SUBSEA
PROTECTION AND PERFORMANCE

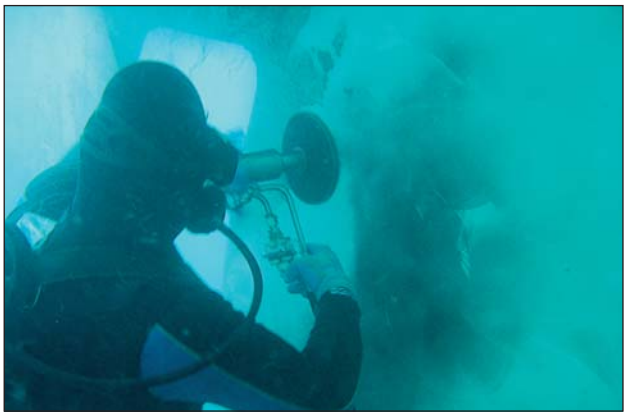
NEWS
LETTER

Different coating systems for different applications

Underwater Cleaning Equipment

MC111

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.



MC131

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.

MC212

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.

MC313

The downward pressure of the brushes can be adjusted throughout an operation and the heads are self-adjusting to the contours of the hull. Different types of fouling can be treated with the appropriate pressure. The unit is designed for ship hulls or other large surfaces.

SUBSEA INDUSTRIES

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Different coating systems for different applications

Last month we talked about the benefits Ecospeed offers. If you missed this article, you can find it on our website together with past issues of our magazine. This month we look at the other coating systems in the Subsea Industries family together with Manuel Hof, Production Executive for Subsea Industries.

Rudders of oceanographic research vessel protected with Ecoshield.

Manuel: In 2013 Ecoshield was launched for permanent protection against cavitation damage for rudders. One year later Ecolock was introduced. This coating system is designed to protect offshore vessels for decades without the need for drydocking. The latest members of the family are Ecofix, a superior, tested and proven filler and Ecolast, a ultra-violet resistant coating that preserves its color while at the same time offering the corrosion and abrasion protection our coatings are known for. Both were launched last year.

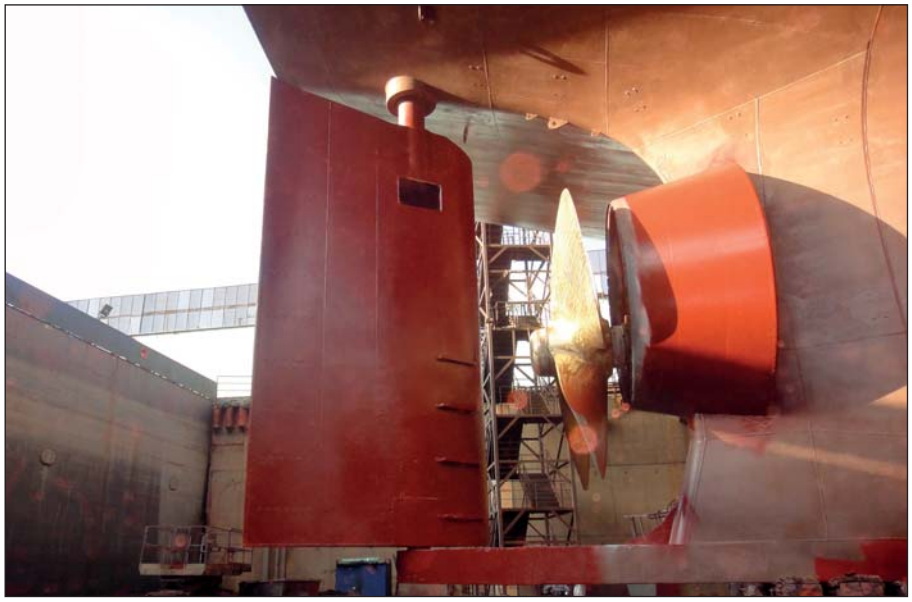
Overcoating time in between layers is as short as three hours.

ECOSHIELD®

THE DIAMOND STANDARD IN STEEL PROTECTION

Manuel: Ecoshield is an enhanced version of Ecospeed. Small but significant variations of the Ecospeed formula have been tested on rudders since 2002 with extraordinary results. We have done quite a few rudders with Ecospeed in the very beginning. With really good results. So we started to enhance the coating with corrosion protection as the main idea. After years of testing (initially under the name Ecospeed Strong) we then launched the product in 2013.

Application of first layer on nozzle of crude oil tanker.



Rudder and nozzle of crude oil tanker after sailing with Ecoshield for two years.

Ecoshield is designed to protect rudders and other underwater running gear against the cavitation phenomenon: against pitting, corrosion, erosion and so on. We have a constantly growing number of new customers and the old ones keep returning. We have vessels sailing with the coating system on their rudders for up to ten years and counting. When they come into drydock, the coating is always in very good shape. Since 2013 Ecoshield has been applied to the rudders and thruster nozzles of ten vessels owned by Greek ship owner Pleiades Shipping Agents. Some of these vessels have since drydocked but their rudders and nozzles experienced zero cavitation damage and did not need to be recoated. We recently had a customer who said that 'the coating simply works'. This was when one of his vessels docked five years after application.

Ecoshield is not only used on rudders, but also on thrusters, thruster tunnels, nozzles and other running gear. We are also in communication with OEMs to include Ecoshield in the newbuild plans of their products. This allows them to offer their customers a complete package with lasting protection.

ECOFIX®
CORROSION REPAIR

Manuel: Ecofix is used for filling and building up a corroded and pitted steel surface to its original form prior to coating it with Ecoshield. Ecofix is as tough as the steel itself. It is machinable and can be used to repair most pitting or corrosion damage on rudders, stabilizer fins, thrusters and other underwater gear.

Ecofix is used in combination with Ecoshield, the ultimate rudder pro-

Corroded areas like this can be filled with Ecofix.

Ecofix application on rudder of LPG tanker.

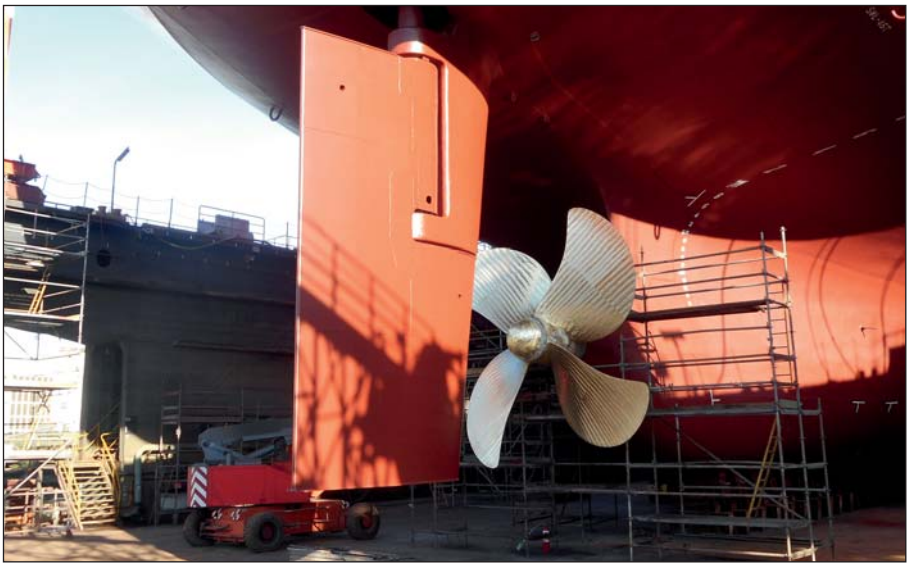
tection coating. When a rudder or other piece of underwater ship gear has not been properly protected, the surface will become corroded. Cavitation damage can cause severe pitting. The steel needs to be restored to its original shape with a smooth surface prior to recoating.

This is where Ecofix comes in. It is a superior, tested and proven filler. Because it uses the same basic resin as Ecoshield, the coating can be applied just one hour after the filler. The bonding and hardness are extraordinary. This is the effective alternative to metal facing or very expensive alternative fillers. And because it is part of the Subsea Industries family, it is fully compatible with our coatings.

ECOLOCK®

LIFETIME CORROSION PROTECTION

Manuel: Ecolock is used on stationary offshore units. The main benefit of the coating system is corrosion protection and the possibility to clean it. These units are designed to stay on location for 15, 20 and even up to 30



The combination of Ecofix and Ecoshield will keep the rudder in pristine condition from now on.

Application of Ecolock on the blocks of a FSRU.

Coating the weld seams after the blocks have been assembled is very easy and leaves a smooth finished surface.

Ecolock was launched in 2014. (Pictured: the Caribbean FLNG*.)*

Wind turbines like this benefit greatly from Ecolast, as the coating will preserve the regulated color of their towers.

years. Hull integrity and corrosion protection is a major thing. Class demands an underwater inspection twice every five years to see if the hull is in good shape. So the hull must be cleaned to allow these inspections. If the hull is cleaned on a frequent basis, say every two years, this offers no problems at all.

The standard warranty is ten years, but for Ecolock this can be extended to 15 or 20 years. The difference is the number of layers. Two coats give you ten years, three coats 15 and four coats give you 20. This is really a guarantee, not just a commercial promise.

Over the last couple of years alone we have done several big offshore projects, including two project for Exmar NV. Exmar, headquartered in Antwerp, Belgium, introduced the world's first floating LNG liquefaction barge, the *Caribbean FLNG*, in 2013. The main reason for choosing Ecolock was to protect the underwater hull from corrosion for at least 15 years without having to drydock or repair or replace the hull coating.

Ecolast will keep its color because it is highly ultraviolet resistant, which is a key benefit for offshore wind farms.

Another key factor in choosing the hull coating system was the need for a clean, environmentally safe hull to facilitate the required class inspections. In the second half of 2015 application of Ecolock started on a newbuild Floating Storage and Regastification Unit (FSRU) in China. This project was completed at the start of 2017.

One of our Ecolock projects was planned to be deployed in Colombia where there is a lot of fishing activity. So besides durability and the knowledge that the coating would stay on for long enough, the owner and the local authorities wanted to be absolutely sure that no toxic elements would be leaching into the aquatic environment. Not during regular activity and not during cleaning.

ECOLAST®
LONG TERM UV RESISTANT

Manuel: The final product in the family is Ecolast and was launched just last year. This coating is ultraviolet (UV) resistant and preserves its color while at the same time offering the corrosion and abrasion protection our coatings are known for.

Regular coatings will quickly lose their original color when exposed to the ultraviolet radiation present in sunlight. This is problematic when colorfastness is required, as is the case in for example offshore wind farms.

Ecolast is highly resistant against salt, ultraviolet radiation, waves or even ice. Mechanical damage to the coated surface is minimized. This is especially important for (semi-) submerged structures like wind turbines that are located in splash or tidal zones.

Like all other coatings systems in the Subsea Industries family, Ecolast is also unaffected by corrosion. As a result no repaint is required once the coating has been applied. ■

SUBSEA INDUSTRIES

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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