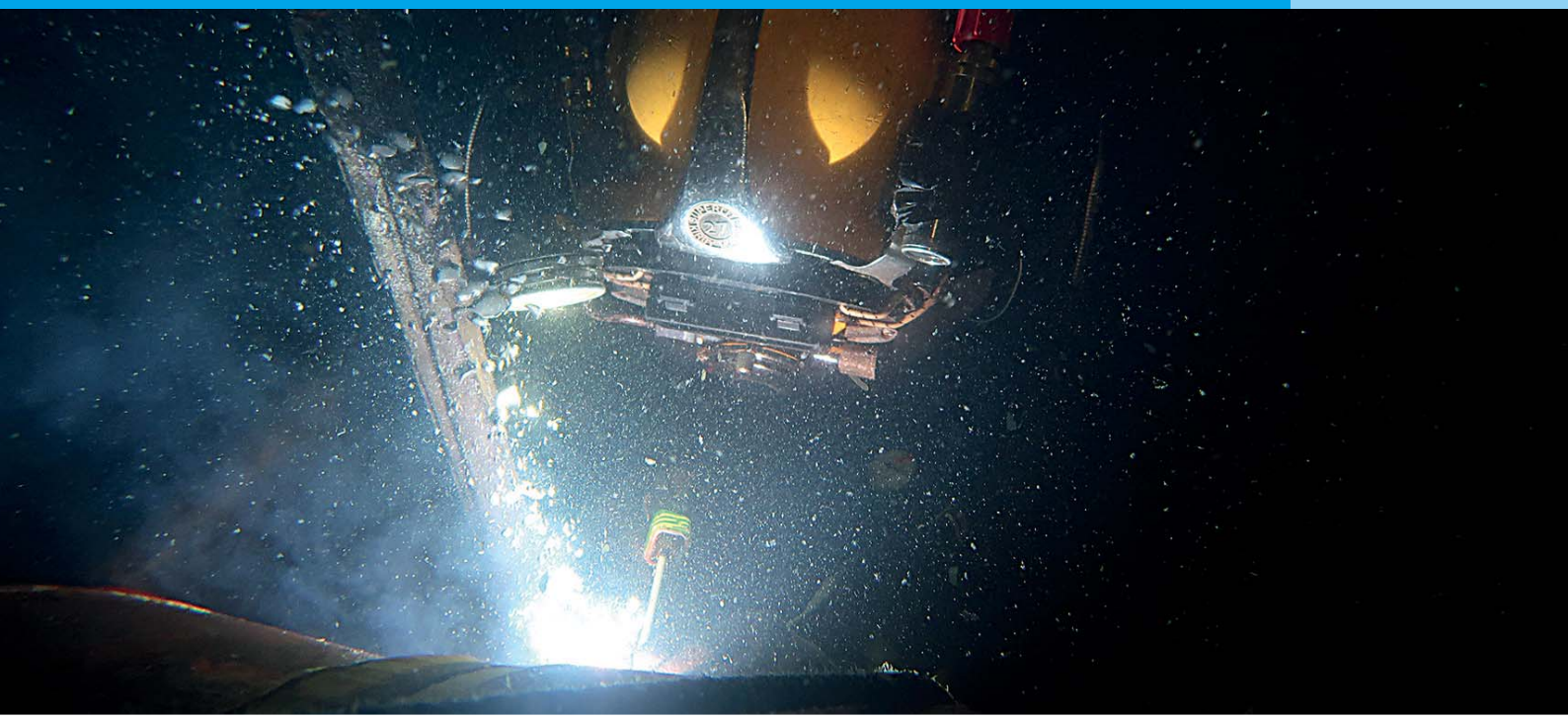
HYDREX®

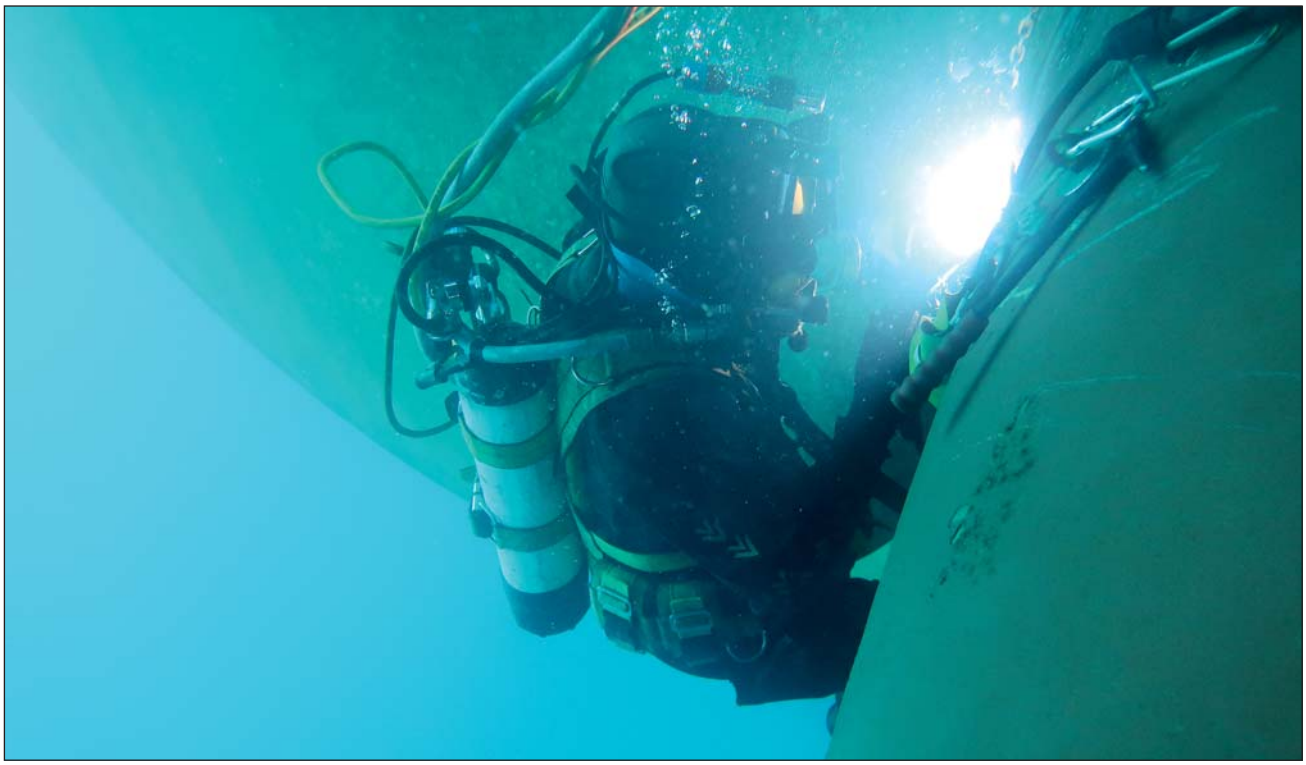
UNDERWATER TECHNOLOGY

Magazine

Number *281*



Hydrex is looking for representative agents



To support our continuous growth, we are expanding our worldwide network of Hydrex agents. This allows us to reach a much bigger public directly than would otherwise be possible.

All our offices have fully operational fast response centers where an extensive range of state-of-the-art equipment is available at all times for immediate deployment with our skilled diver/technician teams to wherever they are needed.

The services that we offer are highly specialized underwater and in water repairs. These include bow thruster repairs and replacements, stern tube seal repairs, hull shell plating repairs and replacements, in water surveys and various maintenance work. More information on our services can be found on our website.

Contact us if you are interested in joining our network and help us build a strong relationship with our prospects and customers. We look forward to hearing from you.

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Editorial

As you can read further on in this magazine, our new website has recently launched. On www.hydrex.be you can find information on our different underwater repair and maintenance services. The latest news stories, case studies and our back catalogue of magazines are available on our new website.

The first article in this magazine lists the many advantages underwater stern tube seal repairs offer to shipowners around the world. This technology has been successfully used by our diver/technicians on numerous occasions in the last 15 year. The article also highlights some recent examples.

The magazine ends with a story about pipe repairs. Two tankers were on standby to transport oil from offshore oil fields whenever required. We were contacted to offer an on-site solution. With 45 years of experience in doing exactly this, we were able to give a prompt answer.

Hydrex founder
Boud Van Rompay
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ISO 9001 certified

Underwater services and technology approved by:

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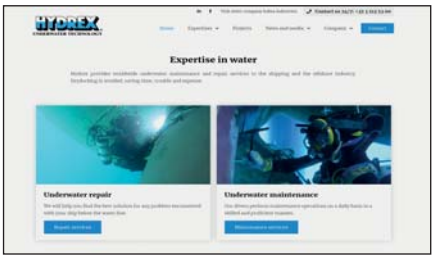

To receive a free copy, e-mail to: hydrex@hydrex.be

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Immediate worldwide service for underwater seal repairs

We have developed a flexible mobdock repair method that enables the underwater replacement of all types and sizes of shaft seals. This technology has been successfully used by our diver/technicians in the last 15 years. It allows ship owners to keep their vessel sailing, saving precious time and money.

Damaged stern tube seals will cause an increasing amount of oil leaking or water ingress as the damage worsens. By replacing the seals when the damage is first discovered, we keep the down time low. The ship can keep its schedule as seal repairs can be performed during cargo operations. We do this by creating a dry underwater working environment around the shaft.

It is not always straightforward to replace seals, because there can be quite a bit of variation in the configurations of the stern tube itself. There can also be complications with the liners, which can be worn down and show ruts. All this is routinely handled by our teams on the jobs.

One of our divers preparing the seal assembly for installation of our flexible mobdock.

All welding work is performed by certified welders.

Reinstalled rope guard.

All shaft seal repairs we offer are performed in cooperation with the OEM. We usually supply the equipment but the owner is free to supply his own OEM seals. We can handle all type of seals from all manufacturers.

In this article you can find a short summary of a selection of some

recent stern tube seal repairs our teams have performed.

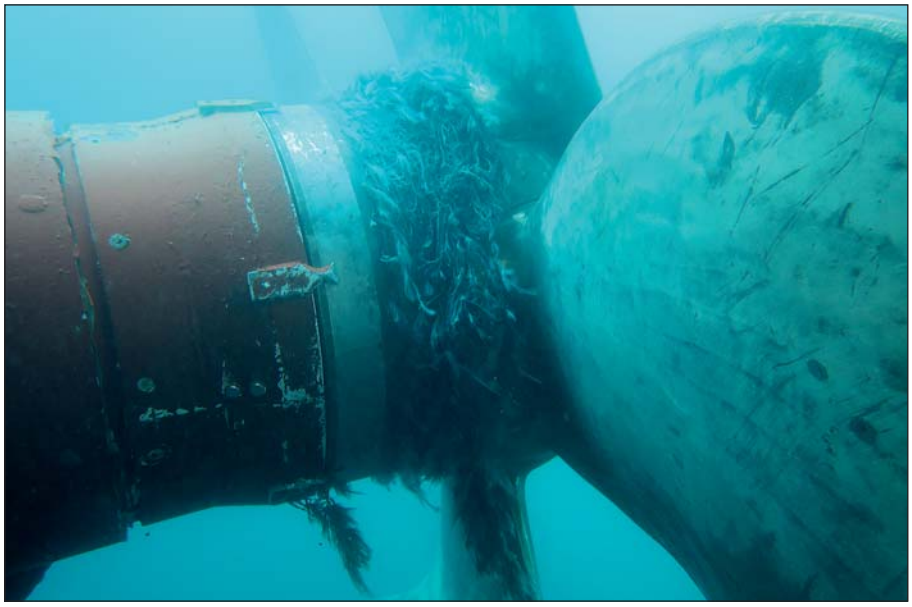
Underwater stern tube seal repair vital for tanker in Algeciras

Our men carried out an underwater stern tube seal repair on a tanker berthed in Algeciras. The ship was suffering from an oil leak and no drydock was available close by. Our men replaced the damaged seals underwater using one of our flexible mobdocks. This saved the owner an expensive and time-consuming trip to a drydock further away.

An underwater inspection revealed that a rope had gotten entangled around the assembly. This had damaged the seals and caused an oil leak. Working together with the OEM allowed us to remove the damaged seals and replace them with new ones. A technician of the seal manufacturer was also present during the operation.

We organized everything from start to finish for the owner. He did not have to worry about making any arrangements for the repair. After the seals had been successfully replaced, he could sail his vessel to her next stop free of oil leaks.

Dry working environment around assembly created with our flexible mobdock.



Fishing net entangled around the seal assembly.

Hydrex diver reinstalling the rope guard.

Underwater stern tube seal repair in Tasmania

Recently one of our diver/technician teams carried out an underwater stern tube seal repair on a roro ship berthed in Port of Burnie, Tasmania. Despite the remote location of the vessel, our technical department was able to make all practical logistic arrangements and arrange a mobilization of the equipment.

The operation started with a thorough underwater inspection of the stern tube seal assembly. The divers then cleaned the assembly and installed the flexible mobdock. By doing this they created a dry underwater environment so that they could work in drydock-like conditions.

The split ring was then disconnected and brought to the surface to be cleaned. After cleaning the entire

Hydrex diver during removal of the rope guard.

One of our divers performing welding work on the rope guard.

Inside the flexible mobdock our divers can work in dry conditions.

assembly, the divers removed the first seal and replaced it with a new one which was then bonded. This was done in cooperation with the supervising OEM technician. The procedure was repeated with the other three seals.

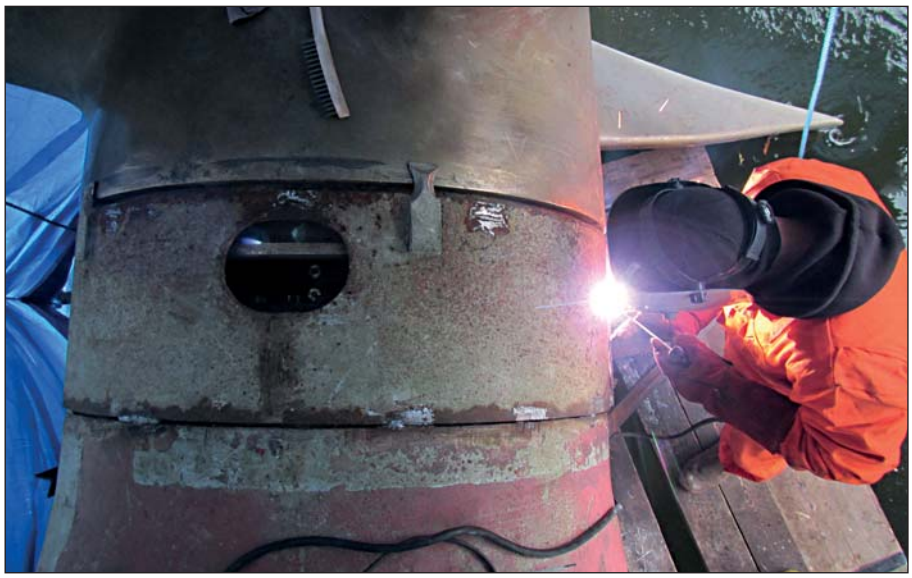
Stern tube seal repairs above and below the waterline

In just over a month we carried out six stern tube seal operations all across Europe last year. We will be writing about two of those.

In **Flushing** the four damaged seals of a 268-meter container vessel were replaced underwater with our flexible mobdock technique. Because the container vessel had a very tight schedule, we proposed to carry out preparatory work during an earlier

Our dedicated workboats are fully equipped for dive support.


Hydrex trucks during operation in Ghent.


Hydrex technician reinstalling the rope guard.

stop in Dunkirk. This included the removal of the rope guard.

As a result our divers could immediately start the operation when the ship arrived in Flushing. Because all the required material is ready to be transported at all times, no time was lost making preparations.

The ship then sailed to her next destination without delay to the schedule. During her stop in Le Havre our team reinstalled the rope guard and finalized the repair.

By organizing all steps of this operation from start to finish the owner did not have to worry about making any arrangements for the repair.

In **Ghent** a seal operation was performed on a 185-meter general cargo ship. Because the vessel could be trimmed we suggested to replace the damaged seals above water. The repair would be done in close cooperation with the OEM.

Prior to the operation the vessel was trimmed to lift the working area above the water. Our team then built a scaffolding around the stern tube seal assembly. Next our technicians removed the rope guard. This allowed them to clean the entire area and perform an inspection. The assembly was then opened to give the service engineer of the OEM access to the seals.

Both these operations are good examples of how we use our experience and know-how to offer the best solution for a specific situation. In the first example an underwater seal replacement using our flexible mobdock technique was the only option, but for the second vessel trimming was more efficient. ■

High quality in-water ship re

Permanent insert repairs
Specialist class approved insert repair work carried out on a permanent basis. Providing a real alternative to drydock.

Emergency repairs
Fast response emergency repairs worldwide.

Inwater video inspections
Professional video surveys provide a reality of the problem and enable owners and classification surveyors to directly diagnose any problems.

Echo sounder inspection and replacement

Speed log
Checks for damage, marine fouling and replacement.

Bow thruster and propellers
Permanent on-site repair, maintenance and replacement with the award winning flexible mobdock technique.

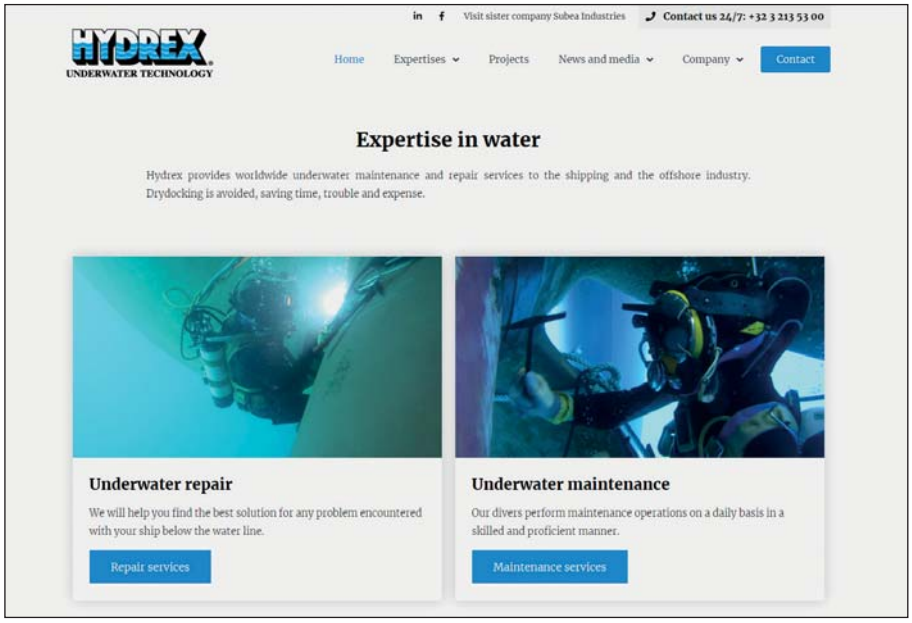
Hull cleaning on suitable coatings

Bilge keel
Check and repair broken welds, renewal of sacrificial anodes.

pair and fuel saving services

Visit our renewed website: www.hydrex.be

We are proud to announce that our brand new Hydrex website is up and running. On this website you can find information on our range of underwater repair and maintenance services, as well as the latest news and case studies.



A list of certificates, an overview of the most important operations, … all of this can be found on our new website. The familiar url www.hydrex.be will guide visitors to our homepage. From here they can navigate easily to the section of their interest.

Be sure to visit www.hydrex.be regularly as we will update the website frequently and have some exciting announcements scheduled for the coming months.

You can of course still call or e-mail us for more information or with any question about our services. We are on call 24/7. ■

Hydrex hull repairs save time and money

Hydrex on-site hull repair services include the renewal of both small and large areas of damaged hull plating. These repairs can be carried out above or below water, according to the circumstances, with tailor-made cofferdams. Normal commercial activities can therefore continue without disruption. These operations follow the Hydrex procedure for welding cracks in the vessel's shell plating and they are approved by all major classification societies.

Hydrex diver/technician teams carry out these on-site hull repairs all over the world. In most cases the damaged area can be replaced with a permanent insert and no condition of class is imposed. On the rare occasions where the damage does not allow such a repair, a temporary doubler plate is installed over the affected area. This allows the owners to keep to their schedule and have a permanent repair carried out during the next scheduled drydock visit.

To offer the fastest possible service to customers, Hydrex offices have fast response centers where an extensive range of state-of-the-art tools and diving support equipment is available at all times for the repair teams to mobilize to your location.

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Emergency scrubber overboard repair in the Netherlands and Denmark

Recently our teams of diver/technicians carried out pipe replacements on two sister vessels. These shuttle tankers were berthed in Rotterdam and Skagen respectively and experienced water ingress as a result of corroded scrubber cooling pipes.

Exhaust scrubbers are systems that filter out all harmful toxins from exhaust gasses of marine diesel engines. These hazardous pollutants can severely corrode the pipes of the scrubber.

Water leak as result of corroded scrubber pipe.

Heavily corroded scrubber pipe.

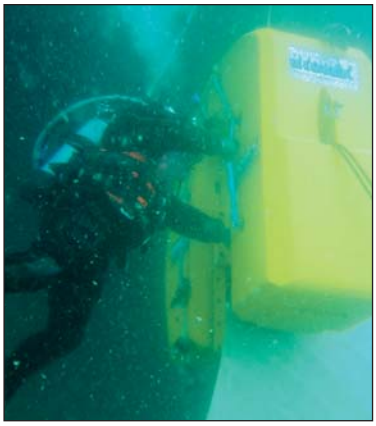
Removing the old pipe.

The two vessels were on standby to transport oil from offshore oil fields whenever required. Going to dry-dock was therefore not an option and we were contacted to offer an afloat solution.

A small team traveled to the location of the first vessel with one of our workboats to perform an inspection of the damaged pipe on both the waterside and the onboard side of the hull. This revealed that the scrubber outlet was corroded, causing the leak. Replacing the affected part of the pipe in its entirety was the only option.

With the measurements of the inspection a detailed scope of work was devised and suggested to the customer. Because we could offer a start-to-finish afloat solution the proposal was gladly accepted. This meant that we would take care of the planning of the operation as well as the adjustment of the new pipe and its installation. As a result

Fast 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 drydock. 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.

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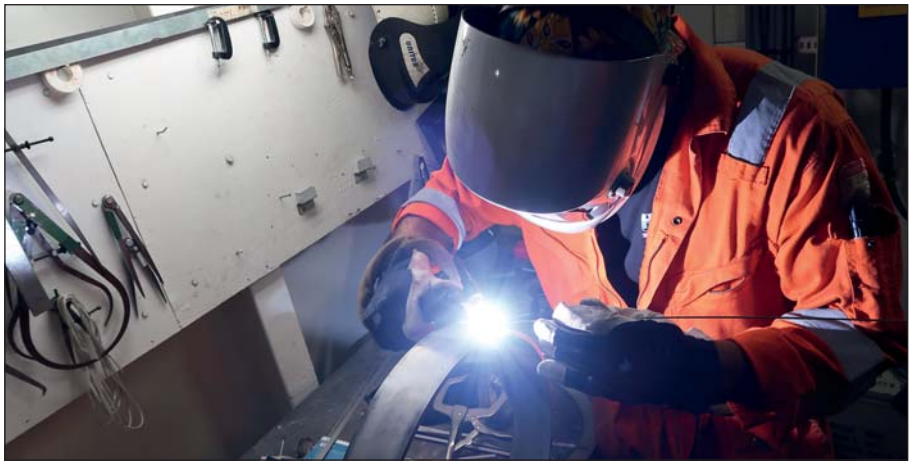


Constructing the new diffuser for the pipe.

all the hassle surrounding the repair was removed. We would take care of everything within the available time frame and this to our renowned quality standards.

Removal, construction and installation by one team

A tailor-made mobdock was constructed at our fast response center with the measurements taken during the preliminary inspection. The team installed this mobdock over the outlet of the pipe of the 270-meter tanker berthed in Rotterdam. This allowed them to perform work inside the engine room without further water ingress.

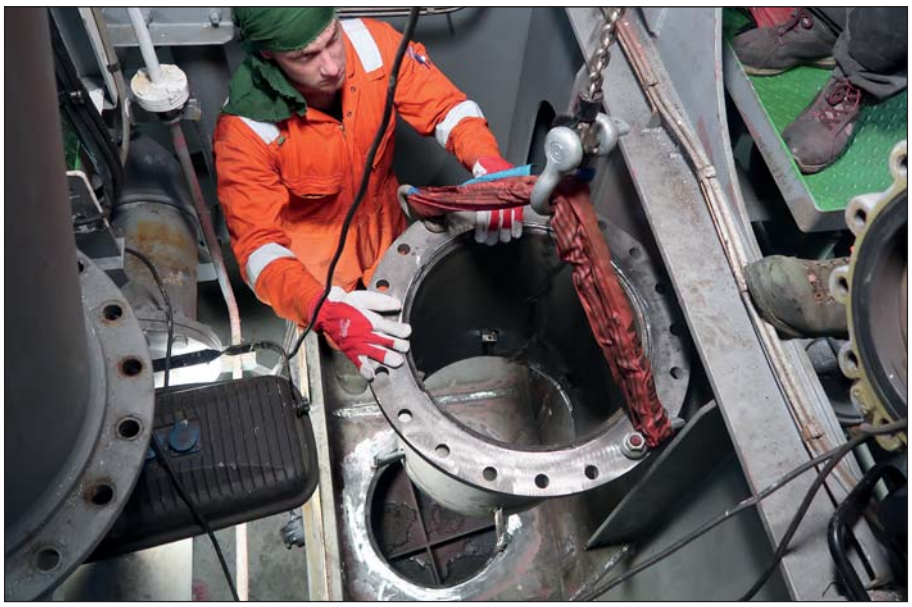
Because there was very little space the work in, several of the frames around the pipe were first removed. Next the team cut away the corroded part of the old pipe. While the shell plating was prepared for the installation of the replacement pipe, a new diffuser and flange were constructed. This was done on-site by our diver/technicians.

The pipe was then positioned and secured with a full penetration weld. The new flange was also installed. Next and independent inspector carried out NDT testing of the welding work.

To prevent the new pipe from corroding, the inside was coated with Ecospeed. This product is produced by Hydrex sister company Subsea Industries (www.subind.net). Ecospeed is highly chemically resistant. Taking into account the nature of the process taking place inside a scrubber, this is essential for a lasting protection of the pipe.

The team then installed the new diffuser and repositioned the frames around the pipe.

Welding a flange on the new pipe.



Positioning the new scrubber pipe.

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.

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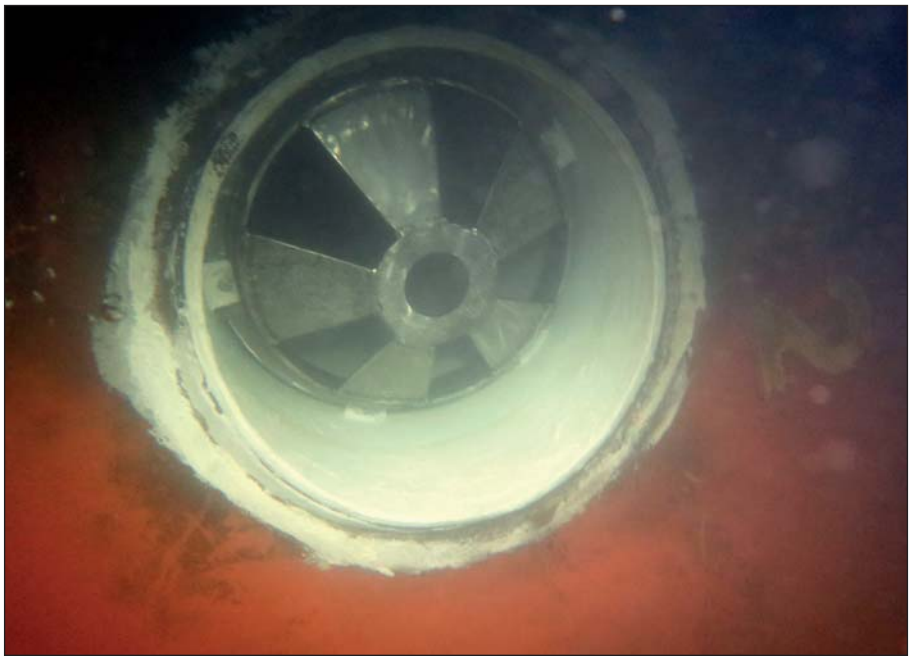
Hydrex truck and equipment next to tanker in Denmark.

The pipe was secured with a full penetration weld by our certified welders.



New pipe and diffuser seen from outside.

Initially the customer only wanted us to perform the replacement on one ship, but satisfied with the first operation he asked us to carry out the same on the 276-meter sister vessel. This second shuttle tanker was berthed in Skagen, Denmark.

Conclusion

Our divers are certified wet and dry welders as well as technicians. This allowed us to offer the full repair from start to finish, including creating the new diffuser. By doing everything ourselves and on-site we made sure that the tankers could remain on standby to mobilize when needed. ■

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

KEEPING SHIPS IN BUSINESS

Large fuel savings with new propeller surface treatment technique

We discovered an unsophisticated but very efficient technology to enhance propeller blade surfaces. With this method we can achieve surface conditions that were never seen before. This can only be done underwater.

We have four workboats equipped to deliver this service on a very short notice in the Rhine-Scheldt delta from Antwerp to Rotterdam.

When a comparison is made between the surface condition of an average propeller, as our divers regularly see it, and the smoothness that is obtained with our cleaning technique, savings are in the 5-10% range. These results are easily achieved. The cost of such an operation is very attractive and is very easily gained back in a matter of days (or even hours).

Regular maintenance is easy to schedule and results in ultra-smooth propeller surfaces. Continuous and large fuel savings are now possible.

This award-winning surface treatment technique justifies having the propeller cleaned every time it calls a port.

Please contact us for more information, we will gladly discuss the benefits of this new technology with you.

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