INNOVATION SPECIAL
BRINGING DAMEN PRIDE TO THE COLLABORATIVE PROJECTS SHAPING OUR MARITIME FUTURE

CRUISE
DAMEN SETS SAIL ON A NEW ADVENTURE
Welcome to Damen #6! As anticipated, it has been a challenging year since I wrote the foreword for the previous edition of this magazine. Notably, demand for vessels operating in oil and gas sectors remains low – a situation I expect to persist over the coming decades.

However, it is by no means all bad news in the offshore industry – oil companies are gradually increasing exploration activities and new offshore fields will come into production in the coming years. And, in spite of – and in some cases, because of – low oil prices, some sectors continue to perform.

The offshore renewables industry is still up and coming. We have developed a range of solutions for this market, including the FCS 2710 – the next generation of crew supply vessels based on a Twin Axe hull design for safe, comfortable transportation to wind farms. In line with the political climate in some regions, defence and security at sea is in focus. At the other end of the spectrum, yachting is experiencing considerable activity – since the last edition of this magazine went to press, Amels has sold yachts from both its Limited Editions Range and Full Custom builds. Additionally, we have seen demand for Yacht Support Vessels and SeaXplorer Expedition Yachts.

The expedition theme is growing in relevance. To support this, Damen has announced a new focus on the expedition cruise market, assisted by industry partners and members of the Damen Shipyards Group such as naval architect KNUD E. HANSEN.

We are seeing renewed investment in waterborne public transport, spurred on by economic recovery. Damen is supporting this sector with its in-house R&D and Innovation programmes, developing solutions such as the first fully electric ferries in Canada.

This is just one example of the many innovations that we are working on currently. We see the world changing around us, with ever more attention being paid to digitalisation and sustainability. As a company with a long-term view, it is vital that we play a leading role in these developments. This is why Damen personnel are putting their wealth of talent to good use developing a whole range of new tools and services to help our customers retain their relevancy for the future and lower the cost of their operations.

Initiatives such as a remote monitoring system that take data from Damen vessels in operation are of great use to the entire chain. Such information provides Damen with the opportunity to optimise our designs, our suppliers to produce the right volume and type of components and, most importantly of all, gives our customers access to reduced lifecycle costs and maximum uptime of their vessels.

You can read more about these and other innovations in our Innovation Special starting on page 22 and in articles throughout the magazine. Happy reading!

Kommer Damen
FOCUS ON INNOVATION

This edition of the Damen Magazine has a focus on innovation.
In addition to the Innovation Special on pages 22 to 37, you will find news relating to innovation within Damen.

In addition to the Innovation Special on pages 22 to 37, innovation is a recurring theme to be found throughout the magazine. Whatever you see this symbol in these pages you will find news relating to innovation within Damen.

As a result, this eliminates the need for ballast water exchange. Damen’s InvaSave ballast water treatment service in the port, preserv- es the cleanest, ISO standard, ballast water at the quay without the need to operate their own on-board treatment systems.

Showing its commitment to build up a worldwide ballast water exchange, Damen Green Solutions is in talks with several other ports and harbour service providers around the world to offer the InvaSave service.

Damen's InvaSave is the world’s first external ballast water treatment unit designed primarily to offer ship owners a port-based ballast water solution. With this partnership vessels coming into these eight ports will be able to take advantage of a one-stop-shop for their ballast water treatment requirements.

“Our goal is to build up a reliable worldwide ballast water service network,” says Philip Rabe from Damen Green Solutions. “With our ballast water bunkering service we can both accept used ballast water for disposal, as well as fill up ballast water tanks with certified clean water at the port of departure.”

INNOVATION
The 151-metre, self-propelled, DP2 jack-up rig Seafox 5 to install 66 six-megawatt wind turbines at the Seafox 5. This work enables Seafox 5’s next generation of wind turbines. Damen’s commercial involvement of larger wind turbines in water depths of up to 65 metres. The long experience Damen has in building jack-up rigs has contributed greatly to this result.

Verolme Rotterdam (DVR) shipyard following a four-month refit in which the Damen Marine Components Netherlands (DMC N.L.) has been operating since the early-80s in the Damen Shipyards Group, whilst DVMMS has been operating as an independent part of the Damen Shipyards Group’s components division since 2013, so in many ways the merger represents a continuation of a successful working relationship. However, the decision was taken to bring the two companies closer together in order to enhance performance. Steef E.F. Steal, Managing Director, explained the thinking behind the move, saying, “This alignment means clients will have access to an increased portfolio of propulsion products in one place. At the same time, it combines the extensive market knowledge of two well-established partners, paving the way to more efficient products and services going forwards.”

On 4th December last year, Mr Kommer Damen, Chairman of the Damen Shipyards Group, officially opened Damen’s China Support Company in Shanghai. The company will serve to support Damen’s commercial involvement and development in the region, generating new synergies and opportunities within Damen affiliated companies, and open up the way to increase cooperation with maritime clients and partners in China. The company, coordinated by Managing Director John Zhou (see page 16), will be involved in a range of activities, including commercial activity for Damen newbuild and Damen Marine Components as well as the provision of services to clients in the region.

Damen has recently unveiled a Water Injection Dredger (WID), courtesy of a plug & play system aboard a Damen Multi Cat. Such Capabilities are typically found only on dedicated platforms, though Damen realised that the Multi Cat’s forward propulsion and maneuvrability made it a suitable platform for this type of dredging. The Multi Cat is typically used to avoid CSDs on dredging projects, carrying out tasks such as anchor shifting and cutter teeth replacement. Damen realised that, with the addition of dredging components, the Multi Cat might actually be able to take on dredging functionality in a manner that proves the rule ‘the whole is greater than the sum of its parts.’

In the words of Olivier Marcus, Damen Producer Director Dredging: “This is not just the equipment, this is one plus six equals three.” The Multi Cat WID Dredger works by injecting silt with high volume, but low pressure water. The accumulated silt becomes a density flow and by utilising the current and/or gradient the silt will be removed from ports and waterways including rivers and channels, offering a cost effective, sustainable approach to dredging.

This very straightforward approach applies containers – 2 x 40ft for a 600m³ system, and 3 x 40ft for a 600m³ system – on board a Multi Cat in a plug & play system that can be applied to an existing vessel for added versatility.

Damen Marine Components and Van der Velden Marine Systems announce merger

Damen Marine Components (DMC) and Van der Velden Marine Systems (VDMMS) recently announced a merger. As of 1st January, 2018, the two companies are operating together as Damen Marine Components Netherlands (DMC N.L.).

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Damen Area Sales Manager Michiel Hendrix said of the opening of the company, “We are very pleased to to open this company in Shanghai. Damen already has very strong connections in China, where we operate two shipyards – Damen Shipyards Changle and the joint venture Damen Yichang Shipyard. As well as these, Damen Marine Components has a facility in Zhangjin.

“We felt it was time to have more direct contact with our clients and suppliers in the region and opening this facility will provide an answer to this need. For our clients in this part of the world this will mean even faster, more convenient service. It’s part of Damen’s global commitment to operating wherever our clients are.”

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Damen unveils Multi Cat Water Injection Dredger

Recently, Damen signed a contract with Canada-based Group Ocean for the delivery of two Modular Multi Cats, Damen’s water injection dredger, the WID. The vessels, which are made of standard, container sized units for easy transportation anywhere in the world, will serve as dredging support vessels on an oil sands project in the north of Canada. The contract fits with Group Ocean’s vision to become a world class organisation and a trusted partner for its clients.

The location of the oil sands tailings ponds, upon which the Multi Cats will work is inland and not easily accessible by water. The modular nature of the vessels means that they can be easily transported to site by truck and then quickly assembled for operation on location. The modular design also makes any future relocations straightforward.

Tommy Theriault, Business Development Director for Ocean Marine Works and Dredging, explained: “In addition to the ease with which we can transport these vessels to inaccessible locations quickly and cost-effectively, Damen’s standardised shipbuilding process means that they already exist as a module stock for extremely fast delivery. It will also allow us far more flexibility for future development across Canada.”

New AMELS 180 sold

Amels recently announced the sale of a new 55-metre AMELS 180 (180 ft) from the Amels Limited Editions range. The superyacht features an extended 28-metre Sun Deck, six luxury suites and three folding balconies.

The exterior with highly sought after Tim Heywood design pedigree is complemented by a contemporary, fresh interior design by Laura Sessa with classic high gloss finishes.

“Today’s new yacht beautifully highlights the advantages of our Limited Editions approach to yacht building,” comments Amels Commercial Director Rose Damen.

“The AMELS 180 has been the world’s best-selling 55-metre yacht design since 2007, and we’ve been able to do that through constantly evolving and introducing new features. We can’t wait to see her on the water with her owner later this year.”

The buyer was represented by Peter Bronn of Burgers. “It has been a pleasure working with Amels on the sale of this Limited Editions yacht and we now eagerly anticipate the delivery of what will be a truly spectacular yacht.”

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This very straightforward approach applies containers – 2 x 40ft for a 600m³ system, and 3 x 40ft for a 600m³ system – on board a Multi Cat in a plug & play system that can be applied to an existing vessel for added versatility.
Damen has unveiled the Multi Buster, a shallow draught, DP2 vessel designed to perform as an offshore workboat. The vessel features a large scope of operational flexibility, courtesy of modular adaptability. It can carry out a wide range of tasks for the renewables, oil and gas, marine contracting and dredging industries. Boasting 560 m$^2$ deck space, and a 90 tonne bollard pull, the Multi Buster can accommodate up to 59 persons on board.

Damen Yacht Support crew on deck

Damen Yacht Support is not the only successful team in this emerging yachting niche; the captains and crews operating these vessels have become a niche of their own, too.

Yacht Support crews support high-end superyacht owners with tenders, helicopter and submersible operations as well as extra staff, guides, photo and specialist dive teams. Kenan Seginer has captained one of Damen’s Yacht Support vessels. He is also a helicopter pilot who understands the logistical demands of operating complex machinery at sea – often far away from established yachting infrastructure.

“The toys, the size of the tenders and the fluidity, spontaneity and quickness of being able to deploy them is fantastic. We loved the storage. It’s like that cargo vessel roll to it. Basically, it all goes back to real estate on the main yacht. “One of the things we struggle with in our industry is where do you put all the staff that you need to provide the standard of service that you expect. If you have a Yacht Support vessel, you can have as many crew as you want.”

High Speed Transfers Ltd to take delivery of first Fast Crew Supplier 2710

The first FCS 2710 - the latest addition to Damen’s Fast Crew Supplier range - is due to be delivered in July 2018. The purchaser is High Speed Transfers Ltd, a new entry into the offshore transfers sector based in Swansea, Wales.

Started by three experienced operatives from the offshore industry, HST sees the FCS 2710 as the way to make an immediate impact using an upgraded version of a vessel-type that is already well known in the market, yet offering greater passenger and cargo capacity, and the ability to operate effectively across a wider range of weather conditions.

“We’ve worked with Damen vessels at our previous companies,” said HST Managing Director Tom Nevin, “and appreciate the quality and the level of support that they offer.” HST plans to initially focus on serving the offshore energy sectors in German and UK waters, but has global ambitions.

“We hope to build a fleet of four to six FCS 2710 vessels over time,” adds Tom. “We see exciting times ahead, particularly in offshore renewables.”

Ontario accepts Damen proposal for electric propulsion

The Ontario Government has accepted Damen’s proposal to build two ferries with full electric propulsion. For the tender process to build a Road Ferry 6819 and a Road Ferry 9819 to operate in the Canadian waters of the Great Lakes, Damen was asked to identify innovations for sustainable power solutions.

After careful consideration of the technology, the Government of Ontario accepted Damen’s proposal for full electrification. The two ferries, which will serve Kingston & Wolfe Island and Millhaven and Amherst Island (Loyalist Township), will be the first fully-electric vessels to operate in Canada and will reduce emissions by the equivalent of 7 million kg carbon dioxide per year.

Transform to perform; Damen’s new Multi Buster

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Working for Damen lets me concentrate on what I do best – and that is sales for the cruise sector; bringing in as many cruise ship repair or conversion contracts as possible to one of our yards around the globe.

It’s an exciting job, with lots of challenges to overcome. Strong relationships with my clients are important – not forgetting to have some fun along the way too.

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PRODUCT MANAGER CRUISE FOR DAMEN SHIPREPAIR & CONVERSION
STARTED AT DAMEN: SEPTEMBER 2017

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Multraship has taken delivery of the first of two CAROUSEL RAVE TUGs (CRT). The CRT makes harbour towing of seagoing vessels safer, faster, easier and more environmentally friendly.

The vessel, Multraship 32, was delivered by Damen Maaskant Shipyards Stellendam under lease to Multraship. Julian Oggel, Managing Director of Novatug, the innovation arm of a group to which Multraship belongs, said, “The entire CRT concept was driven by safety considerations. In principle, capsizing is impossible when towing with the CRT, which facilitates the safe execution of manoeuvres that would be very high risk with traditional tugs.

Damen Shipyards Cape Town contracted for CSD 250 for Dredging Africa

Damen Shipyards Cape Town (DSCT) has recently delivered a Cutter Suction Dredger (CSD) 250 to Dredging Africa (Pty) Ltd. Due to Damen’s policy of series building standardised vessels, the CSD was in stock and available for fast delivery. This will be the first Damen CSD to operate in South Africa. The contract for the CSD came about after Dredging Africa signed a memorandum of understanding with DSCT at the yard’s first African Dredging Seminar, held in October last year.

Mr Arend van de Wetering, Director of Dredging Africa said: “From the outset, the collaboration has been excellent; Damen have gone out of their way to create the opportunity for this project to be realised. They really thought along with us to create a solution that matches exactly our needs – including looking at various financing options that are available.” Damen Product Director Dredging Olivier Marcus concurred, saying, “We are very pleased to be delivering this CSD to Dredging Africa. The cooperation between us has been very fruitful and we are looking forward very much to delivering the vessel in a short space of time. Dredging has enormous potential to open up new trading opportunities in South Africa and we are proud to play our part in supporting this.”

DSCT will be on hand to support Dredging Africa in the ongoing service and maintenance of the CSD, including with the supply of spare parts from stock in order to ensure maximum uptime of the dredger.
It’s been an interesting twelve months in the shipbuilding industry. Sustained low oil prices continue to provide a challenge in some markets, whilst offering stimulation to others. Against this dynamic backdrop, Damen’s Executive Board plans for the future, looking to innovation and structural optimisation to maintain the group’s leading position. Here, Chief Executive Officer René Berkvens, Chief Commercial Officer Arnout Damen, Chief Financial Officer Frank Eggink and Chief Products Officer Jan-Wim Dekker give us their thoughts on the past, present and future of Damen.
The world’s first, Class-approved 3D printed propeller was developed by a collaboration involving Bureau Veritas, RAMLAB, Promarin, Autodesk and Damen.
It is our mission to be as close to our customers as possible – in order to provide the highest levels of service. This is why you will find over 50 ship and repair yards, Service Hubs, naval architects, sales offices and marine components facilities at strategic locations on six continents.

Over the years, Damen has delivered over 6,000 vessels to more than 100 countries around the world. This equates to over 160 vessel deliveries each year. Additionally, we perform 1,300 repair, maintenance, conversion and refit projects annually. All of the work we do is carried out with the utmost pride and dedication to customer care and quality by our 10,000-strong international workforce.
REPRESENTING DAMEN ALL OVER THE WORLD

Selling vessels to countries around the world is quite an achievement. So how does Damen organise its global sales activities? By dividing the planet up into seven different regions, each headed by its own dedicated Area Director.

We asked each of them to give an insight into the mind-set of ‘wherever there is water, there is Damen’. One aspect rings true all over the world – building strong business relationships is the key to success.

AFRICA
RONALD MAAT

Business in Africa has really grown in recent years. This increasing activity has also been accompanied by more competition, which keeps us sharp and focused on what our clients need. Damen Civil – construction of the full range of shipyard infrastructure – has been an especially successful part of the portfolio in Africa.

I love the diversity of ethnic groups and cultures of the African continent. Openness and warmth are definitely the common characteristics.

This is also a region with a wealth of natural resources – and over the next five years I expect to see some of the world’s poorest countries become some of the world’s richest due to their expanding oil and gas operations. This will bring with it increased attention from international shipping – there are going to be a lot of opportunities.

NORTH, WEST & SOUTHERN EUROPE
FRANK DE LANGE

Just as in other regions, there is great cultural diversity here. This means you have to be flexible – doing business in Germany, for instance, is different to doing business in Italy. Wherever you are though, regardless of the cultural difference, trust and being a reliable partner are the bases of a successful and lasting business relationship.

Although the recent oil and gas crisis has affected the whole of Europe, we are now seeing a slow and certain recovery based on exploration.

There is a wide geographical variety for our vessels. Aquaculture is big in Norway and Scotland, whereas our tugs are sold all over Europe. The public transport market in southern Europe is really up and coming as the economy and tourism improve, while in Scandinavia there is a strong demand for cleaner ferries like hybrid or full electric. We face a lot of competition, but I love the challenge of turning a ‘no’ into a ‘yes’.

BENELUX
MIJNDERT WIESENEKKER

The Dutch maritime cluster is an extremely productive environment for developing new ideas with clients and partners. These collaborative efforts have produced numerous success stories with real international significance; hybrid tugs, search and rescue vessels and tidal energy projects to name just a few.

Companies are becoming increasingly international, and this is only consolidating. This means that we work closely with other sales regions to support global clients with a broad package of additional services. An exciting trend is the need for greater digitalisation. For example, remote monitoring is now standard on some of our vessels.

Having a strong technical background is crucial to be able to offer the best advice. By understanding our clients’ markets and business models, we can really work together to come up with the optimum solution.
This region holds the North and South American continents, including the polar circles and the Equator. By definition, this is a great demonstration of how Damen’s standard designs can fit a multitude of conditions. It also shows the importance of listening carefully to what our clients really need.

Building vessels under license, together with local partner yards, forms a major part of our business. In some countries, this support has also involved building a shipyard even before we have started building boats. This transfer of knowledge is vital for creating sustainable local shipbuilding industries.

I feel privileged to have spent the last 20 years working here. Our success in this region is due to the dedication of our team—they form the strong network of local offices and Service Hubs in Houston, Brazil, Cuba, Argentina, Canada, Mexico, Venezuela and Trinidad.
The Damen Shipyards Group has a long tradition of innovation. The standardised shipbuilding concept for which we are so renowned is just one example of this. Since Kommer Damen introduced this in 1969, there have been many more innovations that Damen has either delivered itself or has had a role in delivering. The Sea Axe Hull that defines the appearance of so many Damen vessels is one such innovation – and one which makes sailing safer and more comfortable.

Today, innovation is growing in relevance within our industry and we see more and more of our clients, suppliers and competitors involved in innovation projects – often in close collaboration with each other.

As you would expect, Damen is once again at the forefront of this – often in cooperation with our clients and partners from within and outside the maritime industry. The following pages offer just a few examples of the many innovations that Damen has worked on recently or is currently investigating.

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**Virtual Reality**
Stepping into the virtual world for a look at the vessels of the future

**Hardware in the loop**
Simulating operations before building leads to improved performance and cost reduction

**Sandy**
Making the tender process simple for dredging contractors

**3D printed propeller**
In just seven months, the first 3D printed propeller goes from idea to reality

**Damen Digital**
Opening a centralised gateway towards vessel optimisation

**Damen Safety Glass**
Harbour towage operations get a safety boost

**Virtual Towing Tank Project**
In search of the optimal hull design process

**Project Morpheus**
Tapping into Damen’s talent

**Paperless Yard**
Improving sustainability and accuracy with augmented reality

**Making waves with RiPL**
Collaboration and the rapid development of a new type of vessel
Perhaps uniquely within the shipbuilding industry, Damen has used HIL on recent vessel projects – MV Sycamore for the Royal Australian Navy and Bibby Marine Services’ Bibby WaveMaster 1.

Using a DSpace simulator alongside the regular software that it uses to test components, Damen has been able not only to avoid error, but to significantly improve vessel performance. As a result of applying HIL, the threat of problems with interfacing and software functionality is taken care of in the development stage, greatly reducing the risk of problems during commissioning and/or trials.

Damen quickly realised that this not only avoided costly errors, but also allowed the improvement of performance and safety. Damen is continuing to develop its HIL analysis, considering ways in which it can support clients with their training needs.


VR has a lot of potential; it is an excellent way for someone interested in a vessel to view it before purchase. For the shipbuilder, it allows the finalisation of the design parameters before construction begins.

Furthermore, it also enables the viewer to experience design elements that would not be so clear on a drawing – such as sightlines and headroom. And it also offers the opportunity for multiple viewers to participate in a vessel tour simultaneously, even from different physical locations.

From a training perspective, VR offers strong cost reduction potential. With VR, the entire vessel can be simulated for training, without having to build any physical structure or components.

**A PROCESS USED TO MUCH SUCCESS IN OTHER INDUSTRIES, FOR EXAMPLE THE AUTOMOTIVE SECTOR, HARDWARE IN THE LOOP (HIL) REPLACES A PHYSICAL PART OF A MACHINE OR SYSTEM WITH A SIMULATION. THIS ALLOWS THE TESTING AND IMPROVEMENT OF SYSTEMS INTEGRATION AND CONTROLS DESIGN BEFORE CONSTRUCTION BEGINS.**

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EVERY DREDGING PROJECT REQUIRES CONTRACTORS TO MAKE CALCULATIONS BASED ON A VARIETY OF PARAMETERS. IT CAN BE A TIME-CONSUMING – AND THEREFORE COSTLY – PROCESS, BUT IS A NECESSARY PART OF TENDERING. TO COUNTER THIS, DAMEN HAS COME UP WITH SANDY, A UNIQUE, FREE ONLINE DREDGE JOB CALCULATOR TO REDUCE THE BURDEN.

With just a few mouse clicks users can enter the defining characteristics of the job at hand – be it maintenance, sand or capital dredging – and the instant result provides advice on which cutter suction dredger to use. Sandy also demonstrates which options would be complementary, the simple addition of a spud carriage, booster station or anchor boom, for example, revealing immediately the efficiency gains this would bring to the project.

IN 2017 DAMEN TOOK PART IN A JOINT RESEARCH PROJECT THAT LED, IN JUST SEVEN MONTHS, TO THE DEVELOPMENT OF THE WORLD’S FIRST CLASS-APPROVED 3D PRINTED PROPELLER. THE PROPELLER WAS FABRICATED BY RAMLAB TO A PROMARIN 1,350MM DIAMETER TRIPLE BLADE DESIGN.

RAMLAB applied a Valk Welding System and Autodesk software to create the propeller from a nickel aluminium bronze alloy using the wire arc additional manufacturing method – which gives the propeller its name of WAAMPeller.

The consortium then tested the propeller on a Tier III compliant engine on board a Damen Stan Tug 1606. The testing programme included bollard pull, crash stop and speed trials.

The WAAMPeller displayed the same behaviours as a conventionally casted propeller. The development, production and testing process was verified by Bureau Veritas. The WAAMPeller project has a lot of implications for the production of vessel components in the future.
TÜV Rheinland tested various configurations of glass, dropping weighted balls onto panels to measure the effect, before arriving at the optimal solution. During the research programme all aspects of safety were considered. For example, it became clear that, due to the increased strength of the glass, a separate escape route needed to be integrated into the vessel to enable personnel to evacuate in the event of an emergency.

The Damen RSD Tug 2513 is the first Damen vessel to feature the new Safety Glass. You can read more about this on page 54.

Dirk Degroote, Product Manager Tugs, said of the project, “It’s a simple move, but an important one. And combined with a wheelhouse that has been developed to offer the maximum possible view of what’s happening on deck and beyond, it represents a huge step forward in crew protection.”

THE VARIOUS DAMEN PRODUCT GROUPS HAVE LONG KEPT A CLOSE EYE ON THE INCREASING PACE OF DIGITISATION. HOWEVER, WITH THE CREATION OF DAMEN DIGITAL, THE GROUP HAS BROUGHT THESE INITIATIVES TOGETHER INTO A CENTRALISED STRUCTURE FOR THE FIRST TIME. THE AIM IS TO CREATE A GATEWAY WHERE ALL THE DATA FROM SYSTEMS AND EQUIPMENT ABOARD DAMEN VESSELS WILL BE CHANNELED. DAMEN WILL THEN BE ABLE TO EXTRACT THIS INFORMATION, LEARN FROM IT AND APPLY IT TO ITS VESSEL DESIGNS FOR OPTIMISED OPERATIONAL AND COST-EFFICIENCY.

For example, this includes the remote monitoring of fuel consumption patterns. The findings of which can be incorporated into the designs of the future to lower emissions and ensure savings. Remote monitoring can also shed light on equipment performance, to ensure the correct equipment is used for a given application.

This enables Damen to optimise its production processes accordingly. Digital monitoring also paves the way to more precise scheduled maintenance planning, extending the periods between maintenance based on accurate monitoring of, for example, fuel and oil quality.

Similar practice has had much success in the automotive industry where such in-depth knowledge of components and parts wear has led to demonstrable cost savings and maximised uptime. Damen is working closely with its clients in the development of Damen Digital.

ALWAYS LOOKING FOR WAYS TO MAKE OPERATING ITS VESSELS SAFER, DAMEN, IN CONJUNCTION WITH A CLIENT AND WITH TÜV RHEINLAND, HAS DEVELOPED DAMEN SAFETY GLASS. THE NEW GLASS Follows the lead of the automotive industry and, therefore, is shatterproof like that found in cars. The glass features two layered panes with a foil between them. The foil serves to capture any debris that may result from a shattered window.

TÜV Rheinland tested various configurations of glass, dropping weighted balls onto panels to measure the effect, before arriving at the optimal solution. During the research programme all aspects of safety were considered. For example, it became clear that, due to the increased strength of the glass, a separate escape route needed to be integrated into the vessel to enable personnel to evacuate in the event of an emergency.

The Damen RSD Tug 2513 is the first Damen vessel to feature the new Safety Glass. You can read more about this on page 54.

Dirk Degroote, Product Manager Tugs, said of the project, “It’s a simple move, but an important one. And combined with a wheelhouse that has been developed to offer the maximum possible view of what’s happening on deck and beyond, it represents a huge step forward in crew protection.”
The most successful ideas – those that made it through the ‘Project Morpheus Boot Camp’ went on to be developed.

Project Morpheus was a great success; following the call, Damen employees from 20 different Damen locations submitted over 250 ideas. From these, seven went on to be developed.

Five of these were incorporated into existing programmes, whilst the remaining two became the following two entries of this Innovation Special focus.
The idea was to remove the element of 'Chinese whispers'. In a conventional arrangement, there is a short line of communication between the client and the shipbuilder, though not necessarily between the client and the engineers of Damen and our suppliers, who are ultimately responsible for developing the solutions.

RiPL brought all stakeholders to the table at the same time and gave them four days to achieve the impossible. The close communication between all parties saw the Harbourman vessel conceived of in just two days and by day four, the basic concept was ready.

Solco Reijnders, Damen’s Program Manager Innovation, says, “The knowledge we were missing was available from our suppliers. With everybody investing in a project and collaborating it happens faster and with better results.”
As the maritime world becomes more and more high-tech, collaborating with the entire ecosystem is crucial to remain competitive. This is not easy though. As Solco puts it, "Collaborating also means sharing knowledge and IP between companies that are not used to working in an open ecosystem."

Keeping up
"However," he allows. "I also think that in the industry people are now realising that innovation is gathering speed and we need each other to keep up.

The increased focus on innovation is, he says, something that has really taken hold in the maritime sector only in the past few years, whilst other industries have experienced it earlier. There are numerous reasons for this, not least the fact that – relatively speaking – the maritime industry already performs well in terms of sustainability and efficiency. There have been, therefore, less calls to innovate. Our world, however, is changing.

“We see now that more and more parties in and outside of the industry are starting to form partnerships aimed at maritime innovation. Often cooperation is based on the quadruple-helix model – featuring partners from industry, government, research institutes and society at large. We see our suppliers, as well as our competitors, becoming increasingly involved in innovation partnerships and this is a clear signal for us that innovation is growing in relevance.”

Dual focus
There are, says Marjolein, two main drivers for innovation at the Port of Rotterdam: “We see that the port of the future will be different. We don’t know exactly what it will look like – we will find that out along the way – but we do know that it will be carbon neutral and fully digital.”

To achieve those ends, the port has set up two major teams working on these strategic trends. Within each of these are sub-teams, focusing keenly on individual aspects – for example, on renewable energy or autonomous vessels. Innovation is a third strategic focal point, not as a goal in itself, but a crucial enabler.

Going global with big ambitions
Marjolein: “To become the smart port of the future, you need a global perspective. An example is our efforts in the Port Call Optimisation Taskforce. There, international standards for nautical port information were established. These standards were introduced after a long-term international cooperation between various stakeholder organisations, ports and the business community. While it may not sound particularly exciting, this development is actually a key condition for optimising port calls. Shipping is a global business. Standardisation only makes sense if all information owners share data in their business processes. With Pronto’s, we recently launched a communication platform based on the new standards. If we manage to roll this technology out worldwide we will really get to more efficient and sustainable shipping.

Seeking sustainable solutions
“We are working on an energy transition that aims at making us carbon neutral by 2050. And we know that the port area’s emissions currently equal 20% of the Netherlands’ total. So, we have a big challenge ahead of us and to meet it we need to collaborate. Actually, with the port uniting so many major players, combined with world class infrastructure and a government that is willing to collaborate, we are actually also in a unique position to make a difference. And that’s exactly why we are taking on a frontrunner role in the energy transition. However, we can decide to be a player, but we need other parties too.”

The port has undertaken two major studies on how it will reach carbon neutrality. One focusing on industry, one on logistics: ‘There’s no definitive answer yet, though hydrogen plays a role in all scenarios. This offers the port guidance in where to invest its resources – and what partners to team up with in order to experiment.

Solco agrees that sustainability does indeed require cross-party cooperation. “We’ve done quite a few projects on sustainable vessels, such as hybrid tugs, LNG carriers and those with LNG propulsion. But to make such projects work, we need government intervention. For example, for a hybrid tug the initial investment is higher than for a regular tug. There are benefits in terms of reduced operational costs, but, understandably, such things can cause clients to question the validity of hybrid propulsion.

However, where there are government incentives in place to encourage hybrid vessels, we see significant demand – exactly the same as where there are incentives to purchase hybrid cars. In fact, hybrid vessels represent considerably more reduction in emissions than cars and yet, currently, such incentive schemes are the exception rather than the norm.”

Context architects
“Exactly,” Marjolein agrees. “That’s why it’s really important to bring in parties from throughout the chain. As a port we have a unique role in this. Naturally having an extensive and diverse network, we are able to provide the context required to encourage people together.

“We have a two-fold approach to this. The Port of Rotterdam takes the lead in defining the trends that are crucial for shaping the port of the future – in terms of digitisation and energy transition. For example, our Carbon Capture & Storage initiative. And we take on the role of ‘context architect’ in the Rotterdam innovation ecosystem, enabling others to contribute and bringing in new, relevant developments and trends.

INNOVATING
THE MARITIME WORLD OF TOMORROW
With this project, Damen was able to bring its influence, knowledge and resources to the table – leading to the successful testing of the development of the world’s first 3D-printed, Class approved propeller. “At the technology is already there, so it is clear that autonomous vessels are coming. Whilst we are waiting for an international standard and the required legislation – along with other partners – we have decided to find out what this trend will mean for ourselves. To this end we have set up a ‘Floating Lab’ – a Damen Stan Tug 1606 vessel, which different parties are able to book usage of for experimenting and learning together.”

Once more, Solco concurs. “Again, we are playing our part in this, too. We are, for example, working with the port on the Floating Lab on the development and integration of technologies that will lead to full autonomy. This includes automatic coupling of towing lines and object recognition and avoidance amongst other things.”

Going digital
Another trigger, as Marjolein already indicated, is the growing trend towards digitisation. Something which both the Port of Rotterdam and Damen are facing head on.

Both parties are considering the steps towards autonomous vessels, for example. Here, collaboration again emerges as a clear theme. Marjolein: “The technology is already there, so it is clear that autonomous vessels are coming. Whilst we are waiting for an international standard and the required legislation – along with other partners – we have decided to find out what this trend will mean for ourselves. To this end we have set up a ‘Floating Lab’ – a Damen Stan Tug 1606 vessel, which different parties are able to book usage of for experimenting and learning together.”

Once more, Solco conurs. “Again, we are playing our part in this, too. We are, for example, working with the port on the Floating Lab on the development and integration of technologies that will lead to full autonomy. This includes automatic coupling of towing lines and object recognition and avoidance amongst other things.”

In this work, we see time and again that everybody bringing their own specialist knowledge to the table makes things happen faster and with better results.”

The road ahead
Throughout history innovation has required impetus – not for nothing do we say that ‘necessity is the mother of invention’. The solution to dealing with the current situation involves bringing people together in order to share their knowledge and ideas with others – especially in a commercially competitive setting. However, as the world – and the maritime industry – adjusts to the dual challenges of increased sustainability and digital development, there is a clear case for collaboration and with it, fertile ground for innovation.

Within this setting there is a clear role for ports, with their extensive maritime networks, and the shipbuilders who provide the tools that work in them. "We aim to be the strong ecosystem leader, bringing together relevant stakeholders and creating the context in which they can pioneer together. This should make us fit for our challenging, but mostly promising, future."
Chris Kornet and Simon Provoost, the driving forces behind the new Concordia Damen joint venture, both know a thing or two about the inland waterways market. Chris, previously a captain on an inland waterways vessel, founded the Concordia Group back in 2001. The group quickly made a name for itself across Europe in brokerage, shipping and salvage, before turning also to shipbuilding.

Simon’s career to date has included a stint as Managing Director of the Bodewes Millingen shipyard – then a part of Damen – in the east of the Netherlands. He has led Damen’s Inland Waterways Transport Product Group since its inception in 2013.

At the heart of the matter
Based directly across the River Merwede from where Damen first began in 1927, Concordia Damen’s ultra-modern, Werkendam-based glass office is located in the heart of inland shipping country.

“It’s an important factor, for sure,” begins Simon. “There’s a community here. You see that in the businesses all along this part of the river, in the skills of the people who live hereabouts, but also in the local infrastructure; there are schools here that provide boarding to pupils during the week when their families are on the river.”

Such a strong relationship between the industry and its location helps to create a sense of belonging, a common culture unique to the inland shipping market.

“We don’t necessarily plan meetings with our clients, or communicate with them by email – at least not the local ones – they just drop in when they’re passing for a coffee and a chat about things.”

Common ground to start from
It was the social nature of the inland sector that served as the initial catalyst for the Concordia Damen joint venture.

Simon explains: “Once we’d got the Damen Inland Waterways Product Group off the ground we identified that Latin America might be an opportune region. We weren’t alone in seeing the potential though – I kept seeing Chris at all the exhibitions I was attending and we soon ended up in conversation.” Laughing, he continues, “Initially I think we were pumping each other for market information! But we soon realised we had much in common.”
Perfect symmetry
Crucially, both parties were looking to expand internationally, and Chris soon realised that Concordia and Damen working together could form a whole greater than the sum of its parts. He explains this neatly by drawing a triangle. At the first two points he writes ‘50%’. “This is Concordia and this is Damen,” he says, indicating left and right. Drawing lines, he brings the two together in the final point, adding ‘150%’. “And this is Concordia Damen.”

“Concordia brings to the table a lot of knowledge and a well-established network within the inland shipping industry,” elaborates Simon. “While Damen has an international sales network and shipyards located all over the globe – ideal for international growth. The two companies complement each other perfectly and equally for a partnership such as this.”

That being the case, Simon set up a meeting between Chris and Kommer Damen in April 2017. After that, things moved quickly.

Chris: “I wanted to make sure that I would be working with someone who was equally committed to what I was planning – that’s why I stipulated that any venture must be equal. The other thing that mattered to me was growth; I could see there was potential for growth and I wanted to make sure that our joint venture was part of that.”

Shared vision
It was a vision that matched Damen’s entirely. Simon put pen to paper and developed a business plan. On December 15th, 2017, Chris and Kommer Damen signed the contract that would see Concordia Damen effective as of January 1st, 2018.

Things have continued to move quickly from there. “Since the joint venture began, we’ve already sold two dry cargo barges and two chemical tankers,” says Chris. “And we’ve also supplied a pontoon (122 x 36 metres) in China, which will be used to transport our hulls from Asia for outfitting here in Europe. This is the most cost-efficient means of building and transporting our products – something that will be of benefit to our clients,” adds Simon.

Looking ahead
Going forwards, Latin America is still very much a focus for the partnership, as Chris explains. “We see huge potential in the region. If you consider the distribution of resources on the planet, overwhelmingly mineral resources are to be found in the middle, while the Southern Hemisphere produces an abundance of foodstuffs. And, in South America, given the size and number of rivers, inland shipping is the logical solution.”

The joint venture is also looking at new markets and has developed an exciting new River Cruise Vessel. The very nature of the vessel, as a passenger carrying leisure boat, is completely different to inland shipping vessels.

However, the design of the River Cruise Vessel focuses on the development of something that crosses the boundaries of all sectors – sustainability.

Sustainability is very high on Concordia Damen’s agenda. “We are looking closely at electrification and other technologies to help our clients to achieve a bright, clean future,” says Chris, once again demonstrating the synergy between Concordia and Damen – both of whom are characterised by their long-term view.
Damen’s 2017/18 delivery portfolio includes over 160 deliveries to all sectors of the maritime industry and all corners of the globe.

- Service Operations Vessel 9020 Bibby WaveMaster 1 for Bibby Marine Services Ltd
- Cutter Suction Dredger 450 Kingfisher to Veetrikuus Ojanen Oy
- Stan Tug 1807 ICE Cleveland Completed by Great Lakes Shipyard for The Great Lakes Towing Company
- Five Damen tugs delivered to Empresa de Navegación Caribe, Cuba
- FCS 4008 AM44 for Marine Core & Charter
- Damen ATD Tug 2412 Twin Fin Buffalo for Kotug Smit Towage
- Fast Ropax 5510 Suroît for Collectivité Territoriale Saint-Pierre et Miquelon
Recent Deliveries

- Damen 3307 Patrol Vessel Guardian 4 delivered to Homeland Integrated Offshore Services Ltd
- CSD500 Ishtar for Basra Gateway Terminal
- Multi Cat 1908 Murjan 40 for Murjan Al-Shatiq Marine Services
- Turkish Coast Guard Command took delivery of six Damen Search and Rescue Vessels
- RSV 3315 Voe Vanguard for Delta Marine
- Shoalbuster 3209 ISA for ISA Towage BV
- RoRo ferry 5212 Kunta Kinteh for Gambia
When I was a student, I completed two internships at Damen. I enjoyed these so much that I really wanted to work here after my graduation. The fact that Damen is family-owned makes a difference to me – it feels good to be part of it. There are lots of activities organised for the younger employees. These are a great way to get to know my colleagues and see different sides of the business. It doesn’t feel like it’s only work.

I like fast cars, fast ships, fast anything – I cannot wait to take a ride in an Interceptor one day. I also love the concept of the SeaXplorer.

“I LIKE THE INTERNATIONAL ATMOSPHERE – THE FACT THAT WE ARE WORKING WITH COLLEAGUES AND CUSTOMERS FROM DIFFERENT COUNTRIES AND CULTURES ON A DAILY BASIS IS EXCITING.”

IRIS VALKS
COMMUNICATIONS ADVISOR IT&IM, DAMEN SHIPYARDS GORINCHEM
STARTED AT DAMEN: JULY 2017

When I was a student, I completed two internships at Damen. I enjoyed these so much that I really wanted to work here after my graduation.

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I like fast cars, fast ships, fast anything – I cannot wait to take a ride in an Interceptor one day. I also love the concept of the SeaXplorer.
There is currently plenty of activity at Damen’s worldwide yard network. A number of markets continue to show promise and there is demand for both existing and new Damen vessel types.
The ever changing world and the dynamic nature of the maritime industry means that Damen is constantly looking to evolve its product portfolio.
Each year around 1,300 vessels call at the yards of Damen Shiprepair & Conversion for refits, maintenance, conversion or repair. We cater for all vessel types and sizes at our facilities at key locations.
Innovation is a theme that runs throughout this edition of the Damen Magazine and the story of the Reversed Stern Drive Tug (RSD) 2513 fits perfectly with this. For Tugs Product Manager Dirk Degroote, innovation is an essential ingredient in any company’s bid to maintain relevancy in a changing world.

“There are countless examples of brilliant companies who, despite a long track-record of excellent performance, find themselves getting left behind.”

It’s not hard to understand complacency setting in; if a product has proven itself over time and generated sustained demand, the temptation to keep doing more of the same is natural.

A tug for a changing world

But a shift is taking place. Competition is advancing, prices are under heavy pressure and demands for increased safety and sustainability are ever-rising. Such a scenario demands action.

“If we don’t want to end up consigned to the history books, we have to strive to improve, to keep ahead of the competition. That’s why we developed the Reversed Stern Drive Tug – the ultimate dedicated ship-handling tug for the years to come.”

Innovation through collaboration

The key to the development of the RSD Tug was to come up with an answer for the challenges our customers were faced with; flexibility, efficient operations, high power in compact vessels, and all in a safer way than ever before. This required open minds, discussions with the industry, from suppliers, through research institutes to customers and actual users. The result is a true innovation, featuring future-proof characteristics that run throughout the design, build and operation of the vessel.

Getting you home

Designing a tug for the future means designing a vessel with a strong focus on safety – an overriding concern for Damen during the development of the RSD Tug 2513, as Dirk explains.

“We wanted to do everything in our power to make sure both the assisted vessel and the crew of the tugs come home safely.”

The very concept behind the RSD Tug goes some considerable way to achieving this – equipped, essentially, with two bows, the vessel is always operating bow first. As a result, it can operate optimally both as a bow assisting tug as well as operating as a stern assisting tug. Next to that, operators are not required to reposition the vessel when working in either direct or indirect mode. The two bow concept leads to increased opportunities at the design stage to further improve safety, as Dirk explains: “Because the tug always sails bow first, we have been able to create a higher freeboard than would normally feature on a tug of that size. This means that there is never water on deck and that seakeeping will be better than on a similar sized conventional ASD Tug – it’s an important step in adding stability to the vessel.”

Seeing to safety

The focus on safety goes beyond the drawing board, however. The build process of the RSD Tug also pays close attention to safety via selected components and equipment. A good example is the newly-developed Damen Safety Glass. Developed together with a customer, based on actual experiences in the field and accompanied by extensive testing at TÜV Rheinland, the glass comprises two layered panes with a foil between them.

“The glass is shatterproof, similar to that used in cars. It’s a simple move, but an important one. And, combined with a wheelhouse that has been developed to offer the maximum possible view of what’s happening on deck and beyond, it represents a huge step forward in crew protection.”

Read more about safety glass in our innovation special on page 29.
The attention paid to safety at the design and construction phase naturally leads to increased safety also in operations. For example, the inclusion of the patented Twin Fin skeg makes the tug very predictable when sailing in front of a vessel.

“The Twin Fin was extensively model-tested at The Institute,” states Dirk. “It works perfectly predictably when sailing in front of a vessel. The quicker a tug can handle a vessel, the more money a port can make. The functionality of the RSD Tug is perfect for speeding up an operation and improving the performance of the logistics chain.”

Sailing towards a cleaner future

Ultimately, increased efficiency also equals improved sustainability: the RSD Tug’s efficiency makes for significantly reduced emissions. To further enhance this, Damen has developed an exhaust gas after treatment system – a Selective Catalyst Reduction (SCR). The RSD Tug will only require a simple upgrade without major modification,” says Dirk.

Combining innovation with heritage and proven values

Of course, these innovations are all well and good, but it’s crucially important that new things are not introduced at the expense of the quality associated with the old ways. In addition to improving safety, efficiency and sustainability throughout the design, build and operation of the RSD Tug 2513, Damen has also paid close attention to ensuring the reliability of the new vessel.

“This gives the vessel a degree of future-proofing. When Tier III comes into force, an RSD Tug will be IMO Tier II compliant as standard and IMO Tier III compliant as an option, independently on the stage of build, even retrofit will be easy of this RSD.”

Based on this, we now have a much clearer, less cluttered console. Relevant information is presented on two screens – one featuring navigational data, the other mechanical data – fed by the Class approved redundant AMCS system.”

For the end user, all of this improved efficiency equals more earning potential, Dirk stresses.

“The quicker a tug can handle a vessel, the more money a port can make. The functionality of the RSD Tug is the perfect solution for speeding up an operation and improving the performance of the logistics chain.”
Damen Verolme Rotterdam

COMING HOME

An iconic Dutch shipyard joins Damen Shiprepair & Conversion

On the 1st July, 2017, Damen Shiprepair & Conversion added an eighth yard to the seven that it already had in the Netherlands and took its worldwide count up to sixteen. The acquisition of Damen Verolme Rotterdam, as it was immediately renamed, was not only a coup given its location and facilities, but also brought one of the great names of Dutch shipbuilding into the Damen Shipyards Group.
Damen Verolme Rotterdam

The Damen Verolme yard extends over 54 hectares in Rotterdam’s Bodele area. Situated in the Port of Rotterdam, right at the southern entrance to the North Sea, the yard is ideally located at the heart of one of the world’s largest industrial and transportation centres.

The facilities of the yard are exceptional. They include the largest drydock in northwest Europe at 405 x 90 metres, plus two others 230 x 35.5 metres and 275 x 41 metres respectively. It also has around 2.3 kilometres of quayside with up to 12 metres of draught for alongside maintenance and repairs. The quays and drydocks are all equipped with suitable craneage of up to 80 tonnes. The workshops also have overhead cranes and there is ample warehousing.

Damen Verolme Rotterdam is certified to NEN-EN-ISO 9001, ISO 14001 and OHSAS 18001 standards, and is also SCC** and ISPS certified.
Strategically located in the Port of Rotterdam, Damen Verolme Rotterdam (DVR) has a special place in the recent history of the Dutch shipbuilding industry. Once the centrepiece of a shipbuilding empire created by the vision and drive of one individual, it built some of the largest ships ever to come out the Netherlands. Although this empire lasted just 20 years, through sheer hard work and determination, its founder created a network of yards in the Netherlands and overseas that quickly became known for their innovation and application of standardization techniques to boost quality and productivity.

Cornelis Verolme

Born at the beginning of the twentieth century, it was not until 1920 that Cornelis Verolme bought his first shipyard on the death of its owner and transformed it into a state-of-the-art facility capable of building a wide variety of vessels up to 35,000 tonnes. He swiftly made further acquisitions to meet the demand for his ships and to allow the building of larger vessels, and it was in 1957 that he opened the shipyard that today is Damen Verolme Rotterdam, in the Botlek area. Then the largest and most modern shipyard in Europe, its position on a deep-water channel with easy access to the sea enabled it to be ultimately equipped to build super tankers with its new graven drydock and slipway, shipbuilding halls, machine and piping shops, all equipped with heavy overhead cranes and modern machinery.

In the years following its opening, the yard turned out tankers, bulk carriers, freighters and even refined a Brazilian aircraft carrier. Three floating drydocks were installed along with two graven drydocks, the latter of which was 235 metres long and 46 metres wide and built especially for repair work. The yard finally came of age when, in 1970, a third graven dock was opened. 405 metres by 90 metres, it was built specifically for the construction of super tankers up to 500,000 tonnes deadweight, but by then European shipbuilders were feeling the strain of competition from the Far East. Business conditions quickly deteriorated as competing against the Asian yards became increasingly difficult and Verolme in an Schepshaven Mij (VDSM) was not alone in facing financial difficulties. Finally the Netherlands’ Government stepped in and forced a consolidation of the shipbuilding sector that resulted in the dissolution of the VDSM as an independent entity.

Jan Kees Pilaar

Returning to the Netherlands in 1991, Jan Kees worked first for Alberg in Rotterdam as the Deputy Managing Director before accepting the job of Senior Business Manager at the Verolme yard. In 2006, he was head-hunted by ThyssenKrupp to become first their Managing Director Repair at Hellenic Shipyards in Greece and then three years later Managing Director at Blohm + Voss in Hamburg. In 2016 he started at Damen Shipyards & Conversion as Commercial Director. The following year he accepted a challenge that was both new and very familiar; today, he is the Managing Director of Damen Verolme Rotterdam. Jan Kees is married and has two sons and a daughter.

Moving into offshore

Under government supervision VDSM continued to build VLCC’s, LPG carriers, and other vessel types until in 1980 newbuilds came to an end. Instead, Verolme Botlek, as it was now called, applied its considerable resources to become a full-service repair yard, supporting the fast-growing offshore oil and gas industry in the North Sea. This marked the beginning of a particular expertise in servicing the complex needs of the specialist vessels and platforms serving the sector, from mobile drilling rigs and pipe lay vessels to crane barges, accommodation platforms and seismic survey ships. Maintenance, conversions, modifications, upgrades and lifetime enhancements, the Verolme yard had the skills and facilities to undertake all.

“At the core of everything that we do is our focus on our customers and the delivery of the services and quality levels that they demand.”

After changing owners a number of times, in 2003 the yard was sold to Keppel Offshore & Marine and renamed Keppel Verolme BV. Then finally, in July 2017, it returned to Dutch ownership as part of Damen Shiprepair & Conversion.

The future is diversification

DVR Managing Director Jan Kees Pilaar brings the story up to date. “We’ve had a busy start to the year and done some nice projects. It’s been a mixture of offshore and ship repairs, section building and partial newbuilds for other yards in the Damen Shipyards Group and this is how I would like to see us develop in the months and years ahead; evolving into a yard that repairs, modifies and converts all kinds of floating units. “With our exceptional facilities, including the biggest drydock in north-western Europe, we are looking to expand our activities into new markets. The cruise ship sector is one. With its vessels continually increasing in size we can make a compelling offer, and so we are looking to develop our capability in cruise ship repair and modification by developing relationships with the specialist sub-contractors and suppliers that serve this industry. We will also be refining our logistics and project management processes to better manage the increasing role that we expect yards to play in the repair and maintenance of these luxury vessels.”

The growing fleet of LNG carriers is another area with lots of potential and Jan Kees Pilaar and his team are already in discussions with a number of oil majors regarding the drydock and repair of their LNG tankers. DVR has a cryogenic clean room and plans to extend further its capabilities in this area. The yard is also fully certified for decommissioning and has been receiving enquiries from oil and gas operators in the North Sea.

“At the core of everything that we do is our focus on our customers,” continues Jan Kees, “and the delivery of the services and quality levels that they demand. We have good relationships in place and we are working on strengthening these further by making DVR a yard that they want to visit due to its combination of technical expertise, quality and high-quality facilities. Now is a good time to do this as the market is trending upwards, with a healthy level of enquiries coming through, and we are well-positioned in every sense to take advantage of that. I look forward to the future with confidence.”

“I don’t know if Cornelis Verolme (who died in 1981) ever met our founders Jan and Rien Damen,” he concludes, “but I think he would be proud to see what we are doing here and that his flagship yard that still bears his name is once again part of a Dutch, family-owned business that shares his global vision and dedication to quality and innovation.”
GORINCHEM – HOME OF THE DAMEN SHIPYARDS GROUP – IS A PLACE THAT DOES NOT COME EASY TO THE TONGUE FOR A NON-DUTCH NATIVE; ITS PRONUNCIATION BEING RATHER MORE LIKE ‘GORCUM’ THAN THE SPELLING WOULD SUGGEST. WHAT THE CITY LACKS IN PRONOUNCEABILITY, HOWEVER, IT MORE THAN MAKES UP FOR IN AESTHETICS.

GORCUMS MUSEUM
A SHOWCASE OF THE PAST, PRESENT & FUTURE

The key to Holland
Gorinchem is a characteristically Dutch location, its gabled brick houses with immaculately painted window shutters leaning precariously, and charmingly, over its network of old streets and canals. The town is still surrounded by its ancient walls – the largest set of defensive works still extant in the Netherlands. Naturally, there are windmills, too. At the heart of the city is the market place, where townspeople gather on the thriving terraces to eat and drink or just watch the world go by. The focal point of the scene is the old town hall, a handsome, classically styled building that, since 1995, has housed the Gorcums Museum. The museum is cared for by curator Rob Kreszner and a small army of dedicated employees and volunteers.

Inside the museum’s permanent exhibition, Rob guides us through the ages, using as navigational aids assorted paintings of Gorinchem from the Dutch Golden Age, a collection of the city’s fine silverware and a host of other artifacts that form a trail leading us right up to the present day. He explains that, though Gorinchem may no longer possess the international renown of former times, it has, throughout history, been a place of great importance.

“Gorinchem is a very strategic location, being on the route from Paris to Amsterdam. When Napoleon arrived in the Netherlands, he called it ‘the key to Holland’.”
A city rooted in the art of shipbuilding
Pointing to a 17th century image, Rob indicates the depiction of a small workshop and a half-constructed wooden boat on an island in the river, just outside the city walls. Shipbuilding in the city, it seems, goes way back. “The river has been an important element in the economic history of the city,” says Rob. As indeed, it is today.

Friend & foe
Of course, the relationship with the water has not always been a benign one. As well as the ebb and flow of empires, Gorinchem has borne witness to the rise and fall of the rivers over the years. This is made abundantly clear by a collection of paintings showing the city during floods. One image shows shocked onlookers standing on a dike, water pouring into the city as terrified residents scramble to safety atop their half-submerged houses. Another shows the townsfolk pooling together in a familiar looking marketplace to create flood defences. Though the painting depicts an 18th century scene, the collaboration against a common enemy is somewhat familiar to Josien Damen, a longtime supporter and Friend of the Gorcums Museum. “The last time a part of the town was threatened with flooding was in 1995. We made space at the shipyard for employees to store their furniture and possessions safely until the danger had abated,” she says. After this, the dikes were raised.

A cathedral in the Sun
On the floor above is a unique exhibition, dedicated to so-called Martyrs of Gorinchem, celebrated throughout the Roman Catholic world for the commitment they showed to their faith. At the beginning of the Eighty Years War, as Dutch Protestant rebels wrested control of the country from their Spanish overlords, nineteen Catholic clerics and friars got caught up in the struggle. Captured in Gorinchem, the martyrs were taken to Brielle on the Dutch coast, where they were hanged.

The exhibition features interpretations of the martyrdom depicted on stained glass windows all over the globe. The centerpiece, however, is a model showing plans to create what has been called the ‘Open Cathedral’. A small avenue of stained glass windows opposing each other is planted in the ground, leading colourfully towards a central window at the head. “Gorcunchem used to have its own stained glass windows commemorating the event. Nineteen of them, one for each of the martyrs,” explains Rob. “Only seven have survived, though these are all in pieces right now.” The Open Cathedral project is restoring the seven windows. As part of her support of cultural initiatives in the city, Mrs Damen is involved in the project and takes up the story. “Once restored, the windows will be restuated on the city walls, in the manner shown in the model here. People will be able to visit in order to meditate, or just to enjoy the beauty of the light playing through the glass.”

A museum of wide appeal
As well as the permanent, historical exhibitions, temporary displays make the museum attractive to a wider audience – as is demonstrated by the fact that 40% of visitors hail from outside the Gorinchem area.

Previous displays reveal an ambitious net designed to capture the attention of a diverse selection of people – jewellery exhibitions, a collection of different Dutch chairs and even a collection dedicated to that most iconic of Dutch farm creatures, the humble cow. At the time of writing, the museum was hosting an exquisite display of glass art. Vibrant, multi-coloured sculptures and ornaments of intricate detail enticing the viewer through the corridors and connecting rooms.

Naturally, the constant renewal of temporary exhibitions makes the museum repeatedly accessible also for the local population. As Rob states, this is crucial to the success of the museum. “It’s important we connect to the people of the town – including those who work at Damen. We do this via a variety of ways. Social media is very good, and the local news media also are very supportive. Another way we like to involve local people is to invite them to bring along their own items that are relevant to an exhibition and display them here for a while.”

Cultural lifeline
A good example of this is the regular school visits that the museum hosts. Children come from all over the area to visit the museum in a programme called Kunst for Kids (art for children), during which they also visit the local libraries, archives and theatres.

Mrs Damen says, “Many of these schools are located in the countryside, so these visits can act as a cultural lifeline to rural areas. We invite the children to be inspired by what they see and make their own art works based on it. When their works are then exhibited, it has the added benefit of encouraging their families to also come and visit. It’s very good for the children; something of such a visit will always remain in their minds.”
One of Damen’s most ambitious projects to date, the Fast Crew Supplier (FCS) 7011 concept, not only represents a major investment in technical research and development, it is also underpinned by an exceptional level of cross-industry consultation and brainstorming from its earliest stages. The objective; to create a new class of vessel that aims to deliver a long-awaited paradigm shift in offshore logistics. The 70-metre FCS 7011 builds on Damen’s successful FCS series, but represents a quantum leap forwards in terms of size, speed and capability.

2018 is the year that production of the first vessel in the series begins. September 2017 saw an initial programme of scale model testing to validate the intensive design and modelling process that had gone before. With the results of that integrated into the design, a second series of towing tank tests took place in April to finalise the adjustments. Its success gives the green light for the build to get underway with completion expected late the following year.

Meanwhile, the design and integration of the Ampelmann motion-compensated gangway have been completed and attention is now turning to the powerful gyroscopic stabilisers that will virtually eliminate roll motion when the FCS 7011 is alongside an offshore platform, delivering enhanced safety and comfort. A test will take place in the early summer using a 50-metre FCS 5009 and a VEEM VG260, a smaller version of the stabiliser than has been selected for the FCS 7011. This combination will be used to demonstrate the huge performance potential of a gyroscopic application for stationary transfer operations. The FCS 7011 will use active interceptors to manage dynamic stability when in transit.

So much more than ‘just’ technology

However, the technical aspect of the design is just one aspect of the development process. Since the earliest stages of the project, Damen has been consulting with companies across the offshore energy industry regarding its view of how logistics need to evolve in the sector, looking not just years, but decades into the future. There is no doubt that change is needed, and to the basis of the discussion is the investigation of new ways to deliver personnel in a fast, safe and economical fashion, particularly as production platforms move farther offshore.

In partnership with almost every major supplier and purchaser of offshore personnel transfer services, Damen is working to develop a new and more sustainable business model for the sector. To deliver efficiencies and cost savings, this involves not only determining the ideal mix of waterborne and airborne transport to specific locations, but also looking at different ways of contracting to allow more transparency and flexibility.

This study includes looking at moving away from traditional day rate fee structures to those that might charge on a pay per person/transfer, and even the possibility of vessel sharing among operators, so that a single large vessel like an FCS 7011 could embark multiple crews and deliver them to multiple platforms on a single run.

INTEREST BUILDS IN GAME-CHANGING FCS 7011

Timing is everything

This thorough and versatile approach is steadily building interest in the vessel and its conceptual basis both from operators and end clients. The timing is right as the sights of the offshore industry move ever further offshore to find both new oil and gas fields, and stronger winds. The economics of waterborne transport is thus becoming increasingly compelling, providing the personnel can be delivered to their places of work quickly, safely and in good shape, in a wide range of sea states.

The Gulf of Mexico is one location where the FCS 7011 can deliver a real efficiency change in offshore logistics, and for that reason Damen has already licensed long-standing partner Metal Shark to build them for the USA market at its yard in Louisiana. Other major regions have been identified that would also benefit from the outset. New offshore projects in which different logistical strategies can be evaluated from the very beginning are expected to be early adopters of the new class and the business model that goes with it.

It’s not often that a vessel comes along that can genuinely be described as paradigm shifting, but Damen’s FCS 7011 is surely a contender for the title. The next few years will surely tell.
A NEW ADVENTURE
DAMEN ENTERS THE CRUISE MARKET

“Look at this,” says Andrea Trevisan passionately. “It’s beautiful.”
He’s indicating the latest artist’s impressions of Damen’s Expedition Cruise Vessel.
Images that demonstrate the ship’s literal go-anywhere capability. Some showing
the vessel in the type of crystal clear tropical waters that cannot help but make
you long for warmer climes. Others, in contrast, show the same ship ploughing
dramatically through ice to a backdrop of rocks and polar bears.

Fulfilling dreams
Andrea is Senior Vice President Cruise at Damen and has held
a passion for cruise ships since his childhood in Italy.
“It was this that led me to enroll at the Nautical College in Venice,
in order to fulfill my dream of sailing on such ships. I became a
Master Mariner and served as a Senior Navigation Officer on
large cruise liners for 11 years.”

Building bridges
Now, he is busy injecting that same, life-long passion for cruise
ships into the latest venture of the Damen Shipyards Group.
Something, he asserts, is a logical move.
“Damen already has extensive experience in the repair of cruise
ships – something that requires a fundamental understanding
of the industry and the need for a highly optimised logistical
operation. For newbuild though, this is new ground to us.
But we have a solid track-record in breaking new ground and
we are ready for this.

“We bring to the table a controlled operation with proven
effectiveness and a well-deserved reputation for quality. Besides
this, we already have wide experience in numerous maritime
segments that provide a natural bridge to the cruise industry.”
He gives a number of examples, including the large, complex
ships of Damen’s defence & security and offshore energy industry
portfolios. Perhaps the most convincing case though, is made by
the group’s experience within the yachting sector.
“Damen came up with the SeaXplorer Adventure Yacht, which of
course has the same versatility for extreme environments as the
Expedition Cruise Vessel.
“As well as this, superyacht builder Amels is part of the group.
With a track-record of over 60 high-end superyachts up to 83
metres, Amels has clearly demonstrated its deep understanding
of the luxury experience.”
Success in symbiosis

This synergic approach is a theme to be found in the DNA of Damen’s cruise adventure. Another example is the contribution being made by another group member – Denmark-based naval architect KNUD E. HANSEN.

“As (Managing Director) Finn Wollesen so often says, KNUD E. HANSEN has experience in designing every type of floating structure, with the one exception of nuclear submarines, for literally every continent on Earth.”

It’s a long history of designing passenger vessels for which the company is most renowned, however and this includes some notable cruise designs.

“KNUD E. HANSEN came up with the design of the Phoenix – World City, what would have been the largest cruise ship ever seen. The vessel wasn’t actually built, but the design featured a number of characteristics that went on to redefine the cruise industry of the late 20th century,” Andrea states.

Beauty is not only skin deep

This expertise penetrates every level of cruise design. You can see it expressed, for example, in the interior designs of the Damen Cruise Vessel.

“Creating the perfect cruise interior requires very specialist expertise. There are so many elements, many of which are completely invisible to the casual observer, that fuse together to create a harmonious whole. Great care has been taken with our vessel to ensure this runs through both private and public spaces,” says Andrea.

Damen’s collaborative approach to its cruise debut reaches outside of the group. Damen has teamed up with Expedition Voyage Consultants (EVC) and, in so doing, has taken a unique approach to the development of its vessel, as Andrea explains: “We had worked with EVC’s sister company EYOS on the development of the SeaXplorer, so we knew we had a good collaboration that would translate into an optimised traveller experience. EVC has a lot of experience advising cruise line executives, investors and operatives with the planning and operations of all aspects of an expedition.”

Proud to deliver

Damen’s offering to the cruise industry, Andrea concludes, is about much more than these tangible components, however.

“At Damen there is a genuine passion for ships and a commitment to client satisfaction. You hear the word ‘pride’ a lot here; people are proud of working here and proud of what we deliver. This pride flows through everything we do and, ultimately, it’s this that will set Damen apart in the cruise world.”

“At Damen there is a genuine passion for ships and a commitment to client satisfaction. You hear the word ‘pride’ a lot here; people are proud of working here and proud of what we deliver. This pride flows through everything we do and, ultimately, it’s this that will set Damen apart in the cruise world.”

ANDREA TREVISAN
COMPOSITE VESSEL 1204

STANDARDISED CUSTOMISATION

When it comes to flexibility of design, Damen’s new 12-metre composite vessel is an example of a boat able to tackle multiple duties.

“We have designed the 1204 to fit any customer design requirements with a composite structure that is built to last,” opens Meredith Dijkstra, Damen’s Product Portfolio Manager. “What’s more, we have accomplished this so it is available on demand – within ten weeks from ordering – and at a competitive price.”

COMPOSITE VESSEL PRODUCTION: A QUICK GUIDE

Damen uses three elements to create composite materials: fibres, resins and core materials.

Fibres are the structural elements to give strength. The fibres can be oriented in the direction of the forces acting on the construction. Depending on the requirements, glass and carbon fibres are used.

Resins connect the fibres to each other to form stable and stiff load-bearing structures. High-end epoxy-based polymers are used. Core materials, such as closed cell PVC, are used to construct lightweight sandwich panels. This provides excellent impact absorption characteristics, high impact resistance and a reduced amount of stiffeners.
LESLEY KIERS
STRUCTURAL SUPERVISOR, DAMEN VEROLME ROTTERDAM
STARTED AT DAMEN: JULY 2017

I joined the yard as a 16 year old trainee, before it was part of Damen. It was the technical side that first drew me in. There have been some real changes since Damen took over, it is pretty busy around here. We have more vessels coming in with tight timeframes. As structural supervisor, I work on the structural steelwork. I set out a plan, and with our team we make that plan happen. It’s a challenging job. You have to be flexible and creative while keeping within the Class regulations and the owner’s requirements. And, of course, safety comes first.

“EVERY DAY IS A NEW CHALLENGE – AND THAT IS THE BEST PART OF THE JOB.”

THE ADAPTABLE DESIGN STEMS FROM A CHOICE OF THREE DIFFERENT PROPULSION SYSTEMS AND A FLEXIBLE LAYOUT. “THIS IS IMPORTANT BECAUSE DIFFERENT TYPES OF WORK DEMAND DIFFERENT TYPES OF PROPULSION. FOR THE FIXED PITCH PROPELLER CONFIGURATION WE KEPT THINGS AS SIMPLE AS POSSIBLE.

The result is easy to maintain and straightforward to operate. This is ideal for areas with reduced service facilities or remote regions. The second propulsion option – water jets – is for operations that require greater manoeuvrability and higher speeds; up to 30 knots. The third version – stern drive – is the lightest and most cost efficient. However, due to the fact that stern drives are not classed, this option is not class approved.”

Benefits of modularity
The versatility of layout has been achieved by using a modular superstructure. “We can adjust the dimensions of the wheelhouse and deck space depending on what is needed – a large wheelhouse with maximum passenger capacity, or a small wheelhouse with a large aft deck.” Indeed, the 1204 superstructure consists of one front wheelhouse, with a passenger capacity of six, and three additional 1.5 metre long modular components, each with space for a further eight passengers.

“Depending on the vessel’s intended operational profile, there are various options possible,” Meredith explains. “A maximum deck space of 15 m² with six passengers is suited for hydrographic surveys, diving operations or line handling, for instance. For a more multi-purpose utility vessel for pilot, coast guard, patrol, or security duties, a medium-sized wheelhouse with a medium-sized aft deck is better. And for activities where passenger capacity is required, the 1204 can offer space for 30 persons.”

Consistent quality
When it comes to composite vessel production, Damen Shipyards Antalya is the company’s specialist yard. Building a total of eleven different vessel designs, the yard’s Infusion Lamination production technique has received the much-respected Bureau Veritas workshop certification.

Meredith: “Our production hall operates at such a high level of quality and the procedures are so well maintained that everything we produce at the Antalya yard is automatically certified by Bureau Veritas.”

Design freedom
Having highlighted the sheer versatility of the 1204 design, Meredith then goes on to point out that the advantages to be gained from composite materials go further than weight reduction (which leads to a significant reduction in fuel costs). “We use moulds to build composite vessels,” she notes. “This allows us to guarantee delivery times as short as ten weeks. Also, moulds give us the capability to create forms such as curves and corners that are more difficult to do with aluminium.

On top of that, composite structures reduce the amount of structural material and stiffeners needed. This ‘design freedom’ means that we can really optimise the use of available space – a factor that is especially important in a small boat like this.”

The fact that the 1204 is a small vessel has also influenced the choice of on-board systems used. “Bigger vessels have more specialist crews. Smaller vessels, on the other hand, have smaller crews, and as such they have to be multi-skilled. Therefore we designed the internal vessel systems to be as straightforward as possible in terms of operations and maintenance.”

The selection of standardised on-board components also illustrates this goal of practical, no-nonsense design. This not only yields benefits in terms of production time and spare parts ordering, but also regarding tried-and-tested quality of parts. And continuing further with this train of thought, the fact that composite materials are not difficult to repair only adds to the ease of maintenance, as Meredith adds: “Everybody can learn to repair composite and not everyone can learn to repair aluminium.”
DAMEN’S CONTRIBUTION TO DREDGING IN BANGLADESH

“WE ARE HERE FOR THE LONG-TERM”

Bangladesh’s relationship with water is well-documented. It is a country with a unique array of geographic and climatic factors that make it prone to periodic cyclones and accompanying flooding. This is compounded by the fact that some two thirds of the country’s population live in the low-lying Ganges-Brahmaputra-Meghna Delta. Road and rail transport in this area is restricted, with rivers serving as principal lifelines for travel and trade.

Water management policies accomplished primarily by dredging operations have been an effective way to improve the country’s infrastructure and flood defences. In fact, the Bangladesh Government has increased investment for dredging projects on river routes to restore and maintain navigability, while at the same time improving water holding capacity for irrigation and fishery activities during the dry season. Responding to this increased need for dredging expertise and equipment, Damen has been active in Bangladesh for many years. “We have been working here for more than four decades,” comments Rabien Bahadoer, Damen’s Sales Manager for the Asia Pacific region. “Economically and socially – we want to support growth in Bangladesh. And dredging with quality equipment is a way to achieve this.”

To this end, Rabien has overseen the deliveries of multiple vessels – including Cutter Suction Dredgers (CSD), Tugs and Multi Cats – in recent years. These have been equipped with a wide range of innovative features like remote access capabilities which allow Damen service engineers to log in remotely to assist directly with troubleshooting. “Other examples include equipping all CSD 500 vessels with two engines; one fully dedicated to the dredge pump and the other for the hydraulics and electrical systems. This not only means that there is always full power available for the dredge pump, it also results in higher fuel efficiency due to less idling time. Other areas that we have tackled include the dredge pumps and gearboxes – all with the aim to boost uptime and increase output during the operation of the dredging vessel while making maintenance more straightforward.”

“However, our role goes further than just building dredgers. In order to keep rivers and channels navigable on a long-term basis, comprehensive lifecycle support is also required. This includes sustained training programmes, which we offer by sending our own Dredge Masters to Bangladesh to give practical, hands-on training. This is backed up by innovative online support applications. And, following on from the successful dredging seminars that we organised, we are planning in-depth project management training sessions for existing clients. In addition, we have established a local Service Hub to train people on-site as well as to reduce lead times for components such as cutter teeth and dredge pump parts.”

It is this all-inclusive strategy that illustrates Damen’s ambitions in Bangladesh. “We are here for the long-term,” Rabien states. “This will be in the form of a one-stop-shop for dredging vessels and other support vessels, dredge training, support and lifecycle services that extend long after we have handed over a vessel.” It is this all-inclusive strategy that illustrates Damen’s ambitions in Bangladesh.

Engr. Jahangir Alam, General Manager & Head of Dredging, Zodiac Dredging Limited. “We are currently dredging an inland river in the north east of the country, 250km from Dhaka, for the Bangladesh Water Development Board (BWDB). The main focus of the project is to create a bypass water channel between 3.5 and 4 metres deep that connects to the main river. This 30-metre wide, 25 km-long channel will improve navigability and protect public property from excess water in the rainy season. Our Dredger Masters have around 20 years’ of experience – so we have a very experienced team.”

Munazzel Riasat, Chief Executive Officer, IBC Power Limited. “At present there is an extensive requirement for capital and maintenance dredging activities in Bangladesh, and we have been fortunate enough to be at the forefront of both. We have mobilised our Damen CSDs on various projects of great national importance – including the Mongla-Pakshi Channel to support the construction of the Ruppur nuclear power plant, and maintenance dredging of the Mawa ferry route, to name a few. “We have been very pleased with the operational efficiency of the CSDs, we can run them around the clock without any significant disruptions, thus achieving our targeted production volumes with good fuel efficiency. Due to this reliability we are confident in securing large scale projects, secure in the knowledge that with our superior equipment and steadfast commitment we can guarantee the timely and qualitative completion of projects.”

A WORD FROM LOCAL DREDGING OPERATORS
In the ski season, high society descends on Kitzbühel, the Austrian winter sports resort nestled among the Alps' sheer mountain peaks. With its luxury chalet roofs caked in powder snow, Kitzbühel might seem a long way from the grit and rumble of heavy shipbuilding. However, this is where the brightest minds in luxury yacht design gather each year at the Superyacht Design Symposium to discuss the innovations shaping the next generation of large yachts.

In 2018 Damen Design Manager Jaap van der Velde gave symposium delegates a closer look at the SeaXplorer 77 and its origins – a deep dive into the design process that he steered from an out-of-the-box idea shared with colleagues over coffee to the introduction and subsequent sale of two large and complex SeaXplorer yachts and more to come.
Some people think that fans of outdoor activities should stay in flea bag motels and dry their wet socks on radiators. I believe that you can combine the most active outdoor adventures and sports with ultimate comfort. 

SEAXPLORER 77 OWNER

By 2014 a few yachting clients had approached us with ideas to develop existing Damen platforms into truly capable expedition yachts,” Jaap explains. “Owners have typically been forced to compromise with conversions of old commercial workboats and retired navy ships. So we realised that there was a market, but no suitable ships.

At first we looked at how we could meet our clients’ wishes by adapting existing platforms for expeditions, but we quickly realised that it meant making too many compromises. So we took a more entrepreneurial approach – going right back to the drawing board to design a whole new product range from scratch.

The challenge was to create a crossover between a professional vessel and a super yacht. With its unique synergy of Damen’s shipbuilding knowhow with luxury yacht builder Amels’ intimate understanding of the high-end yachting experience, Damen had the perfect set of ingredients.

“Damen’s Sea Axe hull form is superb suited to expedition yachting, where you need maximum comfort and seaweed performance in sometimes challenging seas. Plus we have a lot of in-house expertise in engineering for ice conditions that we’ve used to get to grips with the IMO Polar Code that came into force in 2017. The Damen Board was enthusiastic and gave us their full support, so we put together a team of experts and created the SeaXplorer.”

Following the introduction of the range at the Monaco Yacht Show, the niche of highly adventurous clients were quick to see the SeaXplorer’s potential. One such client, who has a serious passion for heliskiing and exploring remoteclimes, ordered the second SeaXplorer. Known as the SeaXplorer 77, the yacht is now under construction at Damen for on-time delivery in 2020.

“Heliskiing is an established and growing sporting niche, but a big attraction for heliskiiers is conquering the most challenging and remote tenures. For a lot of the world, that means dealing with the limitations of helicopter range and lack of local infrastructure. Plus, the further away from the mission base you are, the greater the safety risks of changing weather, mechanical failure or an emergency situation like an avalanche. And at the end of a long day skiing, do you really want to hike to a suitable landing spot for a big heavy long-range helicopter and then spend hours flying to the nearest outpost? The SeaXplorer with its autonomous helicopter operations and luxury accommodation opens up an unlimited choice of destination and terrain.”

Taking off from the yacht’s fully certified primary surface helideck, the SeaXplorer 77’s owner and guests can take their pick of the world’s most challenging, remote and scenic heliski destinations: tackling virgin Polar deserts, floating through virgin snow in the Andes, skiing beneath the Arctic midnight sun or descending from the peaks of smouldering volcanoes to frozen beaches in Kamchatka. In case of emergency, the yacht has state-of-the-art ski and avalanche safety equipment. Storage space has also been allocated for a pair of snowmobiles, which can be used to access ski terrain on no-fly days as well as provide snowy adventures for non-skiers.

Industry interest in the SeaXplorer 77’s customised winter sports capability is high, so the Kittibühel symposium’s alpine location was a fitting venue for a closer look.

Ever since the first helicopter-assisted ski trip in 1963, heliskiing has delivered an addictive blend of adventure, camaraderie and pristine landscapes. The SeaXplorer 77’s owner, no longer content with the tenures offered by conventional lodge-based heliskiing operations, sought the unlimited choice of destination and terrain opened up by a private expedition yacht.

The yacht also has a standby helideck surface to position a second helicopter with full rotation and a below-deck hangar to protect both bespoke Airbus ACH125 helicopters from the elements. Relatively lightweight and agile yet high-powered, these long-established heliski favourites are built to tolerate high-altitude, precision landings at low temperatures. The second helicopter can be used to track down virgin terrain in often poorly-mapped remote areas, and guests can travel into remote terrain safely in the knowledge that a back-up helicopter is always at hand.

Afterwards the owner and guests can fly back within minutes to the opulent luxury of an ocean-going chalet. The SeaXplorer 77 achieves the same levels of luxury that the owner is accustomed to enjoying in the world’s finest Alpine chalets. Thus, in addition to sumptuous public areas and six plush suites, a dedicated snow room has been designed with individual lockers for each guest and ski boot heaters. Once relieved of their ski boots, guests can pad across the deck to the spa for a relaxing steam, sauna, hot tub and massage or grab the elevator to the top deck Jacuzzi to toast another day’s epic skiing.

The owner of SeaXplorer 77 demands perfection and a visceral connection with the outdoors in each of his homes. By working with the Damen team to customise the interiors with his own choice of interior designer, he has created a sophisticated look with various panoramic lounges including the SeaXplorer’s unique bow point observation lounge. Six opulent suites accommodate up to twelve guests.

Everywhere that the owner and guests are will be fitted out to the same level of luxury that you would expect on an Amels yacht, but on the places where you need capability the focus is on having a strong and robust vessel.

Built in compliance with the IMO Polar Code, the SeaXplorer 77 has a reinforced Ice Class hull so the yacht can remain on station in rapidly changing ice conditions. The large galley and stores for provisions ensure luxury fine dining anywhere in the world. Facilities and accommodation for 25 crew, guides, pilots and staff. In fact, the SeaXplorer 77 can operate autonomously with full luxury service for twelve guests for up to 40 days. It’s not just the fuel capacity, it’s the storage and waste management on board that matters as well, including garbage freezers and wastewater tank capacity, to ensure uninterrupted stays in Zero Discharge Zones from the polar regions to tropical marine reserves.

And that global capability is just as well, because there is no off- season for the SeaXplorer 77’s owner. Heliskiing is important, but he is also a surfer and diver – as evidenced by the yacht’s collection of toys, tenders and submersible. But that is another design story that Jaap is saving for a more tropical meeting of yacht designers.
For more than a quarter of a century, Amels has been part of the Damen Shipyards Group. A 27 year period which, under the pioneering thinking of Komer Damen, has seen this globally recognised brand evolve and develop into one of the world’s top superyacht builders. This year, as Amels celebrates 100 years since the brand was founded, we take a look back, together with Rose Damen, Commercial Director of Yachting for Amels and Damen, at the rich heritage that has paved the way from Friesland to Zeeland, the Netherlands. We explore how the diverse shipbuilding pedigree of those who have influenced Amels over the last century continue to shape its future.

“It was in 1991 that Damen acquired Amels. A decision that reflected my father’s forward thinking and understanding of the value of the brand. Amels, originally a family shipbuilding business based in Friesland in the north of the Netherlands, was at that time, a full custom yacht builder. They had made a decision to diversify their shipbuilding skills and apply them to a more specialised market sector in the mid-late 1970s. They delivered their first superyacht in 1982, the 48.2 metre Katelina.”

The reputation of Amels as a yacht builder grew fast, as did their portfolio. However, as we are all too well aware, changes in the superyacht market can strongly influence affluent market sectors and fortunes for Amels soon changed. The arrival of Damen resurrected Amels and with the support and benefit of Damen resources, innovation and operations, the brand was put back on the path to success.

“Despite the change in ownership, the name Amels was retained, preserving the brand which was synonymous with luxury yacht building and is now also renowned for its high value, quality and finish. The shipyard in Makkum, Friesland remained operational for the following fourteen years, during which Amels went on to deliver some of the world’s most iconic superyachts of that era, such as Roadwea, Tigre d’Or and Fiona as well as Montkaj, which is still owned and enjoyed by her original owners today.”

In 2000, Royal Schelde joined the Damen Shipyards Group. A move that would ultimately result in Amels acquiring Royal Schelde Vlissingen. The Damen Shipyards Group. A move that would ultimately result in Amels acquiring Royal Schelde Vlissingen.

It was Kommer Damen’s radical way of thinking in terms of large yacht building that transformed Amels and has set the processes and foundations for the future. His vision of building yachts in an entirely new, standardised way may have been inconceivable to the superyacht industry at the time but was a tried and tested concept that he had already successfully applied at Damen. With a growing portfolio of repeat clients, unrivalled residual values and the guaranteed delivery of three brand promise, Amels ensures its clients enjoy the finest moments in life. Amels has proved that the mix of history, pedigree and a willingness to adapt is a winning formula. In embracing change, Amels has secured its future under Damen by evolving, growing and changing without ever losing sight of its heritage and roots.

“The combination of Amels and Damen make us a strong competitor in yachting. It is a unique combination that brings together resources, shipbuilding and experience whilst upholding the shared core values of trust, quality, promise and family. Amels and Damen stimulate each other to continuously innovate and our market reach and to deliver our aim of exceeding client expectations.”

“In 2000, the Royal Schelde yard in Vlissingen, now owned and led by Damen, became the new home and heart of Amels. It was fuelled by Damen, powered by those with Schelde roots, led by a fast growing Amels team and guided by the unique approach of my father. Everything was in place for Amels to embark upon a new phase. One that would see the yard in Vlissingen grow into the largest yacht building facilities in the Netherlands and a brand that would set a new benchmark in high quality and build processes.”

As Amels celebrates 100 years since the brand was founded, we take a look back, together with Rose Damen, Commercial Director of Yachting for Amels and Damen, at the rich heritage that has paved the way from Friesland to Zeeland, the Netherlands. We explore how the diverse shipbuilding pedigree of those who have influenced Amels over the last century continue to shape its future.

1918
Amels founded by Kees Amels

1982
First superyacht delivered

1995
Monday (75 m) delivered, largest yacht to be delivered in The Netherlands at that time

2000
The Damen Shipyards Group acquires Royal Schelde Vlissingen and establishes Amels in Vlissingen

2005
Amels moves production and operations to Vlissingen

2015
Rose Damen joins Amels as Commercial Director

2017
Amels delivers largest yacht to date, Here comes the sun

“Despite the change in ownership, the name Amels was retained, preserving the brand which was synonymous with luxury yacht building and is now also renowned for its high value, quality and finish.”

ROSE DAMEN
Part of the third generation of Damen family ownership, Rose Damen is a Non-Executive Director and a shareholder in the group as well as Commercial Director at Damen’s yacht building division.

Before joining Damen Shipyards full-time in 2014, Rose earned an MBA from INSEAD, with a focus on entrepreneurial management. This followed five years’ experience in fund management at Intrinsic Value Investors (IVI), a London-based institutional investor. Before joining IVI, Rose worked for a non-governmental organisation in Sri Lanka, and completed an internship at ABN AMRO Jakarta. Rose holds a degree from Erasmus University in the Netherlands and has also passed all three CFA exams. She is a founding trustee of the Dutch Masters Foundation and a member of the development board of the National Maritime Museum in Amsterdam. Rose enjoys outdoor sports and has sailed around the world.

“Here comes the sun” was the first single released by the Beatles in 1969. It was written by John Lennon and was the third single from their second album ‘A Hard Day’s Night’. It was released on 18 July 1969 and became a worldwide hit, topping the charts in the United Kingdom and the United States.
ARRIVAL OF FLOATING DOCKS MAKES DAMEN SHIPREPAIR CURAÇAO A FORCE TO BE RECKONED WITH

Just thirteen months after Damen took control of the Curaçao Drydock Company in the southern Caribbean and renamed it Damen Shiprepair Curaçao, the group is about to fulfil the undertaking it gave to the island’s government to expand its capabilities by bringing in a floating dock as specified in the original agreement. And not just one dock, but two! A Panamax-class dock measuring 230 metres x 45 metres for tankers, box ships and other large vessels, and a smaller dock, 108 metres x 23 metres, for all kinds of tugs, workboats and offshore support and anchor-handling vessels. Adding these assets to the yard’s existing two graving docks marks a significant expansion in capabilities and diversification, in line with Damen’s ambition to play a major role in ship repair and conversion in the Caribbean area.

Refurbished and redeployed

The two floating docks have been redeployed from Damen Shiprepair Vlissingen and Damen Shiprepair Van Brink Rotterdam in the Netherlands. The larger dock was built in the 1960s in Norway and acquired by Damen in the 1980s. The smaller dates back to 1933 and is an excellent example of durable German engineering. Both have been well maintained over the years and in continuous operation. Prior to their departure from Europe, each underwent a thorough structural inspection and maintenance programme at Damen Verolme Rotterdam.

Given the size of these docks, this was a major project. Planning began in April 2017 with works beginning in November. The Panamax dock herself went into drydock to undergo a full examination that resulted in 1,000 tonnes of steel being replaced in the hull around the waterline and on her flat bottom, but aside from that the largest task on each dock was the application of a special coating both internally and externally to cope with the potential corrosion and aggressive marine organisms found in the tropical waters of Curaçao. With 28 cavernous tanks within the larger dock alone, this has been a major undertaking which is now being completed in Curaçao, along with final repairs to the piping and machinery.

Preparing the yard

Works are also underway ashore at Damen Shiprepair Curaçao, preparing the site for the new acquisitions to join its two existing graving docks, as well as for the overall increase in activity. One of these graving docks is, at 270 metres long by 44 metres wide, among the largest in the Caribbean. The yard also has three mooring and repair quays with a total length of 975 metres. The works include extensive electrical and piping upgrades to facilitate the routing of compressed air, gas and high voltage cabling. New machinery has been acquired alongside additional equipment brought across from Damen yards in the Netherlands. The restructing of the yard to increase capacity as well as maximise efficiency is aided by the fact that the site is relatively spacious. At the same time, Van Oord has been contracted to excavate and dredge a section of the harbour to remove 75,000 m³ of rock and soil. This will allow the Panamax dock to attain its maximum draught of 16 metres in order to take on the largest vessels. Other contractors have been confirmed to execute pile driving for dock installation, pier reinforcement and shore protection.

Crossing the Atlantic

The docks departed Damen Verolme Rotterdam on the evening of 1st April and arrived in Curaçao on 28th April, following a voyage across the Atlantic Ocean on board the semi-submersible heavy-lift vessel Xin Guang Hua, operated by Cosco Heavy Transport. Prior to departure, in a carefully managed operation, the smaller dock was inserted into its larger counterpart before that in turn was floated on to the heavy-lift vessel. The docks are now in the final stages of being readied for work in time to start operations in July.

“Our location in the southern Caribbean is ideally situated to serve vessels going to and from the Panama Canal and supporting local oil and gas operations in the waters off Colombia and in the Gulf of Mexico. Curaçao has a naturally protected harbour basin and it is known for not being subject to the extreme weather conditions found in the northern Caribbean,” said Lodewijk Franken, managing director of Damen Shiprepair Curaçao. “Those natural advantages together with Damen’s reputation for quality and value mean that since we have taken responsibility for the yard here we have seen a lot of interest in our services, and the acquisition of these two floating docks will play a major role in meeting that demand.

“We are also very happy that the new docks will not only allow us to work on a wider range of vessels, but also enable us to fulfil our undertaking to increase the contribution that the yard is already making to the local economy, and to bringing new, high-quality jobs to the island across a range of trades and disciplines.”
Damen’s renowned Twin Axe is back! And this time it’s bigger than ever. When Damen unleashed the Fast Crew Supplier (FCS) 2610 back in 2011, it took the offshore wind industry by storm. In next to no time, the 2610 was to be found plying its trade to countless North Sea wind farms. It’s no exaggeration to say that this overnight success story became the new industry benchmark.

**A chopper for choppy seas**

The performance of the 2610 seemed to provide an answer to everything – it was quick, it was stable, it offered considerable deck space and – most crucially of all for a vessel transporting non-maritime personnel to work in off-choppy waters – it was comfortable.

Comfortable courtesy of its Axe Bow. This deliverer of seakeeping credentials is a Damen innovation that, until that point, had graced only mono-hull vessels. Named for the way its keel lines slope forwards as the sheer lines slope upwards, the bow’s resemblance to an axe is unmistakable. The Axe Bow is so much more than simple good looks, however. Where conventional vessels slam in waves, a Sea Axe vessel glides effortlessly through. And what better way to celebrate such fine features than twinning them to deliver the world’s first large wind farm support ship?

**Spirit of progress**

Never one to rest on its laurels, however, Damen has taken this step forward one step further, with the successor vessel – the FCS 2710. Product Manager at Damen’s High Speed Craft product group Wim Boerma says, “The 2610 really was the first vessel of its kind. It’s an excellent boat, but of course there are always lessons to be learned. If the 2610 was a revolution, the 2710 is evolution in action.”

The spirit of progressive development is to be found throughout the entirety of the vessel, Wim states. “We’ve taken the very best of the 2610 in all its fundamental characteristics and brought it forward. What this vessel delivers is more flexibility, more tank capacity, greater deck space, increased comfort and more accommodation. It really is improved in all areas. Think of it as a wind farm support vessel 2.0.”

**Bigger boat, increased uptime**

One key way in which the new FCS delivers improved comfort is via increased height. Wim: “The 2710 has an extra metre in height compared to the 2610. The extra clearance from the water makes a considerable difference.

“When we designed the 2610, the industry standard was for operations in 1 metre wave height, which the vessel was able to comfortably meet. With the increase in height, however, the 2710 is able to operate above 2 metres wave height, raising the uptime of the vessel significantly.”

Another feature of the FCS 2710 is a specially designed fender that Damen has been working on for some time. You can read more about this on page 9.

The 2710 is just one metre longer than its predecessor, but can transport more than twice as many passengers. Wim: “The industry has changed. In 2011, regulations meant that such vessels were transporting up to 12 persons. Now with changes in the legislation, vessels can transport up to 60 persons. The 2710 in standard configuration can carry 26 passengers.

“Damen is also developing a larger vessel – the FCS 3410, which can also carry up to 60 passengers. The simple elongation of the vessel is a good way to increase capacity, whilst adhering to the strict requirements of safety and comfort required by the North Sea standards.”

**Coming to a wind farm near you**

The sharp rise in passenger capacity comes from optimising the available deck space, as Wim explains. “The 2610 features a stepped foredeck. In the 2710 we’ve made the deck flush, delivering a more efficient space. What this means is, we can increase the size of the wheelhouse, more than double the capacity of the accommodation – at the same time upgrading the quality of it – and still end up with 90 m² deck space available for cargo transportation.”

The first FCS 2710 has already been purchased by UK-based High Speed Transfers and will soon be gracing North Sea wind farms with its presence.
Tough as old boats

The marine aggregate industry is operating some venerable dredgers. As Cemex UK Fleet Engineering Manager Mark Williams explains: “Our youngest dredger is 20 years old. Our oldest, 30. This is pretty representative of the industry as a whole, though, actually, our fleet is one of the youngest in operation in the UK.”

“Don’t get me wrong – these are tough machines, they can withstand years of operation in the harshest of environments. Our 30 year old dredgers are still going strong.”

Mark acknowledges, however, that there is a cut-off point, after which a new vessel starts to make sense. “Eventually you reach a stage, beyond which a new dredger simply offers greater efficiency with increased production and reduced maintenance requirements, factors which make consideration of a new vessel attractive.”

Dredging in tomorrow’s world

There are other factors. To date, the aggregate industry has focused mainly on land-based extraction of resources, with marine activity contributing approximately just 15% of total operations. Land-based sites, however, have a relatively short lifespan – often between five and ten years. As such, many sites have become depleted. This, coupled with an improving economic outlook, is adding impetus to marine aggregate dredging as a solution.

For this, its length must not exceed 103.5 metres, with a deadweight of almost 1,000 tonnes and a speed under load of 12 knots. This translates into an additional 20% of aggregates per trip compared to the Sand Heron, the vessel the MAD will replace. A dredger with depth

It is also crucial that the MAD be able to operate at depths of up to 55 metres. The standard, statutory requirement is for a CO2-based system. The danger with this is that application can pose a risk to anyone caught in the vicinity of the fire. What we have done instead is to select a NOVEC system. It’s a considerable investment, but safety is important to Cemex.

Similarly a lot of thought has gone into ergonomics. For example, the bridge layout is all about user-friendliness and there is a lot of space on board.”

The demands of the future, however, go way beyond simply increasing capabilities. “We wanted a vessel designed with safety as number one priority,” Mark says. “There are many examples of this philosophy throughout the vessel, but a good one is the engine room fire suppression system. The demands of the future, however, go way beyond simply increasing capabilities. The MAD will replace the old vessel with depth.

Alongside these key features, the vessel was designed with sustainability on its promises. “We are looking forward to proving the operation of all this innovation,” concludes Mark.
With its roots in the supply of navigation and communication equipment, Alphatron Marine has grown into a global producer of fully integrated bridge systems including communication and IT solutions. The company has some clear parallels with Damen. “Unimpressed with inefficient bridge layouts, our founder had very specific ideas to create standardised and modular bridge systems. Damen, of course, have a similar philosophy in terms of their shipbuilding activities,” notes Gerard van den Baard, Alphatron Marine’s General Manager Sales.

Lessons learned
A working relationship between the two companies began in the mid-2000s: “The idea was to create a bridge that could be installed quickly, and on a range of different vessels – all the while carefully balancing the three standards of ergonomics, technology and aesthetics.” While the first two speak for themselves, the question of aesthetics needs a little more explanation: “The more comfortable an operator is, the more able he is to adapt to it.”

The partnership achieved its first success on the Stan Patrol 4207. The concept then evolved to include bridge systems for dredgers, ferries, yacht support vessels, customised tugs and various offshore vessels. “Damen’s success was our success. In a way, they have challenged us to develop and standardise our products without jeopardising the ability to provide customers with a tailored solution. Enabling us to put into practice the lessons learned from our research and development; something that we continue to do because it is their questions that drive us.”

Enhancing awareness
Regarding future developments, Alphatron Marine works with a philosophy that it calls supportive sailing. “We are heading towards an era where ships are controlled more from the shore, and the subject of autonomous shipping is also receiving a lot of attention. It is enhancing situational awareness. And it is companies like Damen that allow us to put these ideas into practice.”

Eriks Econostō has been in the maritime business since the days when steam was the prominent form of propulsive power for the shipping industry. Back then, the needs of these steam-powered vessels formed the basis of the company’s product offering. With the arrival of diesel power, Eriks Econosto’s portfolio evolved to include the entire scope of on-board installations. Today – a truly global player – the company is Damen’s main supplier of valves, couplings and fittings and remote controlled actuators, in addition to measurement and control systems.

Reducing TCO
For Peter Zorge, Director Business Unit Maritime, close contact with Damen has been important every step of the way. “It’s not just about selling products,” he says. “It’s also about listening to what Damen needs.” To this end, Eriks Econosto has a department dedicated to Damen contracts. This includes one person who works at Damen’s head office approximately two days a week to give technical advice and coordinate logistics.

As well as discussing future trends like asset management and supply chain solutions, such short lines of communication have resulted in valuable feedback too. Key subjects include supply chain optimisation and increasing the efficiency of operations; thus complementing Damen’s own focus on reducing the total cost of ownership for vessel owners. “In terms of supply chain solutions, we have condensed our portfolio by standardising components. For example, instead of having ten different valves for ten different systems, we now have three or four types of valves. We have also worked with Damen engineers on more automated systems. In the past, every valve was manually operated, but nowadays a great number are operated by remote controlled actuators.”

Business pride
Peter has worked for Eriks Econosto for the last 28 years and, in that time, has built up a very close and productive relationship between his maritime business unit and Damen. “This is something that I am extremely proud of. Damen keeps us thinking about efficiency and about solutions. For sure, we are Damen’s supplier and Damen is our customer, but there is always a healthy form of equality.”
Pon is active in several industries, including cars, tyres, bikes and earthmoving equipment. Of the group’s numerous companies that are active in the maritime sector, it is Pon Power that stands out as having the longest connections with Damen. The two companies started working together in 1969, the year that Kommer Damen first introduced the standardised shipbuilding concept. In fact, it was a Caterpillar engine that put the ‘Cat’ into Damen’s first series-production vessel, the Pushy Cat.

“Since then we have delivered around 11,000 Caterpillar engines to Damen,” says Jochem Neuteboom, Commercial Director for Pon Power. This substantial amount is perhaps best explained by looking at Pon Power’s range of products: power output from 10 kW to over 16,000 kW. “Indeed we have an engine type available for every single vessel in Damen’s portfolio.”

Caterpillar’s involvement
As with any relationship that is close to reaching its golden anniversary year, it comes as no surprise that the bonds between Damen and Pon Power are strong. “We work closely with Damen’s engineering teams to develop and standardise solutions over the many vessel types as well as the various product groups. This includes certain features on engines that we develop together,” Jochem adds. It is here that the benefits of Pon Power’s connections with Caterpillar can be seen: “These developments can be incorporated into Caterpillar’s product portfolio, adding worldwide service and warranty into the equation.”

Half a century of business
Jochem uses a key trend of the future – digitalisation – to highlight how the two companies will continue to work together. “Damen has specific aims, and Caterpillar and Pon Power are investing heavily in this subject too. Development is taking place in the field of Asset Management, fuel reduction and end-user applications. So we are working together to help each other’s digital portfolios. In this way, you can see that Damen is a very important client for Pon Power and Caterpillar. And next year is a big year – we are looking forward to celebrating 50 years of doing business together!”

Using synthetic materials as a tool to conserve steel and concrete constructions: this was the original concept behind the formation of Bolidt 54 years ago. The idea was a success, and the company rapidly expanded to work in a huge range of sectors. “We became involved with the shipbuilding industry and Damen shortly after the start,” says CEO Rientz Willem Bol. “With the large amount of steel used, corrosion causes problems both above and below the waterline. Our ultimate aim was to give ships longer operational lifetimes.”

100% operational
A look back over the last 50 years of cooperation with Damen brings some very special projects to light. “Our decks on Damen’s tugs reduce the amount of vibration felt by the crew, thus preventing serious knee and ankle problems,” he explains. “The superyacht market, on the other hand, has totally different needs. So, for Amels, we offer robust decks with a design touch that give a lot of freedom in terms of colours and patterns.” Naval contracts also come with a demanding set of parameters. The Royal Netherlands Navy’s Joint Support Ship, Karel Doorman, built at Damen Schelde Naval Shipbuilding, is just one example among many. “This deck can withstand the extremes of a vertical take-off and landing, with temperatures approaching 700 degrees Celsius. Here, and in fact for all maritime applications of our products, being operational at all times is paramount.”

Creating continuity
As a family-owned company, stability is a major part of Bolidt’s focus. “The world has changed a lot in a very short period of time, and therefore we have to adjust our working practices to the trends of the time,” Rientz Willem adds. “This involves intensive investment for the future; in terms of innovation of products, and also in our way of working.”

One exciting example of this investment is the Bolidt Experience & Innovation Centre, due to open in April 2019. “This will be open to all stakeholders to come and see how they can achieve their ideas with our materials. I would like to invite Damen to cooperate with us with the open source development there. Our doors are open.”
Damen’s range of modular vessels is unrivalled in the industry and is a reflection of the ingenuity that its designers and engineers bring to bear when confronted with the challenges of its customers. Modular vessels are generally seen as the answer to the question, ‘how can I get a working vessel to a remote inland location using just road or rail transport?’

Yet they also have another significant advantage: they can be dismantled when one role is completed and reconfigured for another that may be very different. This is vessel-conversion in a whole new and very cost-effective way.

“Indeed, with modular construction, the possibilities are endless and that is why we have developed the Damen Modular Barge Configurator,” says Roy van Oosterom, responsible for Damen’s modular constructions. “It’s an online tool that has distinct similarities to a Lego instruction manual, but on a much larger scale. The Configurator not only allows the user to view all the standard options available for modular workboats, ferries and pontoons, it takes him or her to the next stage of selecting preferred options and then assembling them on-screen in 3D using a simple drag-and-drop field.”

The vessel comes to life in front of the user’s eyes, starting with the selection of the container-sized Damen Modular Barge (DMB) units required to define the size and shape of the future vessel and then moving on to the layout of machinery, deck equipment, wheelhouses and accommodation units as desired. Finally, at the click of the mouse, Damen will convert your design into a quotation.

The Configurator not only allows customers to experiment with vessel configurations so as to get the right balance of capability versus budget, it also speeds up the process for all involved as the time needed to create the desired design is greatly reduced. If they are content to use the standard components shown in the Configurator, they can be confident of a very rapid delivery. In addition, customer-specific refinements can easily be added once the basic design is established. Whatever the design, all the DMBS are connected to each other using Damen’s Class-approved Link System to create a rigid and durable substrate.

In Damen’s experience the most popular modular product types are barges, ferries, jetties and Multi Cats for use on lakes and rivers. These environments of course vary enormously in size and attributes and no-one knows them better than the people and organisations that make their living on them. Damen’s Modular Barge Configurator gives them the opportunity to explore, in their time and at their own pace, the many options that are opened up to them by considering a modular vessel.

To find out more and to access the Configurator, go to www.damenmodularbarges.com and see the vessel that you’ve always wanted become a reality right in front of you.
The cruise ship industry has perhaps been the most successful maritime sector in recent years, with consistent growth in passenger and ship numbers over more than 20 years that shows no sign of slowing. Between April and December 2018 alone, ten new vessels totalling 1.3 million gross tonnes are due to be launched, including the 230,000 tonne, 5,400 passenger *Symphony of the Seas* for Royal Caribbean, which is the largest yet built. This increase in both numbers and size presents a challenge for owners and operators when it comes to maintaining them to the high standards that their customers demand. These huge vessels require yards that not only have the capability to service their complex needs, but which are also conveniently located near both their home ports and cruising grounds, and have docks large enough to accommodate them.

Damen has a long history of maintaining cruise ships, but in recent years new yard acquisitions, plus the redeployment of resources, have strengthened its bid to become a leading force in cruise ship refit, repair and maintenance in Europe and introduced new capability further afield.

P&O Ventura at Damen Shiprepair Brest

One such example is Damen Shiprepair Brest in France. Acquired at the end of 2012, this modern and well-equipped yard was already well-known for its expertise in maintaining and repairing the latest generation of LNG Carriers, as well as other large vessels, but its capabilities make it a prime candidate for delivering services to the new generation of super-sized cruise ships. This is due in part to its convenient position at the gateway to the Atlantic, close to turnaround Port of Southampton. Its exceptional drydocks and yard logistics layout are also of particular interest to operators.

Drydock 3, its largest at 420 metres x 80 metres, would comfortably take the 362-metre by 48-metre *Symphony of the Seas* with room to spare. Projects have already been won. The 329-metre, 156,000 tonne Norwegian Epic was one of the first cruise ships to come to Brest, where she underwent a three-week maintenance and refit programme. Early in 2018 the P&O Cruises’ Grand-class cruise ship Ventura completed a two-week inspection and maintenance docking.

Major features of the Ventura programme included the installation of two exhaust gas scrubbers, for which the yard also manufactured and installed a sea chest. While the ship was in drydock 3 the hull was also ultra-high-pressure water blasted and then, along with the superstructure, repainted. Additional works during the two-week stopover included maintenance of the propulsion systems and stabilisers, plus other minor repairs.

**Critical success factors**

The Ventura project highlights a number of factors that are critical for cruise ship operators when selecting yards that can meet their needs. To begin with, for all cruise ship dockings, completing the works within the scheduled period is absolutely critical. In the case of the Ventura, just two days after the agreed date for completion she left Southampton on a twelve-day cruise to the Canary Islands and Lisbon with over 3,000 passengers on board.

The logistics at the yard for cruise ships are also particularly challenging, with a wide range of subcontractors needing access to the vessel both inside and out around the clock. Ample space near the dock is required for the hundreds of containers, trucks and garbage skips that need to be positioned and manoeuvred as necessary during the course of the project. And, of course, meticulous planning to exact specifications needs to be carried out in the months preceding the ship’s arrival, following which, organisation must be of the highest order.
Oasis of the Seas at Damen Verolme Rotterdam

An even more recent addition to the Damen portfolio that is attracting the interest of the cruise industry is the Rotterdam yard formerly owned by Keppel Offshore & Marine and now renamed Damen Verolme Rotterdam. With its prime location and facilities originally built to handle supertankers, including the biggest dry dock (by area) in north-western Europe at 405 x 90 metres, the management team there is now looking to expand cruise sector activity and is actively adapting its capabilities to address the demands of cruise ship repair and modification. This includes developing relationships with the necessary specialist sub-contractors and suppliers, and also refining its logistics and project management processes to better manage the increasing role that they expect the yard to play in the future.

Damen Verolme Rotterdam and its workforce also has previous experience of working with cruise ships, having hosted the 362-metre, 225,000 GT cruise ship Oasis of the Seas in 2014. This involved an extensive programme of works to be completed within 14 days, including modifications to her three Azipod main propulsion units and the four bow thrusters, and the replacement of one of the ship’s main engines. This was achieved by settling the vessel on a 3.3-metre high dock-block arrangement within the drydock. The technicians then went through the double bottom to remove the old engine and insert the new. Meanwhile, the refurbishment works involved over 200 containers of new furniture and materials going aboard and around 600 tonnes of waste materials being removed.

The yard also played a key role in a rather different project; the lengthening of the Royal Caribbean cruise ship Enchantment of the Seas. This required the insertion of a 22-metre mid-section, taking the vessel to 301 metres, along with all the associated works to prepare her for operations. A new frontier

Damen’s ambitions in cruise maintenance extend beyond Europe. On the other side of the Atlantic in the southern Caribbean lies the Dutch island of Curaçao and on it Damen Shiprepair Curaçao, acquired early in 2017. Conveniently located away from the Hurricane Belt, Damen’s first ship repair yard in the Americas has one of the largest dry docks in the Caribbean; 270 metres in length and 44 metres across, and in the summer of 2018 will begin operating a floating drydock measuring 230 x 45 metres. It also has three mooring and repair quays totalling 975 metres in length. The yard offers Damen standards and expertise to cruise ships operating in the Caribbean Sea and surrounding waters, representing a valuable resource to the industry.

“We are in an excellent position to meet the needs of 21st century cruise ships,” says Rogier van der Laan, Product manager Cruise for Damen Shiprepair & Conversion. “Damen’s commitment to quality and efficiency resonates with this sector and our network of repair yards gives us a flexibility and ability to respond rapidly that few others can match.”

JEROEN HEESTERS
DAMEN SHIPREPAIR & CONVERSION GROUP COMMERCIAL DIRECTOR

We have acquired a number of repair yards in recent years, most recently on the island of Curaçao and Verolme in Rotterdam. While we used to be competitors – keeping our cards close to our chest – we are now working together. After all, when a client sees the Damen logo at the gate, they expect a certain level of service and quality.

Now with sixteen repair yards around the world, it is sometimes a puzzle to find the best fit of which job best matches which yard. There are certain limits – dock size and personnel capacity, for example – but we are always able to offer our clients a solution.

On a personal level, I like the variety. We have clients from every maritime sector, and there is also huge diversity in the work we do. Yes, we have long-term contracts like conversions and lifetime extensions, but we also have to be ready to take on more last-minute jobs such as collision repairs. Therefore, we never know what the day will bring – a challenge that keeps us on our toes!

“CULTURAL EXCHANGE AND UNDERSTANDING IS A FUNDAMENTAL ELEMENT OF DOING GLOBAL BUSINESS.”

JOHN ZHOU
MANAGING DIRECTOR, DAMEN CHINA SUPPORT COMPANY
STARTED AT DAMEN: OCTOBER 2015

I was born in Shanghai in 1982 – so I am part of the Chinese ‘Generation 80’ who have witnessed and contributed to rapid national changes. I have also learned a lot about Western culture by working and studying in Europe as well as Australia and New Zealand.

My role in Damen is to boost business opportunities in China and increase synergy between related Damen companies. My overseas investment and management experiences as well as industry relations have made me recognise that cultural exchange and understanding is a fundamental element of doing global business.
The global shipping industry is set to become much cleaner within a couple of years. This is due to new IMO regulations, taking effect from 1st January 2020, which will see the implementation of a global 0.5 percent sulphur cap on vessel emissions. In order to comply with the new regulations, shipowners are faced with two choices.

The first option entails switching from conventional heavy fuel oil (HFO) to more expensive low-sulphur fuels. The second option involves exhaust gas cleaning systems; by installing a ‘scrubber’ that removes SOx from emissions, a vessel can continue sailing with the cheaper, and more accessible, HFO.

Clever combo
With an ‘old-school’ way of thinking, the installation of a scrubber is a process that usually takes a number of weeks. During this time the vessel comes into dock, and is therefore inactive and non-profitable. To combat this inefficiency, a smart combination of two Damen companies ensures that scrubber installation can take place in a matter of days instead of weeks. Damen Green Solutions has teamed up with Damen Shipyards Harbour & Voyage (DSHV) to offer a true ‘on-stop-shop’.

“We handle all aspects of a scrubber retrofit project – from the initial 3D scanning on-board, engineering, purchase and supply of equipment, all the way to installation, Class approval and commissioning,” says Stef Loffeld, Project Manager at Damen Green Solutions. “And, in order to keep the whole process financially attractive, our number one aim throughout is to maximise a vessel’s uptime.”

Preparation is the key
This is where the expertise of DSHV comes in. Part of Damen Shipyards & Conversion, this is a dedicated team of people who have the skills to take on the same activities as one of Damen’s ship repair yards. “The only difference is that we do all this when the ship is operational,” explains Ton van Tour, Senior Project Manager at DSHV. “We work around the ship’s normal routine; we do all this when the ship is operational. This allows us to quickly set up installation facilities where and when required on a global basis.”

“We have the knowledge to set-up ‘service hubs’ anywhere in the world – including at non-Damen locations,” says DSHV Project Manager GRE Ronald Hofstede who is licensed by NOV FGS to train pipefitters in the assembly of Bondstrand GRE pipe systems and submit certificates to the persons involved. “This allows us to quickly set up installation facilities where and when required on a global basis.”

Follow the ship
The efficiency of this working method can also be seen in the supply of the scrubber. Stef explains: “Our partner VDL AEC Maritime prefabricates the scrubber from standard modular components while the vessel is still operational. This allows us to install their IMO-certified scrubber system with minimal downtime, while keeping costs to a minimum.”

Stef is keen to point out the broad scope of Damen’s scrubber solutions, especially in light of the sheer geographical scale of international shipping. “The owner and his contracts determine where a vessel sails. It is our job to follow their planning, wherever that may take us. And we can provide that global coverage. And considering the tight deadline, if vessel owners wants to comply by the first of January 2020, then they need to talk to us sooner rather than later.”

SOx - A QUICK RECAP
SOx or sulphur oxide is a general term for a large number of compounds containing sulphur and oxygen. Sulphur monoxide (SO), sulphur dioxide (SO2) and sulphur trioxide (SO3) are a few examples. SOx contributes to local and global air pollution in addition to causing human health problems. According to IMO estimates, the 2020 Global Sulphur Cap Regulations will affect around 70,000 ships.

This way of working is inherently flexible. Depending on the client’s wishes and operations, we can find a window of opportunity to carry out our work,” Ton notes. He uses a recent project to illustrate this point: “This particular vessel had a layover every weekend. So we used these weekends to complete all the preparation work for the scrubber installation. This included constructing the scrubber foundations and associated piping and electrical works, and a deck-based module to hold auxiliary equipment such as pumps, heat exchangers and separators.” Once the preparatory work is complete, installation of the scrubber can take place from the dockside in a process that typically takes about three days.

“We have the knowledge to set-up ‘service hubs’ anywhere in the world – including at non-Damen locations,” says DSHV Project Manager GRE Ronald Hofstede who is licensed by NOV FGS to train pipefitters in the assembly of Bondstrand GRE pipe systems and submit certificates to the persons involved. “This allows us to quickly set up installation facilities where and when required on a global basis.”

For the IMO 2020 global sulphur cap
FOR THE IMO 2020 GLOBAL SULPHUR CAP
Marking the continuance of this strong position, 2018 has seen some new faces at the yard. Eric Moerkerk is currently working as Deputy Director. The son of long-standing fishing families (from both his mother’s and his father’s side), his connections with Maaskant go back to the times he spent at the yard as a boy.

Efficient power management

This year also sees the introduction of a new range of fishing vessels, based on a Vripack Naval Architects design that will set new benchmarks for the entire sector. The range comprises three designs of gross tonnage: 340GT, 400GT and 500GT. “They all have the same look and can be fitted out with diesel electric or conventional diesel depending on what the client wants,” Mr Moerkerk explains. The range of vessels could also be outfitted with electric winches (instead of the more traditional hydraulically-powered). “Electric systems have the big advantage of being easier to maintain and actually generate electricity while the winches are paying out.”

Home away from home

Maaskant is also offering the option of a battery pack throughout the range. Activities such as taking in the winches and sailing in and out of port could all be performed under electric power. “Battery technology is advancing fast, so we have a spare reserved for the battery pack, allowing a client to wait as long as possible to confirm the components to gain the maximum advantage.”

Creating the WOW

A new range of vessels is always accompanied by a so-called launching customer. And this is where Dutch fishing company Ekofish Group enters the equation. Family-owned Ekofish has a history that goes back more than a century. The company’s working practices are a result of a rich fishing heritage and a sustainable way of thinking. “We have a long-term vision where we want to be in ten years’ time,” states company Director Louwe de Boer. “This new vessel matches that vision exactly.”

Ekofish approached Vripack Naval Architects with their ideas: “Our starting point was to use the same fishing gear, but with a 30 percent reduction in fuel consumption. In terms of design, we wanted a ship with the ‘wow’ factor — we wanted to go something new from the bottom of the keel to the top of the mast.”

“We presented the design to Maaskant, and they also had that ‘wow’ feeling,” adds Mr De Boer. “Then it was time to combine Damen’s knowledge, experience and ability with the Vripack design.”

Why Damen?

When asked about Ekofish’s motivation to select Damen Maaskant as construction yard, Mr De Boer is certain of the choice: “A Maaskant boat is the top of the range,” he smiles. Backing up this notable statement with some hard facts about another Maaskant vessel in his fleet. “This was built here 33 years ago. It is still going strong — its last Lloyd’s special survey only took two days!”

The new vessel is currently under construction: “It’s future-proof. With three compact generators and a battery pack, it will be in line with stricter emissions regulations. With the on-board fish handling equipment, we will be combining sustainability with quality of product because we want our consumers to have the ‘wow’ factor too. And, with its looks, our ultimate aim is to win 2019 Ship of the Year.”

“Electric systems have the big advantage of being easier to maintain and actually generate electricity while the winches are paying out.”

ERIC MOERKERK

ACHIEVING THE WOW FACTOR

A NEW RANGE OF FUTURE-PROOF FISHING TRAWLERS

With 70 years of experience in the fisheries sector, Damen Maaskant Shipyards Stellendam is a prime example of how some Damen yards have developed their expertise into niche markets. Operations have been the responsibility of Director Frits van Dongen for the last 25 years, and in that time the yard’s reputation has grown to an enviable status within the Dutch, as well as the wider European, fisheries industry. A dedicated workforce and close client contact combined with steadfast designs that have not shied away from innovative ideas have been the cornerstones of the yard’s success.
Damen Shipyards Cape Town (DSCT) is proud to have been awarded a second major contract from the South African Department of Defence.

After a public tender, DSCT received the order for three 62 metre, multi-mission Inshore Patrol Vessels (IPV) in December 2017. Not only is this an important contract for the wider development of South Africa’s shipbuilding and maritime industry, it also contributes to the country’s Broad-Based Black Economic Empowerment (BBBEE) programme and it highlights how Damen’s specialised companies work closely together, even though they are in different parts of the world.

Armscor, the acquisition agency for the South African Department of Defence, ordered the three IPVs – known as the Damen Stan Patrol (SPa) 6211 – as part of the government’s efforts to boost maritime security. These state-of-the-art vessels will enable the country to tackle threats such as illegal trafficking and fishing swiftly and more cost effectively.

DSCT received the latest contract exactly four years after an order to deliver vessels for a previous project for the South African Navy known as ‘Project Canter’. On this occasion the shipyard built two Damen ATD 2909 Tugs for the South African Navy.

**Sea Axe hull**

The new Inshore Patrol Vessels will be the first vessels with a Damen-patented, Sea Axe hull design to operate in South Africa. Jos Govaarts, Project Manager, says the Sea Axe offers exceptional seakeeping behaviour, which is particularly important in South African waters.

*The Damen SPA is a very successful series and the Damen SPA 5509, 4207, 5009 and 6211 are very well known amongst coastguards all over the world. These vessels can keep going in search and rescue operations whatever the conditions. The Sea Axe hull is designed for high speed, even when seas are challenging like they often are around the Cape of Good Hope!*

This important contract will mean that the Cape Town yard will be embarking on a recruitment campaign and is likely to employ another 100 people in various disciplines, from welding and pipe fitting to steelwork.
Training School
Damen will be training many of the new employees at its own Training School, based at DSCT. Damen’s Technical Support Team will be working with the new recruits throughout the six-year project.

This IPV project also highlights Damen’s commitment to the South African Government’s ‘Operation Phakisa’ initiative, which aims to unlock the potential of the country’s maritime industry and develop the shipbuilding sector. This aims to provide people with opportunities and supports the country’s economy at the same time.

Local suppliers
As well as training and employing local people, Damen is supporting the government’s Enterprise Supplier Development (ESD) programme. This programme encourages companies to support small and micro-businesses in the country, rather than using the traditional, international suppliers. Jos comments: “The government is making substantial investments in its maritime and shipbuilding industry and this initiative gives smaller companies opportunities and we are keen that they are optimally involved in this project.

“In turn, this will develop the shipbuilding industry further and it also enables DSCT to be an even more competitive yard. It has always been the aim of Damen Shipyards Group to become more active in South Africa via its Cape Town yard.”

This latest order brings together the vast knowledge of the group. Damen Schelde Naval Shipbuilding (DSNS), which has naval roots dating back 140 years, will be assisting with the combat systems. “DSNS will share its experience and knowledge of combat system integration, being a centre of excellence for any defence requirements. It will be supporting and be a supplier to DSCT. Damen headquarters in the Netherlands will also be lending its support, particularly the team from the High Speed Craft product group. DSCT has the local knowledge and a longstanding relationship with the South African Navy dating back many years. They will all make their contribution to ensure the success of this complex project.”

Armscor is managing the whole project on behalf of the Department of Defence and it will have a team at DSCT, as will the South African Navy. “There was a similar setup during the Canter project for the tugs. This was a very successful cooperation and we also did the Integrated Logistics Support as well. We learned how we could support each other and work together.”

Long-term support
This year DSCT is largely focusing on the design of the vessels, supported by Damen’s High Speed Craft department and DSNS. By the end of the year the detailed design will be ready for construction to start in 2019. The first IPV is due to be handed over in 2021, and the second and third in 2022 and 2023. Meanwhile, Damen is developing an integrated supply chain, optimising the use of local content and expertise. Jos stresses: “We aim to support the supplier after procurement. It is not just about the construction of the ship, but also logistical support, and we are developing a full maintenance plan.

“Damen will be training the crew in the operation of the vessels, but also in maintaining them. The full lifecycle costs are fully integrated into the design and construction. We will support our client and the suppliers throughout; responsibility doesn’t stop after delivery.”

For Jos, the strength of the team is vital to the success of this multidisciplinary project. “We have established ONE team, even though they maybe on different continents. They are really great professionals, mixing and matching together.

“We all work together, whether from Vlissingen and Gorinchem in the Netherlands or from Cape Town. This shows how we can be successful as the Damen Shipyards Group – it is the strength of our company!”
Damen is proud to be supporting Team AkzoNobel in the 2017-18 Volvo Ocean Race that sends teams in racing sailboats on a 45,000 mile course around the world. Keeping these boats in top condition is vital to success and so Damen applied its experience in ship maintenance to fit out two containers as state-of-the-art mobile technical operations units for the team. Together with the shore crew, they await the 65-foot monohull at each stop, ready to undertake repairs of all kinds within the limited times allowed.

“We saw an opportunity to support team AkzoNobel with the experience we have gained in providing services to our customers,” says Damen Project Manager Olivier Stuip. “Damen operates yards and service hubs all over the world, from which we assist our clients in keeping their vessels performing safely and optimally. By applying our understanding of logistics and partnering we have developed with the team a support package to assist them in their Volvo Ocean Race challenge.”

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COOL CANS CAN BE COOL
DAMEN CAN COOLER
You can keep your cans cool with this cool Damen can cooler. How cool is that?

LITTLE GREY BAG
DOCUMENT BAG
Carry your documents in style with this handy Damen bag.

COLD? WEAR SOME BOTTLES
RECYCLED DAMEN FLEECE
Be suave and sustainable with this Damen fleece, which is made from recycled plastic bottles.

FERRY NICE
DAMEN FERRY MODEL
Scale model of a Damen Ferry to brighten up your workspace.

SHINE
POCKET LIGHT
Shine bright like a Damen (light)
Come fly with us.

Robust vessels for heavy duty jobs.

Strong, sure, slender & as swift as the wind. The lightness of Damen’s pilot range belies the boats’ extreme strength. Designed with combined performance and safety in mind, the boats don’t just guide ships into port - they also deliver confidence as standard.