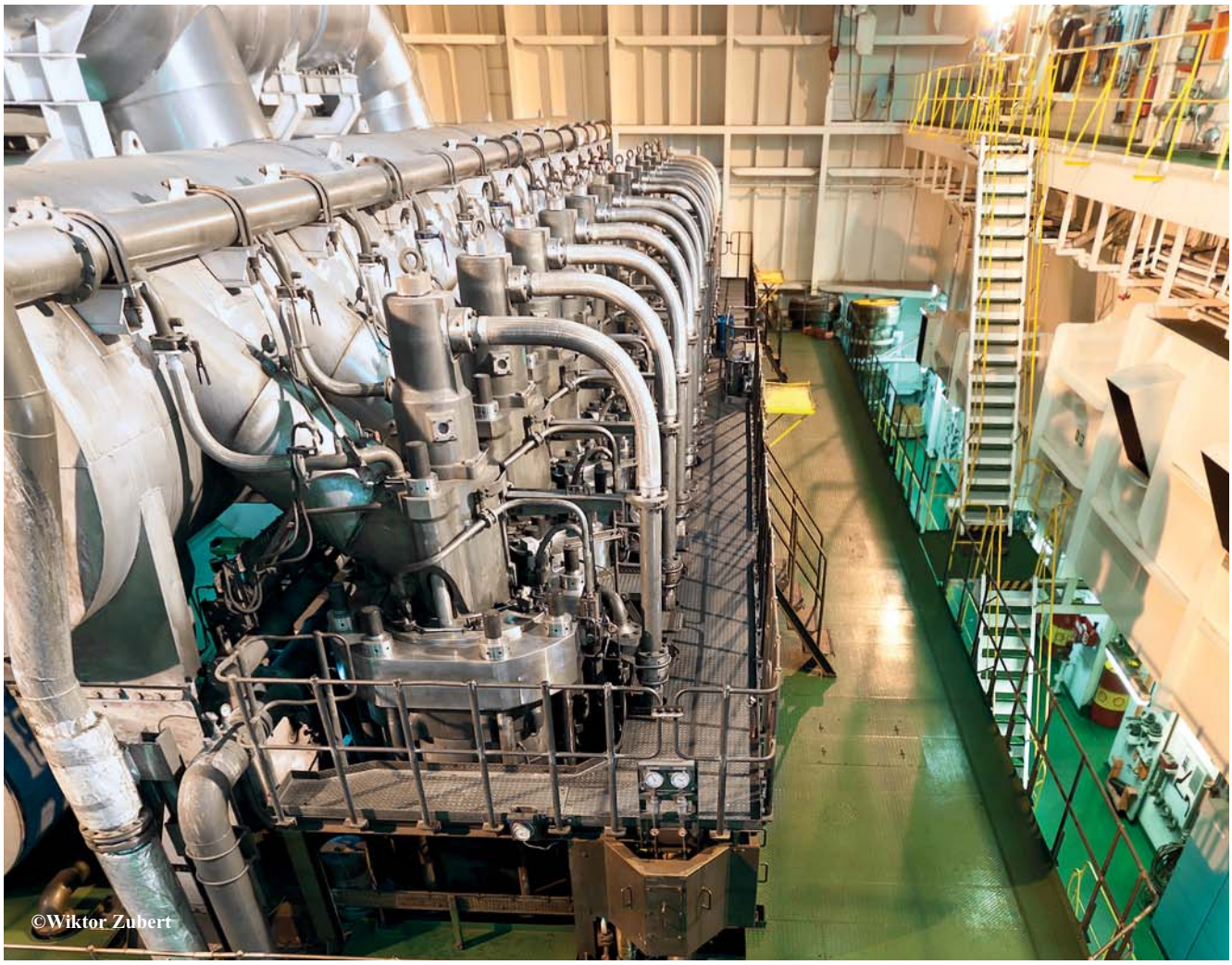
SUBSEA

PROTECTION AND PERFORMANCE

Magazine



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

Phone: +32 3 213 5318 info@ecospeed.be
Fax: +32 3 213 5321 **www.ecospeed.be**

Editorial

Welcome to the new issue of Subsea Magazine. In it we once again cover different aspects of the wide range of products Subsea Industries has to offer.

We start with a description of what exactly Ecospeed is. The purpose is to show that Ecospeed is not just a coating but a new and ultimate ship hull performance system that can offer tremendous savings when applied and maintained correctly.

In the second article we talk about the application of Ecospeed on the hull of an icebreaking Royal Resarch Ship (RRS). The first part of this application was carried out last year and the remainder of the hull was coated during the vessel's yearly scheduled docking in Frederikshavn.

We end the magazine with an overview of some of the recent applications of Ecoshield on the running gear of a wide range of vessels.

Founder Subsea Industries NV
Boud Van Rompay

What is Ecospeed?

Ecospeed coated hull being cleaned of slime.

The purpose of Ecospeed is to offer a long-lasting, non-toxic protection to all ship hulls and underwater gear and to provide a system of keeping a hull very smooth and free of fouling for the service life of the vessel with minimal repair and no replacement. Instead of using chemicals to try to kill and repel marine fouling organisms, Ecospeed uses a hard, impermeable, impenetrable coating along with manual removal of fouling at an early stage.

What does Ecospeed technology consist of?

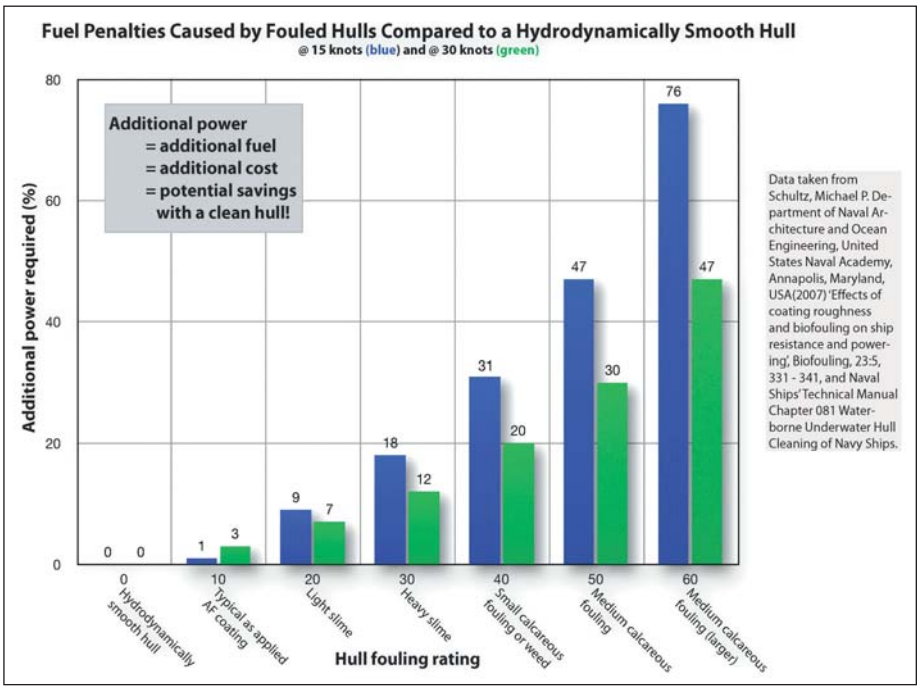
The technology can be broken down into its constituent parts:

1. **Coating.** A glassflake reinforced resin coating that is impermeable, impenetrable, long-lasting, inert and non-toxic. The coating is applied usually in two coats each of 500 µm dry film thickness (DFT) to a properly prepared hull, either at new build (ideal) or in drydock for an in-service vessel. It works equally well on steel, aluminum or GRP. A minimum of about 3 hours is required in between coats and there is no maximum overcoat time. This coating has extraordinary adhesion and bonding qualities. It is very tough and resistant to abrasion. It is also flexible and remains firmly bonded to the plates even when these flex considerably.

2. **Routine underwater cleaning.** Once the coating has been applied, it will need to be cleaned routinely to keep fouling to never more than slime and light weed. This is done in the water using specially developed equipment and tools. This lends this technology its extraordinary fuel efficiency. Frequency of cleaning will depend very much on the operating pattern and environment of the ship. In tropical waters, and especially if the ship is idle for periods or spends much time at anchor or quayside, the hull may need to be cleaned regularly. In colder waters or ice conditions, cleaning need be

much less frequent, even as little as a few times a year. There is a distinct foul-release property to the coating which becomes more noticeable as the coating becomes smoother and smoother. It has been found that it is possible to break down the hull cleaning to better adapt it to the ship's schedule. So one side of the hull can be cleaned during one port visit and the other side and/or flat bottom and niche areas can be cleaned on a subsequent visit to the same or another port.

3. **Touch-ups in drydock.** The coating is expected to last the full service life of the ship without need for replacement or any major repair. However, mechanical damage such as that caused by collision or anchor chain abrasion, or by welding on the hull or other causes can easily be touched up during routine drydocking. Because the coating consists of a single, homogenous layer, any repair or touch-up easily blends in without any difficulty. The integrity of the hull coating is maintained despite such repairs. Because no repaint is needed, several days and up to a week can be saved in drydock times during each visit.

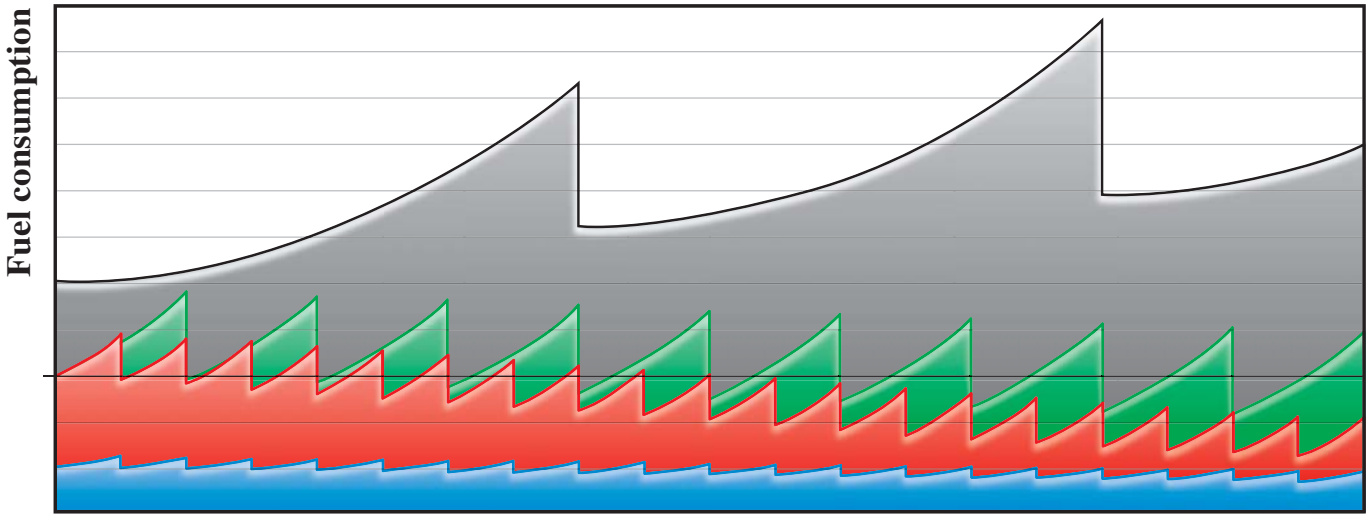


Fuel penalties graph.

The coating alone provides superior hull protection, but it is the full Ecospeed technology in all its parts that results in the major fuel savings. ■

ECOSPEED®
SHIP HULL PERFORMANCE TECHNOLOGY

Development of additional fuel consumption over time



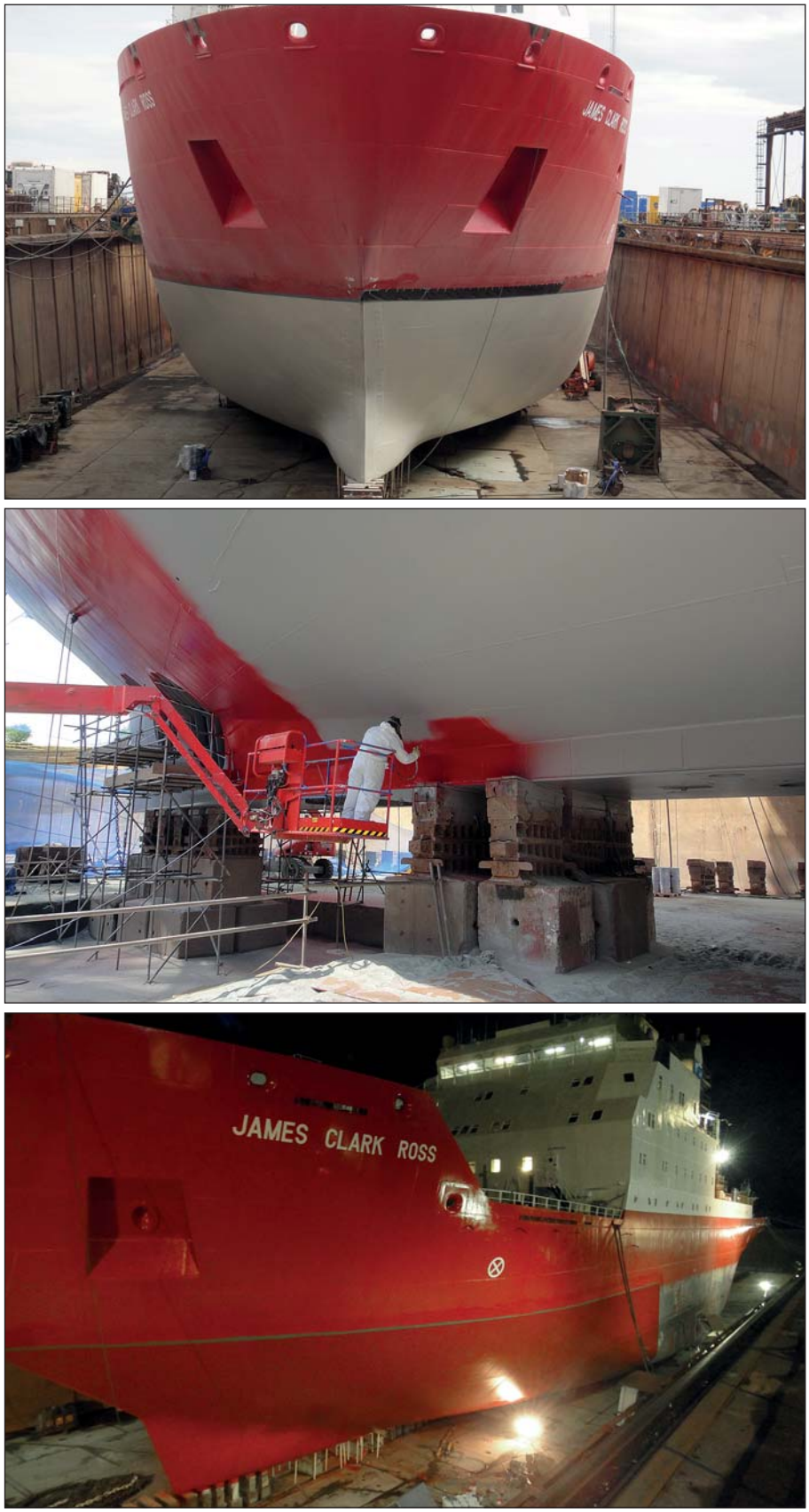
Ecospeed with 2 cleanings per year
Ecospeed with 4 cleanings per year
Ecospeed with optimum cleaning intervals
Active antifouling paints

Ice-strengthened research vessel given lifelong Ecospeed protection

One year after the bow area was coated with Ecospeed, the rest of the underwater hull of *Royal Research Ship (RRS) James Clark Ross* was given the same treatment in Frederikshavn, Denmark. The ship is one of two ice-strengthened research vessels operated by British Antarctic Survey (BAS).

The other, RRS *Ernest Shackleton* has been sailing with Ecospeed on her hull for six years without requiring repainting. Despite battering its way through ice up to 2.5 meters thick with a high content of gravel and volcanic lava adding to its abrasiveness, the hull coating remains virtually intact and undamaged. This is in strong contrast to when the *Shackleton*'s hull was still covered with a conventional ice-going underwater hull coating and almost the entire hull was practically stripped to bare, unprotected steel in between dockings.

This excellent result led BAS to coat the bow area of RRS *James Clark Ross* with Ecospeed last year. Coating the entire hull was not an option during the docking in 2014. The owners however, absolutely wanted to start protecting their vessel as soon as possible. RRS *James Clark Ross* can steam at a steady two knots through level sea ice one meter thick. The bow area has to endure a constant impact with the ice and needs the best possible protection. For this reason they decided to have Ecospeed applied on those areas of the hull first. In August of this year the rest of the hull was coated.



In 2014 the bow of RRS James Clark Ross *was coated with Ecospeed to protect the area against impact with ice.*

Surface preparation of the stern area in August 2015.

Application of the first layer of Ecospeed


Ecospeed is applied in only two, identical, layers.

During this yearly scheduled docking of the vessel the bow area was shown to still be in excellent condition despite the impact with thick ice during its expeditions.

Ecospeed low friction coating demonstrates excellent attachment to the hull and successful resistance to extremely icy conditions. The coating has proven an ability to withstand the harshest winter conditions on numerous occasions, as BAS has experienced firsthand.

Ecospeed has received the Lloyd's Register certificate that recognizes the coating as an abrasion resistant ice coating. This allows owners of vessels intending to navigate in ice conditions to reduce the scantlings of the ice belt, the area on the bow just above the waterline that is most prone to mechanical damage from sailing through ice, if this area is coated with Ecospeed.

Researching the Antarctic continent

RRS *James Clark Ross* has some of

The entire underwater hull of RRS James Clark Ross *is now protected with Ecospeed.*

Britain's most advanced facilities for oceanographic research on board and is the platform for most of the marine science undertaken. Each year she leaves the UK for the Antarctic laden with supplies for British Antarctic and sub-Antarctic bases. She stays in the southern ocean for the austral summer carrying out oceanographic and biological survey work in between supplying and re-supplying the bases and moving personnel around. Before the start of the Antarctic winter, she heads back to the UK again returning equipment, garbage to be disposed of and returning Antarctic base members. They have been away from the UK for periods ranging from just a few months to nearly two and a half years.

One-time application, lasting solution

Due to its unique composition, Ecospeed is not only the best protection available for underwater hulls of icebreakers and ice-going vessels, the coating also provides excellent hull performance and is the easiest ice-going paint to apply and maintain. The coating is the perfect way to offer a ship like the RRS *James Clark Ross* a lasting and full protection against the icy conditions it is faced with. ■

RRS James Clark Ross *during expedition to Antarctica.*

Groundbreaking protection for rudders and running gear

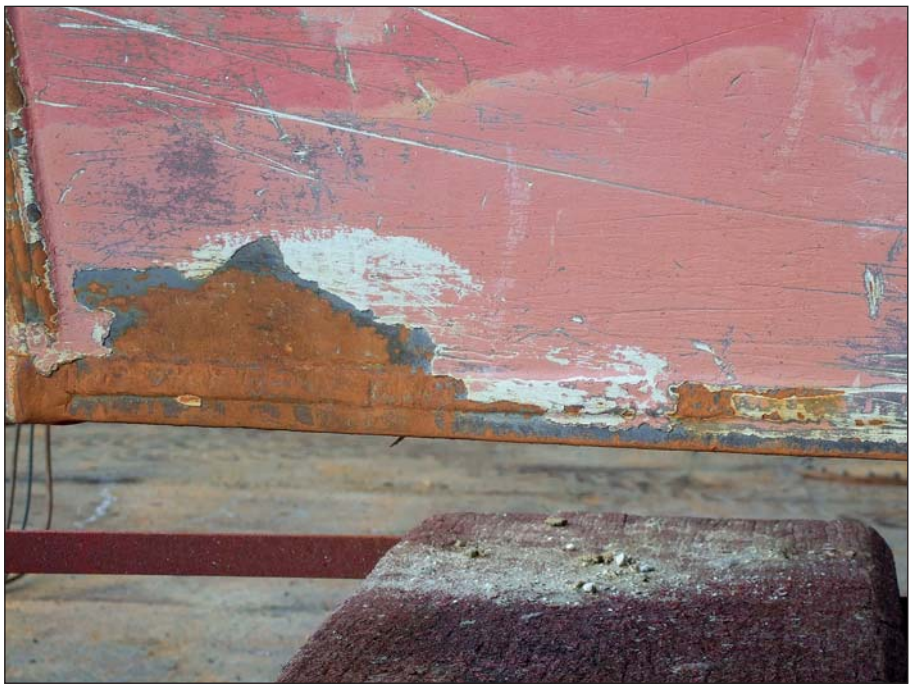
The rudders of several vessels were coated with Ecoshield over the last two months. The applications were carried out in China, Singapore, Turkey and Thailand on different types of ships. Among the vessels treated were newbuild container vessels, a LNG tanker, roro vessel, a tug and vehicle carriers.

Some of the owners are returning customers, some are new ones, but all of them experienced the same problem: severe cavitation damage on the rudders of their vessels coated with conventional coatings. The returning customers had seen first-hand that Ecoshield solved the problem on their other rudders and wanted the same protection for the rest of their fleet. The new ones saw the excellent result obtained by other owners and chose Ecoshield to prevent corrosion and cavitation damage from reoccurring.

Protection from day one

With an Ecoshield application the underwater gear will not need to be repainted during future drydockings. For this reason protection of the running gear is best begun at the newbuild phase. Ecoshield is guaranteed for ten years and will remain intact for the lifetime of the vessel. At the most, quick and easy touch-ups amounting to less than 1% of the surface area will be required.

The newbuild phase is the perfect time to apply Ecoshield. The coating can however also be used to protect vessels that have been in



Ecoshield will prevent damage like this from occuring.

Surface preparation prior to application.

Ecoshield is applied in only two layers.

Application of Ecoshield can easily be adapted to a yard's schedule.

No repaints will be needed during future drydockings.

Ecoshield protects the rudder for the entirety of its service life.

No corrosion or cavitation damage will occur.

Ecoshield is also ideal to protect other running gear.

service for some time and are already facing cavitation and corrosion damage.

The only coating that offers lasting protection for running gear

Ecoshield is not only suited for rudders. The coating also offers full and lasting protection for thrusters, azimuth thrusters, azipods, thruster nozzles, kort nozzles, thruster tunnels and other underwater ship gear which needs the best possible protection against corrosion.

More and more owners have Ecoshield applied on the rudders and other running gear of a large part of their fleet or have it included in the rudder specs of their newbuild vessels. These owners invest in the right coating system for protection because they know the savings it will bring them.

You can give the rudders and running gear of your vessels the same lifelong protection. Contact us for more information. ■

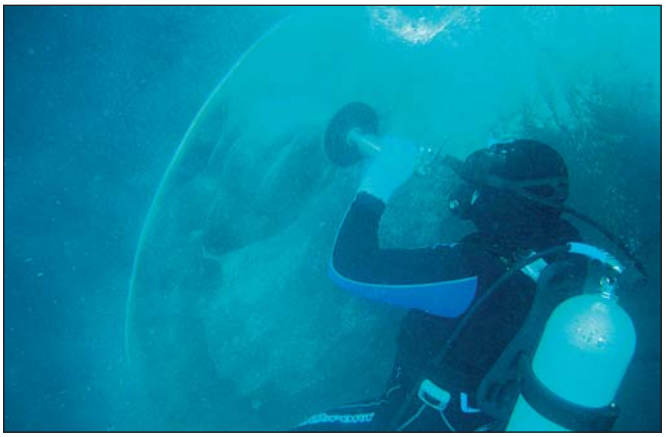
ECOSHIELD®
THE DIAMOND STANDARD IN STEEL PROTECTION

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 required 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.

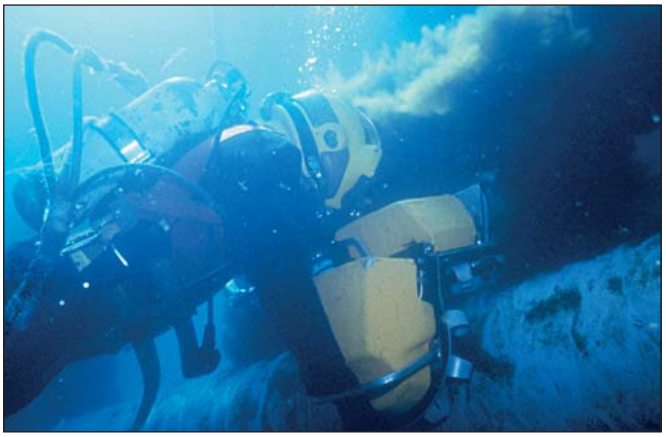


MC 131

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

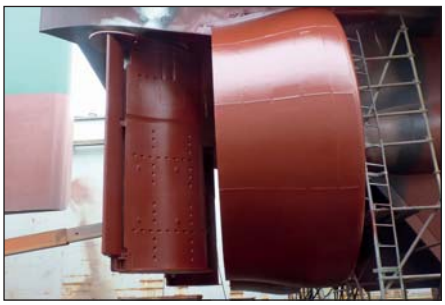
The MC212 is designed for cleaning light, medium and heavy marine fouling from ship hulls, offshore oil & gas platforms (concrete or steel), jetties, piles, intakes and internal pipelines. The equipment has a self-balancing feature, which allows the operator to use the tool safely and effortlessly for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



SUBSEA INDUSTRIES

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net

SUBSEA INDUSTRIES






We have changed the name of our monthly magazine. Up until now it was always called the Ecospeed Magazine. However, over the last few years the range of products that are covered in this publication have been growing. To represent this we felt that a name change was in order. And what better name giver than the company that has developed all these products: Subsea Industries NV.

Our ship hull performance system Ecospeed is off course still an important part of the content of the magazine, but over the last couple of years there has also been a lot of attention for Ecoshield, our coating for underwater running gear. Last year Ecolock, designed for offshore units, joined the ranks. Besides our award winning coating family of hard hull coating systems there is also our evolving line of underwater hull and propeller cleaning equipment.

Whether it is the range of underwater cleaning equipment or the various 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.

Subsea Industries NV
Phone: + 32 3 213 5318
Fax: + 32 3 213 5321
info@subind.net
www.subind.net