

A large, grey, circular industrial gear with a serrated outer edge is suspended in the air by a chain. The gear has several circular holes on its face and a red cylindrical component in the center. In the background, a worker in a dark jacket and cap stands on a metal structure, looking up at the gear. The scene is set on a ship's deck with various pipes and machinery visible.

mem

MARINE ENGINEERS MESSENGER

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WORLD'S MOST POWERFUL TWO-STROKE IN OPERATION
TEHELSTROOM PUTS TO SEA
GTT AND ENDEL SIMPLIFY MEMBRANE TANKS FOR LNG FUEL
GE UNVEILS A NEW MV7 DRIVE
SCHOTTEL MAXIMISES RUDDERPROPELLER PERFORMANCE WITH A HARD COAT
CMAL'S HYBRID FERRIES BAG INNOVATION AWARD
WÄRTSILÄ ACQUIRES ENIRAM

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MARINE ENGINEERS MESSENGER

Telegraph

Is the ever-increasing size of a constantly expanding fleet of cruiseships detrimental to the environment? Between July 2016 and December 2024, according to the industry site *CruiseCritic.co.uk*, 48 new cruiseships will be delivered, adding some 127,862 berths to a fleet that already carries about 23 million cruise passengers year on year, in a market with annual revenues of about \$37 billion.

But what is the true cost of a cruise to the environment? Cruiselines are keen to claim that their environmental footprint is in line with mandatory requirements, often exceeding them, but is this true? The Friends of the Earth thinks not.

According to the environmental campaigner's 2016 Cruise Report Card (visit <http://www.foe.org/cruise-report-card>), which documents the environmental footprint of 17 cruise lines and their 171 ships, even with the installation of scrubber technologies, "the cruise industry lags behind land based transportation standards and has yet to install critical, health-protective technologies like diesel particulate filters". The FOE contrasts international ship emission rules, which allow fuel with up to 3.5% sulphur (35,000 parts per million) and the 0.1% (1,000 parts per million) Emission Control Area limit, with the 15 parts per million sulphur limit imposed on road hauliers.

It cites Environmental Protection Agency claims that each day an average cruiseship is at sea it emits more SO_x than 13 million cars and more soot than 1 million cars.

Marcie Keever, FoE's oceans and vessels program director, said: "Even with the new cleaner fuel rules in North America resulting in the installation of scrubbers on many cruiseships, the industry continues its greenwashing to try and hide its dirty practices from the public."

The report, published in June, also made reference to EPA statistics on wastewater, revealing that an average cruiseship with 3,000 passengers and crew produces about 21,000 gallons of sewage and 168,000 gallons of greywater from galleys, sinks, showers and baths a day.

The FOE report highlights the gaps between cruiseships that have adopted the most advanced sewage treatment systems and those that still use 35-year-old technology. In addition to calling for an upgrade to the 40 per cent of cruiseships that use old technology, the environmental campaigner continues to push the EPA to update ship sewage treatment standards under the Clean Water Act "to bring these polluting ships into the 21st century".

"Despite its PR blitz regarding installation of new pollution reduction technology, the cruise industry continues to get an "F" for transparency, and many are failing when it comes to air or water pollution or both," said Keever. "With the Northwest Passage now open in the summer due to climate change, the cruise industry's expanding itineraries will bring increasingly damaging pollution to even more sensitive areas like the Arctic. It's way past time to set a higher bar for this dirty industry."

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MARINE ENGINES

MSC JADE DELIVERED WITH THE WORLD'S MOST POWERFUL TWO-STROKE ENGINE

The largest and most powerful engine from MAN Diesel & Turbo's portfolio has entered service on the 19,437TEU containership *MSC Jade*.

Built by Korean licensee Doosan Engine, the MAN B&W 11G95ME-C9.5 two-stroke, rated at 75,570kW, is the first in a series of six engines ordered by the Mediterranean Shipping Company. A second sister-vessel is shortly scheduled for sea trials and two further vessels are currently finishing construction at Samsung Heavy Industries.

MSC Jade, delivered from Daewoo Shipbuilding (DSME) in May, also features four MAN L32/40 auxiliary engines (2 × 8L32/40 + 2 × 9L32/40 units), each with a single MAN NR34/S turbocharger.

Ole Grøne, Senior Vice President Low-Speed Sales and Promotions, MAN Diesel & Turbo, said: "We attribute the G95's popularity in this segment to its ability to provide sufficient power for such vessels to reliably achieve their desired operating speed. Here, the G95's rev/min ensures that a propeller of optimal size can be employed, in turn delivering a low fuel-oil consumption for an optimal fuel economy."

MAN Diesel & Turbo reports that, since August 2013, 68 G95 engines have been selected for the containerships ranging in size from 9,000 to 21,000TEU, and in 8- to 11-cylinder versions.

The G95ME-C9 itself is an important part of MAN Diesel & Turbo's G-engine programme. The engine, with a bore of 950mm and a stroke of 3,460mm, provides 6,870 kW/cylinder at 80 rpm and 21 bar MEP (in L1) and was introduced as a supplement to the successful S90ME-C9/10 engine types, allowing the engine to be further de-rated thanks to the larger cylinder bore and/or fewer cylinders to be installed.

Following this trend, as well as those for cost-down and downsizing, the S90ME-C has recently been supplemented with a G90ME-C10 version.

ELECTRIC PROPULSION

TYCHO BRAHE AND AURORA SET TO BE LARGEST EMISSION-FREE ELECTRIC FERRIES

ABB is to supply the complete power and propulsion systems to two HH Ferries Group vessels, *Tycho Brahe* and *Aurora*, which, following their modernisation, will be the world's largest emission-free electric ferries.

ABB's scope of supply includes batteries, an energy storage control system and Onboard DC Grid technology. The Finnish company will also supply the ports of Helsingør (Denmark) and Helsingborg (Sweden) – the route served by the ferries – with automated shore-side charging stations, to optimise the connection time and therefore maximize the charging period.

Together, these solutions will help lower total emissions across the HH fleet by more than 50 per cent from the current diesel operated vessels. The combined battery power of 8320kWh for the two ferries is the equivalent of 10,700 car batteries.

“This order goes to the very core of what we do at ABB,” said Juha Koskela, Managing Director of ABB’s Marine and Ports business unit. “These are highly innovative solutions in line with our ‘Next Level’ strategy, improving the efficiency while lowering the environmental impact. The ferry services across Scandinavia and the Nordic region are leading the world in terms of progressive environmentally friendly solutions. ABB is at the forefront of this revolution.”

It is an inherent part of HH Ferries’ strategy to actively safeguard the environment, and the ferry company has adhered to emission regulations since 2007, which were later implemented in 2015.

“In this context we are very pleased that we together with ABB and with proven technology and in an innovative way, have been able to create a new set up to retain our position as a highly efficient high capacity route,” said Chief Executive Officer Henrik Rørbæk, HH Ferries Group.

“From an environmental point, we invest responsibly in tomorrow’s technology solutions leading towards a greener future.”

HH Ferries Group owns the ferry route between Helsingborg and Helsingør, which is marketed under the trademark Scandlines Helsingborg-Helsingør.



ABB’s atomated shore-side charging station

HYBRID PROPULSION

CMAL’S HYBRID FERRIES BAG INNOVATION AWARD

Caledonian Maritime Assets’ third hybrid, RoPax ferry the *Catrina* won the Electric & Hybrid Propulsion System of the Year Award last month.

On receiving the Award, John Salton, Fleet Manager/Project Director at CMAL, said: “CMAL is very satisfied with the performance of RH Marine in the three hybrid projects. Together we have made significant steps in the hybrid propulsion development of our fleet.”

Douwe van der Meer, RH Marine Sales Director Ferries, added: “We are delighted to be recognised by CMAL and to share in this prestigious award. RH Marine has been active for a long time with battery technology for propulsion on naval vessels such as submarine as well as diesel electric propulsion for heavy lift and pipelaying vessels. We also introduced and extended this technology on board of ferries, superyachts and special vessels.

While fuel savings of around 20% were expected, after measurements the reductions were substantially higher when the first two ferries entered service. *Catrina* will realise even more fuel savings when she comes into operation as the battery capacity onboard has been increased from 750kWh to 800kWh. The vessel is expected to use just 500-600l of fuel a day instead of 700-800l of fuel as per conventional diesel-electric propulsion systems.



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CLARIMAR MF

ACO Marine's new Clarimar MF advanced black and grey wastewater treatment system is the merchant shipping industry's most effective solution for meeting IMO MEPC 227(64) rules, which entered into force in January 2016.

Small and economical with the lowest running costs of any sewage treatment plant, the Clarimar MF range incorporates the ACO patented 'Bio-Sword' technology.



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A major difference between these three CMAL ferries and other conventional diesel-electric vessels is that the batteries work in tandem with the generators. This makes the propulsion system cleaner, quieter and cheaper to operate and maintain.

"Apart from the diesel electric propulsion, combined with a battery pack, the RH Marine Energy Management System is unique. It calculates the best way of taking in power for propulsion - if required - without any manual actions necessary from the crew. This delivers a greener way of sailing (less emission) and a remarkable reduction in energy usage. We predict a healthy future for this hybrid propulsion concept, especially in the ferry segment."

Initially, the company was awarded the contract for the first two hybrid ferries, *Hallaig* and *Lochinvar*, in December 2011. Following the success of the first two, *Catronia* was added to the contract in May 2015. She will enter service on the west coast of Scotland in July.

All three 150 passengers, 23 car carrying-capacity ferries can be recharged when docked at night, lengthening battery life at sea. And with the power source being Scottish wind energy, the ferries are even more environmentally friendly.

TEXELSTROOM PUTS TO SEA



Royal TESO, the Dutch ferry operator, has accepted delivery of its first hybrid RoPax, *Texelstroom*, from Spain's LaNaval shipyard.

The 1,750-passenger, 350-vehicle, double ended ferry, built to LR class, is unique in that it combines several different energy sources to provide reliable, efficient power and vastly reduce environmental impact in comparison with existing ferry technologies.

Texelstroom has two completely independent engine rooms, each of which provides enough power to be able to continue the normal service during inclement weather up to Beaufort Force 9.

One engine room is to be fitted with two 2MW 12DZC engines from Anglo Belgian Corporation (ABC), while the other is installed with two 2MW 12DZD ABC dual fuel (CNG + diesel) engines.

To reduce the vessel's environmental footprint by up to 80%, compared to conventional ferries of this size, electric batteries and 700m² of solar panels form an integral part of the advanced energy management system. The solar photovoltaic panels - providing and

additional 150kW of power – are installed atop the superstructure, along with two 40FEU CNG storage tanks.

The 135.4m-long ferry will sail using its dual fuel engines between 6am and 10pm, with only one dual fuel genset and 1638kWh Lithium-ion battery packs operating in normal weather conditions. Propulsion is provided by two Rolls-Royce azimuth propellers to achieve a top speed of 15kts.

The vessel, supported by the European Union's 'I.Transfer' Program implemented to encourage more people to travel by water, has a strengthened hull in case of winter ice and meets the requirements for LR's notation for Passenger and Crew Accommodation Comfort (PCAC).

The vessel will now be put into service on the Texel - Den Helder route.

DUAL-FUEL

TERNTANK'S *TERNSUND* DELIVERED WITH FIRST X-DF TECHNOLOGY

The first dual-fuel two-stroke engine using Winterthur Gas & Diesel's low-pressure X-DF gas admission technology is now in commercial operation.

The technology is key feature of the five-cylinder, 500mm bore Wärtsilä RT-flex50DF engine installed aboard the 15,000dwt chemical tanker *Ternsund*. The Terntank Rederi vessel, built by China's AVIC Dingheng Shipbuilding, successfully completed sea trials in May prior to delivery last month.

The Wärtsilä 5RT-flex50DF engine was run continuously for several days in gas mode and a series of automated fuel changeovers from diesel mode to gas mode were carried out. As is the norm during sea trials, the engine was run at a range of load points in both gas and diesel mode, including a high load level set to fully exploit the sea margin of the *Ternsund* with its hull in new condition without fouling.



The 147m long Ice Class 1A vessel is the first of four vessels ordered by Terntank from AVIC Dingheng Shipbuilding and the result of the "Into The Future – Baltic SO2lution" project, whose partners include Terntank, Wärtsilä, Winterthur Gas & Diesel, North European Oil Trade (NEOT) and Wega Enviro.

The EU co-funded project was instigated to promote more environmentally-friendly and energy-efficient shipping in the Baltic Sea.

LNG

GTT AND ENDEL SIMPLIFY MEMBRANE TANK INSTALLATION FOR LNG FUEL USE

Membrane containment leader GTT will continue its collaboration with Endel into the use of LNG as a marine fuel, following the signing of a Technical Assistance and License Agreement (TALA) for the construction of GTT membrane containment systems.

The ongoing partnership reinforces GTT and Endel's product offering, and benefits those wishing to equip their vessels with LNG membrane tanks adapted to all types of vessels, such as liners, container vessels, bulk carriers, and RO/RO vessels.

This new agreement, which enriches GTT's industrial partnerships, makes it simpler for shipyards to construct and install membrane tanks without having to acquire the necessary know-how.

"I welcome the partnership with Endel, a company which has much experience in the maritime domain. I am convinced that the market for LNG as a fuel has a great future, and that the collaboration with Endel will make

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it possible to convince shipowners of the attractiveness of going to LNG as a fuel, and of opting for the membrane tank technology," stated Philippe Berterottière, Chairman and CEO of GTT.

GTT is building strategic industrial partnerships with key actors, in order to enrich its product offering and respond to the needs of customers wishing to equip themselves with membrane containment systems.

In a continuously innovative approach, GTT is also deploying significant means in research and development, in order to advance its technologies and to offer the most sure, efficient and economic solutions to shipyards and shipowners.

DRIVES

GE UNVEILS A NEW MV7 DRIVE

GE Power Conversion has unveiled a new powerful drive system as part of its established MV7 drive range.

Using the same components as the proven MV7 technology but arranged in a different way to increase voltage and power output. As an extension of the existing MV7 drive platform, the new UWave drive can operate at up to 13.8 kilovolts with a power capacity of up to 40MW in a single thread, thus an ideal choice for high-power and high-voltage applications across different industries, including oil and gas, marine, renewables and power generation.

When feeding into motors, the MV7 UWave drive reduces motor stress to afford greater life expectancy.

"The the electricity, produced from the drive and feeding into the motor, has a smoothed voltage waveform. That is where the name—Ultimate Waveform—comes from," said Schellings, product line leader, power electronics, GE's Power Conversion business. "Another key fact is that the drive can meet grid harmonic standards with much smaller filters."

A smaller filter means a smaller footprint for the entire system, which can help bring significant benefits across the marine and offshore sectors.

"A reduced footprint can in turn reduce construction costs and release space for critical operations—more room for an engine or an extra cabinet onboard a vessel, for example," said Schellings.

When it comes to offshore operations, this latest drive technology has allowed the removal of the transformer for voltage up to 13.8 kilovolts. This transformer-less design thus can reduce the footprint by up to 40 per cent.

Other benefits cited by GE Power Conversion are reliability and low maintenance. Reliability is also reinforced by capacitors installed in the drive. An advanced mechanism adopted inside the drive enables immediate isolation of a failed capacitor. Unaffected by this single failure, the rest of the capacitors allow the drive to operate without interruption.

Meet the new MV7 UWave drive

- Proven Technology***
 - 1,600 units installed worldwide
 - 10,000,000 hours in field operation
 - 10GW installed base
 - *Based on MV7 drive technology
- Reduced Footprint**
 - 40% footprint reduction with transformer-less design in offshore operations
 - 40% footprint reduction of the system (drive and filter combined) within the renewables industry, compared to 3-level technology
- Innovation**
 - 5-level smart topology compared to last generation of 3-level drives, meaning increased power and voltage
- High Voltage**
 - up to 13.8kV voltage with smoother waveform, producing cleaner power with lower harmonics
- High Power**
 - up to 40MW power capacity makes it suitable for various applications across industries

While the use of standardised components helps to shorten delivery times and better service, they do not limit the drive's versatile application. It is designed to drive induction, synchronous or high-speed motors (up to 300 Hertz) for high-voltage and high-power applications.

Several configurations of the MV7 series are available—diode front-end (DFE), active front-end (AFE), N+1 redundancy, transformer-less—to adapt different customer and project needs. It also allows easier integration to the fixed frequency system to become variable speed—a key factor to enable energy efficiency.

THRUSTERS

ROLLS-ROYCE TO BUILD NEW THRUSTER FACILITY IN RAUMA

Rolls-Royce to set to invest €57 million in a new marine thruster facility in Rauma, Finland. The project will include a major rebuild of existing facilities, the transfer of thruster assembly and testing onto one site from the existing two locations, and a significant investment in new equipment.

Mikael Makinen, Rolls-Royce, President – Marine, said: “Our azimuth thrusters are one of our most important products, providing mission critical power and propulsion for some of the largest floating objects on the planet. To be able to make this significant investment in Rauma not only prepares us for future growth in this market, but is a vote of confidence in the capability and expertise of our people.”

Rauma produces a wide range of mechanical azimuth thrusters for use on a wide range of applications including semi-submersible drilling rigs and drillships, tugs and offshore vessels. It also produces thrusters for specialist vessels such as icebreakers and polar research ships.

Olli Rantanen, Rolls-Royce Finland, Managing Director, said: “Since the first azimuth thruster was developed here in Rauma over 50 years ago, these products have become the standard choice for customers demanding very high levels of reliability, power and performance often in extremely challenging environments. This investment will allow us to plan for the future, and enable us to efficiently produce our existing range and develop new and larger mechanical thrusters.”

The work to transform the Rauma facilities is due for completion in 2020 and will include installation of 200t lift capacity crane and six factory acceptance test rigs, offices and new IT systems.

EXHAUST CLEANING

SAACKE OPTIMISES SCRUBBER OPERATIONS WITH pH TOOL

Saacke, the German boiler and process firing systems supplier, has introduced a new pH value calculation tool for its exhaust gas cleaning system (EGCS) in order to reduce operating costs.

The ECGS Configurator, which optimises the design of a scrubber system by using ship and operating data to calculate the dimensions, number of components or the size of the pump system, now includes a new calculation model to determine the pH value at the washing water outlet.

The pH modelling tool, integrated into the Configurator, meets IMO guidelines relating to the pH value of the washing water, in that it must not fall below the value of 6.5 at a distance of four meters from the outlet of the exhaust gas cleaning system. The calculation model makes it possible to achieve a pH value of 5 directly at the washing water outlet. This means that the lower quantities of dilution water or caustic soda (NaOH) are required therefore pump capacities for the dilution water can be smaller and the amount of added caustic soda can be reduced.

“For ship operators, this means significant savings, since ongoing operating costs fall and the efficiency of the entire system increases. Investment costs can also be saved during installation, as a smaller system is cheaper and requires less installation space”, said Nils



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Homburg, Manager Exhaust Gas Cleaning Department at Saacke. “A pH value of 5 compared to 6.5 reduces the dilution water quantity to 550m³/h for a main engine output of 10MW – a third of the original quantity. When using caustic soda, consumption is halved to 150l/h.”

To ensure the compliant operation of the scrubber system, a sensor continuously measures the pH value at the washing water outlet and forwards this to the EGCS monitor, which records all operating data for the EGC system. The EGCS report can be created from the monitor at any time at the push of a button in order to provide proof of the correct pH value and compliance with the IMO guidelines for the authorities. This facilitates the cooperation between the ship’s crew and local port authorities.

The pH value calculation is requested with every ship authorisation as a method recognised by the classification societies. The first authorisation was received by the Carl Büttner tanker *Levana*, which has been running a Saacke scrubber since November 2013.

BALLAST WATER

V-GROUP ORDERS CATHELCO BWTS FOR CABLE LAYER CONVERSION

A Cathelco ballast water treatment system has been selected for installation to the steel barge *C.C. Pacifique*, which is undergoing conversion into cable laying vessel at a Singapore yard for the Netherlands-based Coastal Carriers. The order was placed by V.Delta, a division of shipmanager V.Group.

“We have worked successfully with V.Group in the past through the supply of other types of Cathelco equipment. The BWT project was scheduled with a tight deadline. We were able to hold discussions with the V.Group team and produce drawings within a very short timespan,” said Robert Field, Cathelco’s technical director.

The 300m³/h treatment capacity unit Cathelco will supply is a self contained skid-mounted system based on a combination of filtration and UV technology. The system received IMO Type Approval in May 2014 and went on to gain AMS Acceptance from the U.S. Coast Guard a few months later.

Peter Smith, Cathelco’s sales director said: “We are one of the few BWT system manufacturers using UV technology that has no restrictions on the salinities in which ships can operate. Our system has been approved and accepted to work in marine, brackish and fresh water.”

In order to maintain its effectiveness, the system automatically adjusts to different sea water qualities. Unlike some systems which simply measure turbidity (amount of suspended sediment), the Cathelco system uses a UVT sensor to measure UV light transmittance – the amount of UV radiation actually passing through the seawater.

According to the manufacturer, this is a far more reliable parameter for calculating the UV dose as well as ensuring that power is used economically.

The latest version of the Cathelco BWT system called the Evolution is currently being tested to the ‘live/dead’ standard demanded by the U.S. Coast Guard with the aim of gaining Type Approval by the 3rd Qtr of 2017.

Shipboard testing will commence in July/August 2016 and it is anticipated that all of the test results will be submitted to the U.S. Coast Guard for approval by the 1st Qtr 2017.



SEALS

ROXTEX SEAL RUBBER STAMPED

The new and innovative non-weld Roxtec SPM seal for metal pipes in the marine and offshore markets has received MED (Marine Equipment Directive) certification from DNV-GL and type approval ABS and the Russian Register of Shipping,

The light-weight seal, introduced last February, can be used with any kind of metal pipe onboard marine or offshore structures to ensure protection against fire, gas and water.

Made of highly elastic EPDM (ethylene propylene diene terpolymer) rubber and acid-proof stainless steel, the SPM seal can be install from one side of steel decks or bulkheads.

The seal maintains a tight seal round the metal pipe as well as sealing inside uneven or irregular openings. It is available in several sizes, each of which offers an inward tolerance of 4mm round the metal pipe as well as an outward tolerance towards the inside of the opening.

SHIPBUILDING

ZVEDA TO BUILD NEW 40,00T DOCK

Construction of a new 40,000t floating transfer dock has been approved for Russia's Zvezda Shipbuilding facility, following the signing of contracts between Far Eastern Plant Zvezda, China Shipbuilding & Offshore International (CSOC) and Qingdao Beihai Shipbuilding Heavy Industry (BSIC). The agreement was signed in the presence of the President of Russia Vladimir Putin and President of China Xi Jinping

The Chinese companies will develop the design, manufacture the equipment, train the crew and conduct final trials in Bolshoi Kamen Bay, in the Far East of Russia.

The use of the technology is unprecedented for the Russian shipbuilding industry. The participation of Russian specialists at all stages of design and construction will ensure efficient integration into shipyard operations.

Commenting on the agreement, Igor Sechin said: "The Agreement with China Shipbuilding Industry Corporation on high-tech equipment provision for Zvezda is another major step in the creation of the Russian Far East shipbuilding cluster, unique by world standards. We have made a strategic decision to develop an unprecedented industrial complex with leading edge equipment and technologies to help fulfil the shipbuilding requirements for the Russian Federation and to successfully compete in global shipbuilding markets. Interest of the industry leaders in the project demonstrates the potential and promising outlook of Zvezda."

Zvezda Shipyard is established at the Far Eastern Shipbuilding and Ship Repair Center (FESRC) by a consortium of Rosneftegaz, Rosneft and Gazprombank.

Pilot throughput for the shipyard will be provided by Rosneft which has signed an exclusive agreement with FESRC for the design, construction and supply of two 100m reinforced ice-class multi-functional support vessels.

REFIT

BLOHM+VOSS TO OPEN MEDITERRANEAN MEGA-YACHT REFIT FACILITY

Blohm+Voss has won a tender to set-up a new maintenance and refit facility for mega-yachts in La Ciotat, in the South of France.

The German yacht builder will utilise this new facility in the heart of the Mediterranean to maintain and service mega-yachts over 80m in length. Operation is planned to start in November 2016.

Fred van Beers, Chief Executive Officer, B+V, said: "Setting up a maintenance facility for mega-yachts in La Ciotat is an important step in our current growth strategy. With our new office in Monaco and this central location in the Mediterranean we are moving our core business closer to our customers; we are now offering more flexibility and tailored life-cycle services.

The 200m long and 60m wide dock in La Ciotat provides B+V customers with a choice of utilising its extensive shipyard facilities in Hamburg or the new base in La Ciotat for large yacht maintenance, refits or conversions.

Jean-Yves Saussol, Managing Director of La Ciotat Shipyards said: "We have chosen Blohm+Voss as our trusted partner due to the quality of its business plan, its extensive track-record, the financial strength of the company and its strong desire to work closely with the local community. The services that Blohm+Voss will bring to La Ciotat complement the services currently offered by other companies on the yard. Blohm+Voss aims to utilise the existing synergy potential and will start talking to future partners on and around the shipyard within the next month."

La Ciotat Shipyards and Blohm+Voss are the perfect match, explained van Beers. "The location is ideal for us because it offers excellent facilities, highly-qualified local craftsmen and an extensive local supplier network for the mega-yacht industry. In return, we will bring additional business to the yard with our focus on the 80m+ sector and our reputation for undertaking complex refits on time and on budget. We look forward to cooperating closely with La Ciotat Shipyards and the local community to support them in developing a strong local foothold in La Ciotat as well as a worldwide reputation for the maintenance and refit of megayachts."





HEAVY LIFT

SEA INSTALLER CRANE UPGRADE COMPLETE

Damen Shiprepair Amsterdam (DSAm) has concluded major modification works on the 132m *Sea Installer*. The principle scope of work involved the extension of the main crane boom, giving the A2SEA-owned offshore wind farm installation vessel increased reaching capacity.

The crane boom was lengthened by inserting a new extension manufactured from high tensile S690 steel.

Damen Junior Project Manager Remco van Dam said: "This material requires distinct and carefully planned procedures. You can cut it when it's cold, but, before you weld it you need to heat it with heating elements to 200°C to remove any traces of water. Then, after slight cooling, the welding itself needs to take place at the correct temperature in a protected environment. For this, we constructed air-tight welding tents."

Once complete, the weld in question was cooled prior to non-destructive testing after 48 hours. "We also performed our own initial checks after 24 hours in case any additional welds were needed. The main point with S690 is that you cannot rush things. If you go too fast, it can set you back 3 days."

Two mobile Mammoet cranes lifted the extended crane boom back onto the vessel. To create a stable lifting foundation – allowing for a maximum of 0.3 degrees of tilt – the quayside was levelled prior to the vessel's arrival at the yard. This required laying no less than 800m³ of sand, topped off with 750 dragline crane mats.

Installing the larger crane had numerous implications on existing on board structures. The boom rest had to be replaced, which in turn necessitated additional modifications to the accommodation area. In order to house the main hook and auxiliary hook in both long and short mode, the existing auxiliary hook block pocket was replaced with a new construction that comprised one main and two auxiliary hook block pockets.

The bigger crane also needed a bigger winch: DSAm replaced the existing winch with a larger, 900t capacity winch. This included all the necessary adjustments of the electrical, hydraulic and cooling systems. The vessel's main mast also needed structural modifications.

Sea Installer now has a flexible crane capacity of 900t or 700t in extended mode.

MACGREGOR TO SUPPLY CHINA'S FIRST POLAR RESEARCH VESSEL

MacGregor won an order last month to supply offshore cranes and a Triplex handling system to a 14,300gt polar research vessel being built for the Polar Research Institute of China. Designed by Aker Arctic Finland, it will be the first vessel of its type to be built in China; the shipyard has yet to be named.

The 122.5m multi-functional icebreaker will be able to handle ice up to 1.5m thick, achieving a continuous icebreaking speed of two to 3kts. It will have an endurance of 20,000nmiles and with a full 90-person crew will be able to cruise for 60 days without re-supply.

The vessel will feature two MacGregor offshore cranes: a 50t SWL telescopic crane with a 15m outreach and a 24t SWL knuckle jib crane with a 12m outreach.

It will also be fitted with a MacGregor Triplex six-tonne SWL telescopic/knuckle jib crane with a 17m outreach and a handling system specifically designed for research equipment. The handling system comprises: a 30t SWL stern-mounted A-frame; a five-tonne SWL multi-functional launch-and-recovery overhead crane for conductivity, temperature and depth (CTD) oceanographic instrumentation; and a piston coring system that includes an eight-tonne SWL corer pipe handler, a 23m corer pipe cradle and a 25t SWL side-mounted A-frame.

With the exception of the cranes, all MacGregor equipment will be served by a common central hydraulic system driven by one hydraulic power unit. MacGregor deliveries are scheduled for completion by the end of 2017.

The new vessel will join its existing 1993-delivered icebreaker, *Xue Long*, which operates in research stations in the Arctic and Antarctic.

SUBSEA

HELICA PROVEN TO ACCURATELY CALCULATE UMBILICAL STRESS

DNV GL's Helica software which calculates stresses in umbilical and flexible pipe components has been proven to deliver highly accurate results as part of a joint industry project.

Helica has been verified against publicly available data but the JIP compared stresses calculated using Helica with measured stresses in a full-scale umbilical sample subjected to tension and bending. The analysis results correlated remarkably well with the test data.

"As far as we know, this is the first time anyone has been able to demonstrate such a remarkably strong correlation between analysis results and such high quality stress measurements in full-scale subsea umbilicals," said Nils Sødahl, Vice President, Riser Technology, DNV GL – Oil & Gas.

The JIP, which included Ultra Deep LCC, ExxonMobil, Oceaneering, Shell, Technip and ABB, based its research on data provided by ExxonMobil.

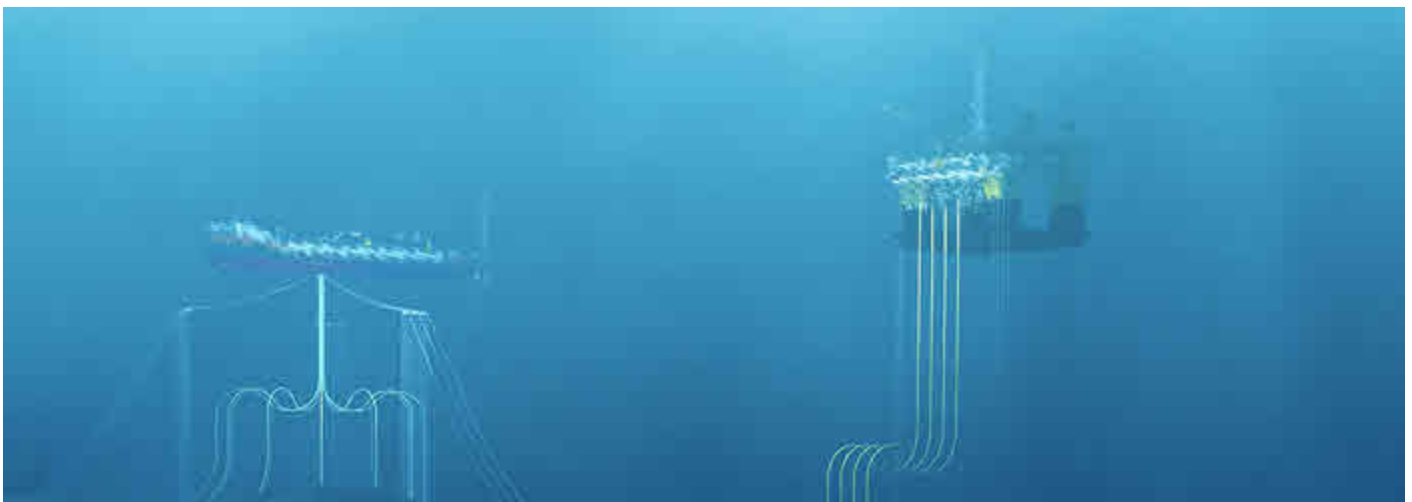
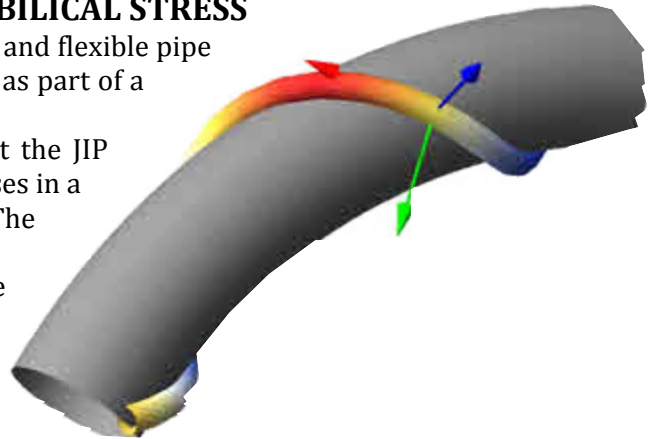
Helica is a highly efficient cross-section analysis tool that calculates mechanical properties, capacities, and fatigue of umbilicals and flexible pipes. Based on these analyses, engineers can optimise design and save cost not only in the design stage, but throughout the lifecycle of the subsea system. Helica can perform thousands of simulations in a matter of minutes, whereas subsea engineers relying on the industry's most commonly used finite element analysis (FEA) tools today may spend hours to build a model and perform a simulation of a single load case.

"We strongly believe that Helica will be the new industry standard for stress and fatigue analysis of flexible pipes and umbilicals," said Are Føllesdal Tjønn, CEO DNV GL – Software.

The JIP validation results were presented at the ISOPE (International Society of Offshore and Polar Engineers) annual International Ocean and Polar Engineering Conference in Rhodes, Greece on 27 June.

During the conference DNV GL launched Helica 2.5, a new version of the software featuring a new module for extreme capacity checks and a new interface to commonly used global analysis software, such as Orcaflex, Reflex and Flexcom.

Subsea engineers calculate stresses in umbilicals and flexible pipes using software to ensure that individual components will not fail. Such failures could lead to costly production shut-downs or hydrocarbon leaks.





COATINGS

JOTUN HPS CLOSE TO ISO 19030 CERTIFICATION

Jotun, the Norwegian marine coatings supplier, is close to securing the ISO 19030 standard, giving credence to claims that its Hull Performance Solution (HPS) can save the shipping industry as much as US\$30 billion in annual fuel costs.

“It’s taken 12,000 hours of development work, involving 53 expert stakeholders, across more than three years, but ISO 19030 is finally nearing publication,” says the coatings company.

Jotun adapted its HPS guarantee to ensure it is fully ISO/DIS-19030-2 compliant.

The standard, which prescribes practical methods for measuring changes in ship-specific hull and propeller performance, has now been approved by the ISO’s Draft International Standard (DIS) ballot, with 93% of country representatives voting in its favour. This resounding approval rate paves the way for final publication, with ISO 19030 expected to be publically available at the end of Q3 2016.

Geir Axel Oftedahl, Jotun’s Business Development Director - Hull Performance Solutions, said: “Poor hull and propeller performance is estimated to account for around 10 per cent of the world fleet’s energy costs. There are very effective solutions for improving performance but, until now, [there has been] no globally recognised and standardised way for measuring this and providing return on investment for shipowners. ISO 19030 satisfies that demand, prescribing measurement methodology and defining performance indicators for hull and propeller maintenance, repair and retrofit activities.

“We believe this will provide much needed transparency for both buyers and sellers of fuel saving technologies and solutions, and, in doing so, enable the industry to operate with genuinely enhanced efficiency and environmental performance.”

With the standard now on the cusp of final approval, Jotun is moving to ensure that the HPS offering is fully compliant.

“Previously we used our own methodology as the basis for the guarantee, promising to refund customers the cost of the HPS upgrade if their vessel hulls failed to meet performance targets,” Oftedahl said. “However, now that a universal standard is so close to publication, we will use it as the foundation for the guarantee, effectively leading the industry with the first ISO/DIS 19030 compliant performance promise.”

HPS was introduced to the market in 2011 and in March this year Jotun released data for its first ever five-year dry-docking of a vessel treated with the solution – Gearbulk’s *Penguin Arrow* – showing that it recorded a fuel saving of US\$1.5 million, cutting CO₂ emissions by some 12,055t, across the 60-month period.

SCHOTTEL MAXIMISES RUDDERPROPELLER PERFORMANCE WITH A HARD COAT

Proplulsion systems builder Schottel has strengthened its Rudderpropellers with a hard coating to maximise corrosion protection and resistance to abrasion.

The underwater elements of the propulsion unit are coated with several layers of extremely hard, two-component epoxy resin. Compared with a conventional standard coating, this is characterized by 2.3 times



greater abrasion resistance and approx. 60% greater adhesion. For the above-water sections, Schottel uses a very dense and extremely durable two-component polyurethane coating.

In 2015, the German manufacturer's new production plant, not far from the company's headquarters in Germany, implemented a new air-mix painting process for preparation of the Rudderpropellers prior to the application of the hard coat, which meet the requirements of the highest corrosion protection class C5-M.

The environment also benefits from the new processes – both during production and with regard to the vessel itself: the paints contain considerably lower quantities of volatile organic compounds and solvents. The coatings are also harmless to aquatic organisms since a very smooth surface inhibits the adhesion of marine organisms, contributing to improved durability and efficiency.

The application of this coating system can also be combined with paints of older generations as well as with most two-component epoxy and polyurethane coatings.

SHIP EFFICIENCY

SPRINGFIELD ROLLS OUT ENIRAM PLATFORM TO MORE VLCCS

Following the success of previous installations, Greek shipowner Springfield Shipping has contracted Eniram to roll out of its energy efficiency technology to more of the shipowner's VLCCs.

"Our investment in a premium energy efficiency system shows the clear determination of the company to promote greener transportation. Eniram is a reliable provider of energy management with a dedicated team to support tanker customers, and we very much look forward to working together on this project and in the future, said the shipowner.

Nick Pinkney, Director of LNG & Tankers, Eniram, said: "We are delighted that Springfield Shipping, Greece's leading shipping entity, has decided on the further roll out of Eniram Platform and Eniram Fleet on their vessels. With our current installations, we have provided business intelligence to help Springfield Shipping understand how their vessels can save fuel and improve overall energy efficiency."

SEATREND UPDATED FOR FUEL MONITORING

Force Technology has improved its vessel performance monitoring tool, SeaTrend, with new features for daily fuel monitoring and analysis.

Originally, SeaTrend was designed to be a long-term hull and propeller fouling trending system enabling shipowners, managers or operators to make informed decisions on when to dock and cleaning intervals.

Since then this approach has undergone significant development and new features have been added to help shipowners optimise their fuel consumption as well as their daily operation on board the vessels. The daily fuel monitoring of the entire vessels provides an overview of each engine's fuel consumption, enabling the operator to act on any abnormalities.

The new features include:

- Full energy book keeping for the entire vessel (different engines)
- Daily analysis with traffic light alerts
- Overview of general vessel performance with traffic light indicators
- Comparison of fleet performance no matter class
- Plug and play automatic data collection

Force Technology says that implementation of the system may require changes in the culture and behaviour of the crew and can offer change management services to optimise implementation and operation.

PANAMA CANAL

HSHI SYSTEMS PROVIDE THE KEY TO LOCK SAFETY

Hyundai Samho Heavy Industries (HSHI) has completed the supply, installation and construction of 20,000t of key equipment for the third set of locks for the Panama Canal.

In 2010, HSHI won a US\$210 million order to provide 158 valves, 158 hydraulic power units, 84 bulkheads, and trash racks as part of a tranche of equipment to safely manage the water level of the new locks.

The completion of the third set of locks allow the passage of the post-Panamax vessels with a capacity of up to 14,000TEUs, a length of 366m, a width of 49m and a draught of 15m.

The newly-expanded Panama Canal opened on June 26.

REGULATIONS

NEW CONTAINER WEIGHT RULES

New rules to prevent container stacks collapsing and containers being lost overboard, and the associated injury and loss of life has entered into force, following a number of incidents involving loss of containers and containerships.

The intention of the new SOLAS rules is to provide measures to complement existing provisions aimed at the stability and safe operation of ships, including the safe packing, handling and transport of containers.

IMO Member States meeting at the Maritime Safety Committee (MSC) agreed that Administrations and port State control authorities should adopt a practical and pragmatic approach when verifying compliance during the first three months following July's entry into force of the new requirement, with a view to permitting packed containers loaded prior to this to be shipped to their final port of discharge without verified gross mass information.

According to the amendments to SOLAS regulation VI/2, either of two methods can be used to verify the gross mass of packed containers: weighing the packed container using calibrated and certified equipment; or weighing all packages and cargo items, including the mass of pallets, dunnage and other securing material using a methods approved by the State in which packing of the container was completed.

The shipper must ensure that the verified gross mass of each packed container is stated in the shipping document. This document, signed by the shipper or his representative, must be submitted to the master or his representative, and to the terminal representative, in good time for the ship stowage plan to be drawn up. If not, the container shall not be loaded onto the ship.

IMO Member States, shippers and shipping industry organizations have been preparing for implementation of the new requirement since it was adopted in 2014.

ENCLOSED SPACE RULE IN FORCE

A new regulation aimed at protecting seafarers who need to enter enclosed spaces, by requiring ships to carry portable atmosphere testing equipment on board, entered into force on 1 July 2016.

The new SOLAS regulation XI-1/7 (MSC.1/Circ.1477) requires ships to carry an appropriate portable atmosphere testing instrument, capable of measuring concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide, prior to entry into enclosed spaces.

Enclosed spaces covered by the regulation include, but are not limited to, cargo spaces, double bottoms, fuel tanks, ballast tanks, cargo pump-rooms, cofferdams, chain lockers, void spaces, duct keels, inter-barrier spaces, boilers, engine crankcases, engine scavenge air receivers, sewage tanks, and adjacent connected spaces.

Associated guidelines to facilitate the selection of portable atmosphere testing instruments for enclosed spaces have also been agreed.



IMO APPROVES RS GBS RULES

The Maritime Safety Committee (MSC) has confirmed that the Russian Maritime Register of Shipping's (RS) rules are in conformity with the requirements of the IMOs goal-based standards (GBS).

The SOLAS amendments introducing GBS were adopted in 2010 and entered into force on 1 July 2016 for application to oil tankers and bulk carriers contracted for construction on or after this date. The standards include a set of functional requirements for the ships throughout their service life – from designing to recycling.

A team of independent auditors performed assessed the RS rules, recommending that MSC recognise the rules as conforming to the IMO GBS. The recommendations were accepted at the 96th sessions of the Maritime Safety Committee, allowing RS to classify oil tankers and bulk carries contracted for construction on 1 July 2016 or after this date.

NEWBUILDS & DELIVERIES

CRUISE: TUI Cruises has accepted delivery of its third newbuild, *Mein Schiff 5*, from Meyer Turku 10 days ahead of schedule. The 99,800gt 2794 passenger capacity cruiseship has set sail for Kiel, her first German port of call.

CRUISE: Fincantieri's Sestri Ponente shipyard has delivered the first of two ultra luxury cruiseships to Regent Seven Seas Cruises. The 55,200gt flagship *Seven Seas Explorer* will be joined by a sistership in 2020.

COMPANY NEWS

PALFINGER TO BUY ALL SHARES IN TTS GROUP

Palfinger has announced its intention to acquire all the shares in Norway's TTS Group.

The Salzburg headquartered heavy lift specialist will make a takeover bid, via its subsidiary Palfinger Marine, offering NOK5.60 for every share traded on the Oslo Stock Exchange. Subject to a positive outcome of the due diligence audit, the offer would be made in agreement with the Board of Directors of TTS, and TTS would recommend its shareholders to accept the offer.

"Together with the acquisition of Harding, this acquisition would place Palfinger Marine among the global top three ship equipment suppliers. In the future, we want to be a one-stop shop, internationally offering all maritime customer industries competitive products and services," said Herbert Ortner, CEO, Palfinger AG. Subject to outcome of a due diligence audit and a official approvals, the acquisition could be finalised by the fourth quarter this year.

"TTS has clear ambition to grow through the development of a wider range of products and product packages within the deck- and cargo handling equipment to the various vessel segments. Joining Palfinger Marine, and potentially also Harding, will give large synergies and create a solid platform for the planned growth," said Toril Eidesvik, CEO of TTS Group.

CLUBS MERGER DISCUSSIONS END

The UK P&I Club and Britannia Club have terminated discussions relating to the possible merger of the two entities.

Since the announcement in February 2016, the Boards of the UKP&I and Britannia Clubs have held discussions regarding a potential merger of the two Clubs.

While a number of potential synergies and benefits were recognised, no agreement could be reached on acceptable terms, and the discussions have now ended.

WÄRTSILÄ ACQUIRES ENIRAM

Wärtsilä has signed an agreement to acquire Eniram, the Finnish energy management and analytics company, as part of a strategy to strengthen its digital offering and in-house capabilities.

Henrik Dahl, Eniram's CEO and co-founder, said: "With the accelerating trend of digitalisation and connectivity, there is an enormous amount of innovation happening across the maritime industry. Wärtsilä's leading market position coupled with Eniram's cutting-edge technology forms an unbeatable combination in the marine digitalisation space. With Wärtsilä's capabilities and resources, we can offer even more customer value. Eniram's team is looking forward to accelerating the expansion to new markets and the development of new solutions with Wärtsilä."

The transaction is valued at €43 million (enterprise value) and ownership of the company will be transferred to Wärtsilä with effect from 1 July 2016.

"Eniram has world-class analytics capabilities, and by joining forces we can provide our customers an unbeatable offering on both the vessel and fleet level. Eniram's offering and solutions truly complement the recently launched Wärtsilä Genius services portfolio. Together we will enable our customers to optimise their assets and improve predictability, as well as support them with real-time analytics. Further product launches from Wärtsilä and Eniram are to be expected in the near future," said Pierpaolo Barbone, President, Wärtsilä Services.



Jaakko Eskola, President and CEO, Wärtsilä Corporation (pictured), commented: "Through this acquisition Wärtsilä takes a solid lead in marine digitalisation. Going digital plays a strong role in our strategy and supports our aim to make both Wärtsilä and our customers more competitive. For us it means growing organically and via acquisitions. We will build strategic partnerships, innovate with start-up companies and continuously recruit new people to strengthen our digital expertise. Digitalisation offers significant growth potential for our customers and for Wärtsilä."

SURVITEC AND WMS JOIN FORCES

Wilhelmsen Maritime Services (WMS) and UK based Survitec Group has agreed to join forces in a development intended to create a world-leading player within the maritime safety industry.

As part of the agreement, WMS will transfer all of its safety business to Survitec Group, which includes Wilhelmsen Technical Solutions and the safety competence, products and accompanying services in Wilhelmsen Ships Service. Some 700 Wilhelmsen employees will join 2300 Survitec employees creating the most comprehensive provider of safety systems, products and services in the maritime industry.

"Upon completion of the merger, WMS will hold a 20% stake in Survitec, which will ensure Wilhelmssen's continued and significant involvement in a key market that is driven by regulatory requirements," said Dag Schjerven, president and CEO of WMS.

Survitec has been a supplier of rafts to WMS' life raft rental and exchange programme for many years. By combining their complementary solutions and services, the two major industry players aim at creating a total safety partner for the industry and additional commercial success through realisation of synergies and delivery of products and services on a greater global scale.

Brian Stringer, CEO at Survitec, said: "We have been working steadily with selected, strategic acquisitions and new product developments to become world leading within critical safety and survival. Teaming up with WMS and the Unitor brand brings us within close reach of our ambition and takes us to a new level."

Contract completion is expected in the fourth quarter of 2016.

BSM ENHANCES OFFICER TRAINING WITH NEW CYPRUS SIMULATOR

Bernhard Schulte Shipmanagement (BSM) has invested in a Full Mission Bridge and an Engine Room simulator for its training centre in Limassol, Cyprus.

The state-of-the-art technology is the only one of its kind in Cyprus and will allow BSM to offer enhanced training as part of the career development of its own officers, as well as external training for participants in the region. Training will include STCW (Standards of Training, Certification and Watchkeeping) courses as well as tailor-made customer courses to the advanced level required for Deck and Engineer officers.

This equipment allows users to select vessels from the library of 40 different ship types, operating in 25 sea and port areas. The Bridge Simulator also connects with the newly installed Engine Room Simulator enabling up to six students to train in ship's manoeuvring and machinery operations on individual stations.



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