

ECOSPEED®

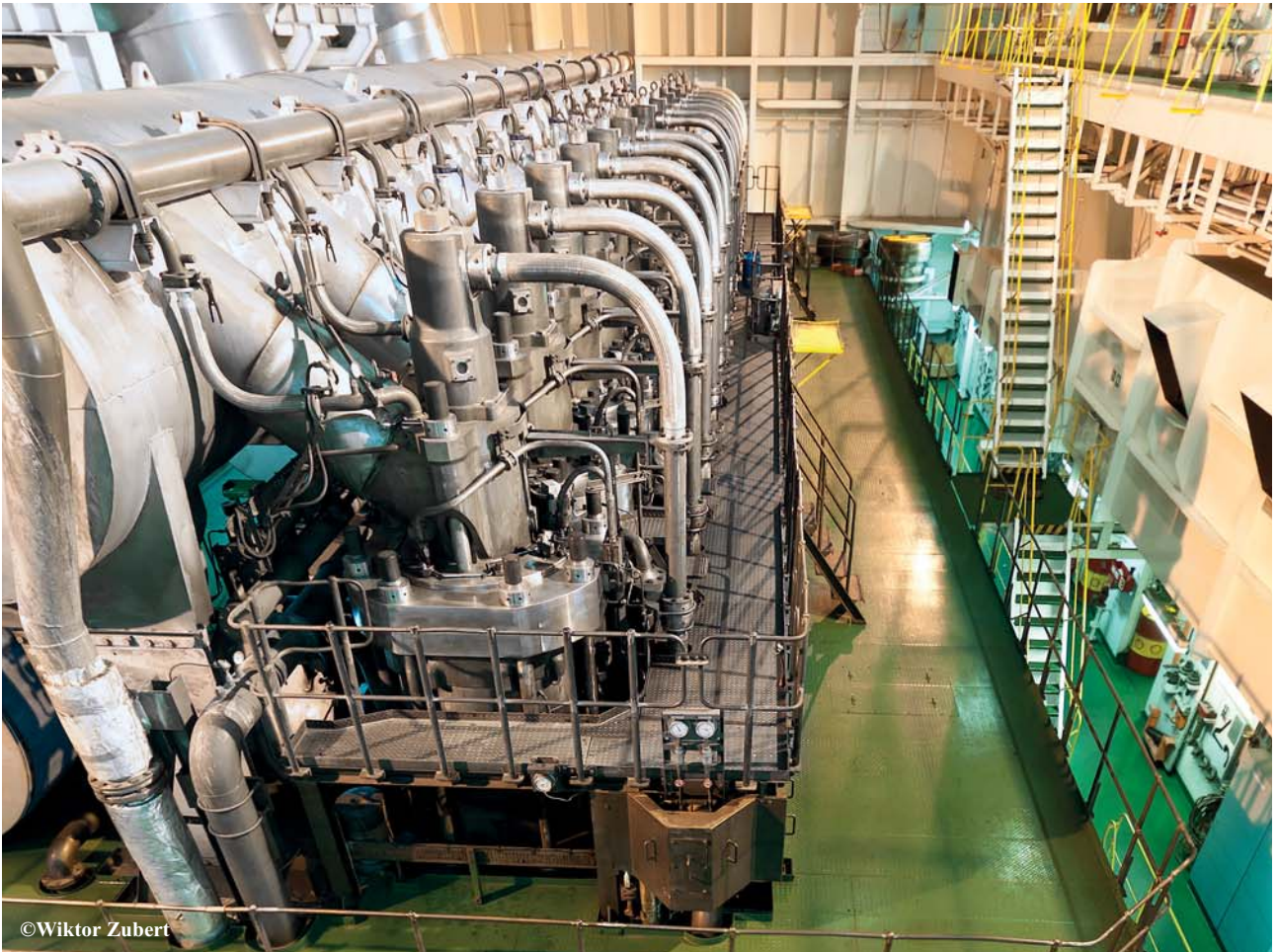
SHIP HULL PERFORMANCE TECHNOLOGY

NEWS

LETTER



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The only coating 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 cavi-

tation 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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Wide range of vessels given lasting Ecoshield rudder and gear protection

Over the last two months the rudders of several types of vessels were given an Ecoshield protective coating at yards in China, the US, Poland and the UK. Among them were three container vessels, an oil tanker, a tug boat and a vehicle carrier.

Most of these ships belong to different owners, but they all experienced the same problems. Cavitation corrosion damage had appeared on the rudders of their ships. Often a rudder is not given the proper protection against cavitation and the resulting erosion and corrosion damage. In those cases the financial consequences can be extensive for the owner.

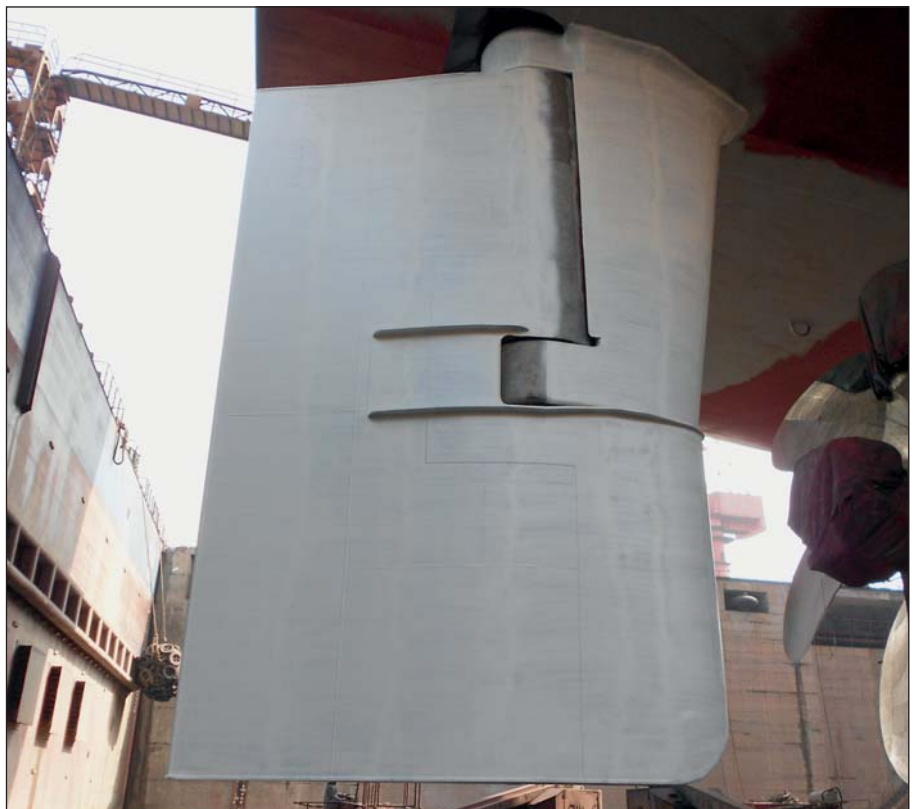
Tests in a flow channel, carried out in Grenoble, have confirmed that Ecoshield performs extremely well under severe cavitation. The coating will prevent corrosion damage from reoccurring on an existing ship or can protect the rudder(s) of a new-build vessel against cavitation and corrosion damage from the very start for the life of the vessel. It is the only known coating that can provide this type of full protection.

Protection from day one

Protection of your rudders is best begun at the newbuild phase. When a vessel comes into drydock, maintenance of its stern area, especially cavitation damage repair, can take a long time. There are strict procedures concerning blasting, painting, welding and propeller and stern tube seal work. Painting is then assigned to the end of the schedule. As a con-



Ecoshield is applied in two identical layers.



Rudder with first layer of Ecoshield applied

Why Ecospeed®?

Ultimate hull protection

Complete corrosion protection

- Hard, tough, glassflake-based
- Flexible, very strong adhesion, thick coating
- Impermeable and impenetrable

Long-lasting – one application lasts the life of the ship.

No reapplication needed, only minor touch-ups in drydock.

- 10-year extendable warranty

Cleanable in the water

Gets smoother with underwater hull cleaning

Ultimate protection for rudders and underwater gear

- Ecoshield – a very strong version of Ecospeed designed for rudders, bulbous bows and underwater gear, prevents cavitation and corrosion damage
- Protects rudders, stabilizer fins, bulbous bow (ice), thruster tunnels, nozzles and other underwater gear

Ice class coating (certified)

- Abrasion resistant
- Low friction
- Stays on when other coatings are removed by the ice

Protection for offshore, stationary vessels

Economics

Enormous fuel savings (10 - 25% for AF and FR coating systems)

- A smooth hull
- No long term paint degradation
- Becomes hydrodynamically smoother (no routine cleaning)
- AF and FR coatings typically reduce 20 - 45% fuel penalty after 1 year (vs. 20% for other coatings)
- Easy to keep clean of fouling (no slime at most)

Reapplication costs saved (no need to repaint)

Drydock savings (fewer and shorter drydock periods, no need to repaint)

Ease of application

- Two homogeneous coats, no primer, tie coat or any other coats
- 3 hour minimum overcoat
- No special environmental requirements
- No special equipment needed

Easy and quick to repair in drydock

Does not interfere with other work

Greatly reduced total ownership costs

What is Ecospeed? Ecospeed is an underwater ship hull protection and fouling control system. It consists of a tough, long-lasting, glassflake reinforced coating combined with routine in-water cleaning/conditioning. One application lasts the life of the hull. It does not degrade but becomes smoother over time with regular in-water cleaning. It can be used on any ship or submerged structure, steel, aluminum or GRP. It has the potential of great financial savings. It is designed with environmental protection in mind and is entirely environmentally safe.

Operational benefits

50% compared to conventional

condition

becomes smoother over time with

regularly degrades over time, with

every 10 - 15 years

cleaning (can be kept to a light

one application needed)

shorter drydockings since no

500µm each, no primer, midcoat,

at time, no maximum

requirements

needed

drydock

work in drydock

up cost

Environmental benefits

Reduced GHG

- Smoother hull = lower fuel consumption = reduced emissions

No toxic emissions to environment

- No heavy metals such as copper, zinc, tin
- No co-biocides such as Irgarol, Diuron and others

No contamination of water column or sediment

No harmful effects on non-target marine life

Prevents hull-borne invasive aquatic species spread

- Ships sail with clean hull, potential invasive species removed

Very low VOCs

Can be cleaned in the water safely

- No damage to coating
- No harm to environment

No repeat application, no cumulative environmental impact from preparation and application

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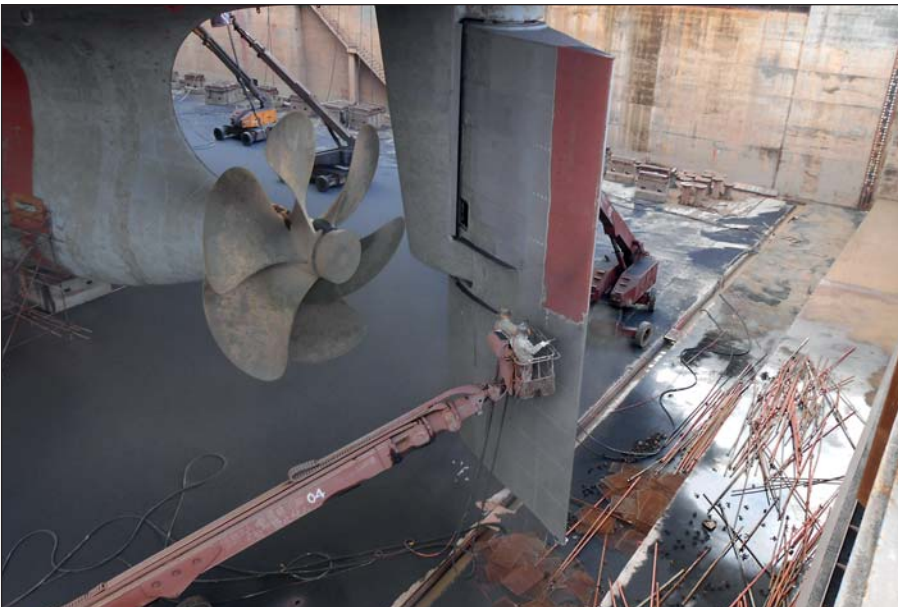
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An Ecoshield application can easily be adapted to a yard's schedule.



Surface preparation of a rudder prior to application.



Ecoshield will protect a rudder against cavitation damage.

sequence it may be rushed or not get done at all or else prolongs the stay in drydock.

With an Ecoshield application one can avoid these problems from day one because the underwater gear will not need to be repainted during future drydockings. Ecoshield will remain intact for the lifetime of the vessel and is guaranteed for ten years. At the most, quick and easy touch-ups amounting to less than 1% of the surface area will be required. Planning the maintenance of the vessel's stern area therefore becomes much easier.

The newbuild phase is the perfect time to apply Ecoshield, but the coating can also be used to protect vessels that have been in service for some time and are already facing cavitation and corrosion damage, like the ones coated over the last months.

Ecoshield's flexibility makes it easy to adapt the application schedule to the rest of the activities scheduled at the shipyard or drydock in a way which does not interfere with them. Overcoating time can be as short as three hours, which means that for smaller surfaces such as rudders or bow thrusters the two coats required can usually be applied in one single day.

Conclusion

The investment in a coating system that offers full protection from day one is easily won back. This becomes very clear when one takes into account the costs of the temporary underwater repairs and the regular inspections required by a condition of class, not to mention the extra costs associated with rudder repair and recoating in drydock. For this reason a growing group of owners have Ecoshield applied on



Application can be done very fast.



No repaint will be needed during the lifetime of the vessel.

the rudders 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 long-term savings they will achieve.

More information on the effect of cavitation and some case studies can be found in Hydrex White Paper No. 6R: Rudder cavitation damage solved, which is available for download for free at www.shiphullperformance.org



The Reference

on non-toxic hull coatings

Surface Treated Composites

WHITE BOOK

A proven, non-toxic, cost-effective alternative technology for underwater ship hull protection and biofouling control.

by Boud Van Rompay

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a new era in hull protection and fouling control

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Ecospeed 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 underwater hull with an impenetrable protective layer while its flexibi-

lity enables absorption of the forces that are produced by cavitation. This prevents the damage normally caused by this phenomenon.

By removing the existing paint layers and applying Ecospeed on the hull 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 Ecospeed application no full repaint will be needed during drydocking. Ecospeed is guaranteed for ten years. At the most, minor touch-ups will be required.

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