HYDREX®

UNDERWATER TECHNOLOGY

Magazine

Number *263*

Underwater scrubber sea chest installation

On-site scrubber system installation

Our wide range of maintenance and repair services includes the installation of additional sea chests required for the intakes and outlets of scrubber systems. 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 most cases during cargo operations.

If you would like to discuss this possibility of in-water scrubber system installation, please contact us at +32 3 213 53 00 or hydrex@hydrex.be

HYDREX®
UNDERWATER TECHNOLOGY

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

www.hydrex.be

Editorial

Welcome to the last Hydrex magazine of 2018. Rest assured that we will remain ready to assist you 24/7 in 2019, so do not hesitate to call us with your underwater repair needs, routine or emergency.

Keeping a ship in business is a very complex task that does not end at the close of an office day. For this reason we are available 24/7 to assist you with all things concerning your vessel's underwater hull, whether great or small, emergencies or long term projects. All operations will be adapted to your vessel's sailing schedule, not the other way around.

Our teams will take care of the entire underwater part of your vessel and this all around the world. If you leave the care of your vessel's underwater hull to us, you do not have to worry about it anymore and can focus again on other important matters.

We wish you all the best for the holiday season and the coming year.

Hydrex founder
Boud Van Rompay

Cover: Propeller blade removal and reinstallation keeps ship out of drydock

HYDREX N.V.
On Time Worldwide High Quality Underwater Services

ISO 9001 certified

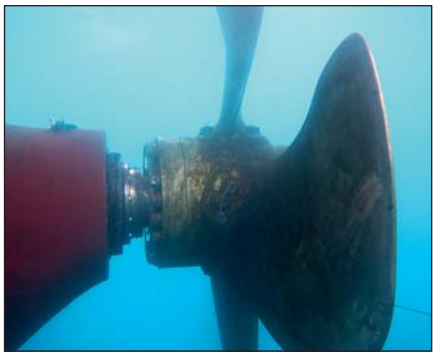
Underwater services and technology approved by:

BUREAU VERITAS
RECOGNIZED ABS SPECIALIST
CERTIFIED ISO 9001
CERTIFIED VCA*
CERTIFIED BY DNV·GL APPROVED SERVICE SUPPLIER
ClassNK
ADC International
RINA 1861

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

HYDREX®
UNDERWATER TECHNOLOGY

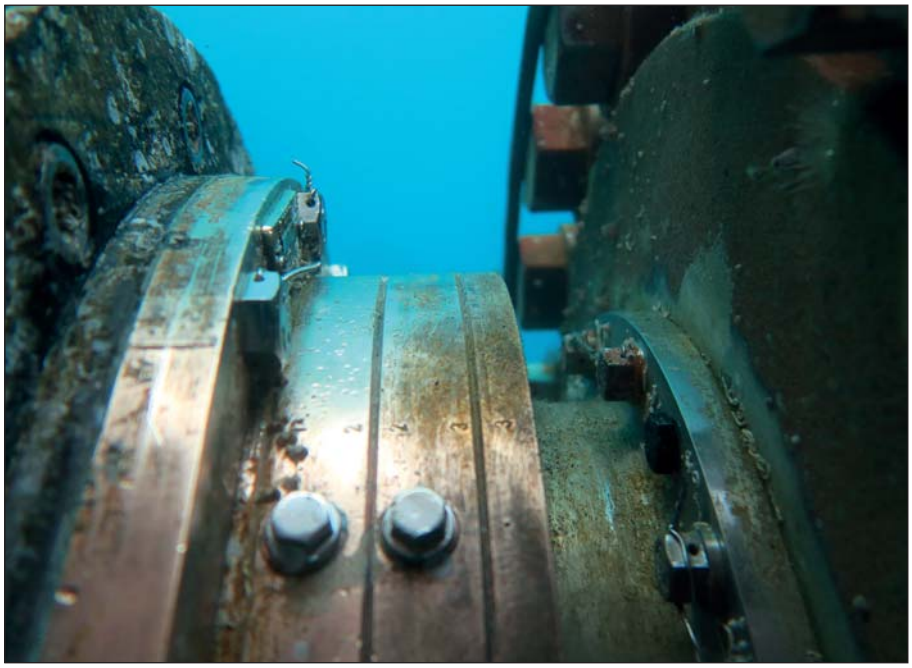
Table of contents



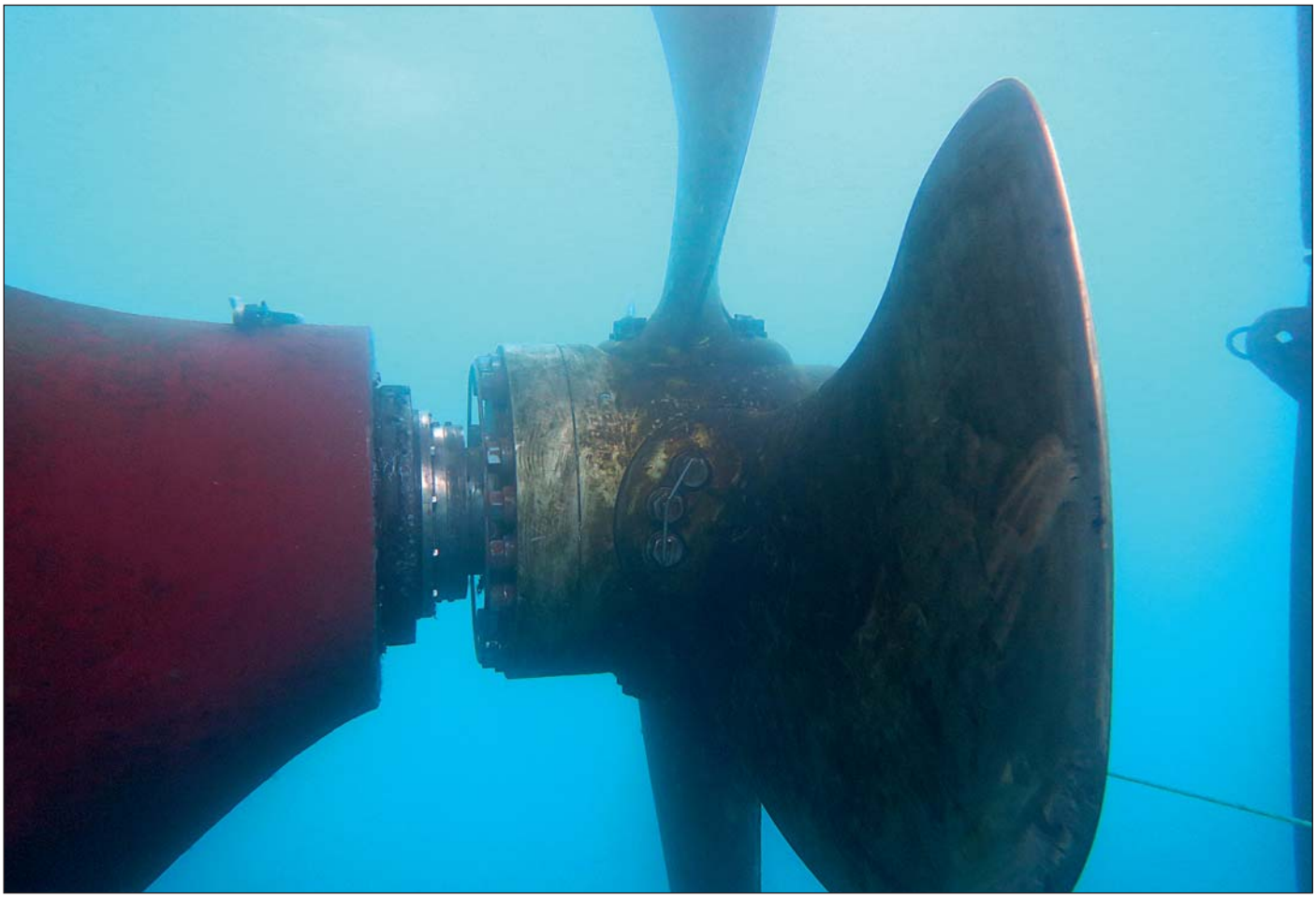
Underwater stern tube seal repair on tanker in Tenerife

Last month one of our diver/technician teams carried out an underwater stern tube seal repair on a tanker berthed in Tenerife. The ship was suffering from an oil leak, making an on-site repair necessary. Using a Hydrex flexible mobdock the team was able to carry out the entire operation on-site and underwater, saving the owner an expensive and time-consuming trip to drydock.

An earlier inspection had revealed that a rope had gotten entangled around the stern tube seal assembly. The rope was removed by our divers during this inspection. Unfortuna-



The stern tube assembly was cleaned before the operation.



The assembly ready for installation of the flexible mobdock.

All our divers are trained for a wide range of underwater operations.

tely the rope had damaged the seals and caused an oil leak. The owner of the tanker asked us to replace the damaged seals underwater so that he could keep his vessel on schedule.

Once the operation was approved all preparations were handled swiftly and the lightweight equipment was mobilized almost immediately. Our team was on-site and ready to start the seal replacement when the vessel arrived in Tenerife.

The operation started with a thorough underwater inspection of the stern tube seal assembly and removal of the rope guard. The team then installed the flexible mobdock to allow for work in dry conditions.

During the operation our divers removed the three damaged seals and replaced them with new ones. Working together with the OEM allowed us to provide our customer with original spare parts which

Rope tangled around the stern tube assembly, causing an oil leak.

Hydrex US ready to mobilize immediately

Hydrex has an office located in Clearwater in the Tampa Bay area that is ready to mobilize immediately. The office has a fast response center that is equipped with an extensive range of state of the art logistics, trucks, tools and diving support equipment. This enables Hydrex US to efficiently service vessels and offshore units calling on ports in Canada, North, Central and South America as well as the Caribbean.

All staff members of the Hydrex office in Clearwater undergo stringent training at the Hydrex headquarters in Antwerp. They can carry out both simple and complex high quality jobs even in the harshest of circumstances.

Repairs to thrusters, propellers, rudders, stern tube seals, damaged or corroded hulls and all other underwater repair as well as maintenance services are done while the vessel is afloat. This eliminates the need to drydock.

HYDREX®
UNDERWATER TECHNOLOGY

Hydrex underwater inspections

Underwater inspections are an essential aspect of ship repairs. Building upon conventional technical skills and know-how while also taking advantage of the latest technology, Hydrex offers a unique hull monitoring service to its customers. This gives ship owners total control of the underwater hull and the underwater gear of their vessels. An informed decision can then be made concerning any required follow-up action. Catching problems early can save you much money in the long run.

Hydrex diver/technicians can carry out inspections underwater and on-site very swiftly without disturbing the vessel's sailing schedule.

With fuel costs amounting to 40% of operational expenses and continuing to rise, reducing fuel consumption is a vital concern of ship owners. This is the reason why hull monitoring pays for itself. Underwater hull roughness, marine fouling, bent propellers and poor paint condition are all factors that will increase fuel usage due to the drag or inefficiency created by the damaged or affected area. The data gathered can then be used to see if actions are required.

Our diver/technicians are trained for a wide range of operations and they can carry out the inspections in port or at anchor anywhere in the world.

HYDREX®
UNDERWATER TECHNOLOGY

Hydrex technician opening up the assembly.

One of our divers ready for underwater operation.

guarantees the best quality material. A technician of the seal manufacturer was also present during the operation.

The same high quality, close to home or faraway

Taking advantage of the Hydrex flexible mobdock technique our men were able to carry out the entire repair on-site and underwater. Because all the required material is ready to be transported at all times, no time is lost making preparations.

By organizing everything from start to finish the owner 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. ■

Inside our flexible mobdocks work can be performed in drydocklike conditions.

We have developed a flexible mobdock repair method that enables the underwater replacement of all types and sizes of shaft seals. It allows ship owners to keep their vessels sailing, saving precious time and money.

Damaged stern tube seals will cause oil leaks or an ingress of water. By replacing the seals as soon as possible we can keep the down time low. Because seal repairs can be performed during cargo operations the ship can keep its schedule.

It is not always straightforward to replace seals. There can be quite a bit of variation in the size of the stern tube itself and for instance the liners can be worn down and show ruts. However, all this is routinely handled by our experienced teams.

All our offices are equipped with the latest facilities, lightweight equipment and tools. This allowed for a timely arrival of our team in Tenerife with everything they needed to successfully complete the job.

Fully reinstalled assembly after seal replacement.

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

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

Propeller blade removal and reinstallation keeps ship out of drydock

An oil tanker needed its four propeller blades overhauled during a stop in Ghent, Belgium. We therefore sent a team to the vessel's location to remove the blades on-site and reinstall them when they returned from the workshop.

Our team traveled from our headquarters in Antwerp with trucks and the required equipment. A large stock of state-of-the-art tools is ready at all times in our fast response center, so mobilization to any type of operation can be almost immediately.

The operation was carried out while the vessel was alongside and trimmed so that the blades could be surfaced one by one. Our men started the repair with the installation of chain blocks to rig the first blade. They then removed the blade bolts and lifted the blade. A blind flange was installed to prevent water ingress during the overhaul. The ship crew then turned the propeller 90° to surface the second blade. Our technicians repeated the same procedure on this blade, followed by the third and fourth blade.

Hydrex truck and equipment next to tanker in Ghent.


After removal of the blades, the surface underneath was cleaned.

While the blades were transported to the workshop and overhauled, our team carried out several other operations on the vessel. A full inspection of the propeller hub was done, as well as an inspection of the blade carriers and the propeller shaft. They

Propeller blade returning after the overhaul.


Blade repositioned over the propeller hub.


The blades were reinstalled by our technicians.

also installed anodes on the rudder. By combining these operations, time between the removal and reinstallation was used as efficiently as possible.

When the blades arrived back on location, they were installed using the reverse procedure. The operation was finished swiftly to enable the owner to sail his ship with only the bare minimum of delay. No costly drydock visit had to be planned.

Emergency blade seal replacement in Togo

Removing one or more propeller blades is not only needed when they have to be repaired. It also allows our teams to perform other work on the propeller while the vessel stays afloat. This was the case in Lome, Togo.

Oil was leaking from one of the blades of the propeller of a 210-meter roro ship. The vessel could not use its propeller anymore and the blade seal needed to be replaced. A fast and on-site solution was essential in keeping the ship on schedule. We therefore mobilized a team to the ship's location in Port of Lome, Togo to perform emergency repairs.

Seven of the eight blade bolts were easily removed, but the last bolt was firmly stuck. It could only be removed by cutting it with the aid of special equipment. The propeller blade was then lifted and the damaged blade seal was replaced with a new one. After the new seal was installed the blade was repositioned and the bolts were secured again.

Permanent in-water rudder repairs now possible without drydocking

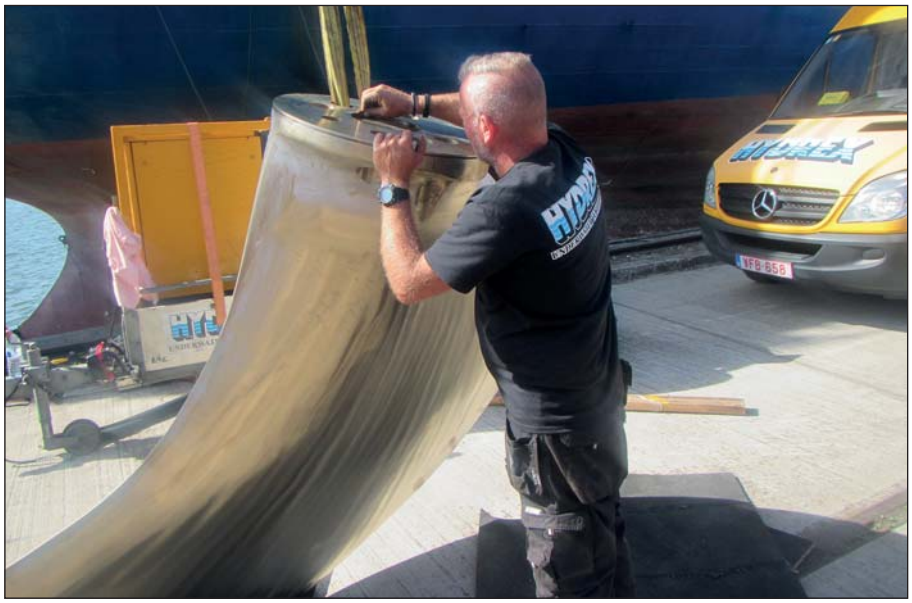
Hydrex has developed an entirely new method enabling permanent repairs of rudders without drydocking the ship. Permanent repairs were hitherto not possible and ships had to drydock in case a major defect was found. The newly designed equipment is light-weight and can be mobilized very rapidly in our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

Welding the securing of the bolts.



Inspection of one of the propeller blades prior to reinstallation.

Securing a bolt on one of the overhauled blades.

Several inspections and operations were performed while the blades were overhauled.

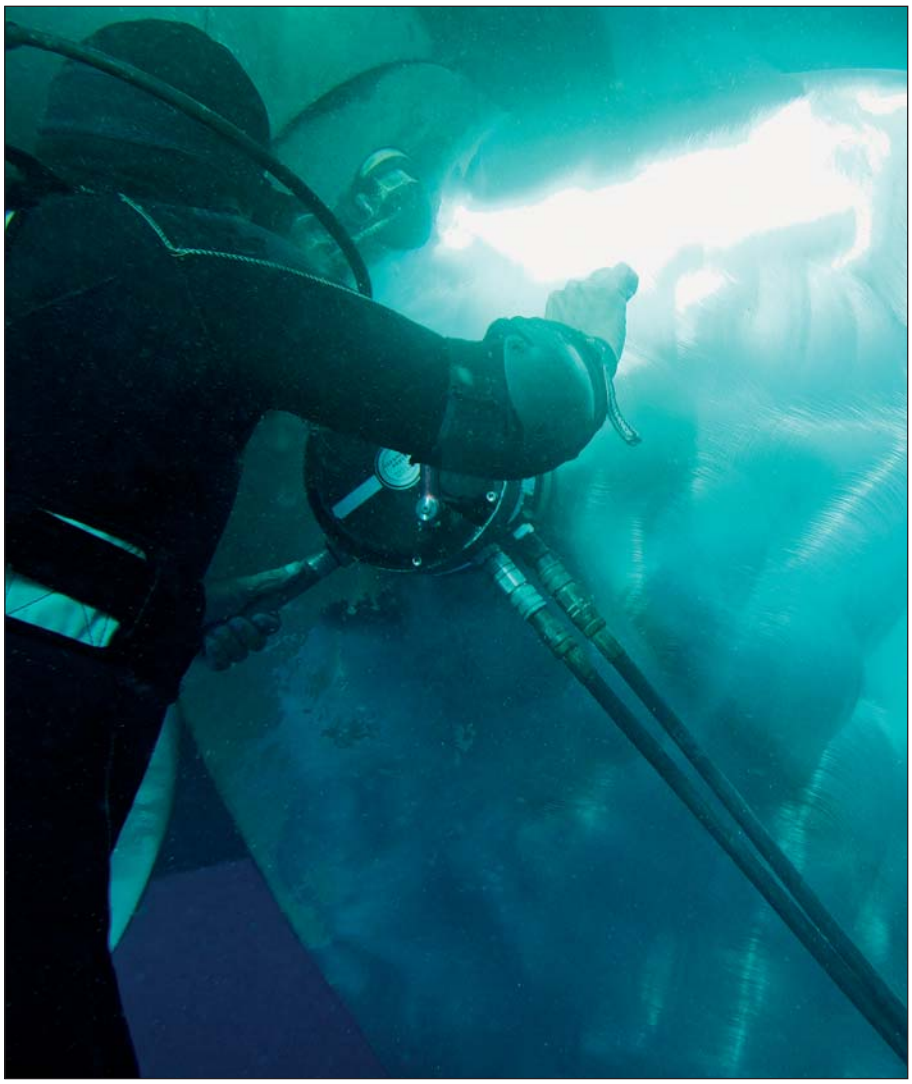
A successful oil pressure test and an underwater inspection of the entire propeller were performed, concluding the repair. With the oil leak repaired the vessel was able to leave Lome with a working propeller. The owner could keep to the sailing schedule without any delay. ■

KEEPING SHIPS IN BUSINESS

Propeller with overhauled blades ready to sail.

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. ■

In-water bow thruster repairs

The Hydrex lightweight flexible mobdocks are designed to be easily transported around the world and are used to close off the thruster tunnel on both sides, allowing divers to perform repairs and other operations in a dry environment around the bow thruster unit.

This technique enables them to reinstall the propeller blades of an overhauled thruster inside the thruster tunnel after the unit has been secured or replace the blades or seals and perform repair work on a specific part without removing the unit.

Since the development of this flexible mobdock technique, numerous thruster repairs have been carried out by Hydrex diver/technicians around the world.

There is no need to send the vessel to drydock as all operations can be carried out in port or while the vessel is stationary at sea. Normal commercial activities can therefore continue without disruption.

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