HYDREX®

UNDERWATER TECHNOLOGY

NEWS

LETTER | 264

Contents

KEEPING SHIPS IN BUSINESS

ISO 9001 certified

Underwater services and technology approved by:

CERTIFIED LR ISO 9001

CERTIFIED LR VCA*

CERTIFIED BY DNV·GL APPROVED SERVICE SUPPLIER

RINA 1861

BUREAU VERITAS

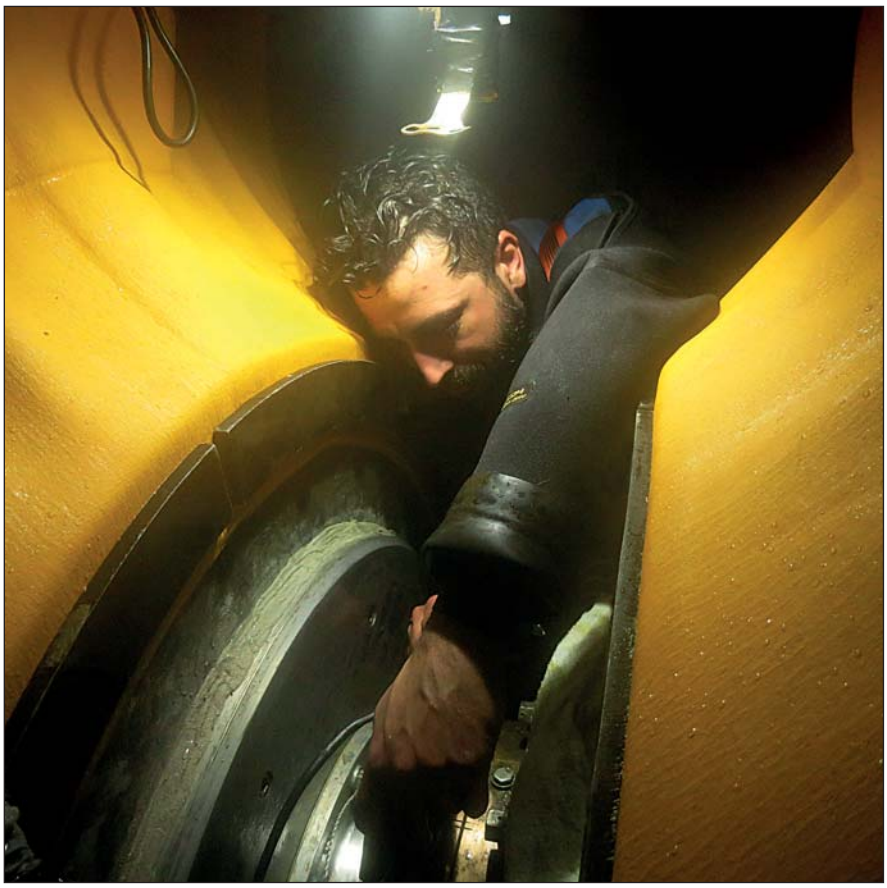
ClassNK

RECOGNIZED ABS SPECIALIST

LR

ADC International

Stern tube seal repairs



Using our flexible mobdock method to create a dry underwater environment, we have carried out stern tube seal repairs and replacements underwater for some years now in cooperation with OEMs.

This technology brings drydock conditions to the ship rather than having to take the ship to drydock, saving a considerable amount of time and money in doing so.

This class accepted method is performed by our diving teams under our warranty. It can be used while the ship is carrying out its usual cargo or other commercial operations in port.

Visit the special stern tube seal repair section on our website for more information and examples of the many seal repairs we have performed in recent years.

Underwater bow thruster reinstallation in Italy

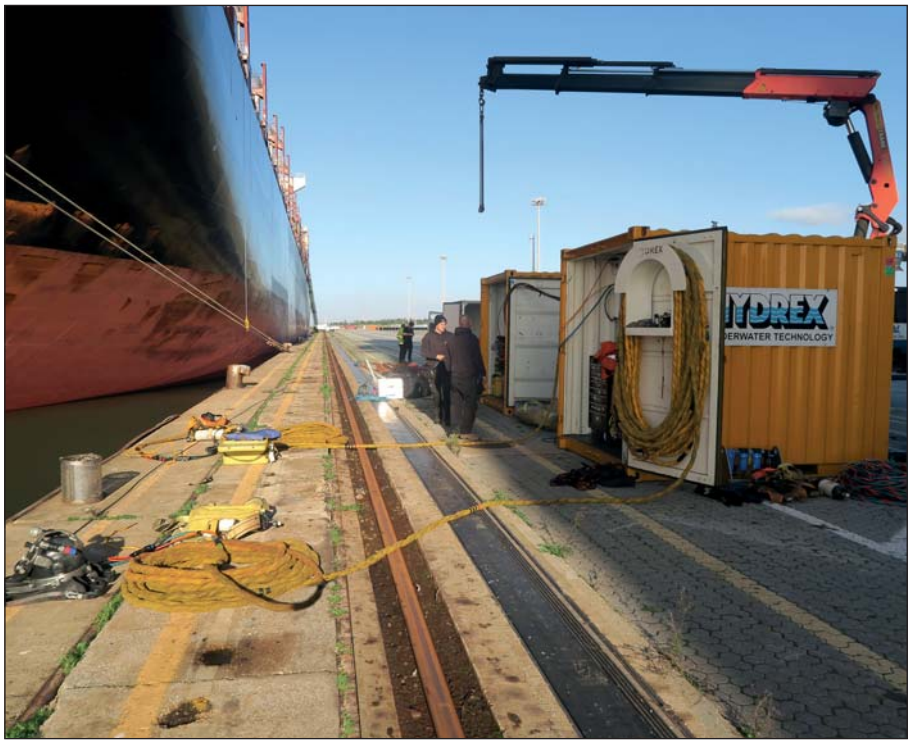
A month after we removed the bow thruster of a 300-meter container vessel our men once again mobilized to Italy. They reinstalled the overhauled unit underwater with the use of the our flexible mobdock technique.

The available time window for the removal of the bow thruster in October was very short because of the tight schedule of the vessel's charterer. The time required to perform the operation therefore needed to be brought back to the absolute minimum. For this reason the job was split in parts, performed in different ports. This is a good example of how we look at the precise circumstances of each operation and find a way to tailor the operation to fit the customer's specific needs.

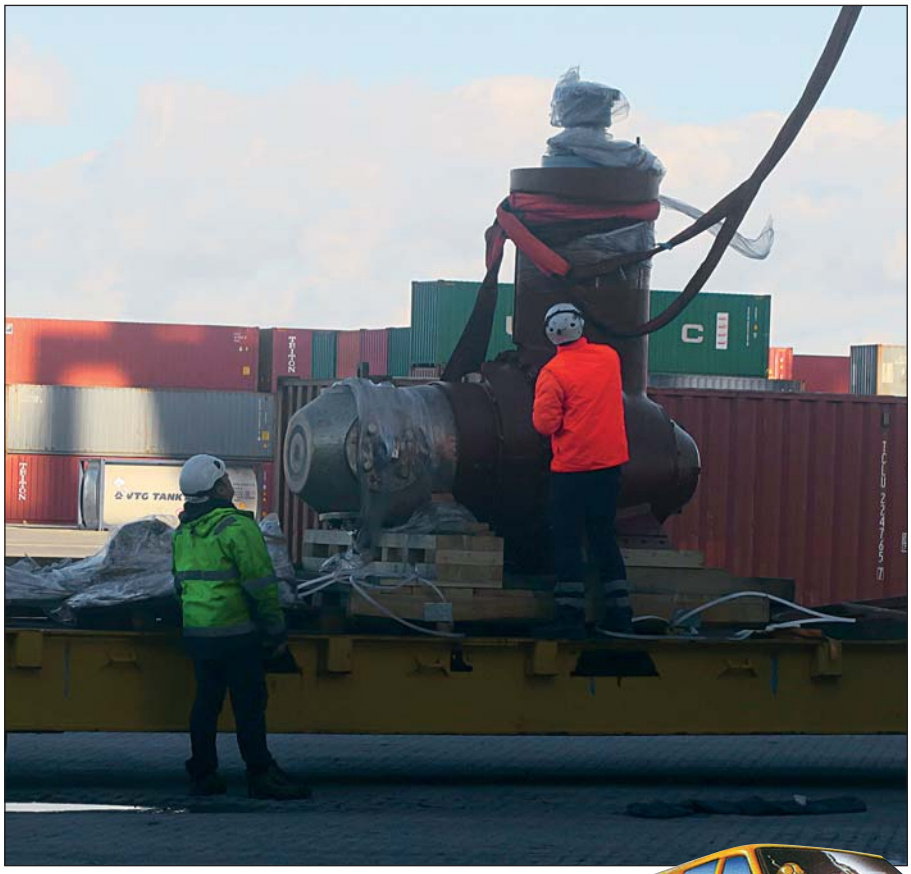
The time frame for the reinstallation was slightly larger, allowing our team to carry out the job during a single stop of the vessel.

In-house technology and years of experience

We have a special R&D department continuously looking for new ways to streamline the repair procedures used by our teams. One of the results of their research are our mobdocks. They were used to close off the thruster tunnel once the overhauled bow thruster had been brought into the tunnel. These lightweight mobdocks have been used during thruster operations for over 20 years now. They can be shipped to anywhere in the world by plane.



Hydrex truck and equipment next to container vessel in Italy.



Overhauled bow thruster arriving on-site.

Permanent in-water rudder repairs now possible without drydocking

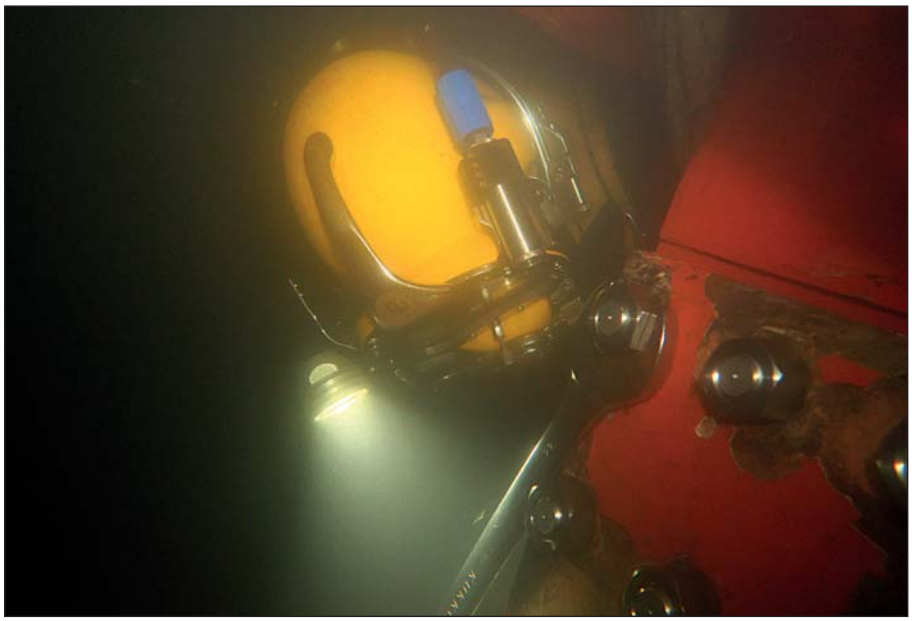
Hydrex has developed an entirely new method enabling permanent repairs of rudders without drydocking the ship. Permanent repairs were hitherto not possible and ships had to drydock in case a major defect was found. The newly designed equipment is light-weight and can be mobilized very rapidly in our special flight containers. Therefore this new service is now available world-wide.

Major defects on rudders very often cause unscheduled drydocking of ships. The new method designed by our technical department allows engineers, welders and inspectors to perform their tasks in dry conditions. Class approved permanent repairs on-site, without moving the ship, are now possible and commercial operations can continue. Steel repairs and replacements can be performed and pintle and bushing defects can be solved without the loss of time and money associated with drydocking.

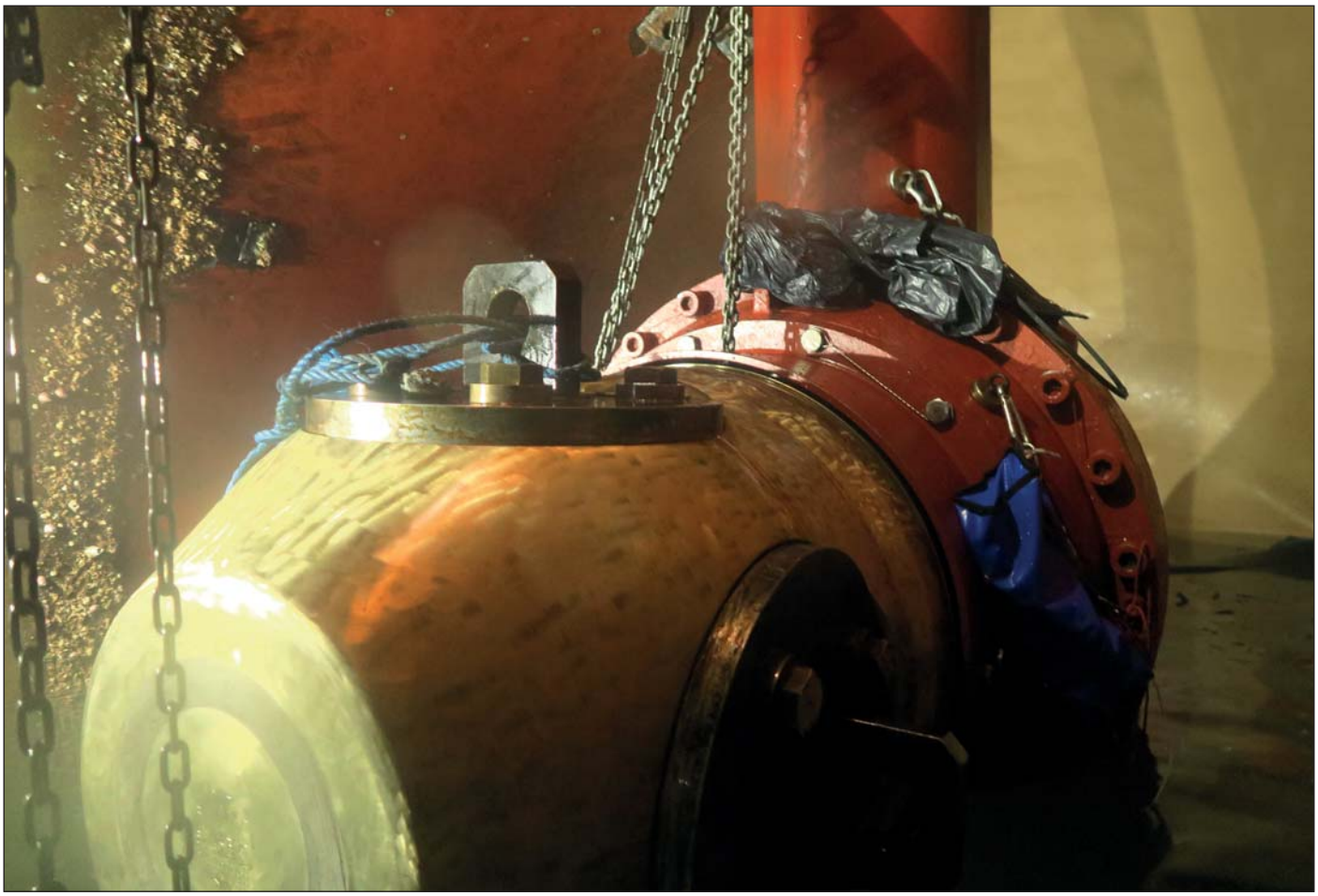
The equipment can be mobilized within hours to any port in the world and is available for rapid mobilization from the Hydrex headquarters in Antwerp.

HYDREX®
UNDERWATER TECHNOLOGY

Thruster unit being lowered into the water.



Securing the thruster brackets.



Thruster unit in closed off tunnel.

All water was then removed from the tunnel. This created drydock like conditions for our divers despite the vessel staying afloat. The team then secured the unit and connected it to the engine room. Once this was done the thruster propeller blades were installed one by one. With the thruster blades in position the ship was ready to sail, on schedule.

Installing seal prior to reinstallation of thruster blade.

Specific solutions for specific needs

Ever since Hydrex was founded in 1974 we have strived to keep the impact of our repairs for the owner as minimal as possible.

Performing operations afloat and underwater is a very important factor in doing this. Over the years we have developed techniques to perform on-site repairs to every part of the underwater ship. From damaged hulls, over leaking seals and deformed propeller blades to malfunctioning thrusters, we have a repair solution that avoids unscheduled drydock visits.

Hydrex team member working inside the closed-off tunnel.

Carrying out repairs on-site alone is off course not enough. Our teams can perform all operations afloat. They do this in the fastest possible time and to drydock standards. We offer solutions to a wide range of underwater problems without sacrificing the high quality or safety standards we are known for.

Reinstalled thruster blade.

Sometimes a very straightforward repair is needed. In other cases a specific, tailor-made solution is designed by our R&D department. In the case of a cruise vessel in the Caribbean the repair itself was one our teams had done on many occasions, but the ship's time table was the tricky part. Because of the nature of the vessel, its strict schedule included many short stops. Our technical department therefore proposed a scope of work that would allow us to perform the replacement in stages in several different ports.

Conclusion

We can assist shipowners with almost any problem they encounter with their vessel's thruster. A wide range of underwater repair or maintenance work can be carried out to all types of thrusters. An entire unit

Repositioning one of the blades.

Installing one of the blade bolts.

can be overhauled, propeller blades or seals can be replaced or repair work on a specific part of a thruster can be performed on-site.

Our team members are trained to be flexible and adapt to rapidly changing circumstances. They work in shifts around the clock to finish any job as fast as possible. As a result the charterer of the container vessel did not have to worry about his vessel's schedule. ■

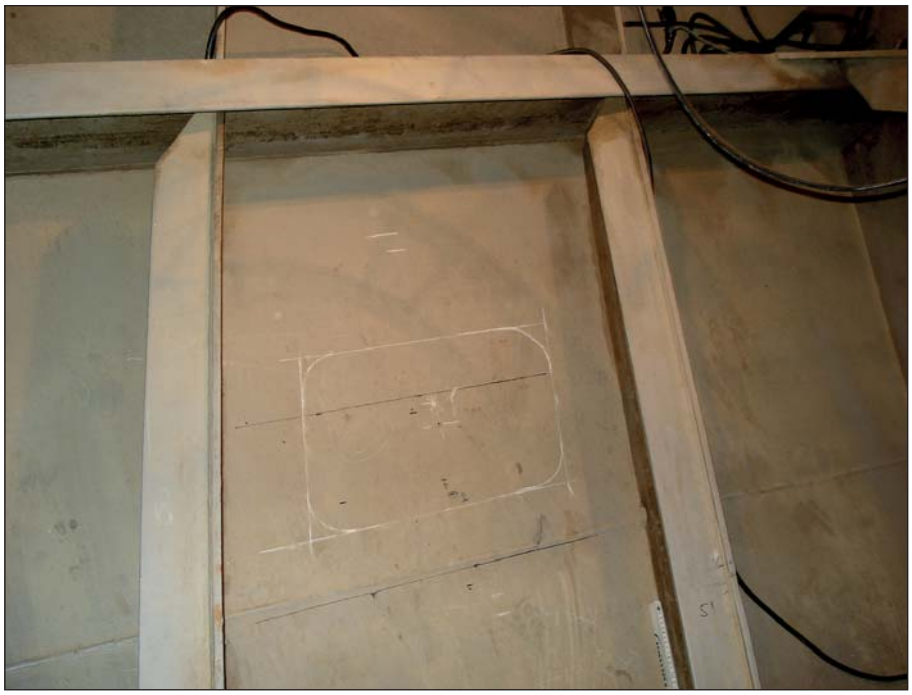
If you have received this magazine at the wrong address or if your company is going to move, please let us know.

You can contact us at:
hydrex@hydrex.be
or at
+ 32 3 213 53 00

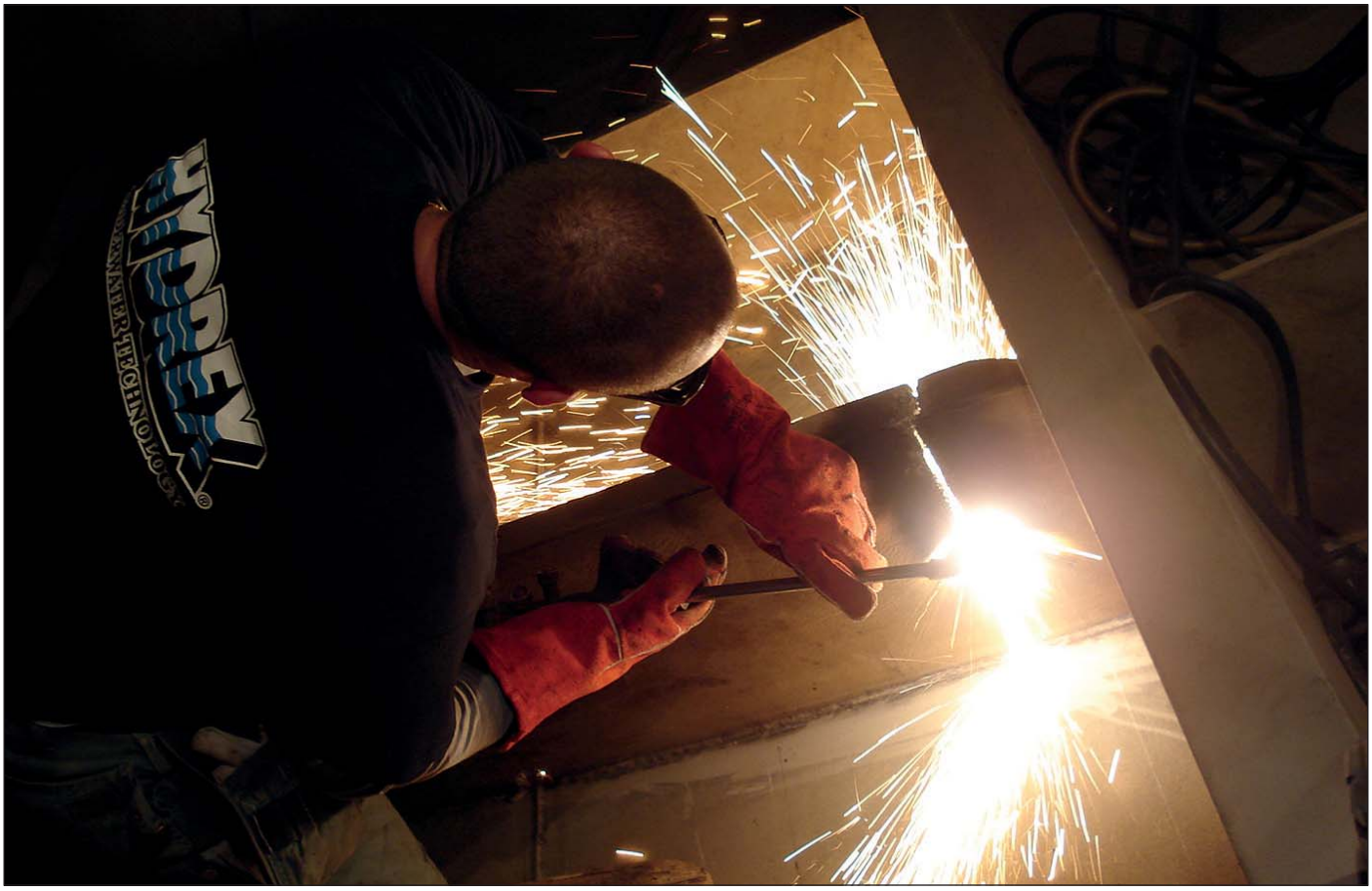
Underwater scrubber sea chest installation

Our wide range of maintenance and repair services includes the on-site installation of additional sea chests required for the intakes and outlets of scrubbers or other purposes. These afloat installations are performed by installing a cofferdam on the hull.

We can help you when going to drydock is not an option, if the scrubber equipment is not available yet during docking or if the scrubber system needs to be installed before the next scheduled docking. We are able to carry out the installation of sea chests while your vessel stays afloat and in some cases during cargo operations, depending on the ship's schedule.



The area that was to be cut away was marked on the shell plating.



Cutting away the frames covering the location of the sea chest

Installing the sides of the sea chest.

Dye testing the weld seems of the newly installed box.

A good example of this service is the installation of sea chests on two sister vessels. Our team installed overboard discharge boxes in the hull plating of these tankers during their stop in Rijeka, Croatia. The same procedure was followed on both occasions.

First the double bottom tank had to be declared gas free. Once this was done our men installed a cofferdam on the outside of the hull. The tailor-made cofferdam was designed and constructed by our R&D department. The exact measurements of the area where the sea chest was to be installed were taken in advance. This was done to be sure the cofferdam would perfectly fit the rounded shape of the hull.

The team cropped an opening in the shell plating where the sea chest needed to be installed. Our certified welders then installed the sides of the box. Next the discharge pipe and valve were connected to the side of the box and the top of the chest was fitted. This concluded the interior part of the operation.

The cofferdam was then removed and an inlet/outlet grid was installed in the hull. This can also be done from the

Installing the discharge pipe in the side of the sea chest

Closed-off sea chest.

Independent ultrasonic testing.

Finalized sea chest on tanker.

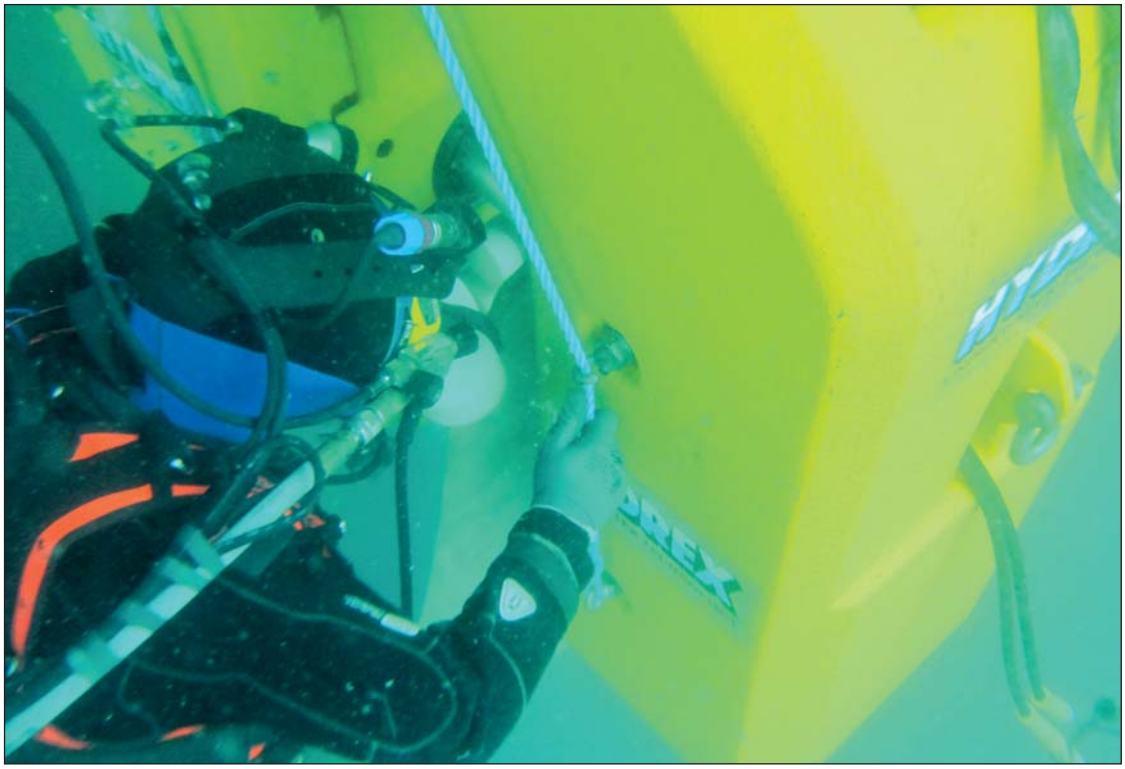
inside, before closing the sea chest if required.

If you would like to discuss the possibility of in-water scrubber system or sea chest installation, please contact us at **+32 3 213 53 00** or **hydrex@hydrex.be**. Our technical department will be glad to give you all the information you need. ■

KEEPING SHIPS IN BUSINESS

New sea chest seen from the outside, prior to installation of grid.

Underwater propeller blade straightening



In its quest to provide cost effective services to customers, Hydrex developed procedures to address different kinds of damage to propellers. This research led to the design of the Hydrex cold straightening machines first used in 2002.

By taking advantage of this technique damaged blades can be straightened underwater, allowing the ship to return to commercial operations without the need to dry-dock. Blades can be brought back close to their original form, restoring the propeller's optimum efficiency.

The cold straightening machines have been in use for quite some time now but the Hydrex research department has been looking into ways to expand the technique even further to improve our services. A new version of the straightening machine was recently put into practice. It is compatible with the existing models and is used to restore more severely bent propeller blades to their original condition.

HYDREX®
UNDERWATER TECHNOLOGY

Phone: + 32 3 213 5300 (24/7)
Fax: + 32 3 213 5321
hydrex@hydrex.be

www.hydrex.be

Always on time

Hydrex offers turnkey underwater repair solutions to shipowners wherever and whenever they are needed. Hydrex's multidisciplinary team will help you find the best solution for any problem encountered with your ship below the water line. We will immediately mobilize our diver/technicians to carry out necessary repair work without the need to drydock.

Hydrex performs complex permanent underwater repairs to thrusters, propellers, rudders, stern tube seals and damaged or corroded hulls. By creating drydock-like conditions around the affected area we can carry out these operations in port or at anchor.

All the projects we undertake are engineered and carried out in close cooperation with the customer and any third party suppliers, relieving the customer of all the hassle of coordination, planning and supervision.

HYDREX®
UNDERWATER TECHNOLOGY

Headquarters Hydrex N.V. - Antwerp
Phone: + 32 3 213 5300 (24/7)
E-mail: hydrex@hydrex.be

Hydrex Rotterdam
Phone: +31 10 313 25 19 (24/7)
E-mail: info@hydrex.nl

Hydrex Spain - Algeciras
Phone: + 34 956 675 049 (24/7)
E-mail: info@hydrex.es

Hydrex LLC - Tampa, U.S.A.
Phone: + 1 727 443 3900 (24/7)
E-mail: info@hydrex.us

www.hydrex.be