instantly & globally**
Exploring the seas and oceans though, is just one part of OceanXplorer’s mission – she is also required to share her revolutionary findings with the world. To facilitate this, the vessel is outfitted with a media studio and filming capabilities developed in partnership with renowned filmmaker and ocean explorer James Cameron and the Avatar Alliance Foundation in consultation with production designer N. C. Page Buckner. With this, the vessel’s outstanding research capability is paired with Hollywood quality production facilities that push the boundaries of nature cinematography. More than 3,000 custom light fixtures and numerous screens will help document the work of the scientists. These capabilities allow the vessel’s findings to be live-streamed to audiences worldwide, delivering scientific news at the exact moment of discovery.

**Growing awareness, stimulating conservation**
In this way, OceanXplorer will bring the same global attention and enthusiasm for ocean exploration that space exploration has enjoyed. In turn, this will expand our knowledge of our planet’s valuable resources, increasing our understanding and informing our efforts towards conservation and sustainable management.

**Complex conversion calls on cross-group collaboration**

Damen’s scope of work on OceanXplorer was extensive. The work was extremely challenging and complex, calling upon the expertise of multiple disciplines from across the Damen Shipyards Group – including Newbuild, Shiprepair & Conversion and Yachting.

To convert an offshore survey ship into an advanced research and discovery vessel required a complete rebuild from the main deck upwards, adding new, larger accommodation to house the laboratories, workshops, submarine hangar and fully integrated heli-hangar. Damen’s responsibility included the complete integration of all ship’s systems including specialist hydrographic and laboratory systems and an innovative IT infrastructure to facilitate the combination of state-of-the-art research facilities with the on board Hollywood-standard cinematography and media studios.

Below main deck, the vessel required an in-depth docking scope, including removal and refurbishment of azimuth and bow thrusters, blasting and re-coating of tanks and upgrading of all crew accommodation.

Damen’s responsibility covered both internal and external spaces – everything from the luxury accommodation on decks three and four to the cutting-edge laboratory and research areas.

In this area of the project, Damen Yachting’s superyacht and explorer yacht experience paid off, with an entire team of SeaXplorer engineers drafted in.
I think many colleagues would tell you, it’s difficult to pick one favourite Damen vessel. There are so many different models and many of them become special because of the experiences you have with them. If you push me to pick one – at least at this moment – it would be the FCS 2710.

I’ve a number of reasons for this. Foremost, the vessel serves the offshore renewables industry. This sector, already so important, is going to be critical for the future. I think it’s great that we, as the maritime industry and as Damen, are able to support an industry that is revolutionising production of clean, sustainable energy.

The FCS 2710 is just one of our offerings to this market. Our portfolio affirms our abilities as a team to serve offshore renewables with everything from naval architecture to ship maintenance. The FCS 2710 is an example of the success of standardised shipbuilding. The vessel succeeds the FCS 2610 – which itself enjoyed outstanding success in the offshore wind market – demonstrating the evolution of the product alongside the market.

The development of the FCS 2710 has been driven by Damen’s values as a family company. Our focus is not just on the here and now, it’s on the next generation. That means having a successful business formula for the long-term. And that means offering safe, reliable products, digitally connected for maximal efficiency. It means building a sustainable world for tomorrow. The FCS 2710 embodies that future-focus – especially as we are working towards the introduction of a hybrid propulsion model.

Frederik van der Linde | sales manager north, west & south Europe
European naval cooperation starts in Germany

2020 can safely be regarded as a historic year in the history of European naval cooperation. For the first time, a combination of German and Dutch companies was declared the winner of a European tender for the German Navy. In fact, it is the largest order in the history of the Deutsche Marine.

On June 19th Damen Shipyards Group and the German Bundesamt für Ausrüstung, Informationstechnik und Nutzung der Bundeswehr signed the contract for the construction of four MKS-180 frigates for the German Navy. Damen is the main contractor for this complex project which it is undertaking together with German partner Blohm+Voss, part of the Lürssen Group.
“This decision is a further, important step towards the modernisation of our fleet and for the future viability of the German navy,” explained the Inspector of the German Navy, Vice Admiral Andreas Krause.

**German-Dutch project**

“Of course we are very proud that our consortium has been selected for this prestigious assignment. I am convinced that, with the MKS-180 project, we are building a high-quality frigate that meets all the requirements of the German Navy. It is a German-Dutch project,” adds Hein van Ameijden, managing director of Damen Naval. “We are already working well with our partners in Germany.”

Approximately 80 percent of the project investment remains in Germany as added value.
The vessels will be built at Blohm+Voss in Hamburg, but also partly at other shipyard locations in Germany, including Bremen, Kiel and Wolgast. “Together with our employees, we as the Lürssen Group will contribute our skills and know-how to provide the German Navy with this powerful and highly innovative new type of ship,” says Tim Wagner, Managing Director of the Lürssen shipyard.

Besides this, approximately 100 small and medium-sized companies from the maritime industry, mechanical engineering and plant construction sectors will be involved in the implementation. These companies originate from almost every German state.

Two more
The implementation of the project involves the delivery of four frigates between 2027 and 2031 for a cost of approximately 4.6 billion euros; Damen’s largest order ever. There is also an option to supply two more frigates after 2032.

With Lürssen and Damen the partnership is based on two stable family businesses that have been successfully active in marine and commercial shipbuilding for more than 140 years.

Also benefits for Europe and the Netherlands
“The many years of cooperation between Damen and Thales as part of the Dutch golden ecosystem was an important factor in securing this order,” says Hein van Ameijden. “If the Netherlands continues to invest in innovative projects for its own navy, we can maintain our strong and autonomous knowledge position in naval shipbuilding; we then can further expand our role within European naval construction. That’s good for the Netherlands’ strategic role, which fits in with the national Defence Industry Strategy. The MKS-180 project not only contributes to securing the export power and self-creation of both Dutch and German naval construction in the longer term. The project also opens perspectives for the requested European (defence equipment) cooperation.”

Thales: ‘creating new, high-quality jobs’

The added value and knowledge development that the building of these vessels will bring to Germany also extends to the Thales mission systems that form an integral part of the project. Approximately 70 percent will be supplied by Thales’ German branches in Kiel and Wilhelmshaven. This will be done in close cooperation with numerous subcontractors.

“As a partner in the MKS-180 programme, we not only bring a high German share of added value, but also many years of experience in European cooperation and our extensive system expertise in Germany,” emphasises Dr Christoph Hoppe, Chairman of the Management Board of Thales Germany. “We will therefore be creating new, high-quality jobs here in the country, strengthening a model case for European armaments cooperation and doing our part to keep the German Navy operational and capable of contributing to the alliance.”

Threats in the coming decades
Gerben Edelijn, CEO of Thales Netherlands: “This historic contract for both the German Navy and Thales is a significant milestone in more than 50 years of cooperation and confirms our worldwide leading position in the field of high-end naval mission systems. The women and men on board of these innovative frigates can rely on the latest technologies in the field of cyber defence, radar and fire control.”

“The AWWS system, developed for the Netherlands and Belgian Navies, will soon also enable the German Navy to withstand threats of today and the coming decades.”

Rose leads Damen’s Yachting division. She feels privileged to look after Damen Yachting, making it stronger to one day pass on to the next generation. “I’m proud to work with such an excellent team. A strong team is a diverse team. That means different professional backgrounds and experience, different nationalities and, yes, more women. As a company, we have to become more flexible to attract the diverse talent that we need. Non-homogeneous teams are simply smarter. Working with people who are different from you may challenge your brain to overcome its stale ways of thinking and sharpen its performance.”

Before joining Damen fulltime in 2014, Rose earned an MBA from INSEAD with a focus on entrepreneurial management. This followed five years in fund management at a London-based institutional investor. Rose lives near the shipyard with her two-year old daughter Nicky. In her spare time Rose enjoys outdoor sports including sailing and kite surfing as well as performing arts.
The race is on to reduce emissions as climate change becomes evermore apparent. With global emissions of CO₂ alone up by almost 50% since 1990, governments are taking steps to reverse the rise. Worldwide, 189 nations have signed up to the 2016 Paris Agreement to keep the increase in global warming to 2°C above pre-industrial levels.
The maritime industry must play its part and, with ports having an important role, harbour tugs are natural candidates for taking the first steps. Ports of Auckland, the launching customer for the first Damen Reversed Stern Drive-E (RSD-E) Tug 2513, has the goal of becoming a zero emissions port by 2040. In light of the impetus to tackle climate change, the challenge presented by Ports of Auckland for a fully electric tug has come at the right time.

A big step forward
In July 2020, a ceremony was held at Damen Song Cam Shipyard in Vietnam to mark the keel-laying of the first all-electric RSD-E Tug 2513. When launched, the vessel will be the first, fully electric tug with 70 tons of bollard pull in existence. This marks a big step towards a sustainable future in maritime operations.

Design electric propulsion system
For the tug, Damen is using the same standardisation principle as for diesel tugs. As a result, explains Erik van Schaik, manager design of Damen’s Tugs department, the company can guarantee a good price, quick delivery times and consistent quality and performance.

“What’s more, the in-house designed electric propulsion system can be sized up and down for use in different tug types – we expect to be building more fully electric vessels in the future.”

Naturally, as well as sustainability, safety is also a primary requirement.

“For maximum redundancy, four identical and independent battery packs are situated in each insulated, temperature controlled battery room. The lifetime of the battery system in this application is expected to be approximately 30,000 cycles – the same as the estimated working life of the vessel.”

Operational performance
Thanks to its electric propulsion, as well as the RSD design, the tug is very efficient in operation.

“The vessel can operate with a crew of just two persons thanks to the degree of automation incorporated, the quality of the human machine interface and the centralised alarm, monitoring and control system connected to the Damen remote monitoring system,” explains Erik.

“The battery capacity is sufficient to perform at least two (un) berthing operations in an average harbour with zero emissions, fully electric, on batteries alone. During these operations the vessel can push/pull with 70 ton bollard pull for at least 30 minutes. It then takes only two hours to fully recharge the batteries via the shore connection between operations.”

Business case
The vessel is designed for the lowest total cost of ownership over its lifetime. Depending on the local situation, OPEX can be low with electricity provided from shore and reduced maintenance costs.

“In the right circumstances the total cost of ownership over the lifetime of the Damen RSD-E Tug 2513 is equal or lower than that of a diesel RSD Tug 2513.

“Aside from the financials though, there are additional benefits to an electrical operation. Increased sustainability associated with lower emissions and the need for fewer crew members on board being two obvious examples. Furthermore, all-electrical propulsion removes the necessity of oxygen in the engine room to run fossil fuel driven engines, making it safer for operations in and around LNG terminals and other hydrocarbon/chemical facilities,” Erik concludes.
MD Mark Visser represents the next generation at DMC.
When Mark Visser became managing director of Damen Marine Components (DMC) in October 2019, he had big shoes to fill. His predecessor, Steef Staal, spent his entire career – 46 years – at Damen.

“Steef was an institution,” says Mark. “He had been at DMC for years and had lots of success. People asked me how I planned on ‘replacing’ Steef. The way I see it, I am not Steef’s replacement, but his successor.”

Next generation all under one roof
“Over the past few years, DMC has undergone a series of mergers. Van der Velden Marine Services merged with DMC in 2018. At the end of 2019, we merged with WK Hydraulics. Add the different locations and, although we are now under one roof, we still have multiple company cultures.

Defining the purpose
Mark has been focusing on how to align those cultures. The first step has been to define DMC’s purpose.

“To begin with we said ‘it’s 2025, what’s happened over the past five years at DMC?’ With that it became clear what our priorities were. The findings of this exercise enabled us to define our purpose. We realised that everything we do is aimed at improving vessel service. So, our purpose is the delivery of advanced components and integrated systems improving vessel performance and our service.”

Excellence, innovation & service
DMC selected three areas to concentrate on over the coming three years; operational excellence, innovation in products & systems integration and professional service.

“Operational excellence starts with first customer contact and never stops,” Mark states. “Our focus here is on continuous improvement. We have to make sure all parts of the company align, all using the same systems and communicating and working together.

“We have a solid track record in innovation. Two decades ago, nozzles were made of several parts welded together. DMC came up with a way to make them in one piece with a spinning machine. This was a breakthrough in quality and efficiency. After this, it took considerably less time to produce a much stronger nozzle.

“Recently, we developed the Firewall Isolator. A layer of protection sitting between the Cloud and components on a connected vessel, preventing hacking. DMC is able to innovate such things because of the integrated nature of our operations – we are not just making components, doing electronics, we cover the whole process. We have multiple disciplines, in-house, working together on such things.

“And finally, I think it’s reasonable to say that service is one of the best arguments for choosing DMC. We don’t only cover the warranty period, we are there for the entire lifecycle of the product.”

Values defined
“We have five values, chief of which is ‘customer first’. Another is ‘ownership & accountability’. Linked to this is ‘transparency’ – crucial if we want to align the cultures of the companies that form DMC. We are ‘professional’ and ‘passionate’ about what we do.”

Tracking progress
Mark explains that DMC came up with twelve initiatives and targets that would measure progress. These were divided amongst management. One involves looking at which products are doing well or have potential and then focusing on these. Another involves more product standardisation.

“We need to analyse the portfolio and streamline the products, make them more standard. By setting a standard that covers everything from order to delivery, and freezing a design until there is a chance to make a progressed version, we can work towards continual improvement.”

Another important initiative is sales and operations planning. “If we want to be more efficient we need to be able to make accurate forecasts of what products we are going to need, in what volumes, at what times. It doesn’t need to be 100% accurate – if we have 70% accuracy we are already gaining.”

Planning is a focus. “We want to get everyone using the same software. So in China they can see production capacity in Poland, engineering capacity in Germany, so we know how to scale up or down, and if there is a delay we can communicate it ASAP – applying our values of client focus, accountability, professionalism and transparency.”

Working as a team
Another vital part of the initiatives is the human aspect. “We will be taking a critical look, making sure the right people are in the right roles, equipped with the right tools and training to do their jobs. It’s the only way we are going to have continuous improvement.”

Mark is clear what his role is. “We are a team. I am the coach. If we work as a team we have a bright future. Look how people have pulled together in the coronavirus situation. It gives me confidence; we have the team in place! Our people are willing and they are able to cope with a challenge.”
A boost for Dutch defence and... the economy

The fact that the men and women of the Royal Netherlands Navy deserve only the best of the best when it comes to the selection of a successor to the Walrus-class submarines is beyond doubt. However, the award of this contract is also a unique opportunity to simultaneously achieve a number of important objectives.

The international security situation is deteriorating and countries are increasing their defence efforts. At the same time, the Netherlands is on the verge of purchasing new submarines. That order affects many more interests than just military ones. Complex aspects of European and international politics are important, as are industrial and other economic considerations.

“In the 21st century, the importance of the maritime domain is only increasing,” said Richard Keulen, director Naval Sales Support at Damen Naval. “That is great if, like the Netherlands, you are a seafaring nation with a rich history and a self-creating industry. The area that we as a nation are good at is growing in importance. It makes sense to make use of this, but also to defend this interest. The renewal of the submarine capacity is one of the most tangible aspects of this.”

Niche capability

the Netherlands has an open economy and a very clear international orientation. Full participation in supranational organisations; political, economic and military. This stems in part from a well-understood self-interest. Richard: “We are no longer a dominant power, we need alliances to secure certain positions. Anyone who wants to be included in those partnerships must have something to offer. You can only offer an exchange if you have something that is useful and distinctive to other parties. Expeditionary submarines with conventional propulsion are such a niche capability which, for example, NATO is in great need.”

Thus, the successors to the Walrus-class not only strengthen our own defence capabilities, but are also an essential contribution to the strength of NATO. In addition, they provide our national armed forces with a meaningful position based on reciprocity in international partnerships. For example in the field of information sharing.
Made in Holland
In order to play a significant role in this international force field, it is necessary that others cannot ignore you. And not go through or over you. You cannot and will not do without some degree of national sovereignty. For Dutch naval construction, this sovereignty lies in the entire range of knowledge and skills required to control and manage complex naval projects, be they frigates or submarines. These positions are also clearly described in the Defence Industry Strategy, which the Dutch Government has embraced. The starting points of this strategy lead to the choice of submarines with the highest possible made in Holland content. This applies not only to the Damen part within the Saab-Kockums-Damen Shipyards Group consortium, but also to the entire national maritime cluster with which Damen is accustomed to working. This concerns large companies, but also Dutch SMEs that are involved as suppliers, ranging from Thales and KPN to Bolide, RH Marine and De Regt Marine Cables.

“Regardless of which party supplies the successor to the Walrus-class submarines, it is crucial for our Dutch high-quality industry to be affiliated with projects such as this one, explains Bob van der Horst, commercial director of VDL Defense Technologies. “The attractive thing about this assignment for us is that we are able to apply our technological competences at a maritime level.” Bob represents the 105 operating companies of the family business VDL Groep in military and security-related projects. “The French and German providers have been successfully building submarines with their own supply chain for years. Undoubtedly, we can also provide added value in specific areas. However, with the combination of Saab-Damen we are involved at a technological competence level. As a result, we have expanded our existing knowledge and, together with all the Dutch companies involved, we can shape our maritime industrial sovereignty.”

Despite the disappearance of the builder of the Walrus-class, RDM, the Netherlands still has extensive experience in the field of submarine construction. As Richard Keulen says, “It doesn’t cover all aspects, and that is why we asked Saab Kockums to work with us, but the Dutch industry succeeded very well in carrying out the large-scale upgrade of the current four submarines (of Dutch design).”

Underwater technology
Partly to address this deficit, the Dutch Underwater Knowledge Cluster (DUKC) was established. “With this we want to further develop the knowledge that is available in the Netherlands in the field of underwater technology,” explains chairman Harm Kappen, director Global Sales Defense, Safety & Security at RH Marine. “It is not intended as a consultation or lobby club, but is a network of companies that can really add something in the field of underwater technology based on their own expertise. Damen is therefore the only shipbuilder in our midst.”

According to him, this does not mean that there is no discussion and cooperation with the other bidders for the contract. “No, we cannot afford that. Should the choice fall on the French or German proposals, we naturally also want to be in a position to be able to make our contribution. However, we
know Damen well. We already work with them a lot within the Dutch maritime cluster. We know what to expect from each other. Ultimately, our goal as DUKC is to establish a long-term submarine cluster in the Netherlands. The tender for this order is a prelude to this.”

Family business
Bob agrees. “The purpose of our knowledge building is to contribute technology and manufacturing competences to the project and thus to invest for the long term. We also have that horizon as a family business, just like Damen. As far as I am concerned, this maritime industrial sovereignty also includes exports in the long term.”

This view is shared by Richard Keulen. “Keeping the main part of development and construction of the next generation of submarines in your own country also enables you to update and strengthen knowledge according to the ‘launching customer’ principle. Then you can also start looking at exports on the basis of this. That means an extra investment in Dutch industry. Developing and integrating complex military systems is the Formula 1 of shipbuilding. We are already good at this. In addition, our national naval construction sector has proved that it can supply on time and within budget. As private companies in this sector, we also have to ensure our survival. This is in contrast to some of our state-sponsored or partly state-owned competitors.”

Orange boat
Former navy man Richard Keulen is already looking forward to the assignment. “I think it will be a great honour if the Dutch maritime cluster is chosen to create a modern submarine, in which the men and women of the Royal Netherlands Navy can operate safely and effectively until at least 2060.

“The combination of Damen-Saab as main contractors and system integrators provides the best guarantee of on-time delivery, within budget of a product that the Royal Netherlands Navy is waiting for. It will also ensure that our national expertise in this highly advanced sector is guaranteed for many years to come. And the fact that it will also be the most ‘Orange’ boat is a wise investment in these corona pandemic times and long afterwards.” Or as Harm Kappen sums it up: “It’s about the best boat at the best price and with the greatest possible Dutch involvement.”
My actual favourite vessels are standardised boats that we build in series. This has always been the strength of our company. Vessels like the ASD Tugs; modern vessels that apply the lessons learned over years of series production and are both innovative and proven. And the SIGMA frigates, modular ships that enable us to build anywhere in the world at a location of our clients’ choosing.

That said, it’s been a privilege to be involved in the Antarctic Supply & Research Vessel (ASRV), the RSV Nuyina that we are building for Australia. This is a ship that has brought Damen to a new era.

The technical complexity of this vessel can be compared to that of a submarine. The amount of systems and capabilities is extreme. It has thousands of technical requirements – some of which are worlds apart. At one moment the ship needs to be cutting through thick ice at speed, the next it needs to be performing in extreme silence.

These extremes result from the dual profile of the ship; it is on one hand a supply vessel for transporting people and cargo, and on the other, a research vessel performing scientific investigation in one of the planet’s most sensitive environments. The result is two ships in one. A space rocket one minute and a dumper truck the next.

The ASRV is a true team effort. KNUD E. HANSEN and Damen Naval provided the design, Marine Engineering Galati (MEGA) the engineering, Damen Gorinchem the commercial activity and the ship has been built at Damen Galati. An achievement for the entire group. And one that shows what we can do in terms of meeting requirements of clients in governmental and semi-governmental organisations. I’m proud of what Damen has achieved with the ASRV.

Roland Briene | commercial director Damen Naval
The development of the autonomous vessel has been high on the agenda of the Research & Development department of Damen Shipyards Group for years. “In fact, last year we performed a successful test in which one of our Fast Crew Suppliers (FCS) already sailed autonomously at sea,” explains Michiel Louwerse, R&D program manager.

Damen conducted this test together with, among others, the shipping company SeaZip Offshore Service. “It was a good test to see what is currently possible,” says operations manager Harm Mulder. “For us, it’s not so much about unmanned navigation, as about relieving our crews. For example, in addition to navigation a captain has many tasks, such as keeping the logbooks and processing weather forecasts in the daily planning.

This combination of responsibilities does not make digital support an unnecessary luxury. A degree of autonomy will reduce the number of errors on board. In addition, autonomous sailing provides savings in fuel consumption and is therefore also more sustainable.”
New on the drawing boards at Damen is the Unmanned Patrol Craft (UnPaC); the future of on-the-water security. The UnPaC is a vessel just a few metres in length that, in the context of timely observation, is used for surveillance and protection. For example, at harbour entrances, wind farms or around superyachts. The sailing drone can be controlled remotely, but can also operate completely autonomously via GPS. It is equipped with radar, cameras and infrared technology to identify objects. You can communicate with any intruders via a sound box. “It can operate continuously for up to 48 hours,” explains Marcel Karsijns, product director Civil & Modular Constructions at Damen Shipyards Group. “The boat is made of high-density polyethylene (HDPE). This makes it seawater resistant, virtually maintenance-free and also easy to repair.”

Collision avoidance
Another partner that Damen works with in the field of autonomous sailing is Boston-based Sea Machines. “Ninety percent of maritime accidents have a human cause,” says EMEA business development manager Frank Relou. “By integrating sensors such as radar, cameras and AIS, we can already offer systems that monitor situational awareness continuously. In the context of obstacle and collision avoidance, our system can not only identify and track objects, but also intervenes independently to change course and speed in order to avoid a collision; subject to the ColRegs (international regulations for preventing collisions at sea). This creates an extra layer of safety that is always ready and never suffers from fatigue or boredom.”

Dangerous, dull or dirty
There are certainly applications where digitalisation ultimately leads to a reduction in crew. “I am thinking of survey vessels or the guard vessels that monitor wind farms,” says Harm Mulder. According to Frank Relou, the formula for this is: “dangerous, dull or dirty”. “If that is the case, there is a lot to be gained in various areas by operating autonomous vessels. The economic benefits of a smaller crew are obvious, but by enabling onshore supervision, you can also reduce the amount of training required for those on board.”

SmartShip
“We are a system integrator par excellence,” says Michiel Louwense of Damen. “All these developments come together in our SmartShip programme. Via our connected vessel platform Triton we can look back and analyse big data from our ships. With our simulation platform we look ahead and predict what will happen. The resulting insights into efficiency and safety can be provided as advice to the bridge, but are increasingly implemented directly by the automation on board. A form of artificial intelligence, as it were.”

Sometimes autonomous boating projects look like hi-tech toys to see who can sail first without a crew. “That is by no means our goal,” says Michiel. “Everything is based on the use of technology to overcome limitations in the ship’s current operation. Imagine the situation of a captain of a fast crew supplier who has to transfer people to a wind turbine at night with high waves and a lot of wind. That requires utmost concentration. With autonomous technology we can have the navigation tasks carried out by a digital co-pilot. The captain becomes a supervisor and can fully focus on the safety and deployment of people and ship. Autonomous does not necessarily equate to unmanned. What matters is that digital technology supports professionals and ensures that our ships take as much work as possible off their hands. More efficient and safer. That will be the future.”

UnPaC: sailing drone
Planning the next generation

The DFFe 4009, a class-approved, cost-effective vessel able to carry up to 450 passengers.

ASD Tug 2010; a compact ship-handling tool

ASD Tug 3413 ICE; power and reliability for the toughest conditions
Damen's TSHD series is getting a sustainability-focused makeover. The new range includes significantly increased safety and efficiency.

Omega, Damen's concept design future surface combat frigate

The new full mission bridge gives clients the chance to experience Damen vessels in the design phase.

HDPE (High Density Polyethylene) is known for its high strength-to-density ratio and is resistant to many different potentially corrosive substances. The first model vessel will soon be on trials within Damen Civil & Modular Construction.

The Unmanned Patrol Craft (UnPaC); the future of on-the-water security.

The new full mission bridge gives clients the chance to experience Damen vessels in the design phase.
Nederlands Dans Theater (NDT) is entering a new generation. The dance company is embracing changes and viewing them as a stimulus for innovation.

Earlier this year, Paul Lightfoot, artistic director of NDT since 2011, stepped down. Paul, together with his creative partner, NDT’s artistic advisor Sol León, was responsible for the production of more than fifty pieces for the company.
Traditionally, NDT’s artistic directors come from within the ranks. From this perspective, the appointment of Emily Molnar represents a break with tradition. Emily’s is one of Canada’s most acclaimed dance artists and former artistic director of both Ballet BC in Vancouver and Banff Centre for Arts and Creativity.

Emily joins Willemijn Maas, appointed as NDT’s general director in May 2019, following a career as an independent interim director, advisor and supervisor. Together, they represent the next generation at NDT.

They take their positions at a challenging time. Like many organisations, the dance theatre is wrestling with the effects of the coronavirus pandemic. NDT, though, has overcome challenges in the past. Back in 1959, when it started, it was not certain NDT would succeed.

“NDT started out as a group of rebels within het Nederlands Ballet in Amsterdam. They wanted something different, inspired by Martha Graham, something that het Nederlands Ballet could not accommodate. So they stepped out and started something new by themselves,” explains Willemijn.

“NDT started as NDT’s general director in May 2019, following a career as an independent director, advisor and supervisor. Together, they represent the next generation at NDT.

To begin with, reviews were bad – so bad, that they almost quit. But then things started to turn around. People started to understand what they were doing and success came.”

Emily: “When a company becomes so established, it’s hard to keep that rebellious spirit alive. We have to avoid becoming jaded. However, it can be done; you have to be OK with breaking things down and starting over, with taking risks. Being OK with the fact that some things work and some don’t.”

It would be easy to get dispirited; NDT is a travelling dance company and the pandemic has restricted their movement as well as their opportunity to perform in the Netherlands. But NDT remains upbeat. “Now it’s about creating opportunity in challenging times. Either it falls apart or you see it as an opportunity. NDT is embracing that and trying to be as creative as possible,” states Emily.

Following the outbreak NDT was not able to perform for some time. “Even when we do start again we will have to limit attendance so we will continue to lose money,” Willemijn states.

“What we’ve found is that the situation reignites our desire to dance and for people to want to see dance.”

However, says Emily, “Money is not everything. Money does not equal standard. You don’t need money to be creative. Works with smaller budgets are often very good, you just need to be innovative.

“The time we’ve had when people cannot come to performances has given us the chance to examine whether dance is actually necessary. What we’ve found is that the situation reignites our desire to dance and for people to want to see dance.”

Willemijn: “It’s also provided us with the opportunity to create a shared platform so that we can hear from the dancers about what they want to do. With them not being able to travel we’ve looked at what can be done locally. We’ve invited nineteen local artists to give intensive workshops. In this way, the dancers are learning new things, which is creating new experiences for their future audiences.”

Emily: “It’s also given us the incentive to consider new ways in which the company can go out into the community – examining, for example, the potential to give performances outside of the theatre space.

It’s been an opportunity to generally reflect on new techniques.”

The drive for innovation often involves building a closer relationship with the digital world in order to reach the desired audience.

Emily: “We decided to live stream the performances in The Hague starting on September 17. This is a new thing for us, one that presents new challenges. We are not giving up on live performance – it’s such a large part of why we do this – but this offers a way to look for new angles of a piece you normally wouldn’t see, in order to create two different experiences.”

NDT has found the time to make plans for its new home; the cultural complex, Amare, in The Hague, which NDT will share with Zuiderstrandtheater, Resident Orkest Den Haag and Koninklijk Conservatorium Den Haag, will be delivered in May 2021. NDT will move into the new location in July the same year, with their first performance scheduled for September.

The new theatre’s green room – a lounge area especially designed for the NDT dancers – has been named the Kommer Damen family particularly contributes to the uniqueness of our collaboration.”
Each year around 1,300 vessels call at the yards of Damen Shiprepair & Conversion for refit, maintenance, conversion or repair. We cater for all vessel types and sizes at our facilities in key locations.
Replica of the 18th century VOC ship Amsterdam at Damen Shiprepair Amsterdam for maintenance.

Innovation at Damen Verolme Rotterdam

Anthem of the seas at Damen Shiprepair Brest

Clipper Stad Amsterdam undergoing mid-life maintenance in Den Helder’s historic Willemsoord Harbour.

Iona at Damen Verolme Rotterdam

Innovation at Damen Verolme Rotterdam
The world of Damen

Yards & Companies

Angola
Damen Services Luanda (SERVICE HUB)

Argentina
Damen Area Support South America (SALES OFFICE)

Australia
Damen Services Brisbane (SERVICE HUB)

Bahamas
Damen Services Nassau (SERVICE HUB)

Bangladesh
Damen Services Dhaka (SERVICE HUB)

Brazil
Damen Services Rio de Janeiro (SERVICE HUB)

Canada
Damen Services Victoria (BC) (SERVICE HUB)

China
Damen Area Support Shanghai (SALES OFFICE)
Damen Marine Components Jiangyin (COMPONENT FACTORY)
Damen Shipyards Changde (SHIPYARD)
Damen Trading Suzhou (SALES OFFICE)
Damen Yichang Shipyard (SHIP REPAIR)

Curacao
Damen Services Curacao (SERVICE HUB)
Damen Shiprepair Curacao (SHIP REPAIR)

Djibouti
Damen Services Djibouti (SERVICE HUB)

France
Damen Shiprepair Brest (SHIP REPAIR)
Damen Shiprepair Dunkerque (SHIP REPAIR)

Germany
Van der Velden Barkemeyer (ENGINEERING)

Indonesia
PT. Damen Schelde Indonesia (SALES OFFICE)

Jamaica
Damen Services Jamaica (SERVICE HUB)

Kenya
Damen Services Kenya (SERVICE HUB)

Mozambique
Damen Services Beira (SERVICE HUB)

Nigeria
Damen Services Port Harcourt (SERVICE HUB)

Norway
Damen Shipyards Stavanger (SALES OFFICE)

Panama
Damen Services Panama (SERVICE HUB)

Poland
Damen Engineering Gdansk (ENGINEERING)
Damen Marine Components Gdansk (COMPONENT FACTORY)
Damen Shipyards Gdansk (SHIPYARD)
Damen Shipyards Kedzie (SHIP REPAIR)

Qatar
Nakilat Damen Shipyards Qatar (SHIPYARD)

Romania
Damen Shipyards Galati (SHIPYARD)
Damen Shipyards Mangalia (SHIPYARD)
Van der Velden Romania (SALES OFFICE)

Russia
Damen Engineering St. Petersburg (ENGINEERING)

Saint Vincent and the Grenadines
Damen Services St. Vincent (SERVICE HUB)

Singapore
Damen Schelde Marine Services Singapore (COMPONENT FACTORY)
Damen Services Singapore (SERVICE HUB)
Damen Shipyards Singapore (SHIPYARD)

South Africa
Damen Shipyards Cape Town (SHIPYARD)
Damen Shipyards Port Elizabeth (SHIPYARD)

Sweden
Damen Oskarshamnsvarvet Sweden (SHIP REPAIR)

Trinidad & Tobago
Damen Services Trinidad & Tobago (SERVICE HUB)

Turkey
Damen Shipyards Antalya (SHIPYARD)

Ukraine
Marine Design Engineering Mykolayiv (ENGINEERING)

United Arab Emirates
Albwardy Damen - Dubai (SHIPYARD)
Albwardy Damen - Fujairah (SHIPYARD)
Albwardy Damen - Sharjah (SHIP RELAYS)
Damen Services Dubai (SERVICE HUB)

United States of America
Damen Area Support North America (SALES OFFICE)

Vietnam
Damen Song Cam Shipyard (SHIPYARD)
Damen Services Song Cam (SERVICE HUB)
Started and stayed in the Netherlands
The Damen DNA

CORE VALUES

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

Craftsmanship.
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.
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.

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.
My favourite vessel

Shoalbuster 3514 Brutus
Pieter-Jan Fase

I’ve worked on a lot of special vessels, any one of which could be considered a favourite. A recent example would be Herman Senior’s Shoalbuster 3514 Brutus. As a Shoalbuster she’s a Damen series vessel, but Brutus is different. That’s what we do at Damen Hardinxveld. If you look at the boats we build, the components come from the same suppliers, we work with the same classification society. We do as much as possible in a standardised way, but the result is unique.

What makes this boat really special is the way we worked with the client in her development. Herman Senior are, like Damen, a family company. They come here and we talk about what they want, face-to-face. They know exactly what they are looking for and we work together to get the right result. Typically this entails the evolution of the vessel right up to the point of construction.

Herman Senior are planning to use Brutus in the offshore wind industry, so sustainability is very important – this vessel has very low emissions and is IMO Tier III compliant.

Working offshore, Brutus needs to be able to keep position – she’s the first Shoalbuster with Dynamic Positioning. Thanks to the Shoalbuster’s shallow water capability, Brutus is well suited to offshore work. She’s versatile though, she can work in other sectors if required. Another nice feature of this project is that Brutus is a boat built in the Netherlands, for a Dutch company, sailing under a Dutch flag.

Pieter-Jan Fase | manager engineering Damen Shipyards Hardinxveld
Florin Bounegru
Function: Electrical Workshop Manager
Location: Damen Shipyards Mangalia, Romania
Working at Damen 2014-2017 and since 2019

Florin says that working with the vessels in the Damen portfolio has given him – and his colleagues – the opportunity to develop their skills.

“We’ve been getting to know the Damen vessels these past two years, in order to ensure that our work is of the highest possible quality. These are complex vessels that offer us the chance to develop our performance. I really appreciate the way in which my colleagues persist in this – putting all their effort into achieving our goals and being driven by the possibility to reach new heights every day.”

Pieter Baggerman
Function: Naval architect
Location: Concordia Damen, the Netherlands
Working at Damen since 2018

“My work changes every day and I get given a lot of responsibility on challenging projects. There’s room for me to provide my own input, as well as to develop myself,” explains Peter, a naval architect with 20 years’ experience.

He says he also enjoys knowing his work is contributing to tomorrow’s maritime world. “We are working on very innovative, efficient vessels. It’s great to be working on projects that are not just sustainable today, but which we prepare for the techniques of tomorrow, in order to make them even more sustainable in the future.”
One World of Yachting

Explore our wide-ranging portfolio for your complete luxury yachting experience, including our world-renowned Amels superyachts.