SUBSEA

PROTECTION AND PERFORMANCE

Magazine 236

Subsea Industries is looking for representative agents

To support our continuous growth, we are expanding our worldwide network of Subsea Industries agents. This allows us to reach a much bigger public directly than would otherwise be possible.

Subsea Industries NV was founded in 1983 to take care of the design, development and marketing of an evolving line of underwater hull and propeller cleaning equipment as well as a line of hard hull coating systems.

The purpose of the Ecospeed range of coatings and cleaning technology is to offer a long-lasting, non-toxic protection for all ships with a system that keeps a hull ultra-smooth and free of fouling for the service life of the vessel with minimal repair and no replacement. Instead of using chemicals to kill and repel marine fouling organisms, Ecospeed uses a hard, impermeable, impenetrable coating along with manual removal of fouling at an early stage.

Contact us if you are interested in joining our network and help us build a strong relationship with our prospects and customers. We look forward to hearing from you.

SUBSEA INDUSTRIES

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Editorial

Drydocking is necessary for inspection purposes, replacement of certain parts and any necessary repair. In most cases, however, the time spent in drydock is substantially lengthened as a result of the replacement or repair of the hull coatings. The solution is very simple: Selecting the right type of coating system can drastically reduce the length of the visit.

Most of the time and effort spent in drydock goes to the maintenance or replacement of the coating system. This usually consists of five or six layers with application intervals of 24 hours in between. The required surface preparation alone will add several days to the visit. Three to seven days extra is not unusual. Adverse weather conditions will increase this number.

A substantial reduction of time and effort in drydock can be obtained by using a hard coating system like Ecospeed. Drydocking an Ecospeed ship can turn into a simple wash-and-go operation. This is due to the fact that the coating will withstand almost all impacts during its time at sea. Seawater, corrosion or marine fouling simply do not have an influence. The hull is usually in the same condition as it was when it was first coated. The same goes for the rudder, bow thrusters and other running gear.

If no paintwork besides small touch-ups is required then it is obvious that the days in drydock can be more than halved. What this yields in terms of savings depends on the type and size of the ship. For a fleet of 25 cruise ships this could result in 125-175 days saved per 2.5 year drydock interval. This amounts to 500-700 days on a 10-year cycle. This means saved drydock costs but also saved off-hire time.

We have many cases in operation right now that prove this, and we would be perfectly happy to discuss our technology and how it could save you a great deal of time in drydock.

A substantial reduction of time and effort in drydock can be obtained by using a hard coating system like Ecospeed.

Subsea Industries NV
Boud Van Rompay
Founder

Ecoshield application on first Hull Vane for the Royal Netherlands Navy

In May Ecoshield was applied to the Hull Vane intended for an ocean-going patrol vessel or OPV. Application was done by Straalbedrijf Schep en zonen BV at their location in Nieuwerkerk aan den Ijssel, the Netherlands.

Hull Vane is a Dutch invention designed by Hull Vane BV. It consists of a submerged transom wing at the stern of the ship or boat which renders ships more efficient and quieter, while improving their seakeeping. It essentially converts the stern wave's energy into forward thrust.

The Hull Vane for the Dutch Navy is fully customized and optimized for maximum performance and operability.

Final check of the Hull Vane surface preparation prior to Ecoshield application.

This Hull Vane will be installed in 2023 on the aft ship of a 108-meter, Holland Class patrol ship.

"It is by far the largest Hull Vane ever built and the first one to be installed on a naval ship," says Niels Moerke, managing director at Hull Vane BV. "Hull Vane works great on this kind of ship and provides a number of benefits. Maximum performance and employability were the goal, but we have had to comply with a number of additional requirements. Fortunately, we have proven to be able to fulfil these. We are also aware that foreign navies are monitoring this project with keen interest and the intention to follow the Dutch Navy."

Besides energy saving, which automatically leads to a reduction of CO2 emissions, the Hull Vane also offers many tactical advantages for the ship. Due to the suppressed stern wave, the vessel leaves much less

Hull Vane ready for application of second layer.

Ecoshield is applied in two identical layers.

All surfaces can be coated with Ecoshield for lasting protection.

obvious wake, making her less visible to satellites, drones and even certain types of torpedoes. The ship will have a higher top speed, and will be able to cross a long distance faster, e.g., when being deployed for emergencies. But above anything else, the goal is to reduce the dependency on diesel fuel. That is valuable in peace time, but even more so during war.[1]

An innovative coating for an innovative product

Nowadays, computational fluid dynamics (CFD) is used to customize and optimize the design of the Hull Vane for many vessels. It is therefore important that the device be given the best possible protection.

There is no better coating suited for this task than Ecoshield. A thick vinyl ester base with a very high concentration of glass platelets forms the impenetrable barrier needed to resist corrosion. Applied at newbuild, it will provide lifetime protection.

Ecoshield is primarily used to protect rudders and other running gear, but it can be used to safeguard any area that needs special protection from corrosion and cavitation damage. The extra strength coating protects these areas for the service life of the ship. There is no need for recoating or major repair.

Evidence of the success of the coating is the number of companies that began by coating one rudder experimentally and have ordered Ecoshield for the running gear on other ships after seeing the results in service. Most have plans to convert their entire fleet. Shipowners who

[1] *Source: https://www.hullvane.com*

Slot welds can be filled with our filler product Ecofix prior to Ecoshield application.

have previously applied Ecoshield to rudders on ships in service are specifying the coating for the rudders and other underwater gear on their newbuilds.

Conclusion

At Subsea Industries we are proud to be part of such an exciting project. We are looking forward to working together again with this innovative company and provide our coating systems for many more Hull Vanes. ■

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ECOSHIELD®
ULTIMATE PROTECTION

Overcoating time of Ecoshield can be as short as three hours.

ECOLOCK® ultra long-lasting protection for offshore hulls

Ecolock is designed to protect offshore vessels for decades without the need for drydocking. Increasingly, offshore units such as FPSOs, FSOs, FLRSUs and others used for offshore oil and gas exploration, drilling, storage and transport need to stay out of drydock for 15, 25 even 40 years.

The challenge has been to protect the underwater hull from corrosion and to provide a cleanable surface so that the biofouling that accumulates can be removed successfully and safely for UWILD and to reduce weight. Ecolock is the answer to that challenge.

Ecolock is an extremely tough and durable coating designed to remain in excellent condition for 15 - 25 years without drydocking, repair or replacement. Ecolock can be cleaned underwater as often as needed to meet the UWILD and weight requirements of FPSOs, drill ships and other offshore vessels. Ecolock is the result of continual R&D on offshore hull coatings since the 1990s.

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ECOLOCK®
LIFETIME CORROSION PROTECTION

Subsea Industries independent paint inspectors - Part III

In Subsea Newsletter 231 we published an article about the independent paint inspectors who play such an important role in making sure that our coatings are correctly applied and provide maximum protection for the longest time. In that article we said we would be publishing additional interviews with other inspectors. This is the third part in the series, after a follow up article in Magazine 234.

In this article we talk to Raul Yu who attends many, many newbuild and drydock applications of Ecospeed and Ecoshield. Mainly in China but also in other countries in Asia.

Raul Yu

Raul Yu is an independent paint inspector based in Qingdao, China, with 12 years' experience inspecting a wide range of projects. He has a reputation among Subsea Industries customers of being very hardworking, knowledgeable, and helpful and a real asset to any marine paint project. Following is a recent interview with Raul specifically for this article.

Raul Yu verifying the final DFT on an Ecoshield-coated rudder in drydock.

SI: What is your background as a paint inspector?
RY: My first job was as ship hull designer in a major Chinese shipyard back in 2005. Then I was a ship building surveyor (hull section) on behalf of European owners. I have worked as paint inspector since 2009. Actually, my first inspection was an Ecospeed application on a ship hull underwater area in China, as an assistant of a European inspector for Subsea Industries.

SI: What are your observations, opinion, feelings about Ecoshield and Ecofix as a solution for the repair of rudders and running gear that has been damaged by cavitation and corrosion, and as protection against damage from cavitation or corrosion?

RY: Pitting caused by cavitation can be seen frequently on rudders or running gear that have not been protected with Ecoshield. Ecofix is the perfect filler for corroded steel repairing and resurfacing. It is easy to mix and apply and cures at room temperature. No hot work is required.

Then Ecoshield protects the area from suffering corrosion and cavita-

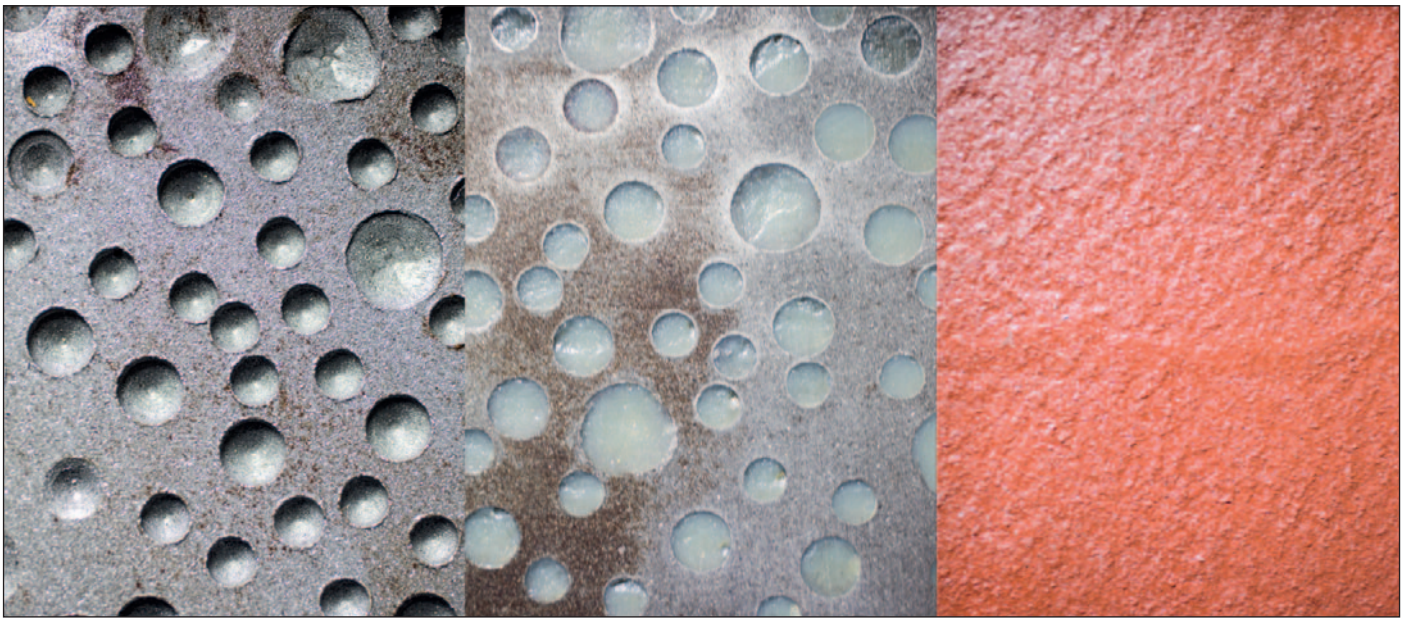
Ecofix being used to repair cavitation pitting on a rudder before Ecoshield is applied.

tion damage. So usually Ecofix is used in combination with Ecoshield. Because Ecofix uses the same basic resin, Ecoshield can be applied 1 hour after the Ecofix application.

The combination of Ecofix and Ecoshield is a fast, economical and long-lasting solution for areas that have been damaged by cavitation and corrosion.

SI: How easy and quick is the application? Does it save time compared to other possible products?
RY: Ecospeed or Ecoshield application is really quick and flexible.

Ecoshield and Ecospeed application is quite different from other hull coatings in that they are applied directly to the prepared surface. They are applied to bare steel with no need for a primer, undercoat, corrosion protection, tie coat or anything else before application. This is a great time saver.



Ecofix demonstrated as an ideal filler for metal prior to Ecoshield application.

Second coat of Ecoshield being applied to a rudder in drydock.

Only two coats are needed after surface preparation. The overcoating interval can be as short as three hours. So a rudder or bow thruster tunnel application can be completed in a single day.

After application, the curing time is very short. The vessel can leave drydock 24 hours after the final coat, compared to the minimum 36 hours required by other coatings.

SI: How good is the protection provided by Ecoshield? Have you seen ships in drydock after 10 years of sailing with Ecoshield on rudders or other running gear? How does the Ecoshield hold up over time?

RY: This is what I hear the most frequently from superintendents or shipyards when I am attending an Ecoshield application: "Hi Raul, good to see you again! The Ecoshield is still in excellent condition with just a few touch-ups needed on a few small areas." I believe this reflects how good Ecoshield is.

Application of all Subsea coatings is fast and easy.

Rudder after 10 years sailing with Ecoshield, with no repainting. No anodes required.

Raul Yu checking the DFT on an Ecolock application on a newbuild FLNG vessel.

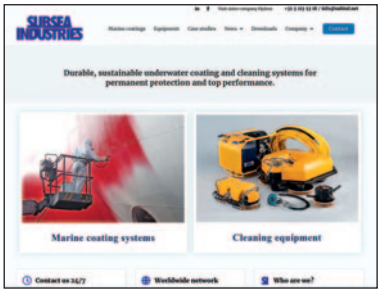
Yes, I have seen tens of rudders in drydock after 10 years of sailing with Ecoshield, and all were in good condition; none of them have suffered from cavitation damage since Ecoshield was applied. From more than 12 years' experience with Ecoshield, aside from the correct surface preparation, the Ecoshield special formula is the key. Once Ecoshield has been applied and has cured, it forms an extremely tough and durable coating, and it is strong enough to resist the forces of cavitation.

SI: How does Ecoshield compare to alternative products?
RY: There are indeed similar products (vinyl ester or vinyl ester glass flake) in the market. I do believe Ecoshield is the only one of its kind. I am always paying attention to rudders and bow thruster tunnels which are not coated with Ecoshield but some other product. I find serious cavitation corrosion. These products are usually either elastomeric type or other types of hard coatings. They peel off, or cracks are often seen. It seems they are not strong enough to resist or absorb the destructive forces of cavitation.

In over 12 years' experience of inspecting Ecoshield coated rudders and bow thruster tunnels, etc., there was no cavitation erosion where it normally would be expected to occur – 100% success.

Ecoshield is really a proven solution to protecting rudders and bow thruster tunnels from cavitation erosion. ■

Subsea Industries has a new website



We are excited to announce that Subsea Industries has a new website. The URL remains the same: www.subind.net.

On this website you can find information on our range of coating systems and cleaning equipment, as well as the latest news and case studies.

Technical documents, earlier case studies, our catalogue of magazines a list of certificates, an overview of the most important applications, … all of this can be found on the new site The familiar url www.subind.net will guide visitors to our homepage. From there they can easily navigate around the site to find what they are looking for.

Be sure to visit our new website regularly as we will update it frequently. We have some exciting announcements scheduled for the coming months.

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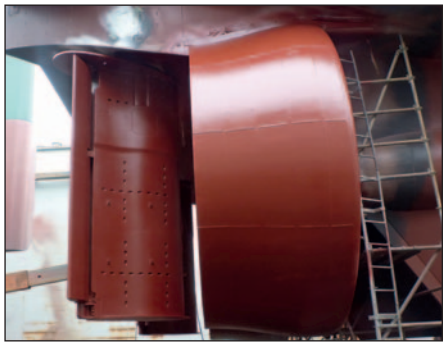

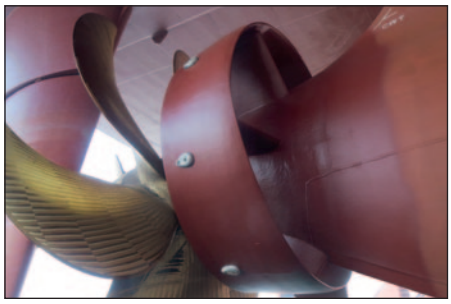

Subsea Industries NV, was founded in 1983 specifically to take care of the design, development and marketing of what has become an evolving line of underwater hull and propeller cleaning equipment as well as the line of hard hull coating systems.

All products produced by Subsea Industries have the same goal in mind: To keep the underwater part of your vessel in the best possible condition for its entire lifetime at the best possible performance.

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