

# PASSION

PALFINGER MARINE MAGAZINE | N°1/18

JOHAN SVERDRUP

## FIRST FULLY ELECTRIC OFFSHORE CRANES

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Cruise:

**SELLING THE SEA**

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Winches and Handling Equipment:

**CONNECTING THE WORLD**



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**FIRST FULLY ELECTRIC OFFSHORE CRANES**

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**CREDITS AND DISCLAIMER:**

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Gunther Fleck

Dear customers, partners and friends,

Dealing with the downturn in the oil and gas market, as well as the challenges in the marine industry, has become part of our everyday business. As a deck equipment supplier, we are at the heart of recent market developments. Thus, we are required to develop successful strategies for a volatile market environment characterised by declining investments. The main question is how can we adapt to a market that will be constantly changing in the future.

In PALFINGER MARINE, we continue to offer innovative products and services to our customers. We actively initiate change rather than reacting to it, and we offer a broad, diverse product portfolio that is applicable to a range of segments. Our approach is to invest in people, innovations and ideas. A passion for top-performance can only be developed and brought to life by our employees, who give everyday their best to ensure our success in a difficult market environment.

In this edition of PASSION, we focus on the individuals behind our projects. In a market experiencing a severe downward spiral, PALFINGER MARINE was awarded a contract for seven fully electric wire luffing offshore cranes and free fall lifeboat systems for Johan Sverdrup. Being chosen as supplier for this prestigious venture is a huge success for our team. Let us take you behind the scenes to meet the people involved in the project.

Beyond oil and gas, other market segments are experiencing growth and PALFINGER MARINE is benefiting by delivering customised products for pioneering projects. Join our Sales Manager for a polar cruise on the Crystal Endeavor. There's certainly no need to fear for your safety thanks to our lifesaving equipment and cranes. After exploring the polar regions, it's time to meet our Sales Director for Winches and Handling Equipment onboard the cable laying vessel NKT Victoria. He is eager to show you around the Ship of the Year 2017.

We recently launched the PALFINGER MARINE Stories blog on our website. This digital version of PASSION magazine provides even more updates and news. Stay up-to-date, meet the people behind the products, and learn about our latest innovations. Be part of our community!

I hope you enjoy reading the stories of our PASSION magazine.

Kind regards,



**Gunther Fleck**

Executive Vice President Sales and Service  
PALFINGER MARINE



# LIFTING THE NORTH SEA'S PETROLEUM POTENTIAL

Located in the middle of the North Sea, some 160 kilometres from Norway's west coast, Utsira Height might not seem like the site of much activity. It has, however, quickly become one of the most exciting places for PALFINGER MARINE. And that's down to something well below the surface, and even the seabed, at a depth of 1,900 metres.

**SALES DIRECTOR JAN SILGJERD IS WORKING ON ONE OF HIS MOST EXCITING PROJECTS YET. HERE HE SHARES WHAT IS, QUITE LITERALLY, IN THE PIPELINE.**

Johan Sverdrup is one of the five largest oil fields on the Norwegian continental shelf, harbouring a massive two to three billion barrels of oil. Discovered in 2010, the site will be one of Norway's most important projects over the next 50 years - and the PALFINGER MARINE team is delighted to have been working with Statoil every step of the way.



## THE OPEN TECHNICAL DISCUSSIONS AND CLOSE COOPERATION WITH STATOIL'S AND AKER'S TEAM THROUGH THE ENTIRE PROJECT HAVE BEEN REMARKABLE.

Jan Silgjerd  
Sales Director - Cranes

1. Simulations on our test tower with (l. to r.): Per Killingmo (Aker Solutions), Marcin Piotr Sikora (DNV GL), Lennart Sæle and Hans Martin Hansen (Statoil), Jan Silgjerd (Palfinger Marine)  
2.-4. Hundreds of tests were conducted at our production site in Gdynia, Poland

The Johan Sverdrup project has been a true team-effort, with a handful of colleagues from the sales, technical, project and production teams working together on the quote for over two years. Jan Silgjerd played a key role on the team. The Sales Director in the Product Division Cranes was excited to win the contract for seven DKW2500 wire luffing cranes: "After a 20-year career in the industry, I was incredibly proud to be a part of the Johan Sverdrup project." Hailing from the small Norwegian village of Nedstrand close to Haugesund, Jan studied at the South Dakota School of Mines and Technology in the US. He has worked at PALFINGER MARINE since the company acquired his former employer, Bergen Group Dreggen. "In early 2014, when I was meeting with Statoil about another project, they were already in the tendering phase

for Johan Sverdrup. That's when they first considered us as a potential crane supplier and we were invited to the pre-qualification audit. In the course of this audit, they carefully examined our financials, technical skills, HSEQ procedures and conducted a production site visit, where we showed them our reference projects in production. The open technical discussions and close cooperation with Statoil's and Aker's team through the entire project have been remarkable. Statoil's expert team contributed with their operational experience and our engineers implemented these improvements in the design. The result is a product, which we are extremely proud to deliver to the market and to this prestigious project." PALFINGER MARINE and Statoil officially signed a contract in June 2015.

His colleague Patryk Siejka is leading the project, with four project managers and a ten-person technical design team reporting to him, as well as assembly and supervision teams in Poland and South Korea. Patryk knows every detail of the complex design and production process: "From the design phase kicking off to the cranes being delivered takes between 16 and 20 months." Each crane is 18 metres high and weighs 180 tons above the slewing bearing, with a safe working load of 60 tons at 40 metres and 25 tons at maximum outreach of 57 metres. The cranes are designed to operate safely in extreme North Sea conditions, with waves of up to six metres in height.

There's something particularly special about these cranes, however, and it lies in the technology they boast – the likes of which no company has delivered in an offshore crane in the North Sea before. Fully electric, the cranes have safety features like AOPS and MOPS (Automatic and Manual Overload Protection Systems) and are the North Sea's first cranes to be driven by standard AC motors for use in hazardous areas designed according to the highest EN and NORSOK standards. The design was developed to optimise the reaction times of the winch in dangerous

situations in order to avoid overloading the crane. Their software was designed and tested to be able to handle any kind of situation that could occur on the platform.

### A PERIOD OF RIGOROUS TESTING

"A huge amount of time has been dedicated to testing the cranes at the production site in Gdynia," says Patryk, who's originally from Poland and has been living in Bergen since 2010: "This is a critical part of the process." After all, Johan Sverdrup will represent 40 per cent of Norway's oil production, there's no room for error. "As the cranes are the first to be delivered to the North Sea with this technology, we instigated a TQP with Statoil." Led by Olav Ellingsen, the TQP – or Technology Qualification Program – ran from June 2015 until Autumn 2017 and was one of the most in-depth tests ever conducted for offshore cranes. It included rigorous testing of the AOPS and MOPS, as well as simulations of extreme conditions on a custom-built 13-metre-high tests tower. Hundreds of different tests were conducted to ensure that the cranes are as safe and efficient as possible.



## WE DID HUNDREDS OF DIFFERENT SIMULATIONS - THESE WERE SOME OF THE MOST IN-DEPTH TESTS EVER CONDUCTED FOR OFFSHORE CRANES.

Patryk Siejka  
Head of Project Management Norway and Poland

The Factory Acceptance Test (FAT) came next, involving PALFINGER MARINE employees from several departments, as well as principal engineers and crane operators from Statoil. Engineers from Norwegian oil services company, Aker Solutions, and representatives from class society DNV GL also witnessed the testing. As a team, they inspected each crane, performing functional and safety tests, as well as speed, load and overload tests. "This took almost four weeks for the first crane," says Patryk, "but testing the following ones only took about a week, as they're identical in design." At the time of publication, three cranes have successfully passed the FAT and two cranes have been delivered to Aibel yard in Haugesund, Norway, where the drilling platform is being built. To install the seven cranes, pedestals for each have also been produced – three in Poland and four in South Korea – varying from 8.3 to 25.6 metres in height and weighing up to 130 tons.

The two cranes for the drilling platform were installed with the help of a floating crane and a seven-man crew from PALFINGER MARINE, who secured and bolted them onto pedestals. Conditions were restricted, requiring a maximum

swell of half a metre and maximum winds of six metres per second. After all, with the crane reaching 90 metres above the water's surface, seemingly small wind and wave movements can make a massive difference when it's in operation. Thankfully, the team was able to complete a successful delivery and installation in one week.

### A COMPLETE DECK EQUIPMENT SUPPLIER

For the Johan Sverdrup project, PALFINGER MARINE is not only delivering state-of-the-art offshore cranes, but also lifesaving equipment and first-class fenders. The fender department was involved at an early stage, discussing technical solutions for the different fendering requirements with the Aibel yard. "Eight 2.5-by-5.5-metre fenders were shipped from our factory in South Korea, fixed fenders have been installed at the quay and large jumbo fenders will be mobilised from our rental stock point in Haugesund," explains Helge Tangerås – Sales Manager, Fender Systems. "They will assist the yard when heavy-lift vessel Pioneering Spirit arrives to transport the topsides to Johan Sverdrup in Spring 2018."



1. Nine free-fall lifeboat systems in one structure | 2. Johan Sverdrup living quarters (© Statoil ASA) | 3. Free-fall testing

# JOHAN SVERDRUP NINE FREE-FALL LIFEBOAT SYSTEMS, ONE IMMENSE STRUCTURE

## ERLEND BØYUM IS ON THE TEAM BEHIND THE DELIVERY OF LIFESAVING EQUIPMENT FOR THE JOHAN SVERDRUP PROJECT.

Imagine strapping yourself into a lifeboat with 69 colleagues and free falling into the North Sea from a height of 29 metres. That's what workers on the Johan Sverdrup oil rig need to train and prepare for in case an emergency strikes. PALFINGER MARINE won the contract to deliver nine FF1200 systems including one movable top unit, which will be mounted onto the platform's living quarters.

<b>9 x FF1200 systems consisting of:</b>
9 x FF1200 lifeboats
9 x LA1200SU davits
1 x Moveable top unit including W165HCT winch

### JUST MILLIMETRES OF ROOM FOR ERROR

Erlend Bøyum is the Senior Project Manager for the job. "In the past we had only delivered up to four systems in one structure. The Johan Sverdrup project required nine," he says. "The physical dimensions presented a real challenge, as the structure has a total length of around 55 metres and a tolerance of less than one centimetre. However, we knew we had the skills and experience to manage the job successfully."

The system's incredible size isn't the only thing special about the equipment delivered to the Johan Sverdrup site: "The lifeboats are a standard model according to our frame agreement with Statoil, but they are the first to be delivered with Lifeboat Navigation Assistant, including Automatic Escape System." This special technology includes a servo steering unit and an autopilot that is activated during free-fall and guides the lifeboat away from the platform in an emergency situation.

### HOW TO TEST A FREE-FALL LIFEBOAT

According to regulations all lifeboats need to be free-fall tested before being taken into service. Needless to say, testing this equipment was an extensive process. "To minimise the amount of offshore testing we drop tested all lifeboats at our location in Seimsfoss, Norway: once from 29 metres and then nine times from 33 metres," Erlend says. Lasting five days, visitors came from K2JV and Statoil - the client and end customer respectively - as well as DNV GL and Sintef Ocean, who documented g-forces and other important measurements.

## THE JOHAN SVERDRUP PROJECT IS A BIG ONE: WE HAD TO WIN THIS PRODIGIOUS PROJECT IN STRONG COMPETITION AND A TOUGH MARKET.

Oddgeir Mælen  
Sales Manger - Lifesaving Equipment

### FROM PROJECT SIGNING TILL DELIVERY

Erlend's colleague Oddgeir Mælen, Sales Manager in the Product Division Lifesaving Equipment, was responsible for

the project from the early stages in 2013 until the contract was signed. The Johan Sverdrup project is a big one: "We had to win this prodigious project in strong competition and a tough market. That's something we're really proud of".

The project was then handed over to Erlend. Production ran from early 2016 to mid-2017, with the davits delivered in September 2017 and the lifeboats being stored at our location in Ølve until delivery in May 2018.

Erlend's involvement in the Johan Sverdrup delivery isn't wrapping up just yet though: "Installation and testing on the platform will continue throughout next summer and we still have weekly meetings with the customer," he says, "but we are delighted to have finished the equipment on time and to their satisfaction."

# SELLING THE SEA



Alex Letzner  
Sales Manager - Cruise

The worldwide cruise industry generated approximately 37.8 billion Dollars in revenues in 2017, making it the fastest-growing field in the leisure travel market with constantly rising passenger numbers. 2017 was yet another record year with 25.2 million cruise passengers worldwide. In total, 365 cruise ships were crossing the seas.

Cruise Sales Manager Alex Letzner is bubbling with enthusiasm due to the latest industry reports: "The outlook for the future is promising. By 2027, the yearly passenger numbers are expected to be 38.1 million and there will be 434 cruise ships in operation. The cruise ship order books are full. This represents a huge market potential for us, considering all these new ships need lifesaving and deck equipment", Alex smiles.

## Talking about lifesaving equipment - how many lifeboats must a cruise ship carry?

"I can tell you SOLAS (Safety of Life at Sea) contains extensive rules about all aspects of lifesaving equipment (LSE), including the location, as well as the number and size of lifeboats. Generally speaking, modern passenger ships must carry enough lifeboats on each side of the ship to accommodate no less than 50 per cent of the total number of people on board. In other words, both sides of the ship combined must offer capacity for at least 100 per cent of all passengers.

Alternative evacuation systems provide the exception that only 75 per cent of all passengers on board need to have a seat in a lifeboat. In such cases, sufficient lifeboats and life rafts to accommodate 125 per cent of the total number of people are required. In my experience, most of the new passenger vessels are built in accordance with this regulation, because their design simply doesn't allow enough space to accommodate more lifeboats. As you can imagine, this rule is not very popular among us lifeboat manufacturers."

## Apart from lifeboats - which other lifesaving equipment is required on a cruise ship?

"A larger cruise ship not only needs to be equipped with lifeboats, but also needs to feature at least one fast rescue boat on each side of the ship for man-over-board rescue missions. For shuttling passengers ashore, when no pier facilities are available or when the water is too shallow for ships to get closer to the shore, tender boats are used. Combined tender/lifeboats serve two purposes at the same time. They can transport passengers ashore and are also fully equipped to be used as a lifeboat in emergencies."

## Does PALFINGER MARINE cover the entire lifesaving equipment portfolio?

"Yes, we offer a full range of partially enclosed lifeboats and combined lifeboat/tender systems as well as fast rescue boats. All our boats can be delivered with customised davit systems."



Infographic according to Cruise Industry News

PALFINGER MARINE's partially enclosed lifeboats, referred to as MPC series, impress with excellent maneuverability, a spacious interior, and their user-friendliness. The MPC-49 with a capacity of up to 450 persons is, for example, the largest lifeboat available on the market.

"Generally speaking, we are currently selling more combined tender/lifeboats than lifeboats. Our CTL series can accommodate between 150 and 270 people when used as a lifeboat and 120 to 220 passengers when used as a tender boat. The CTL 38 with a capacity of 150 people is our bestseller", he explains.

## Can you tell our readers more about the sales process in the cruise business?

"We get involved at an early stage of project development. For larger new-build projects, the design phase can take two to three years. We enter the picture as soon as the main vessel parameters like speed, capacity and hull are defined. Usually, our first point of contact is the design company. They reach out to us or - from time to time - we approach them. Finland has evolved to a competence centre in terms of cruise ship design. Foreship and Delta Marine, both headquartered in the country, are the design companies involved in most large new-build projects. At the time we provide initial information, including data sheets and technical drawings, we usually don't know too many details about the project. We neither know the name of the shipyard in charge, nor the name of the customers. Such projects are highly confidential. Once we receive a call from the shipyard, we know that our efforts have paid off. Finally, we enter a business relationship with the shipyard that has been contracted to build the cruise ship. For upgrade and refitting projects we are usually in direct contact with the shipyards without the involvement of design companies."

## When talking all the time about lifesaving equipment... Can you tell us a little about the cranes on cruise ships?

Our marine cranes can be used for all kind of lifting operations on board. The compact design of our foldable knuckle boom

cranes is a perfect fit for cruise ships with limited space. Our PK 150002 M crane is, for instance, placed on top of the world's largest cruise ships such as Harmony of the Seas and Symphony of the Seas, where it is used for cargo handling from upper to lower decks. For the private super yacht Ulysses - a niche segment - we delivered a total of eight cranes. Two of the largest, custom-designed heavy duty foldable knuckle cranes (PFM 4500) are used for lifting the 21-metre tender on and off the foredeck. Additionally, two PK 90002 M extension booms mounted on each side of the yacht facilitate the launching of smaller vessels, while our PC 2700 compact cranes are used for internal lifting purposes."

## Cruise ships are truly impressive vessels. Can you tell us where these giants of the sea are built?

"Most new cruise ships are built in European shipyards such as Meyer Turku Oy (Finland), Meyer Werft (Germany), MW Werften (Germany), Fincantieri (Italy), and STX France (France). In my opinion, these are the main players. We are on excellent working terms with all of them. I guess our longest business relationship is with STX France, formerly known as Chantiers de l'Atlantique. For the prestigious Queen Mary 2, which was built by STX, we delivered the complete LSE package. However, Asian yards have started moving into the cruise ship market and we are actively approaching them too."

## Which upcoming project are you most excited about?

"There are some exciting projects on my desk and the entire team is working hard to realise them. Celebrity Edge, built by STX France, is a hot topic I am really passionate about. It is the latest breakthrough in modern luxury travel with an unbeatable design and technical innovation. For the 2,918-passenger ship, we will deliver eight tender/lifeboats, four lifeboats, two fast rescue boats, and fourteen davits. Except for the rescue boats, the entire equipment has been newly developed for this project. In total, there are three ships on order and we hope to realise two further options."

Queen Mary 2



# THE FINAL FRONTIER

Until recently, travelling to the Arctic was a dream that could only be realised by a small number of explorers, typically funded by national treasuries. Travel to the Antarctic was even more limited, especially as the continent was only discovered in 1820. The increasing demand for journeys to exotic places has caused a dramatic increase of "traffic" in polar areas. Expedition cruises to the Arctic and Antarctic

THE POLAR ICE CAPS HAVE DEVELOPED INTO POPULAR CRUISE DESTINATIONS. PALFINGER MARINE IS AT THE FOREFRONT OF THIS TREND.

are booming. These voyages are unparalleled and cannot be compared with ordinary cruises. It is not enough to simply take a ship built for the Mediterranean and place it in polar waters. Ships operating in the Arctic and Antarctic are exposed to a greater number of risks. Poor weather conditions, as well as a lack of good sea charts, communication systems, and other navigational aids, are but a few of the challenges for mariners.

Cold temperatures can affect vessel components ranging from deck machinery to emergency equipment and the remoteness of these areas makes rescue operations both difficult and costly.

## POLAR CODE - TOUGHEST REGULATIONS FOR EQUIPMENT

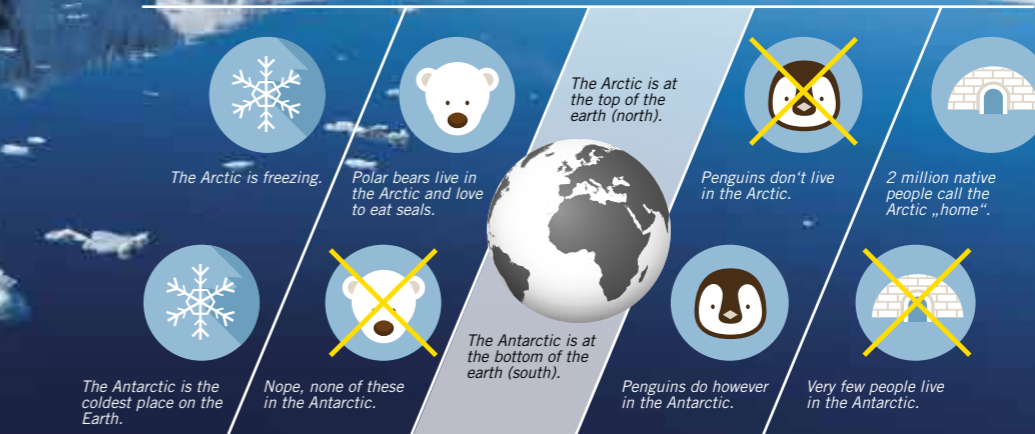
The IMO Polar Code, which came into effect at the beginning of 2017, defines mandatory standards for ships operating in such environments. These cover design and construction, equipment, operational, training, and environmental protection issues. Generally, the Polar Code is divided into two main sections. One deals with the safety of the ship and its passengers, while the other pertains to the protection of

the environment. Its rules go above and beyond existing requirements such as those governing prevention of pollution from ships (MARPOL) and safety of life at sea (SOLAS).

One of the Polar Code regulations that influences the type of equipment used on cruise ships relates to the maximum expected rescue time. In polar regions, ships in distress have to be prepared to wait for a few days until rescue and assistance arrive. According to the Polar Code, the maximum expected time of rescue is five days. Therefore, all equipment and rescue systems have to be fully operational at polar temperatures for the entire maximum expected rescue time. The Polar Code also demands that all lifeboats need to be partially or fully enclosed.



## THE ARCTIC



## THE ANTARCTIC

Polar regions are a booming tourist destination.



### DECK EQUIPMENT SUPPLIER FOR FIRST-EVER POLAR CODE COMPLIANT EXPEDITION MEGA YACHT

PALFINGER MARINE supplies premium quality equipment for ships operating in these harsh and challenging environments. Recently, they secured the contract for the delivery of lifesaving equipment and cranes to MV Werften. The German-based shipyard is building the luxury expedition mega yacht Crystal Endeavor for the US cruise line Crystal Cruises. Crystal Endeavor is Polar Code compliant with a PC6 Polar Class designation. It is specially designed for operation in the Arctic, Antarctic, and also in the tropics. With a length of 183 metres and a gross tonnage of 25,000 the mega yacht will provide accommodation for 200 passengers and the same number of crew members.

For optimum safety on board, PALFINGER MARINE will supply Polar Code compliant lifesaving equipment. The delivery includes two partially enclosed lifeboats, two combined tender/lifeboats, two fast rescue boats, and corresponding davits. Each lifeboat has room for 150 people. The combined tender/lifeboats offer the same capacity when used as lifeboats. In their role as tender boats, they can accommodate up to 120 passengers. The interior of the tender boats is

custom-designed, thus ensuring an unprecedented level of comfort to passengers on their way to the shore. Onboard mini bars, comfortable seats, and toilet facilities are among the add-on features. The new generation of fast rescue boat FRSQ 630 is also part of PALFINGER MARINE's delivery to MV Werften. This safe, fast, and agile boat is a perfect fit for the rough sea conditions in polar regions.

### EQUIPPED FOR ADVENTURES IN THE AIR, AT SEA, AND ON LAND

Crystal Endeavor will be equipped with helicopters and landing pads, a submarine, and inflatable excursion boats for adventures in the air, at sea, and on land.

The foldable knuckle boom cranes - one positioned on each side of the ship - are used for the launch and recovery of the inflatable excursion boats. Due to their compact design including a power pack in the crane base, they are the ideal choice for areas where space is limited, which is definitely the case on a cruise ship. Compared to a davit, which is usually only used for the launch and recovery of one specific boat, our foldable knuckle boom cranes with an outreach of 12 metres are capable of reaching and lifting any of the nine inflatable excursion boats that are placed on different decks.

For handling the submarine, PALFINGER MARINE is delivering an electric overhead travelling crane. The crane with a safe working load of eleven tons will be used for lifting the submarine from its position through a shell door before launching it. When the submarine returns from its expedition, the crane will recover it from the sea surface and return it to its initial position below deck. In general, all lifting operations will be conducted without passengers aboard.

"Submarine handling is not our daily business. Our custom-built crane is based on a concept that has been developed in close collaboration with the shipyard. With very limited space available below deck, we designed a compact crane that is able to perform the required tasks and fits into the designated space. To make transportation and installation more convenient, we agreed that the crane will be built in three modules. The first module will be delivered by mid-2018", says Adam Pasiak, Sales Manager - Cranes. The mega yacht that is being built at MV Werften in Stralsund is scheduled to be delivered to the luxury cruise line Crystal Cruises by the end of 2019.

"We are proud to have been chosen as supplier for such a premium-class project. This proves that we are among the market leaders in this niche segment. All product divisions collaborated to secure the contract: the technical departments have done an excellent job and we came up with the right proposals during the sales phase. This brings us one step further in being recognised as a complete deck equipment supplier in the cruise market", says Alex Letzner.

#### SCOPE OF DELIVERY:

##### Lifesaving Equipment

2 Lifeboats (MPC32)

2 Tender boats (CTL38)

4 Davits for life- and tender boats (PD24H)

2 Fast rescue boats (FRSQ 630 SWJ)

2 Fast rescue boat davits (PRH25E)

##### Cranes

2 Foldable knuckle boom cranes (PK 29002 MC)

1 Electric overhead travelling crane

Crystal Endeavor (© MV WERFTEN Wismar GmbH)



## THE INTERIOR OF OUR TENDER BOATS IS CUSTOM-DESIGNED ENSURING AN UNPRECEDENTED LEVEL OF COMFORT.

Alex Letzner  
Sales Manager - Cruise



CTL 38

# THE NEW FRSQ 630 THE BEST OF BOTH WORLDS

Safe, agile and stable, even in rough sea conditions. That was the brief for designers of the newest generation of FRSQ 630 rescue boats. Intended for offshore, merchant and passenger vessels, the range brings the lifesaving systems expertise of Harding together with that of PALFINGER MARINE's professional boats division - and designing it took expert know-how from employees on both sides.

## FROM DRAWING BOARD TO ROUGH SEAS

With a hull based on Harding's bestselling fast rescue boat and a streamlined console modelled on innovative designs from PALFINGER MARINE's range, designing the FRSQ 630 was a true collaboration. "Using a typical Harding hull and PALFINGER MARINE designs for the deck really combined the best of both worlds. The joint development has resulted in a boat with innovative design and excellent capabilities, ensuring great stability and optimal working conditions," states the development team.

The FRSQ 630 is suited to a range of operations, such as search and rescue, raft assistance and towing, diving support and crew transport. Not only does it have a maximum horsepower of 258 and a top speed of 34 knots, but thanks to its deep V-shaped design, it offers advanced levels of control in sharp, high-speed turns and rough conditions. Serviceability is another of its strengths, as Trond Paulsen Sales Director Lifesaving Equipment

SINCE PALFINGER MARINE ACQUIRED HARDING IN 2016, THE FIRST JOINTLY RELEASED PRODUCT HAS BEEN HOTLY ANTICIPATED. INTRODUCING, THE FRSQ 630.

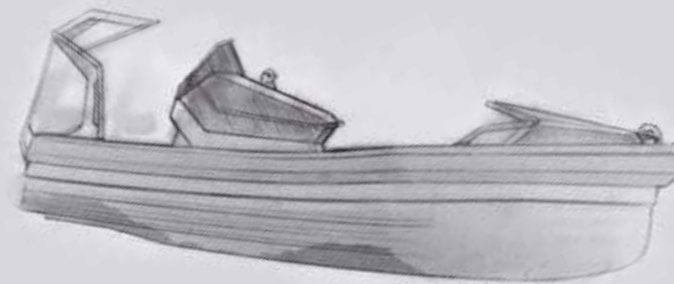
describes: "The FRSQ 630 is extremely maintenance-friendly, with a console that can be lifted off as one - so the engine can be replaced in only two hours."

## A COLLABORATION ACROSS CONTINENTS

The design project kicked off in summer 2016 and saw two members of the Netherlands-based engineering team work with three engineers in Vietnam. Throughout the process, regular feedback sessions were held for sales, service and production teams to give input on the design. Scrum, a project management method, was used to define requirements and work efficiently through the process.

Starting in October 2016, the FRSQ 630s were built in PALFINGER MARINE's production facility in Vietnam - with the first boat completed in March 2017. Thereafter, prototypes were put through such examinations as self righting tests, drop tests, side impact tests and fuel economy tests. The boat was then shipped to the Netherlands where the final feedback was given.

Less than two years have passed since the design project kicked off, but things are moving quickly with the FRSQ 630. Five FRSQ 630 are on their way to Damen yard in Vietnam. For Trond Paulsen, the range's popularity comes as no surprise: "By pairing the renowned PALFINGER MARINE quality with highly competitive pricing, we always believed the market would embrace the new product."



1



2

1. First design idea  
2. 3D visualisation  
3. Testing in the Netherlands



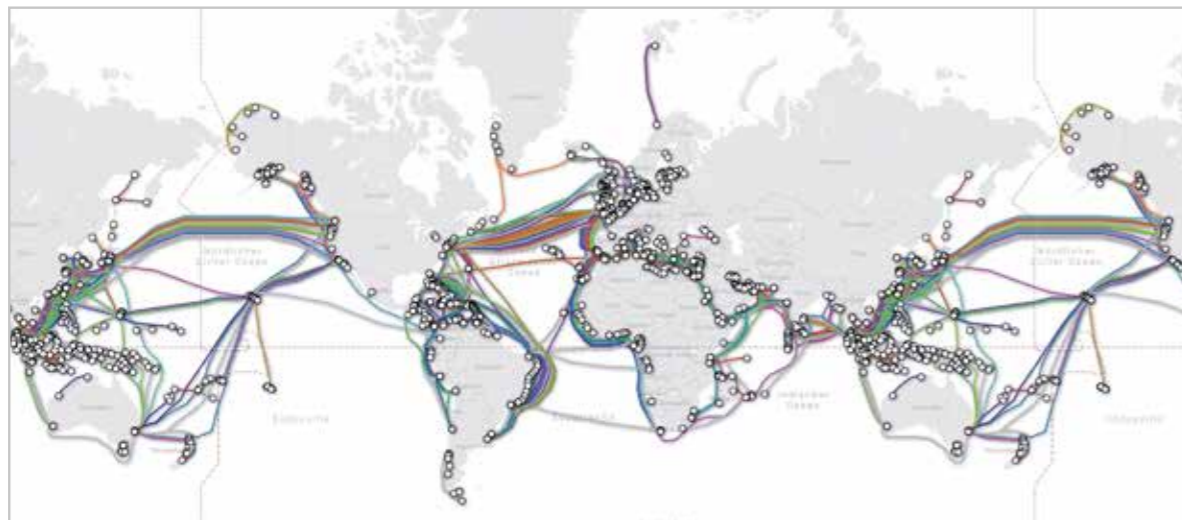
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# CONNECTING THE WORLD

Today, there are over 420 submarine cable-networks in service, stretching over 1.1 million kilometres around the world. The so-called cable-laying vessels are designed to lay underwater cable lines for telecommunication, electric power transmission, or other purposes. Cable-laying vessels perform a wide range of tasks. These include the installation of cables for offshore wind farms, the installation of fibre optic cables for telecommunication, and cable installations for the oil and gas industry.

## PALFINGER MARINE A TRUSTED PARTNER FOR THE CABLE-LAYING INDUSTRY

A common misconception is that most of our information is transmitted via satellites. In fact, approximately 99 per cent of our data is transmitted by submarine fibre optic cables. Submarine communication cables work much faster than satellites. Highly developed optical fibres transmit information almost at the speed of light. Connecting the world via submarine cables has a long tradition. Did you know that the installation of the first transatlantic telegraph cable began as early as 1854? This cable connected Newfoundland and Ireland.



Worldwide submarine cable map (© <https://www.submarinecablemap.com/>)



NKT Victoria (© Kleven Maritime AS)

## “CABLE QUEEN” - NKT VICTORIA

### DECK EQUIPMENT SUPPLIER TO SHIP OF THE YEAR 2017

NKT Victoria is one of the world's most advanced and fuel efficient cable-laying vessels. It is equipped with all features necessary to successfully perform even the most advanced installation procedures. Adding this state-of-the-art vessel to its fleet enabled NKT to offer complete cable solutions - from design and manufacturing to installation and service. It combines the best Norwegian ship design and shipbuilding. The 140 metre long and 30 metre wide ship, based on a 306 CLV design by Salt Ship Design, was built at the Kleven shipyard and delivered to NKT in April 2017. Right after, NKT Victoria headed to Scotland for its first job, during which it was used to lay 113 kilometres of submarine cable from Caithness to Moray. Currently, it is busy installing the export cable that will connect the 600 MW Krieger's Flak offshore wind farm to the Danish national grid.

Equipped with a high-end dynamic positioning system (DP3) to automatically maintain the vessel's position and heading, it lays high-voltage offshore cables with utmost precision. The two turntable carousels (one on deck and one below deck) have a combined capacity of 9,000 tons of cable. Generally speaking, the higher the cable capacity of a vessel, the more cost-efficient it is for the customer. Compared to other cable-laying vessels available on the market, NKT Victoria consumes less fuel and CO2 thanks to a power-from-shore solution in combination with onboard energy storage systems. The power-from-shore connection can be maintained while loading the cable onto the vessel - a unique advantage which results in a more environmental-friendly operation.



6-point mooring system winches

**COMPLETE WINCH PACKAGE TAILOR-MADE FOR NEXT-GENERATION CABLE-LAYING VESSEL**

For cable-layer NKT Victoria, the winner of the prestigious “Ship of the Year Award 2017”, PALFINGER MARINE supplied a complete winch package, consisting of a six-point mooring system, anchor and mooring winches, and cable-laying winches. The complete winch package is based on state-of-the-art electrical, frequency controlled drives. With a total equipment weight of approximately 258 tons, it is certainly not an exaggeration to speak of a major delivery.

“We are really proud to have been chosen as a supplier for such a high-end project. All our equipment was tailor-made in close collaboration with the design company Salt Ship Design, Kleven Shipyard, and the owner NKT. We started working on the project in March 2015, six months later we were officially given the contract, and another 14 months later we delivered all the equipment on time”, says Sverre Mowinckel-Nilsen, Sales Director - Winches and Handling Equipment.

Our six-point mooring system, with four winches below and two winches on deck, is designed to maintain the stability

of the vessel during operation. Having a six-point mooring system reduces the need to use a positioning system and, as a consequence, saves fuel costs. Each winch has a pulling capacity of 60 tons at first layer and a holding capacity of 90 tons at first layer and can store 900 metres of Ø 40 millimetre steel wire.

Abandon and recovery (A&R) winches are designed to automatically maintain a constant tension on the cable during cable-laying operations. Each winch of the three winches delivered to NKT Victoria has a pulling capacity of 45 tons at top layer and a drum capacity of 800 metres for Ø 46 millimetre steel wire ropes. They can be operated both locally and remotely.

In addition, PALFINGER MARINE supplied three initiation winches and three tigger winches with a pulling capacity of 6.4 tons at first layer. All six winches are equipped with a spooling device for controlled spooling and have a drum capacity of 160 metres of Ø 19 millimetre steel wire.

During the project we were also contracted to deliver an over boarding roller guide for use during cable-laying operations.

**ALL OUR EQUIPMENT WAS TAILOR-MADE IN CLOSE COOPERATION WITH THE DESIGN COMPANY, THE SHIPYARD AND THE OWNER.**

Sverre Mowinckel-Nilsen  
Sales Director - Winches and Handling Equipment



For NKT Victoria's anchor and mooring operations, PALFINGER MARINE also supplied a complete winch package consisting of five winches in total. While anchoring takes place at open seas, mooring happens in the harbour.

**BUT THAT'S NOT ALL...**

Apart from the extensive winch package, PALFINGER MARINE also delivered a custom-designed A-frame for onboard trenching operations, two electrically driven foldable knuckle boom cranes, two totally enclosed lifeboats with accompanying davits, and a rescue boat davit.

“This major delivery truly showcases PALFINGER MARINE as a competitive one-stop shop for high-quality deck equipment for the maritime industry. Having a single supplier of complete packages with winches, cranes, lifesaving and other offshore equipment saves customers time and money, and reduces complexity in their procurement processes” says Bernhard Peintner, Executive Vice President - Operations.

SCOPE OF DELIVERY:	
<b>Winches</b>	
1 x Complete six-point mooring winch system, six winches in total	
3 x A&R winches	
3 x Initiation winches	
3 x Tigger winches	
2 x Combined windlass/mooring winches	
2 x Chain stoppers	
1 x Double drum mooring winch	
2 x Single drum mooring winches	
<b>Lifting and Handling Equipment</b>	
1 x A-frame for trenching operations	
1 x Over Boarding roller guide	
<b>Lifesaving Equipment</b>	
2 x LBT 750 C totally enclosed lifeboats	
2 x NPD 11300H pivoting davits + 2 x LBT 750 lifeboats	
1 x NPDS 3500HFR pivoting davits	
<b>Cranes</b>	
2 x PK 8500 TM foldable knuckle boom cranes	

Pictures (l. to r.): 6-point mooring system winches, A&R winches, cable initiation winch, over boarding roller guide



# ON A SERVICE MISSION

## THE PROFESSIONAL LIFE OF SERVICE ENGINEERS WITHIN OUR WINCHES AND HANDLING EQUIPMENT PRODUCT DIVISION IS TO SAY THE LEAST DIVERSE.

There is a common misconception that service engineers are mainly handling after sales service jobs. In fact, the scope

of their work entails much more than that. Our service engineers are usually involved in the very early stages of projects. They are included as early as the design and production processes. In terms of equipment testing, our service engineers are the ones who plan the test procedures and take part in the Factory Acceptance Tests in close cooperation with clients and class surveyors. When it comes to the final hand-over to the customers, they take care of commissioning and onboard testing of the equipment.

Rene is one of our service engineers. He has been working in the service department for winches and handling equipment at our branch in Norway for five years. Like all his colleagues, he is expertly trained and

used to working with standard winches, as well as complex handling systems.

Rene spends most of his time out in the field: conducting production tests and commissioning jobs. His remaining time is dedicated to office work such as customer support and after sales duties.

For Rene, a typical day starts with a number of phone calls and e-mail exchanges with colleagues at our production sites and customers. The latter are shipyards and ship owners around the globe. He seldom knows in advance what his workday will entail. However, he always strives to provide his customers with the best possible support to ensure the machinery runs smoothly. Time is money, after all. As our customers are rarely located just around the corner, commissioning and service jobs usually involve a lot of travelling.



CBO Bossa Nova

## COMMISSIONING JOBS AROUND THE WORLD

In 2015, PALFINGER MARINE secured the contract for the delivery of an extensive winch package for six anchor handling tug supply (AHTS) vessels. The vessels were built by Oceana Estaleiro Shipyards, a Brazilian yard owned by Grupo CBO. For the six vessels of identical Havyard 843 design, PALFINGER MARINE delivered tailor-made winch systems and lifesaving equipment.

In May 2017, our service team including Rene flew to Brazil and successfully commissioned 95 tons of equipment at CBO Bossa Nova, the first out of six AHTS vessels. In total, they spent ten full working days on the job. This included the inspection of the installation, several onboard load tests, and the official hand-over of the winch system to the customer. "The assignment went very smoothly and was finished on time", Rene recalls. For training purposes, the Norwegian service

team was accompanied by local Brazilian colleagues, ensuring that they are capable of providing local support in the future.

In the meantime, CBO Bossa Nova is already on its first assignment. The remaining five vessels will be commissioned in 2018.

## YOU NEVER KNOW IN ADVANCE WHAT A WORKDAY WILL ENTAIL.

Rene Dyngeland  
Service Engineer - Winches and Handling Equipment

1.-2. Rene commissioning two chain pulling winches. / 3. Impressive double stern rollers of CBO Bossa Nova



The chain pulling winches and chain rollers are designed to handle rig chains with a maximum diameter of 162 millimetres, whereby each chain link weighs approximately 500 kilograms. One can imagine that such chain dimensions require massive equipment, which has to be tested thoroughly before delivery. During the testing conducted by Rene and his colleagues, our counterparts from CBO were invited to witness the systems in operation.

Another impressive piece of equipment is our double stern roller. With a weight of almost 66 tons, it is the largest stern roller PALFINGER MARINE has ever designed and delivered. Stern rollers are used during anchor handling operations, allowing the vessel to pull out the anchors offshore and landing them on the cargo deck. Their design enables the vessel to utilise the full safe working load of 500 tons on both rollers simultaneously, which is not possible on most other stern rollers available on the market.



# PALFINGER RENTAL

## PALFINGER MARINE: PIONEER IN RENTAL BUSINESS FOR ADVANCED SUBSEA AHC WINCHES

Customer satisfaction has always been our focus. Therefore, we are proud to announce PALFINGER RENTAL, an exciting new way to deliver advanced deck equipment and support services to maritime and offshore customers.

With PALFINGER RENTAL we offer selected PALFINGER MARINE products on a short-term rental basis, combined with dedicated installation, service and training support from our global service network.

Rental business selection criteria:

- Demonstrated demand from customer inquiries
- Short-term availability for long lead-time delivery equipment
- Mission critical equipment
- Equipment missing in existing rental supplies

## PROVEN AHC TECHNOLOGY

In the course of 2018 we are introducing three advanced Active Heave Compensation (AHC) winches for subsea use to our rental portfolio.

- 30T AHC winch with 2500 metres steel wire rope (available from March 2018)
- 20T AHC winch with 6000 metres fibre rope
- 20T AHC winch with electric drive for 2000 metres wire rope

PALFINGER MARINE AHC winches are designed, built and certified in accordance with DNV GL regulations (DNV GL-ST-0378), the standard for offshore and platform lifting appliances and DNV GL-SE-0480, the standard for verification of lifting appliances for the oil and gas industry.

Our advanced, modular AHC winch packages include:

- sophisticated remote access
- diagnostics and logging embedded into the winch control systems
- latest available hydraulic and/or electrical drive technology
- a modular, plug and play design
- dedicated hydraulic power units and advanced operator consoles
- 24/7 support

*"The market for marine equipment offered on a short-term rental or leasing basis is underserved in some areas. With our strong design, production, and service expertise we will close this gap in the market. This will come with big advantages for our customers. They can win more business, achieve increased flexibility and utilisation of their vessels, and gain experience in operating our state-of-the-art equipment without the full upfront investment cost", says Jarle Sørstrønen, Vice President - Product Division Winches and Handling Equipment.*

**For more information:**  
[palfingermarine.com/en/products/winches/rental](http://palfingermarine.com/en/products/winches/rental)

# MEET US

## PALFINGER MARINE AT FIRST HAND

Feel like reading our PASSION magazine on your computer or mobile device? No problem at all. Along with this issue of our PASSION magazine, we are launching our PALFINGER MARINE Stories website.

In this online magazine, we blog about trending topics within our marine world. These may be order-related news, exciting product innovations, interesting personalities, industry trends, events, and behind-the-scenes reports to complement our PASSION magazine.

Apart from hot topics, it also features all articles published in the print edition of PASSION magazine. The added value of PALFINGER MARINE Stories is that it allows us to dive deeper into specific stories. It's our platform to share additional background information and images, as well as exclusive video material.

Excited? Check out: [palfingermarine.com/stories](http://palfingermarine.com/stories)

## UPCOMING EXHIBITIONS 2018

**SEATRADE CRUISE GLOBAL**  
05.03.–08.03. | Fort Lauderdale, Florida, USA

**OTC ASIA**  
20.03.–23.03. | Kuala Lumpur, Malaysia

**SEA JAPAN**  
11.04.–13.04. | Tokyo, Japan

**OTC**  
30.04.–03.05. | Houston, Texas, USA

**GLOBAL OFFSHORE WIND**  
19.06.–20.06. | Manchester, UK

**SEAWORK**  
03.07.–05.07. | Southampton, UK

**NOR-FISHING**  
21.08.–24.08. | Trondheim, Norway

**ONS**  
27.08.–30.08. | Stavanger, Norway

**SMM**  
04.09.–07.09. | Hamburg, Germany

**WIND ENERGY**  
25.09.–28.09. | Hamburg, Germany

# ALL OUR NEWS NOW ALSO SERVED ON ONE PLATE

Check out our PALFINGER MARINE Stories,  
LinkedIn, Facebook and Youtube pages to stay tuned  
to all updates from the marine world.



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