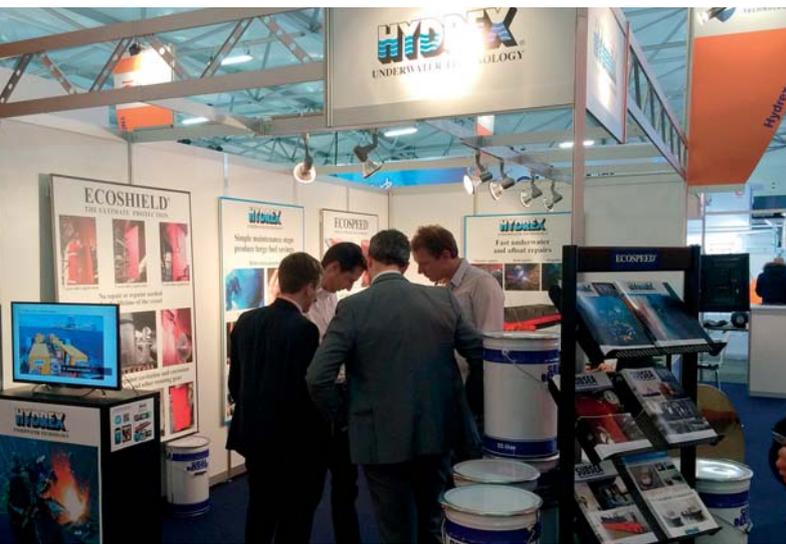


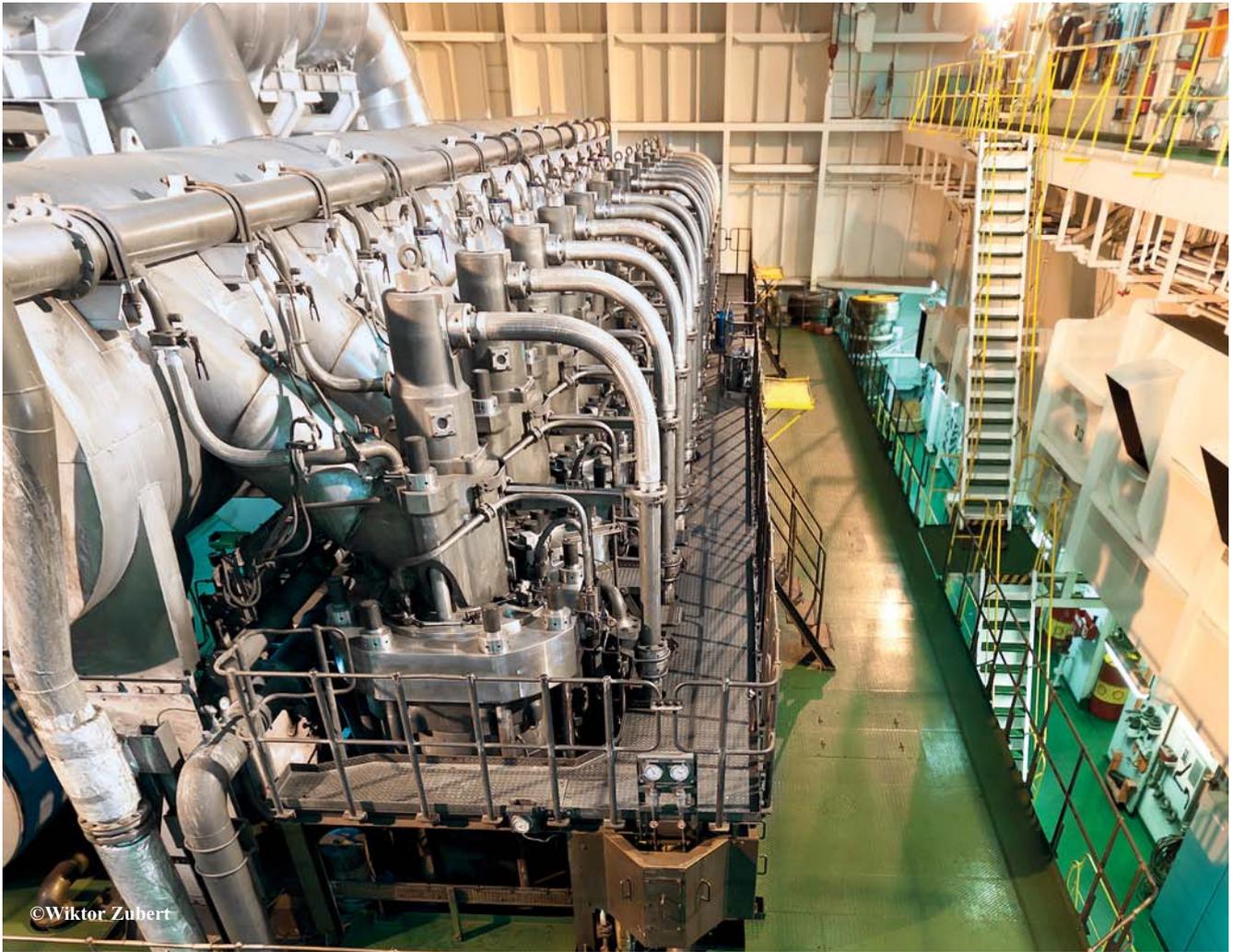
SUBSEA

PROTECTION AND PERFORMANCE

Magazine



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The only hull performance system that gives your engine a break

Ecospeed provides your vessel with long-term protection and dramatically improves the ship's performance.

An impermeable and extremely tough coating is combined with an underwater cleaning system. This keeps the hull roughness at an optimum level and results in a

major saving in fuel.

Ecospeed gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life. The coating comes with a ten year guarantee. No repaint will be needed during future drydockings.

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

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Editorial



This issue of our Subsea Magazine offers you articles on just a few of the many things we have been working on in the last couple of months. All of these are part of the expansion both Subsea Industries and sister company Hydrex have been undergoing recently.

We are constantly looking for ways to innovate our products and services. Europort 2015 was the ideal opportunity to showcase this for the visitors of the exhibition. This year's edition focused on technology, efficiency, human capital and new market opportunities, all of which fit in perfectly with our ideas.

Subsea Industries has a growing worldwide network of agents that allow us to reach a much bigger public directly than would otherwise be possible. Working closely together with our offices, they help us build a strong relationship with those who will benefit the most from our products: Ship-owners, ship managers and everyone who has vessels under their care that need lifelong protection.

Founder Subsea Industries NV
Boud Van Rompay

Subsea Industries at Europort 2015

EUROPORT

exhibition for
maritime technology

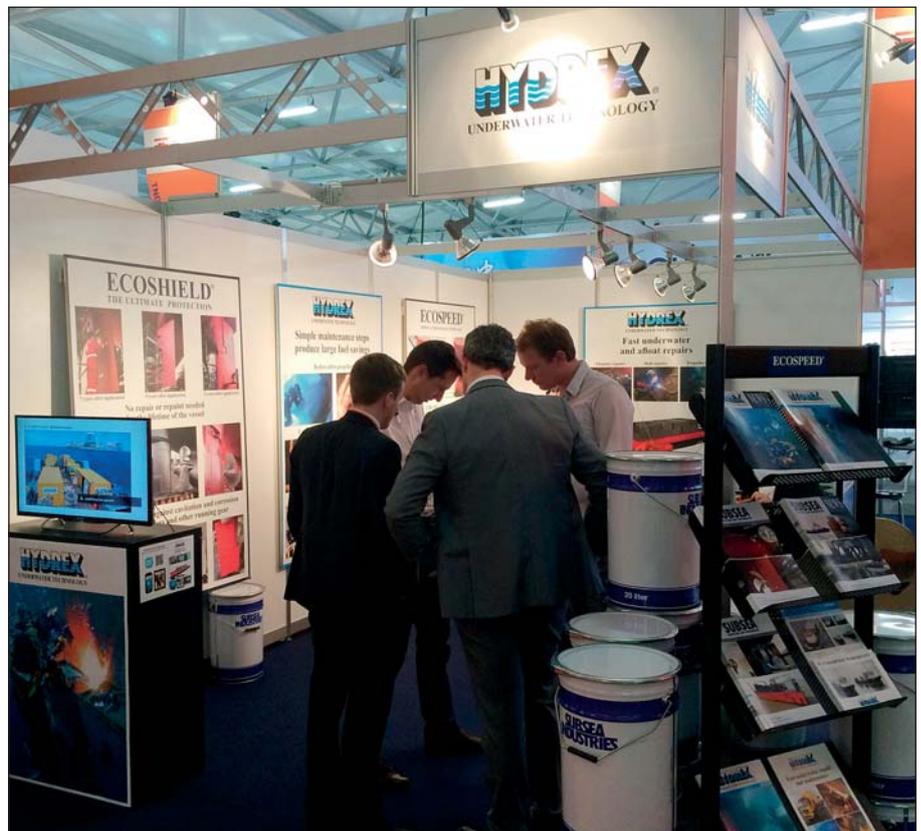
3-6 November 2015

Ahoy Rotterdam



The 37th Europort exhibition for maritime technology in Rotterdam was attended by almost 30.000 trade visitors from all parts of the world. The many exhibitors, including Subsea Industries and Hydrex were very satisfied with the exhibition.

According to the closing report on the trade show, "This year's exhibition attracted unprecedented overseas participation, with international visitors up to 22% and 15 country pavilions present. More than 56 events were dedicated to advancing leadership in: technology, efficiency,



With new products and techniques on display, our booth fitted in perfectly with the innovative aspect of Europort.



Hydrex and Subsea Industries booth at Europort 2015.

human capital, and new market opportunities. One of the most successful additions to the 2015 programme was the Europort Masterclass Series, which explored key topics at the leading edge of innovation. The series of six masterclasses along with the four conferences held attracted 1955 delegates.”

“A vibrant center of the global maritime community, Europort 2015 showed once again the credentials that have made it one of the world’s leading maritime events. Europort exhibitors proved that they are setting the global lead in terms of technology and innovation, driving much needed efficiency within the sector.”

Ongoing innovation

With new products and techniques on display, the Subsea Industries/ Hydrex booth fitted in perfectly with the innovative aspect of Europort. As part of the Dutch pavilion, the booth was a popular spot for visitors.

The booth was well manned by Production Executive Manuel Hof, Sales Officer Steven De Keyzer and Estimations Officer Tamara Mertens.

Many existing customers, technical people and interested newcomers to Subsea Industries or Hydrex dropped by. They enjoyed the

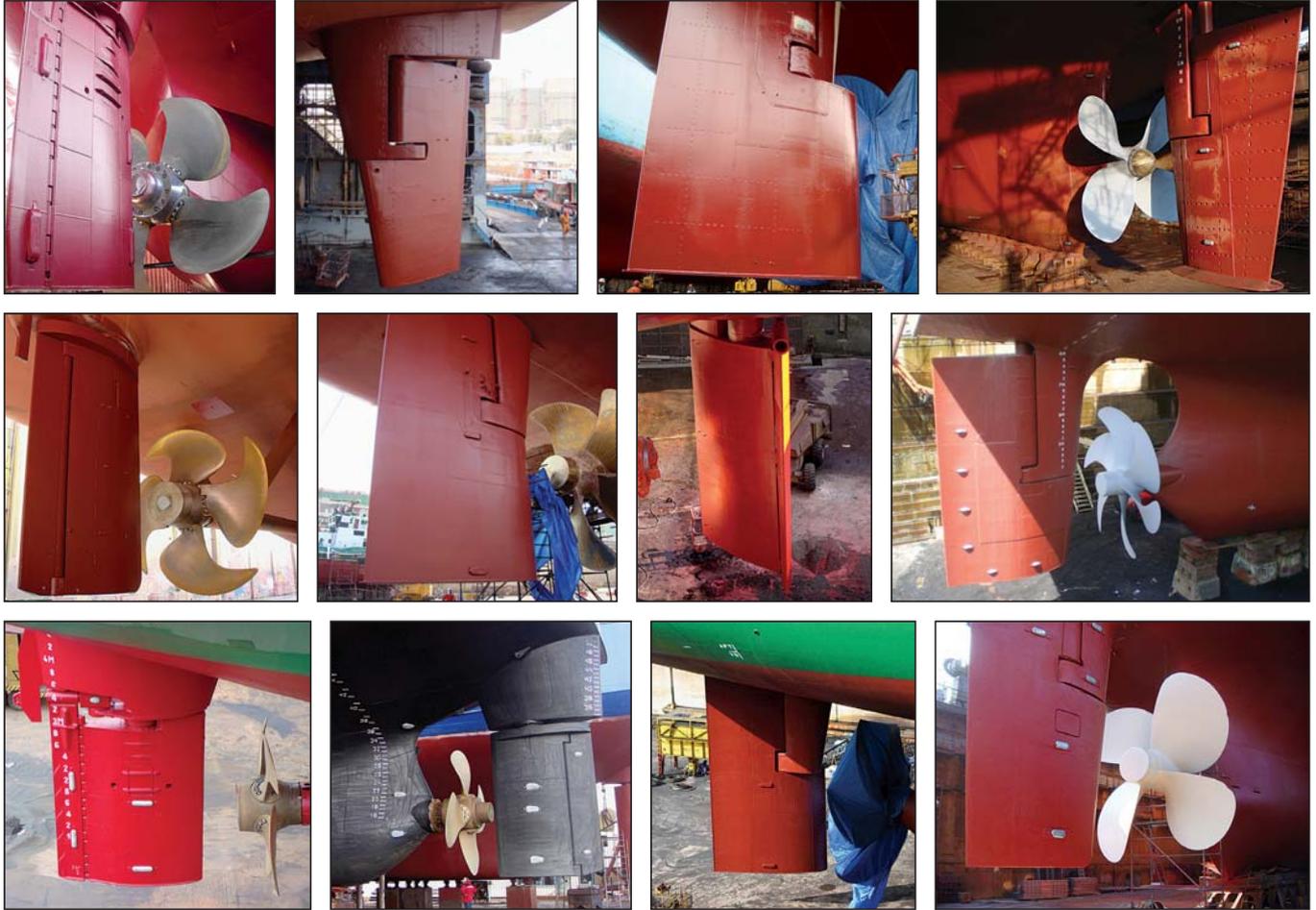
friendly, comfortable and informative atmosphere of the booth.

In the background Koen Smouts, Hydrex Equipment Officer, and his team performed flawlessly and efficiently in setting up and taking down the booth and making sure that it had everything that was needed, was comfortable and well stocked.

Summary

All in all Europort 2015 was a great success and we would like to thank all of you who visited us there for coming. We look forward to working with you on an ongoing basis. ■

The only coating that offers lasting rudder protection



Ecoshield gives a very thorough and lasting defense against cavitation and corrosion damage for a ship hull's entire service life.

The coating equally provides the rudder with an impenetrable protective layer while its flexibility enables absorption of the forces that are produced by cavitation. This prevents the damage normally caused

by this phenomenon.

Without proper protection against cavitation and the resulting erosion and corrosion damage, the financial consequences can be severe.

By removing the existing paint layers and applying Ecoshield on the rudder we can break the never ending cycle of painting, suffering damage, having

to perform extensive repairs in drydock followed by a full repainting, again and again.

With an Ecoshield application no full repaint will be needed during drydocking. Ecoshield is guaranteed for ten years. At the most, minor touch-ups will be required.

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THE DIAMOND STANDARD IN STEEL PROTECTION

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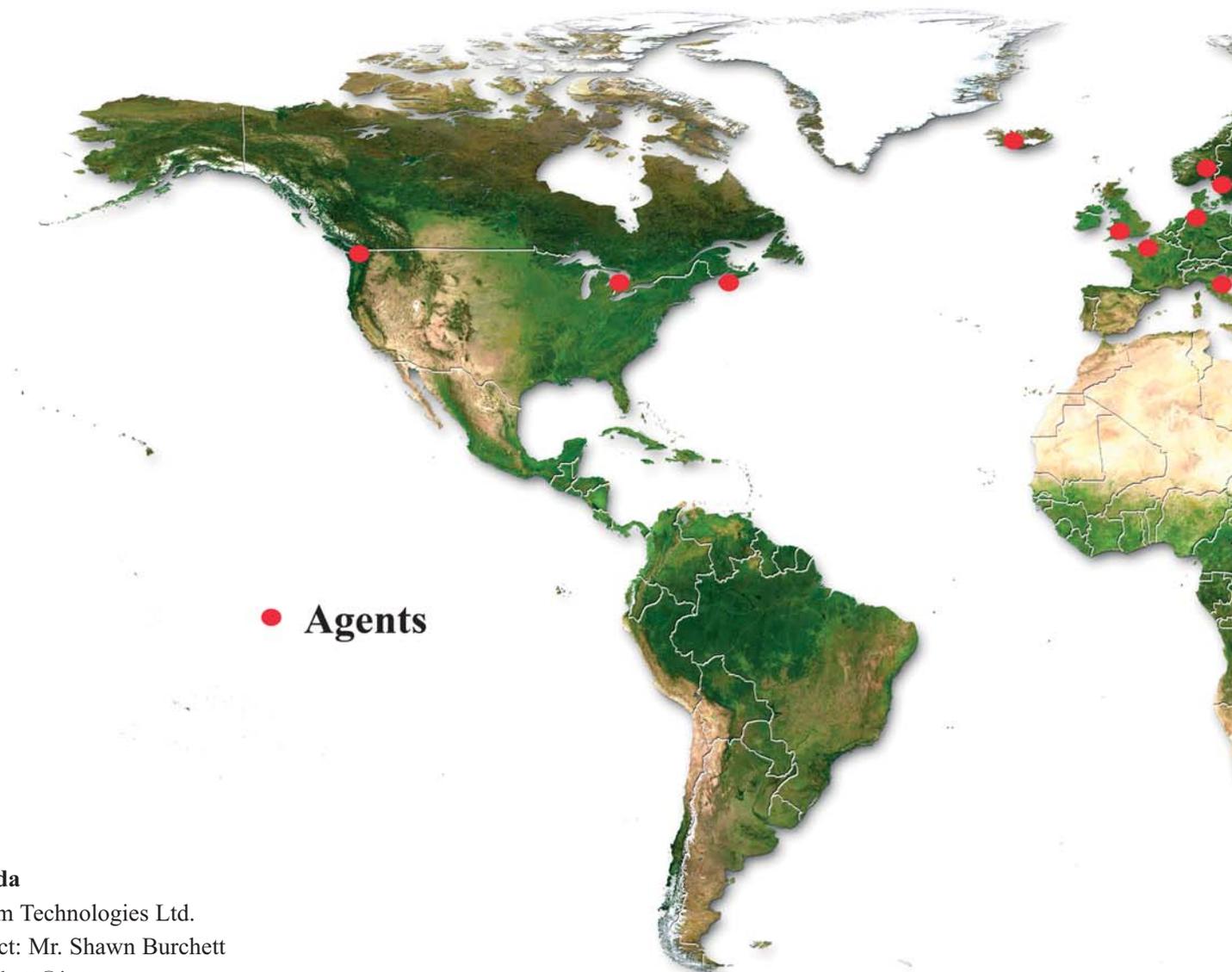
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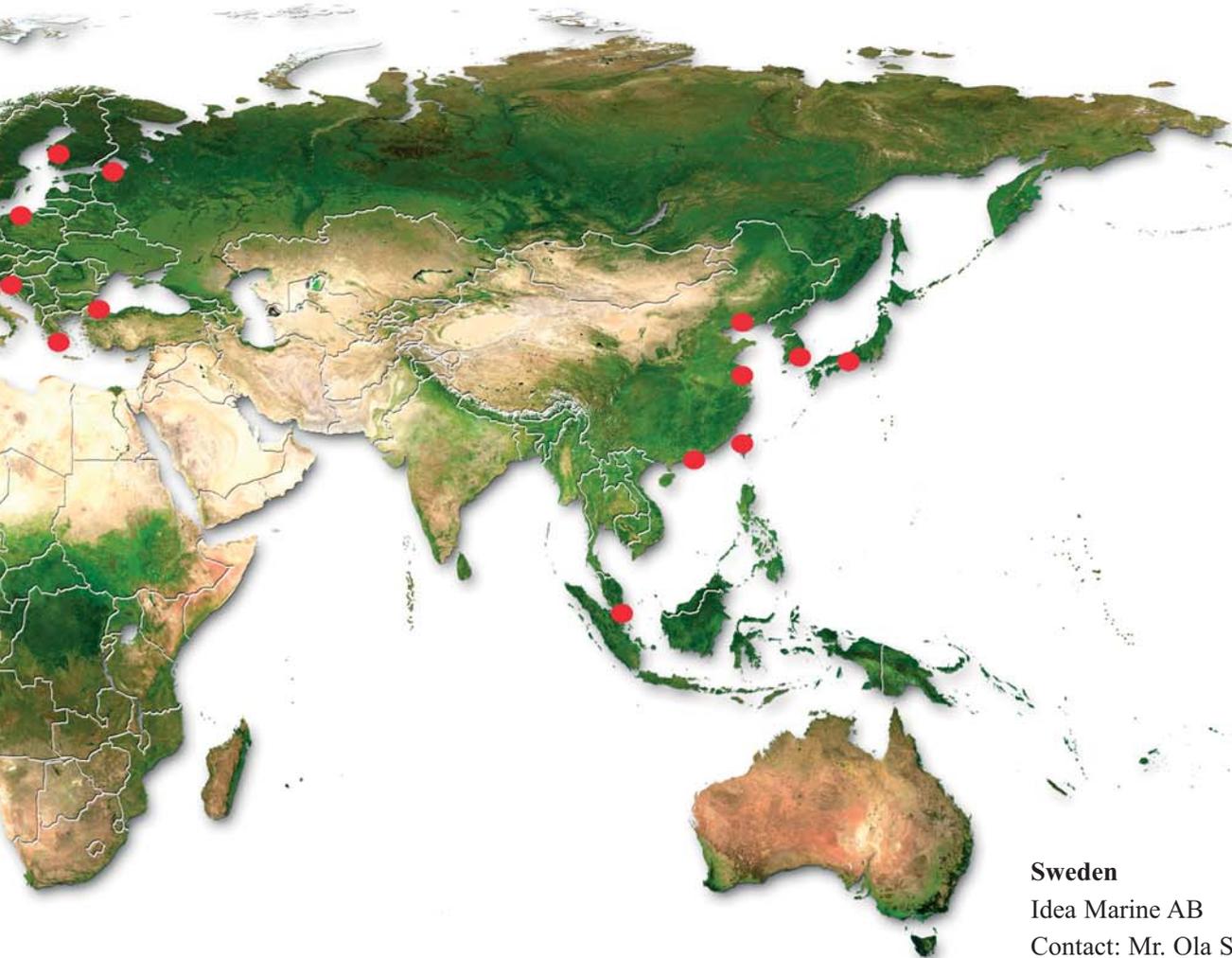
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Securing the lasting quality of our coating systems

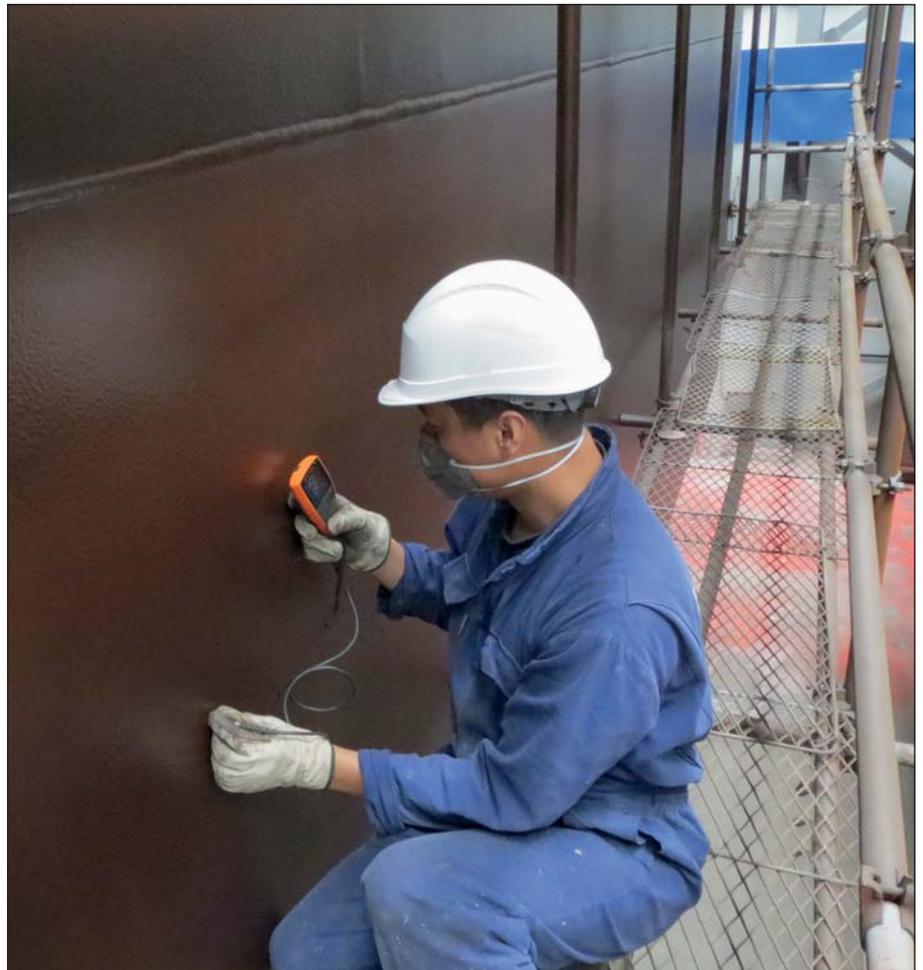
- An interview with coating inspector Raul Yu -

Subsea Industries works with a team of highly certified, highly qualified paint inspectors who monitor applications and have to give their approval for the warranty that comes with our coating systems. These inspectors have been working with us for years. They are not only familiar with Ecospeed, Ecoshield and Ecolock, but with a wide variety of paint systems. They are also very important in terms of cooperation with the shipyard and making sure that the product is applied according to the high standards we require for any application.

One of these inspectors is Mr. Raul Yu. Raul works for our agent in China, *Carich Marine Engineering (HK) Co., LTD* and has supervised many successful applications for us. The most notable was probably the application of Ecolock on the hull of the first-of-a-kind floating LNG liquefaction and storage unit, the *Caribbean FLNG* owned by EXMAR nv. At the moment Raul is inspecting a second Exmar project for us. We sat together to talk about his experience with our line of coating systems.

Can you briefly tell us something about your career?

Raul: My first job was at a domestic shipyard as a design engineer in the Hull Structure Department. In 2007 I started working as Shipbuilding Surveyor on behalf of European Owners.



Coating inspector Raul Yu during Ecolock project.

The first inspection I did on behalf of Subsea Industries was in 2009 on a newbuild project at the Anqing shipyard in China. First I worked as an assistant of a Subsea Industries inspector. After this practical training during real Ecospeed applications I started doing inspections independently.

What exactly does a coating inspector do?

Raul: The most important task of an inspector is to ensure that a coating project meets the required quality standards and that the application

is done as specified by Subsea Industries.

Before the project begins, I make myself familiar with the surrounding. Check the spray equipment to see if it is in good operating condition. A meeting with the owner's representative and a Quality Check of the shipyard is part of the daily routine. I do this to make sure that the quality remains the same throughout the entire project. Before the actual application starts I check to see if the weather conditions meet the specifications and I make sure



At the moment Raul is inspecting a second big Exmar project for Subsea Industries.

that the coatings is in good condition. During application I make sure that the subcontractor prepares the material thoroughly and that the spraying equipment is maintained correctly. After the coating is cured I check the Dry Film Thickness (DFT) of the coating. This is very important to ensure a lasting protection for the vessel. A final report is then written for the shipyard and the owner's representative.

I also visit ships that come into drydock after sailing with one of the coating systems on their hull or rudder for several years. I then perform a full inspection of the condition of the coating system and write a detailed inspection for Subsea Industries. If any small touch-ups need to be done I also supervise these. These normally do not involve more than 1% of the coated surface and are usually a

result of mechanical damage due to the anchor chain or the ship scraping against the quay wall.

Is it hard to learn to apply these coating systems?

Raul: In general Ecospeed, Eco-shield and Ecolock apply like any other paint or coating system. Most applicators are quite familiar with hard solid paints and they know the tricks of the trade. If the applicators have not worked with us before, I give them the necessary instructions. If the specifications are followed by the coating contractor, the application goes very well and smoothly.

What are the most important benefits of an Ecospeed/Ecoshield/Ecolock application?

Raul: After surface preparation only two identical coats, each of 500 μm dft, need to be applied. For a yard

this is important because it allows a job to be scheduled around other work taking place on the vessel, resulting in minimal interference between various activities. You can apply the coatings quite rapidly on a prepared surface and the possible overcoat time goes from three hours to very extended periods of time. Depending on what the shipyard likes to see, we can just adapt the schedule.

You were the inspector during the first EXMAR project as well as the ongoing second project. Can you tell us how you experience a large-scale operation like that?

Raul: These barges are built in blocks and these blocks are coated individually before assembly, leaving only the weld seams and the areas inaccessible due to the support blocks to be painted after the barge is assembled.

As usual with anything new, there was some initial reluctance to change from the traditional coating systems which the yard and applicators were familiar with.

Because the applicators had not worked with Ecolock before, I gave them the necessary instructions and had them apply Ecolock on a small test patch. This gives them a practical feeling of an Ecolock application. During the spraying of the first block, they found that the application is actually quite easy. Compared to traditional coating systems with multi-layers, these coating systems save them much time as after surface preparation only two similar coats each of 500µm need to be applied. Because of the short interval required between, a block can be fully coated with two coats in the same day. The senior coating sprayer who has more than 12 years

spraying experiences in different shipyards both in China and Japan was amazed at such a high application rate.

The application of the *Caribbean FLNG* with Ecolock was a first for the Wison shipyard. They are very satisfied due to the ease and speed of application as well as the quality of the coating. They told me that had the hull been coated with a traditional coating system it would have taken at least seven days from surface preparation to the final coat, but Ecolock has changed this completely. Two coats in a single day minimized the risk associated with multi-layer applications, saved time, labor costs, operation costs and other related expense.

Can you tell us why it is so important to have an inspector present during an application?

Raul: Subsea Industries insists that a paint engineer is present and available for the applicators on every job. This is not only to check the conditions during the painting process, but also to work closely with them and to make sure that there is a very easy and smooth application. This is very different from usual practices. Because we are closely involved with the application, we know exactly what has happened during the painting process. Subsea Industries offers a very extensive guarantee, it is therefore essential that they make sure that their standards are met.

Thank you very much for the interview. ■



Subsea Industries offers an extensive warranty if an application is done to required standards.

Underwater Cleaning Equipment

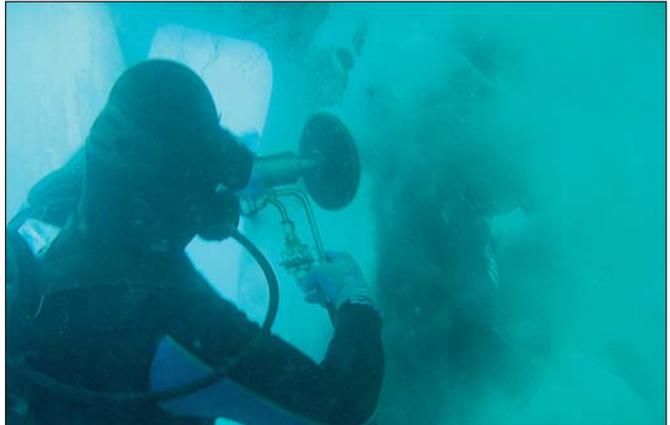
In harsh underwater environments it is essential to have sturdy and reliable equipment. The unique design of our underwater cleaning machines provides the efficiency and durability re-

quired in such conditions. All our systems are carefully designed with operational safety as a prime consideration. A range of systems is available for various applications. All our cleaning units are

offered separately or supplied with a complete support system including umbilical, tools and hydraulic power unit.

MC 111

The MC111 is our smallest model specially designed for cleaning and polishing ship hulls, propellers and thrusters. The MC111 is very handy and can be easily taken into difficult corners and niches while still obtaining the desired results.



MC 131

The MC131 is a compact unit designed for cleaning all kinds of marine fouling from yachts and smaller ships to offshore oil & gas platforms. The brush rotation speed is adjustable by the diver so as to achieve an optimum hourly cleaning rate.



MC 212

The MC212 is designed for cleaning light, medium and heavy marine fouling from ship hulls, offshore oil & gas platforms (concrete or steel), jetties, piles, intakes and internal pipelines. The equipment has a self-balancing feature, which allows the operator to use the tool safely and effortlessly for long periods.



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