SUBSEA

PROTECTION AND PERFORMANCE

Magazine

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Corrosion damage very repair made ✓easy

Subsea Industries has a product for filling and building up a corroded and pitted steel surface to its original form prior to recoating with Ecoshield. Ecofix is as tough as the steel itself, 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 protection coating. When a rudder or other piece of underwater ship gear has not been properly protected, the surface will become corroded.

Cavitation 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 very expensive fillers. And because it is part of the Ecospeed/Ecoshield family, it is fully compatible with our coatings.

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ECOFIX®
CORROSION REPAIR

Editorial

The newbuild phase is the only moment at which hull coating can be applied to the ship before it has suffered performance loss due to corrosion or mechanical damage.

Choosing the right coating at this moment secures the future longevity and economy of the vessel. The initial investment in Ecospeed during the newbuild phase is relatively small and will be recovered even faster than if applied after some years in service.

Ecospeed will remain intact, protecting the hull for the lifetime of the vessel. This represents an enormous saving in paint costs throughout the next 25 years or more. Time in drydock for recoating is therefore also eliminated completely. The choice of future drydock locations increases as these are no longer tied to weather conditions suitable for repainting. Remaining on-hire for longer periods gives greater flexibility and because the cost of repainting is eliminated, the opportunity to go to yards that have a higher technical capacity becomes less expensive.

With Ecospeed, a ship avoids building up layer upon layer of paint with a subsequent deterioration of the vessel's performance. Each application with a conventional hull paint brings about a thicker, non-uniform covering of the hull, negatively affecting speed and efficiency. Should the occasional mechanical impact occur to an Ecospeed coating, it is easy to repair as touch-ups are very simple and quick to do in almost all weather conditions.

Stable performance

Many ships sail with a chartering contract that includes a penalty clause if fixed distance/fuel consumption ratios are not met. However, the distance/fuel ratio is unpredictable with regular paint systems and it will also worsen over the years. This is due to wear down, buildup of paint layers, corrosion and other damage which reduces the vessel's performance and increases fuel consumption. In this way the ship becomes more expensive and profits are trimmed.

Ecospeed offers ships excellent protection against corrosion, keeping the hull in its original state throughout its lifetime. As a result the ship's performance remains stable. A fixed distance/fuel ratio can be determined in advance and penalties are therefore avoided.

Advantages of application during the newbuild phase:

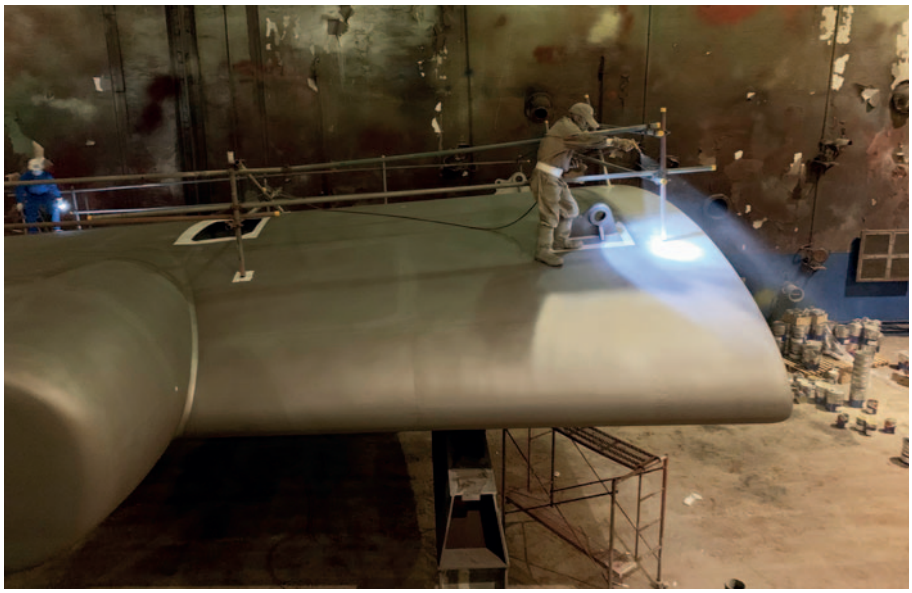
- Large savings on future repainting costs
- Increase in choice of locations to drydock
- No paint layer build up
- Low fuel consumption
- Stability in the ship's performance
- Protection against corrosion
- No time pressure with application
- No maximum overcoating time
- 100% environmentally safe

Ecospeed benefits all newbuilds from the start. It is the coating that provides an all-round protection, and is economically viable and ecologically sound.

Subsea Industries NV
Boud Van Rompay
Founder

Permanent protection against cavitation

In the last few months a large number of vessels belonging to seven different owners received Ecoshield protection for their rudders, bow thruster tunnels, nozzles and Mewis Ducts. The applications were carried out in China, Singapore, Turkey, Bulgaria, Dubai and the U.S.A. on a wide range of vessels. These included several container ships, tankers, tugs and general cargo vessels. The running gear of these ships will be protected against cavitation and corrosion damage for the rest of their service lives.



Application of first Ecoshield layer during block phase.

Condition of rudder prior…

and after surface preparation, ready for Ecoshield.

Thruster tunnels and other running gear can be fully protected with Ecoshield.

Slot welds filled with Ecofix.

A constantly growing number of shipowners have Ecoshield applied on the rudders and other running gear of their fleet. This coating ensures lasting protection against corrosion and erosion damage.

Rudders, thrusters, nozzles and other underwater running gear are exceptionally prone to corrosion and cavitation damage. Cavitation is caused by the spinning of propeller blades. If running gear is not given the proper protection against this the damage can be severe.

This leads to expensive and time-consuming repairs in drydock at least or malfunctioning of the running gear at worst. A rudder has been found missing in its entirety on more than a few occasions with substantial financial consequences for a shipowner.

A lasting solution is available

Ecoshield was designed to protect all running gear for the lifetime of the vessel. This coating system is applied only once. No repaint will be needed during future drydocking. Only small touch-ups to repair mechanical damage will be required.

Applying Ecoshield is a fast and easy to learn process. As a result an application is very flexible and can easily be scheduled around the planning of the yard. Only two layers are required. The minimum overcoating time between these layers is only three hours. This means that most running gear can be coated in a single day.

Newbuild ships benefit the most from Ecoshield. Applying the coating during building means a vessel's running gear will be protected from the moment the ship leaves the shipyard until the end of its service life. A shipowner will not have to worry about repainting during any of the scheduled dockings.

Thruster nozzles on tugboat after application of first layer.

Ecoshield can be applied during the block phase or when the rudder is already attached to the ship.

Only two layers are needed.

Application of second Ecoshield layer on thruster nozzle.

An existing ship can also be protected with Ecoshield. If for instance a rudder has already suffered corrosion damage, the coating can prevent any further damage from occurring. In such case Ecoshield can be used in combination with another product in the Subsea Industries family: Ecofix.

Ecofix is a superior, tested and proven filler that restores the steel to its original shape with a smooth surface prior to recoating. Because it uses the same basic resin, Ecoshield can be applied just one hour after the filler.

Slot welds can also be filled with Ecofix on a newbuild rudder prior to Ecoshield application.

No repaint will be needed during future drydockings.

This rudder will be protected against cavitation damage for its entire lifetime.

From one rudder to an entire fleet's running gear

Since the original application rudders have been coated on a wide variety of ships: cruise ships, cargo vessels, container carriers, ro-ro cargo ships, cable layers, dredgers, crude oil tankers, research vessels, ice-going ships and icebreakers, tugboats, reefers, passenger ferries, bulkers, navy vessels and others. These applications were performed in shipyards across the globe.

Shipowners that started with a single rudder as a test have since then ordered the same protection for the running gear of their entire fleet. Several have included the coating in the newbuild specs to make sure cavitation and corrosion cannot touch the steel of their ship's running gear. Even after years of service these owners are experiencing zero cavitation damage and failure.

Do you want the certainty that your ship's running gear is protected for its entire lifetime? Call us today. ■

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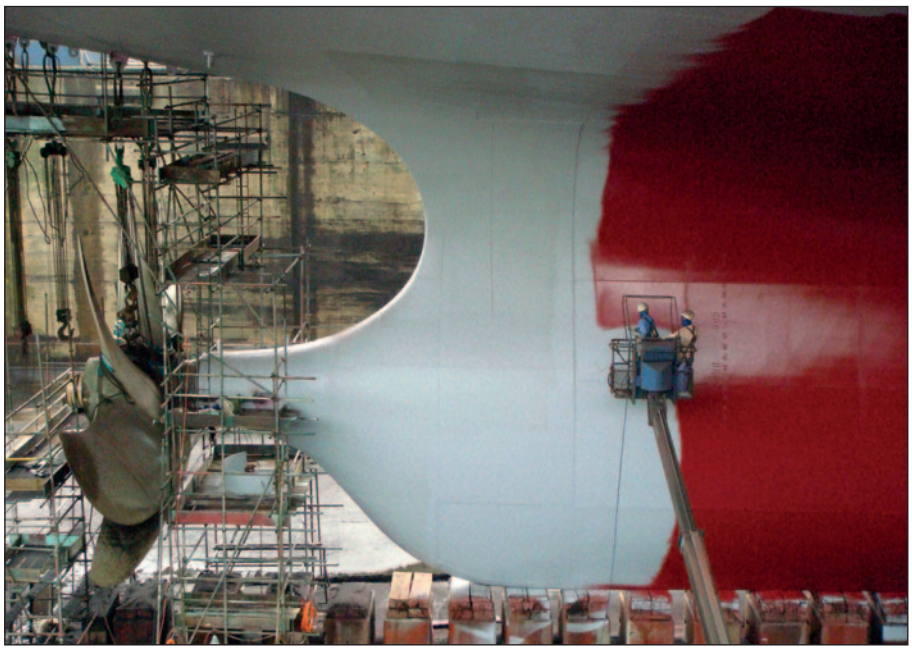
Fast and easy Ecospeed application

Our coating systems offer many benefits to shipowners, ship managers and operators. In this article we take a look at how applying Ecospeed (or any other Subsea Industries coating) to a vessel can save much worry, time and hassle for superintendents and shipyards during drydockings, as well as save expenses for the owner.

Like all our products, Ecospeed is an extremely hard coating system with optimized hydrodynamics that can easily be maintained in service. This has a huge potential for reducing total cost of ownership of the vessel. When ships come out of the water after lengthy periods, there is no delamination of the coating from the hull, there are no paint blisters that would be indicative of anti-corrosive failure and the overall hull is still smooth. There are also the environmentally friendly aspects of the product. Studies done in the Netherlands and Canada have determined that in-water cleaning of Ecospeed produces no materials that are toxic to the marine environment.

High quality application: the secret of long-term durability

The effect of the degradation of a regular paint system and the build up of paint layers on the fuel efficiency of the ship is largely underestimated. There are very substantial benefits in stripping away all the old paint; immediate fuel savings of up to 20-30% are very realistic numbers.



When Ecospeed is applied any build-up of paint layers is ended forever.

When Ecospeed is applied this build-up of paint layers is ended forever. Once the hull coating has been applied you will never have to reblast again throughout the entire service life of the ship.

Surface preparation is the foundation of a coating system. As soon as you start tampering with the quality of the surface preparation, you will tamper with the total quality and as a consequence service life of the

There are very substantial benefits in stripping away all the old paint; immediate fuel savings of up to 20-30%.

The coating schedule can be adapted to that of the yard and it does not have to be the other way around.

Applying Ecospeed is straightforward and easy to learn.

We have specialized coating systems for every part of the underwater vessel.

coating. For this reason at least one Ecospeed coating inspector is present and available for the painters on every job. This is to check the conditions during the application process, but also to work together with them to help ensure a very easy and smooth application. Because the inspectors are closely involved with the application, they know exactly what has happened during the coating process. This allows them to approve the 10 year warranty that comes with an Ecospeed application.

We work with our own team of highly certified and qualified coating inspectors. These inspectors have been working with the company for many years. They are not only familiar with all our coating systems, but with a wide variety of other coatings. They are very important in the cooperation with the shipyard and they make sure that the product is applied according to the required standards. This guarantees that the results will be there for the shipowner for the next ten years and beyond.

Flexible and easy to learn application process

The high standards that are demanded for an Ecospeed application do not mean that learning to work with the coating is a difficult process or that the application itself is hard to schedule or carry out.

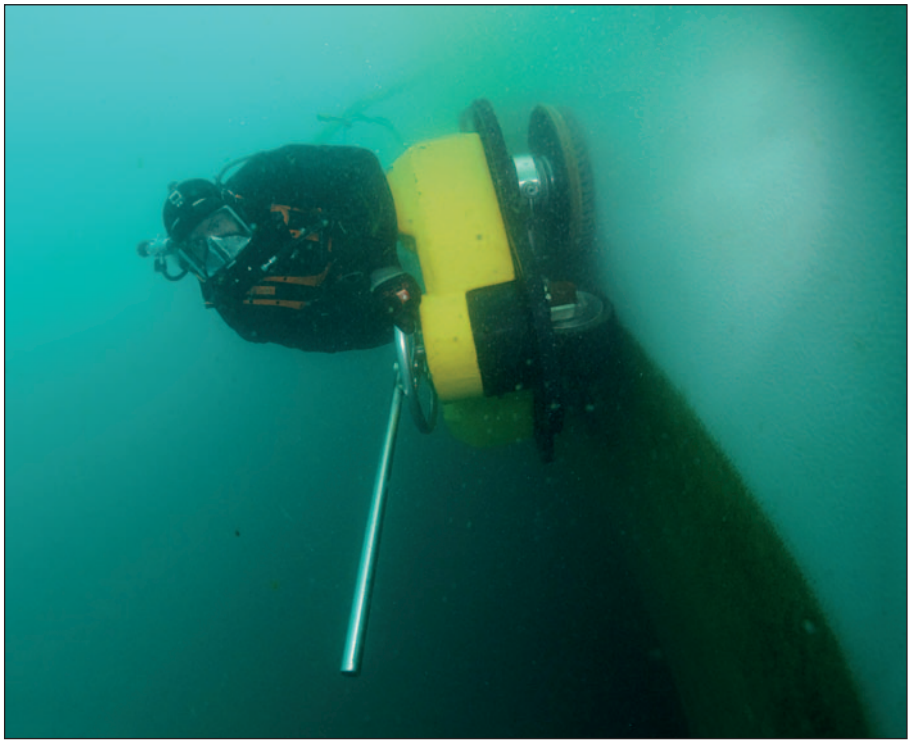
Applying Ecospeed is quite straightforward and in general it paints like any other paint. When the specifications are followed the application goes very smoothly.

The Ecospeed coating also offers a tremendous flexibility to the shipyard. The minimum overcoating time for all our coating systems is

We work with our own team of highly certified and qualified coating inspectors.

three hours. This means that for smaller surfaces such as rudders, nozzles or bow thrusters, the two coats can often be applied in one single day.

During drydockings there is a lot more going on than just the hull coating, which can easily interfere with the planning of your project. Because Ecospeed has quick and flexible overcoating times, application can be scheduled around other work taking place. This results in minimal interference with other activities.



In-water cleaning of Ecospeed produces no materials that are toxic to the marine environment.

Ecospeed only requires two layers of 500 µm each. This is a major advantage compared with other hull coatings. A classic antifouling coating systems can easily have five or more coating layers that need to be applied and some of the newer silicone based hull coatings also consist of four to five layers of coating. Compared to this a two coat application is quicker, cheaper and more flexible.

The coating schedule can be adapted to that of the yard and it does not have to be the other way around. A traditional paint application schedule is defined by surface preparation and by the weather conditions, which are difficult to predict. The application of Ecospeed is easier to adapt to the application windows that become available. You can apply the coating quite rapidly on a prepared surface and the possible overcoat time ranges from three hours to very extended periods of time. Depending on whatever suits the owner's or the shipyard's schedule the second coat can be applied within a couple of hours or after a few weeks or even months.

Hassle-free planning of drydockings

The durability of Ecospeed makes the planning of future drydockings far easier for the shipowner and the shipyard. Shipowners will not have to do any repainting beyond minor touch-ups. These can easily be done during a short drydock visit, which is in contrast to the full renewal of paint layers that is needed with other paint systems.

The amount of time many ships spend in drydock is directly related to (re)painting the underwater hull. When this can be taken out of the equation for the choice of location

Fouling can easily be washed off in drydock with high pressure tools.

Minimum overcoat time between layers is only three hours.

and season for drydocking, then the story becomes a lot easier for superintendents, for the shipyards, for everybody involved.

The washable coating

The standard procedure for shipyards when a ship enters drydock is general cleaning of the ship hull to clear away any fouling and residues, especially salt residues that may adhere to the coating system. With Ecospeed the coating is always in a brand new, excellent condition after the high pressure washing. The surface texture is very smooth. It reveals without exception that Ecospeed does not need any additional paint layers.

There is also a very big difference between washing Ecospeed and other paints. With Ecospeed none of the paint material is lost. Only the fouling is removed. The coating stays on the ship instead of dispersing in the water and contaminating the shipyard and the surrounding waters.

Summary

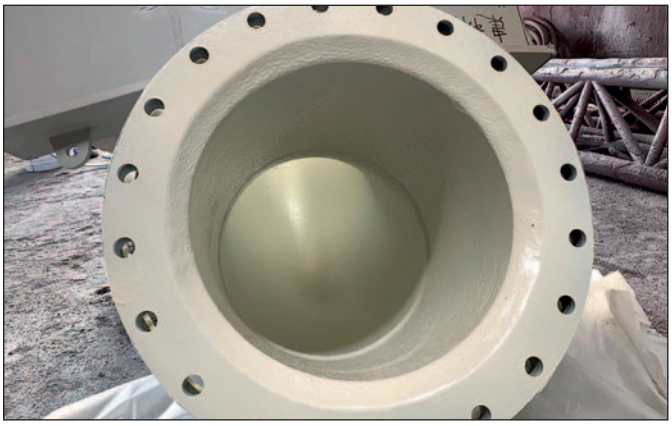
We hope that this article has helped communicate the practical aspects of applying Ecospeed, the differences between our coating systems and other underwater hull paints and the low cost-to-savings ratio that can be obtained by using Ecospeed to protect the underwater hull of any vessel afloat today. ■

Lasting scrubber protection

Ecospeed fits in seamlessly with the environmental idea behind scrubber systems. It is a lasting, chemically resistant coating that will withstand the hazardous pollutants and will prevent corrosion damage and the resulting consequences. Ecospeed will protects the exterior outlets as well as the interiors of scrubbers for the lifetime of the vessel.

Outlets

Overboard pipes



Holding tanks

The actual scrubber

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SHIP HULL PERFORMANCE TECHNOLOGY

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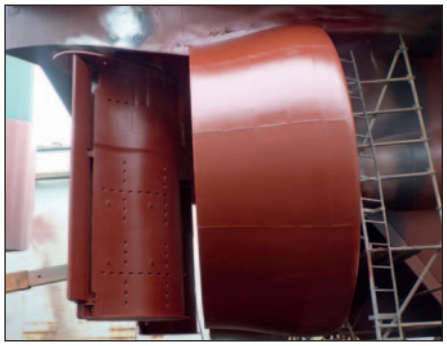
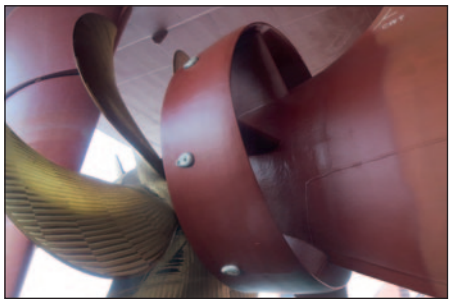
PROTECTION AND PERFORMANCE





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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