HYDREX®

UNDERWATER TECHNOLOGY

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KEEPING SHIPS IN BUSINESS

ISO 9001 certified

Underwater services and technology approved by:

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.

HYDREX®
UNDERWATER TECHNOLOGY

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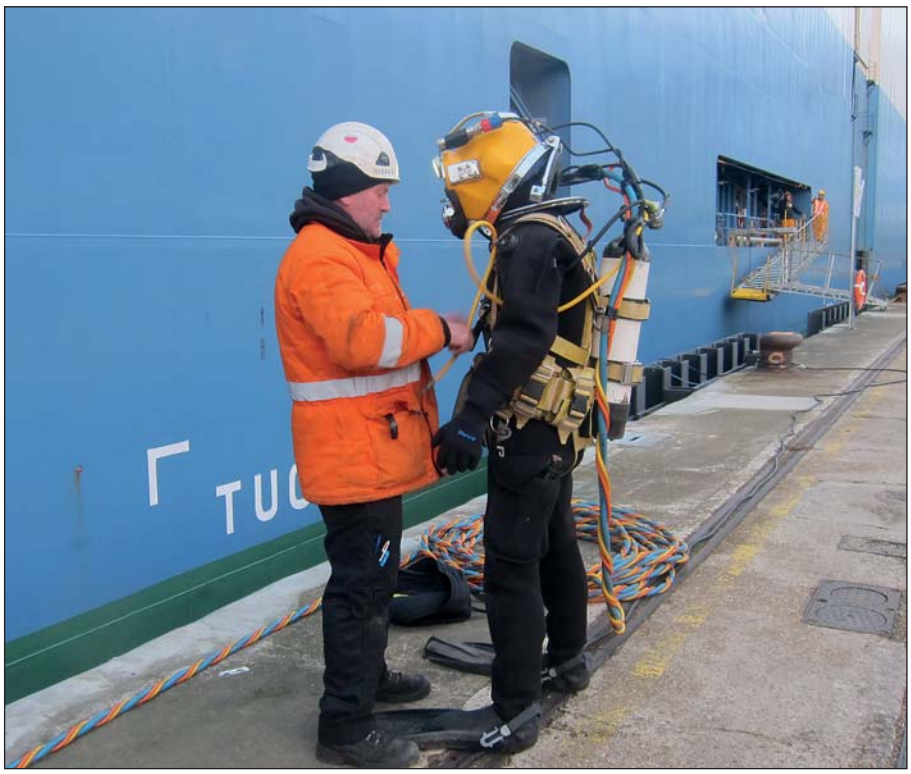
Overboard pipe repair in Southampton

Last month our diver/technicians carried out a pipe repair on a 200-meter roro ship during her stop in Southampton, UK. The vessel was suffering a leak as a result of corrosion damage to the pipe and a swift on-site solution was suggested by our technical department. The repairs were performed afloat. This gave the owner a cost-effective alternative for drydock.

Hydrex van and equipment next to roro ship during pipe repair.

While preparations for the welding work were ongoing inside the engine room a blank was installed underwater over the outlet of the damaged pipe.

Our men then disconnected a section of the overboard pipe as well as the valve. This allowed them to inspect the damaged area. Cavitation was discovered on the weld seam that connected the pipe to the flange. The seam needed to be rewelded completely. First the team ground out all cavitation on the inside of the pipe before rewelding the seam. After the welding was completed a dye check was carried out under supervision of the class surveyor. Next the same procedure was followed on the outside of the pipe.


One of our divers preparing for underwater operation.

After the weld seam had been completely renewed, the team reinstalled the detached section of the pipe and the valve. The operation ended with the removal of the blank on the outside of the hull.

Our divers made sure that the service was delivered in as short a time period as possible. The ship could leave Southampton on schedule.

Inside of pipe ready for new weld seam.

Hydrex certified welder renewing the seam.

The weld seam connecting the pipe to the flange was heavily corroded.

Grinding out the corrosion on the outside of the pipe.

Conclusion

Overboard pipe repairs are vital for a vessel because there is a direct connection between the outside hull and the pipes. This means that any damage to these can compromise the integrity of the hull. For this reason the classification society will very strictly monitor their condition and will demand a fast and thorough repair of the damage.

If this occurs we can offer a permanent afloat solution. Our teams bring a high standard of care and

Welding a new seam on the outside of the pipe.

Class surveyor inspecting the new weld seam.

Reinstalling the valve and the removed section of the pipe.

professionalism to any operation to guarantee that a ship can sail safely afterwards.

Contact us for more information on underwater hull repairs. We are at your disposal 24/7. ■

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

High quality in-water ship re

pair and fuel saving services

Sea valves, sea chests and gratings
In-water inspection, cleaning and repair of intakes and valves, installation of new sea chests, condensers and coolers afloat.

Stern tube seal replacement
Permanent inwater stern tube seal replacements and repairs with the unique Hydrex flexible mobdock technique.

Propeller operations
Propeller cleaning with special tools, on-site blade straightening and cropping. Permanent repairs to all types of propellers or installation of propeller cone fins.

Rudder repairs
Permanent on-site repairs on all types of rudders with groundbreaking new technology.

Pintle and bushing repair and replacements

Underwater bow thruster operation in Oslo

Recently a team of our diver/technicians mobilized to Oslo, Sweden for an underwater bow thruster operation on a large ferry. A seal in the gearbox was leaking and needed to be replaced. A small window was made available for the operation, but the repair had to be finished before the next scheduled trip.

Hydrex equipment arriving at ferry berth early in the morning.

A preliminary inspection of the bow thruster had revealed the cause of the leak. After studying the information, we proposed to replace the defective seal underwater with a tailor-made cofferdam. This cofferdam was designed by our R&D department and fabricated at our headquarters in Antwerp.

One of our teams then traveled to Oslo with a Hydrex truck and all the required equipment. After arriving on site, they set up a monitoring station next to the ferry. The cofferdam was then brought into the thruster tunnel, positioned over the gearbox and secured. This allowed the divers to remove the water from the cofferdam. As a result a dry working environment was created around the gearbox for our men to work in.


One of our diver/technicians getting ready for the underwater bow thruster operation.

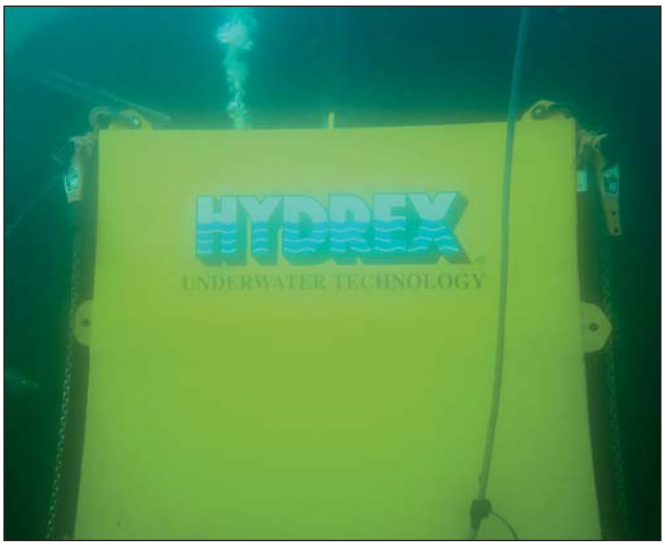
The team then safely removed the thruster case cap. This gave them access to the damaged seal ring, which they replaced with a new one to conclude the repair part of the operation.

All that needed to be done was to fully reassemble the gearbox and remove the cofferdam.

Conclusion

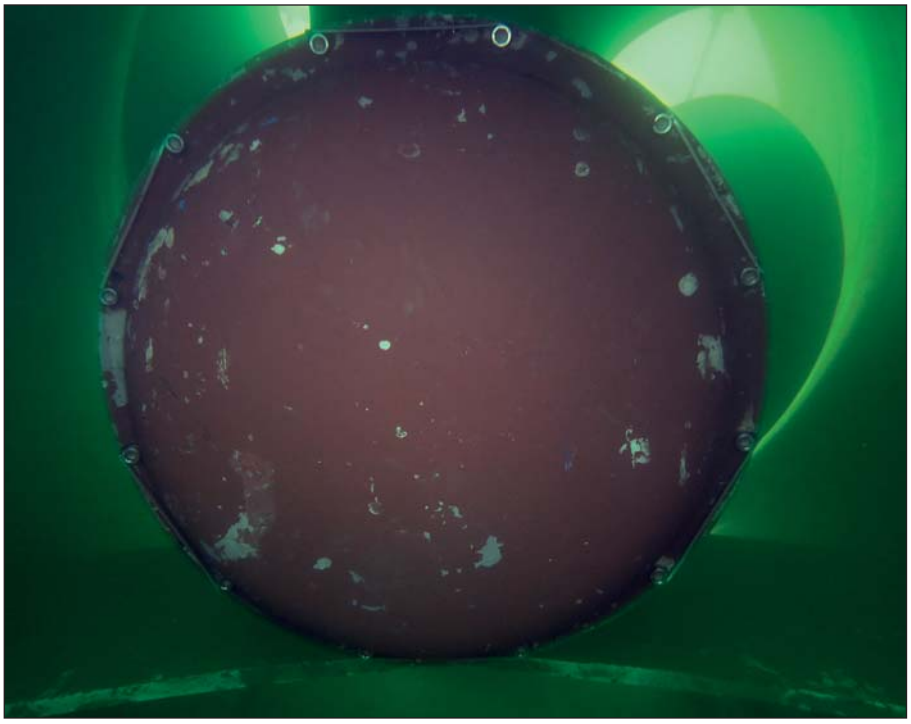
Flexibility is an important element of every job we carry out, but in this case it was crucial that the repair was finished before the ferry needed to depart with its passengers.

Tailor-made cofferdam lowered into the water in Oslo.



Cofferdam installed over gearbox of the bow thruster.

By creating a dry environment underwater we can work in drydock like conditions.



Gearbox of bow thruster after the seal was replaced.

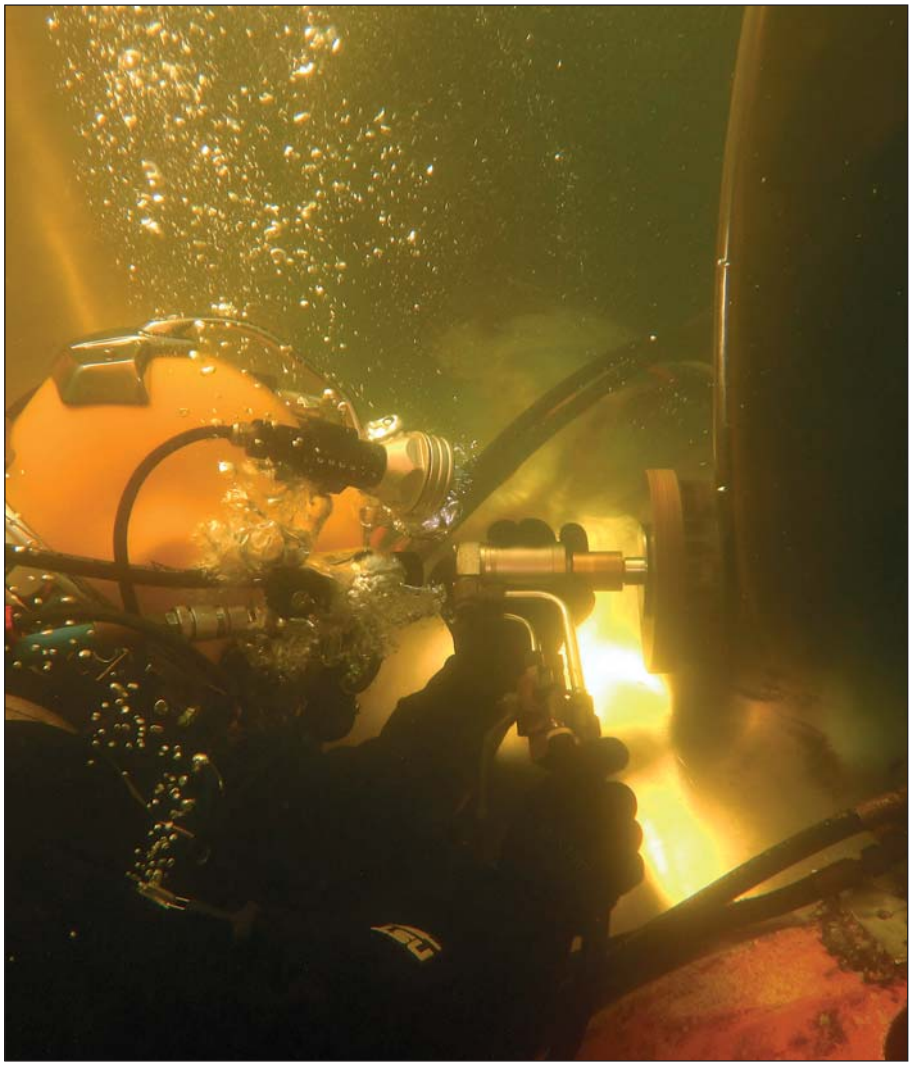
Taking into account the scope of the job this was not an easy feat. The team worked in shifts throughout the entire operation. We adapted the operation to the schedule of the ship without losing the safety and quality standards that we impose on any job we perform.

If you need information on bow thruster repairs or any other underwater operation, feel free to contact us. Our technical department is ready to assist you 24/7 at the number **+32 3 213 53 00**. ■

KEEPING SHIPS IN BUSINESS

Award winning propeller cleaning technique offers large fuel savings

We have developed a new approach to propeller cleaning that won the National Energy Globe Award for 2017. We discovered that more frequent, lighter cleaning of the propeller using a different tool to a grinding disk, and catching the propeller before a calcareous layer builds up is actually the optimum approach to propeller cleaning. If done right and done regularly it can result in 5% or even more fuel savings.



If done right and done regularly propeller cleaning can result in 5% or even more fuel savings.

Obviously for a ship that has even a medium level of fuel consumption, these savings far outweigh the cost of the propeller cleaning itself. Because the propeller is being cleaned regularly, the cleaning is relatively light and quick. No material is ground away, which is good for the propeller and the environment. The propeller is kept in an ultra-smooth condition (Rubert A or A+) and that is where the real fuel savings can be achieved. This finish can only be accomplished with in-water propeller cleaning.

Many of our customers who have availed themselves of this service have noticed a remarkable difference in their fuel efficiency after each cleaning.

The traditional approach in the industry is to let the propeller get fouled and build up a calcareous growth and maybe polish it in the water once or twice a year or in drydock. This polishing is done with a grinding disk and can be quite damaging to the propeller. By the very fact of using a grinding disk, a substantial amount of metal is removed from the propeller itself. This can alter the shape and efficiency, cause roughness and increase rather than reduce friction. It can also be a source of marine pollution which is a problem in a number of ports.

Thanks to our network of offices and service stations, we can offer propeller cleanings on a worldwide basis. These operations are carried out using underwater equipment designed and developed in-house specifically for propeller maintenance. We combine this service with underwater inspections where this is economically advantageous to the shipowner or operator.

We have prepared a full White Paper "Ship Propeller Maintenance: Polish or Clean?" which goes into the subject in detail. It gives the full story. This free White Paper is available on request. Contact us at hydrex@hydrex.be

But even without the White Paper, let us know if you would like to learn more about the subject. We would be happy to give you a call to discuss details. ■

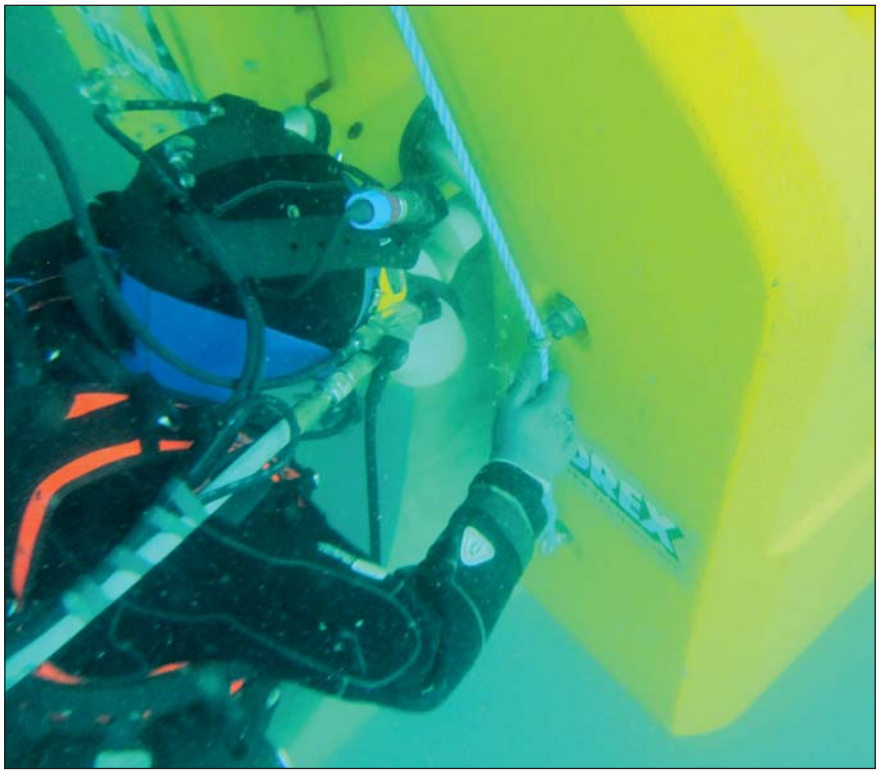
Nor-Shipping 2019

Hydrex will be present at Nor-Shipping in Oslo, Norway from June 4 until June 7. We would like to welcome you at our booth C01-30a, Holland pavilion.

If you would like to learn more about how Hydrex can assist you, please visit our booth at Nor-Shipping. Our team will be happy to give you the information you need. You can also contact one of our offices if you would like to make an appointment for the exhibition or if you need assistance.

Fast underwater propeller blade straightening and repairs

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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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.

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