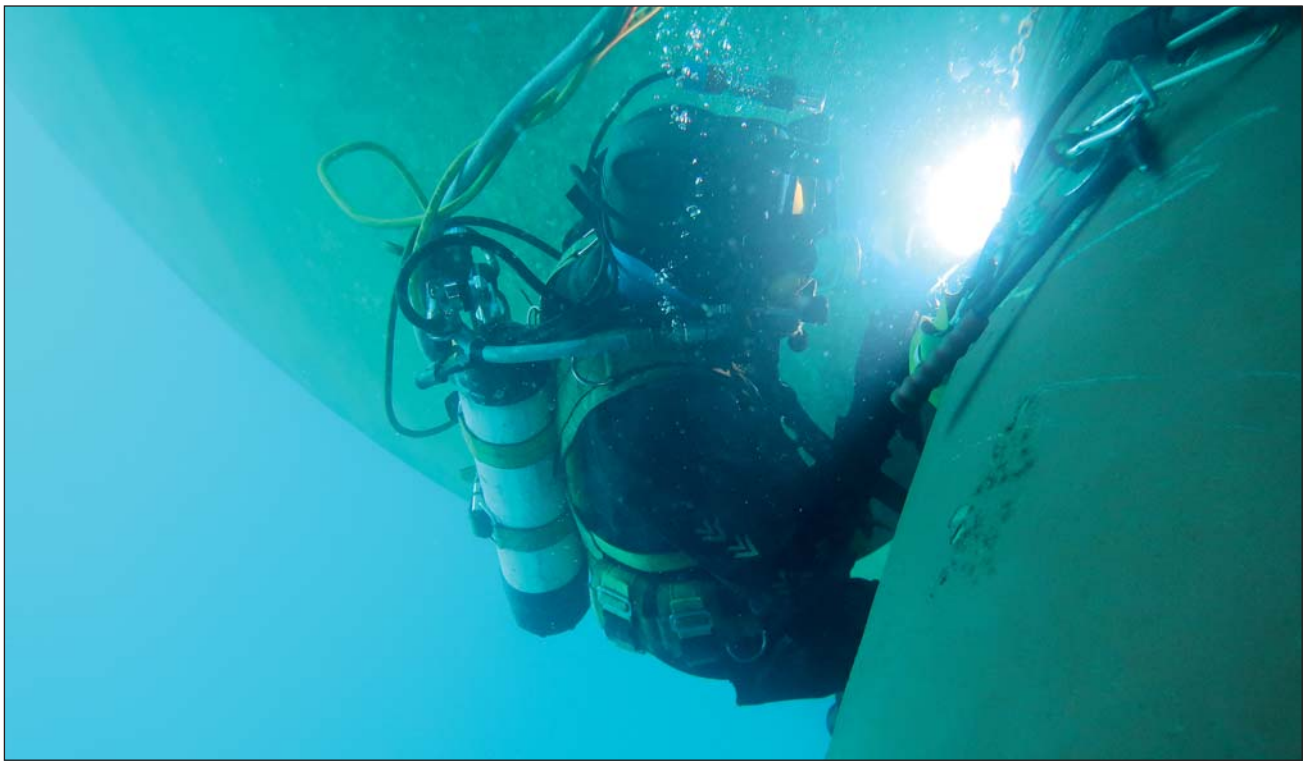
HYDREX®

UNDERWATER TECHNOLOGY

Magazine

Number *273*

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.

HYDREX®
UNDERWATER TECHNOLOGY

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

Editorial

We take care of the entire underwater part of your vessel and this all around the world. Providing a service that is both versatile and effective, we have built a reputation as the world's leading underwater repair and replacement specialists.

With an ever-expanding worldwide network of offices and support bases, we can provide fast service at reasonable costs.

I hope that this magazine will encourage you to contact us if you have a problem or need maintenance work carried out. We can offer fast tailor-made solutions that can keep your vessel on schedule.

I invite you to give us a call if you have a problem with your ship of which you are not sure that it can be solved afloat. We will evaluate the problem and can let you know whether an underwater solution is possible. Many solutions are available without the need for drydocking.

Our technical advisors will inform you whether the operation is feasible underwater. We will give you fast and clear answers to your questions.

We can assist you with routine maintenance operations as well as complex repairs. Very simply put: We fix ships.

Hydrex founder
Boud Van Rompay
bvr@hydrex.be

ISO 9001 certified

Underwater services and technology approved by:

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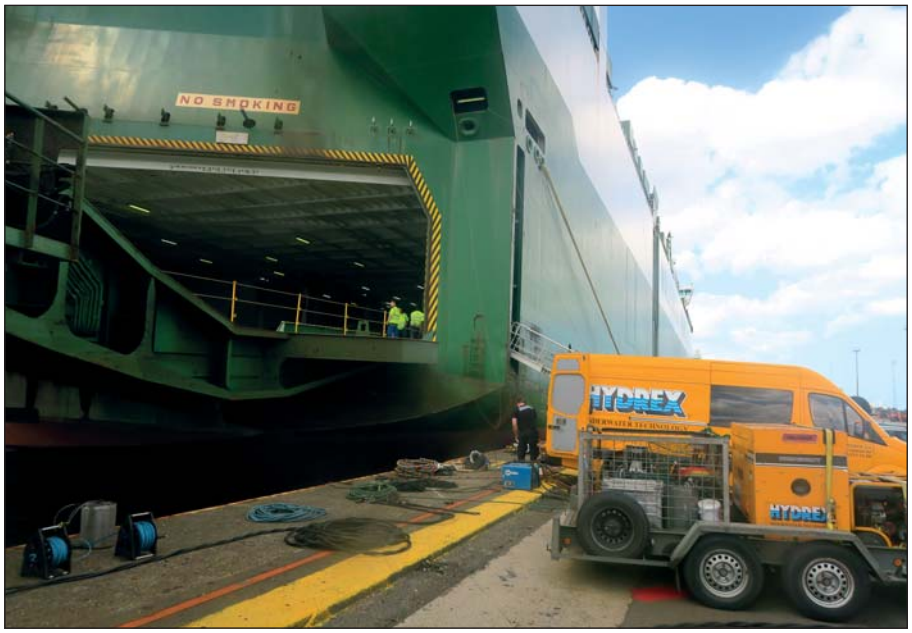
HYDREX®
UNDERWATER TECHNOLOGY

Rudder repairs in Zeebrugge, Dunkirk and Le Havre

Recently our teams carried out several rudder repairs on ships in Belgium and France. In all cases cracks were found that needed to be repaired to prevent them from spreading and causing further damage to the rudders.

We can perform repairs at anchorage on any type of rudder or while the vessel is berthed. In most cases this can be done without interrupting cargo operations. The following case studies give an account of some of the recent examples of this.



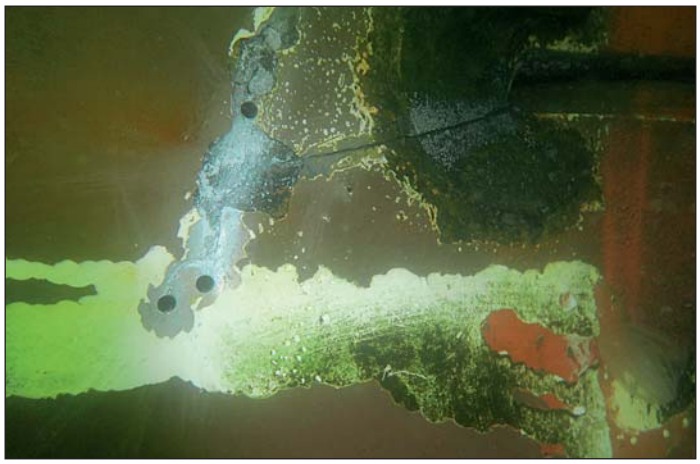
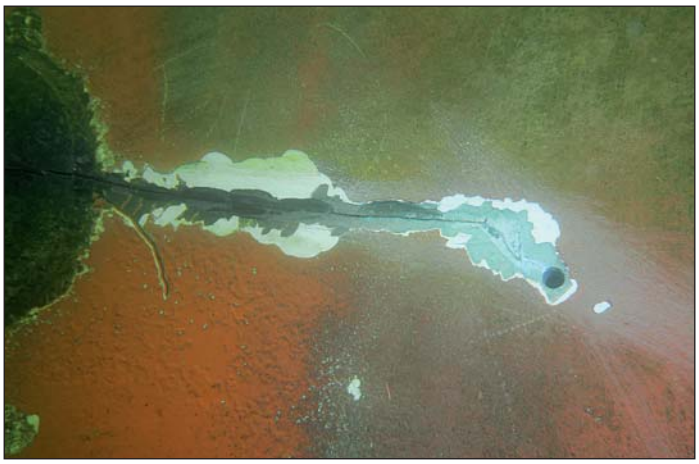
Hydrex team preparing for rudder operation in Zeebrugge.

Rudder cracks repairs above and under water

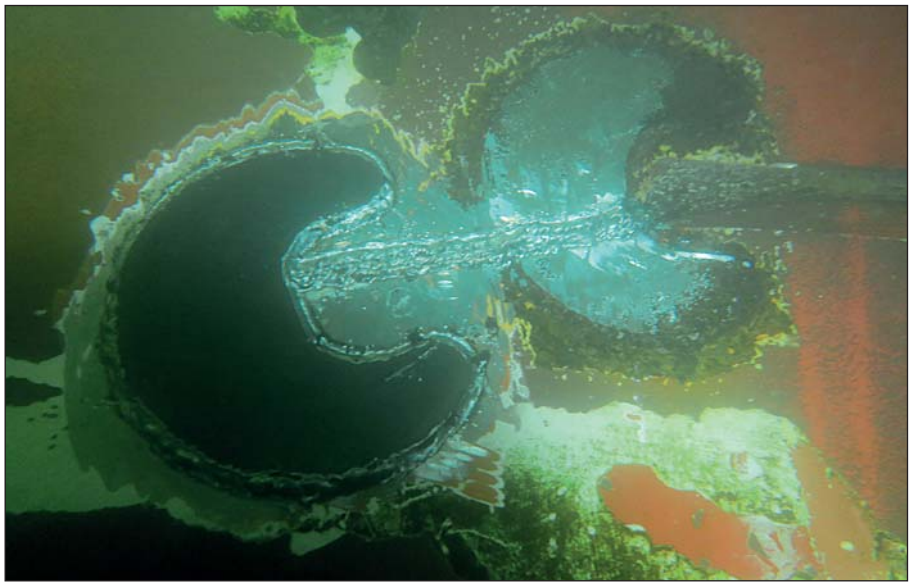
A 230-meter roro ship in Zeebrugge had suffered cracks on both sides of the rudder flap. On the starboard side a branching crack was found while a single crack was present on the port side.

Our divers first drilled arrests on all extremities of the cracks to prevent them from spreading. They then positioned C-shaped plates over the crack arrests and secured these with wet welding.


Branching crack on rudder of roro ship.

Crack arrests were drilled on the extremities of the cracks on both side of the rudder.



C-shaped plated welded over the crack.

This allowed the owner to sail his ship without having to worry about the condition of the rudder. He can have a permanent repair carried out during the ship's next scheduled drydock visit at a more convenient time and location.

On two 229-meter sister bulker ships in Le Havre and Dunkirk respectively, cracks were found on the upper pintle corner of the hinge that connects the rudder flap to the main rudder blade. Fortunately these cracks could be repaired by grinding them out after a crack arrest had

Crack on rudder of bulker in Le Havre.

EUROPORT 2019

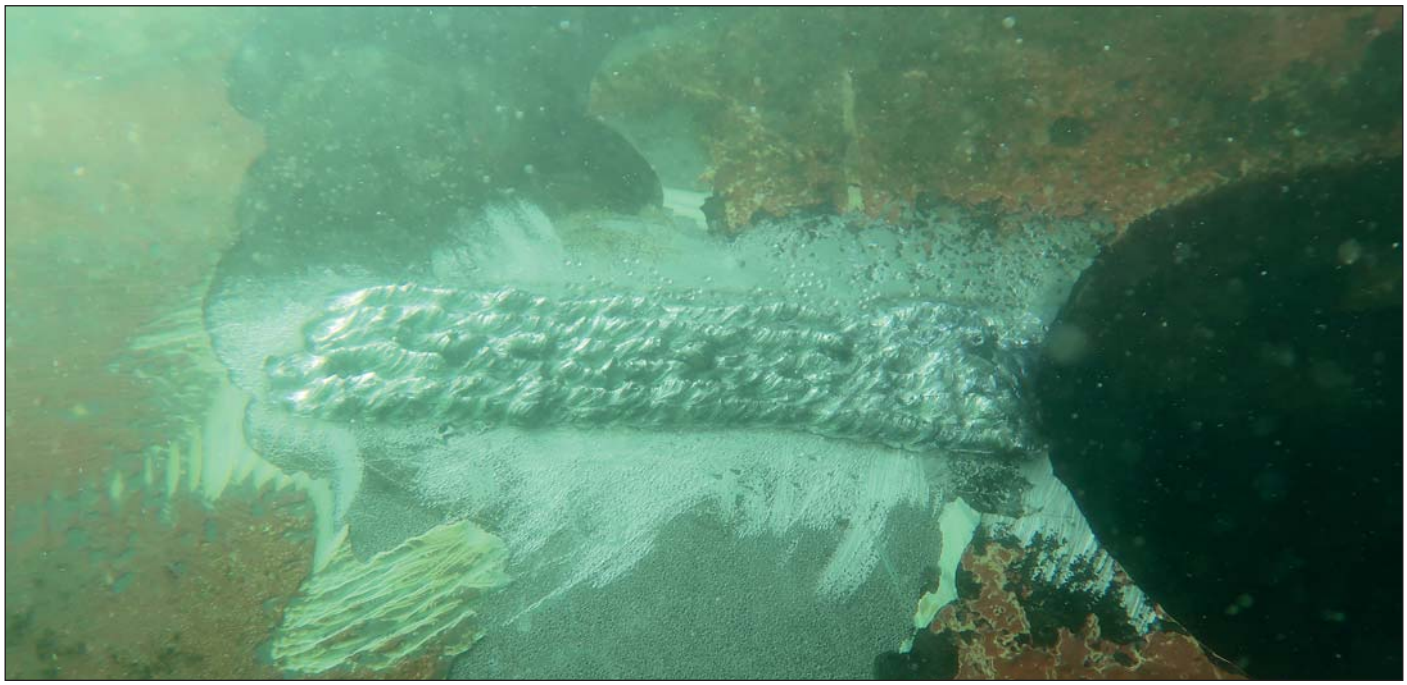
5–8 Nov | Rotterdam Ahoy

Hydrex will be present at Europort in Rotterdam, the Netherlands from November 5 until November 8. We would like to welcome you at our booth 1009 in hall 1, Holland pavilion.

If you would like to learn more about how Hydrex can assist you, please visit our booth at Europort. 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.

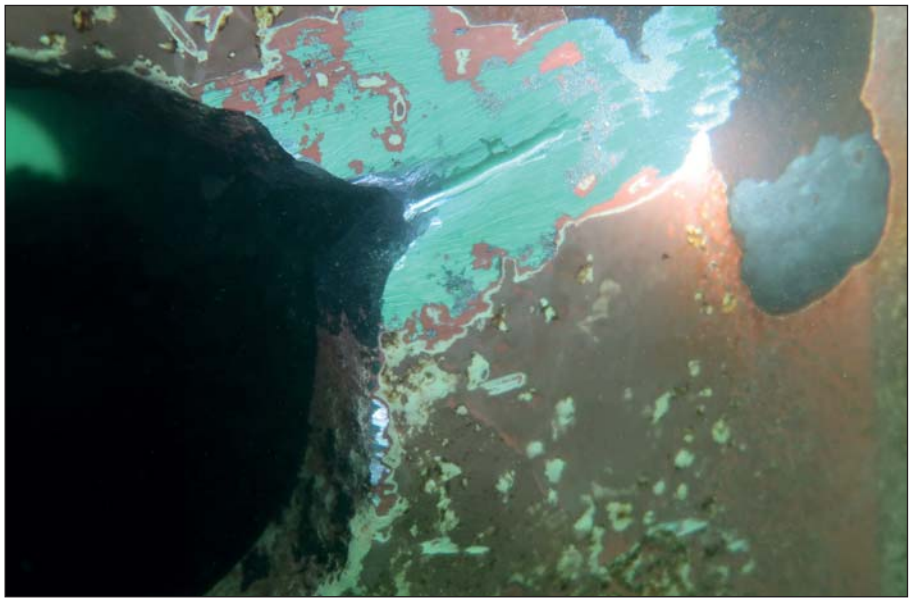
Hydrex technician grinding out the crack in Le Havre on the trimmed vessel.

Ground out crack, ready to be filled.

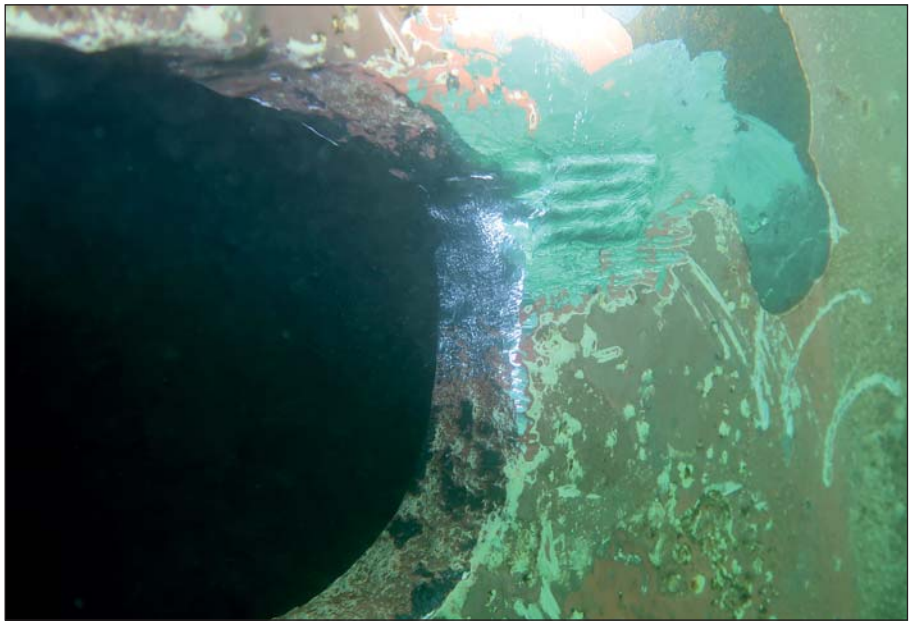


Welding was used to fill cracks on two sister vessels after they had been ground out.

One of our divers getting ready for underwater rudder operation in Dunkirk.



Ground out crack in upper rudder pintle corner of bulker in Dunkirk.



Our divers filled the ground out crack with clad welding.

been drilled. The affected area was then filled with clad welding.

Timely discovery prevents more costly repairs

The cracks on these rudders were spotted during an underwater inspection before they caused problems for the ship. This once again shows the benefits of having regular inspections carried out by competent divers, followed by comprehensive and accurate reports. Our teams can detect any problem so that they can be corrected early and prevent the more costly repair which neglect and further damage would bring about. ■

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

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

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

On-site repair on azimuth thruster in Gabon

This year marks the 45th anniversary of Hydrex. We will be looking back at some of the many key operations our teams performed since the company was founded in 1974. We will do this by republishing an article from the vault of the Hydrex Magazine each month.

This month's revisited article talks about an operation carried out in 2006. It required meticulous planning and engineering skills, combined with professional diving expertise. Just about all vessels have tight time schedules to keep, but this is probably even more so when it comes to offshore activity where a number of rigs, crane and other service vessels must remain in close synchronization. Dropping out of service because repairs are needed will often mean serious penalties for contract breakage.

Going to drydock had not been an option for an offshore crane barge that was servicing rigs on an oil field off the coast of Gabon. When one of its four 40-ton thrusters malfunctioned we therefore designed a large mobdock (weighing over 25 tons by itself) to remove the thruster on-site. After the operation it was stored in Gabon to be used at short notice whenever future repairs were required on the thrusters. This has allowed for a very fast mobilization and execution of repairs on several occasions since then. ■

This article was first published in November 2006.

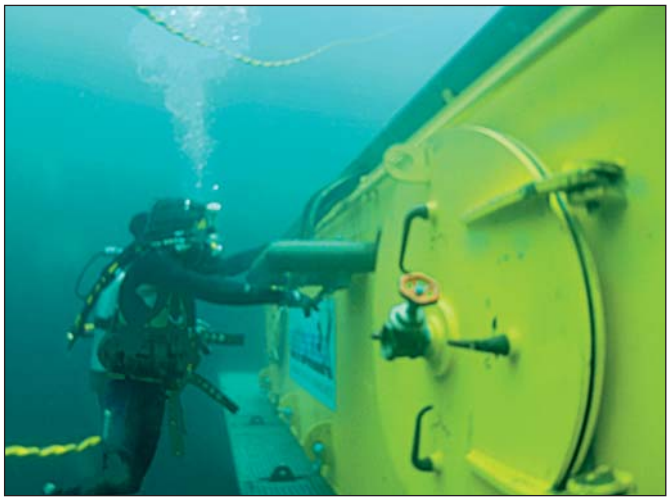
30 days to remove, overhaul and re-install a 40-ton thruster

One of the four 40-ton swing-up azimuth thrusters of an offshore crane barge servicing rigs on an oil field in Gabon had malfunctioned and needed to be removed from the barge for repairs. Thrusters are vital to staying in location as this is done by DP (dynamic positioning). While it is possible to maintain location with 3 thrusters it was obvious that the fourth needed to be repaired urgently.

The crane barge, however, had only one month during the year in which it was contracted to leave the oil field for repairs. The work on the thruster, along with any other servicing, needed to be done within this time period. Once removed from the vessel the thruster had to be transported to land for the repairs and be reinstalled within the 30-day period. The thruster itself could only be removed from the crane barge by dismantling the unit in a dry space and then taking it out from beneath the barge. Going to drydock was not an option as the nearest suitable

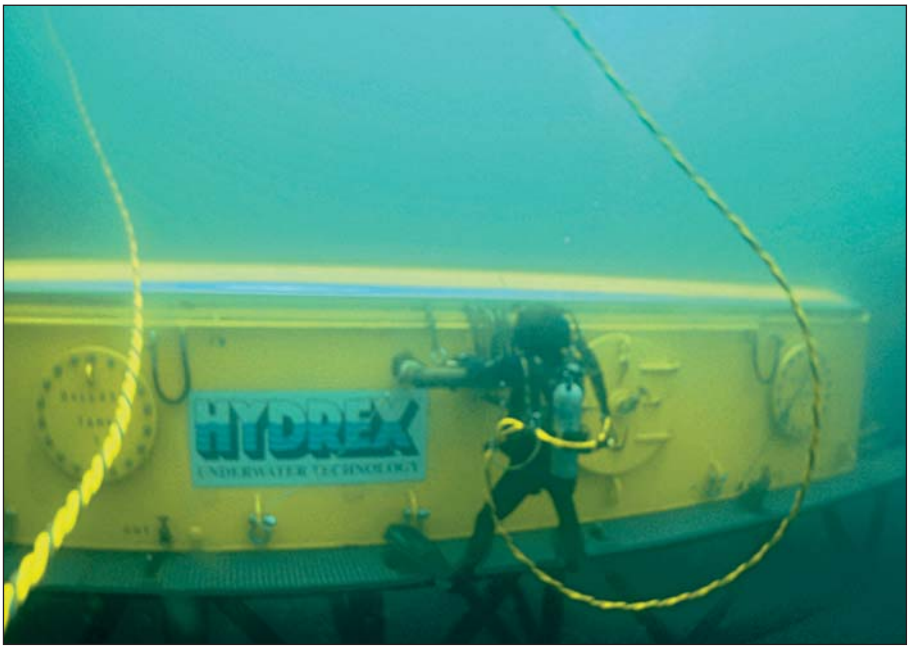
Mobdock construction.

Immersion of mobdock.



Preparation underwater.

Positioning the mobdock.



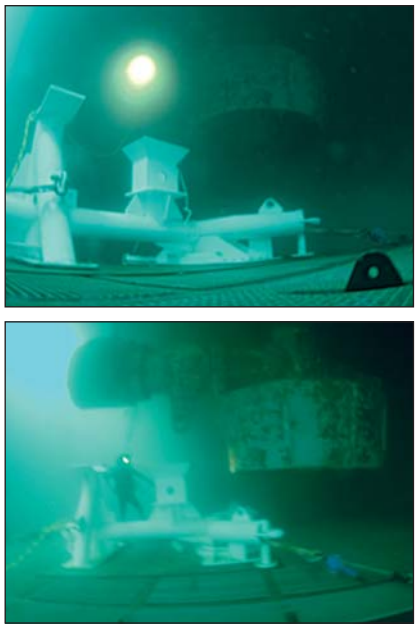
Mobdock underwater.

place was in South Africa and this would have taken the repairs way outside of the time frame available.

There were also detailed safety and technical procedures that had to be met in order to access the thruster from within the engine room, as the thruster was located outside the vessel under the water line.

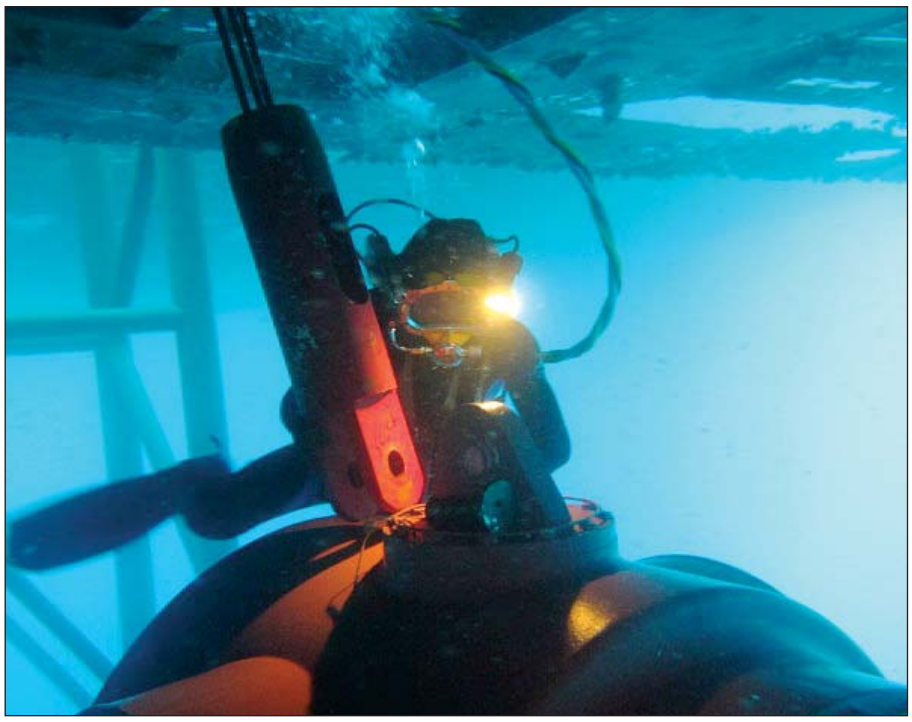
This was where we were called in: to find a solution to this problem as well as to overhaul the thruster unit. True to form, we did.

There was some time in which to prepare for the work but only the relatively small time frame of 30 days when the crane barge would be available. The solution proposed by our technical department was gladly accepted by the customer. A large mobdock (mobile mini drydock), would be constructed along with all the auxiliaries needed for this work. It would be placed on the underside of the crane barge to cover the area where the swing-up thruster was housed. This mobdock was one of the largest we have made. It was approximately 9 x 6 x 2 meters in size and weighed over 25 tons itself.



Lowering the thruster beneath the crane barge.

Transporting thruster out of water for repairs.



Hydrex diver/technician during reinstallation of azimuth thruster unit.

It was built in Belgium under the supervision of our headquarters there and then transported to Gabon along with all other needed equipment to carry out the work.

Everything was in place at the beginning of the 30-day period and an operations base was set up on a working pontoon next to the crane barge. It was an extremely precise operation requiring a great deal of coordination and organization to ensure that all went smoothly.

The thruster was first retracted into its housing within the main body of the offshore unit and the mobdock was brought into position covering the entire area under the hull of the crane barge where the retractable thruster was now housed. The mobdock was secured in place, made watertight and all water was pumped out of it creating a dry space within the area that held the unit.

Access could then be gained to the thruster from within the crane barge. The two main access plates above the unit in the engine room were removed and two hoists held the thruster in place while the auxiliaries were disconnected and the drive and steering gears dismounted. The water sensitive parts of the thruster were sealed off. Once all this was done the thruster unit was disconnected and the chamber housing was flooded.

At this point the mobdock was removed and the thruster unit was lowered onto a specially designed support unit under the barge. After being safely secured the thruster was lifted onto the pontoon by the main crane of the barge.

The thruster was then transported to shore where Hydrex engineers dismantled the thruster under the supervision of two manufacturer's representatives.

After the repair was completed, the reverse procedure was followed and the thruster reinstalled into the crane barge. Commissioning and testing were carried out satisfactorily. This completed the operation with the offshore unit fully operational again.

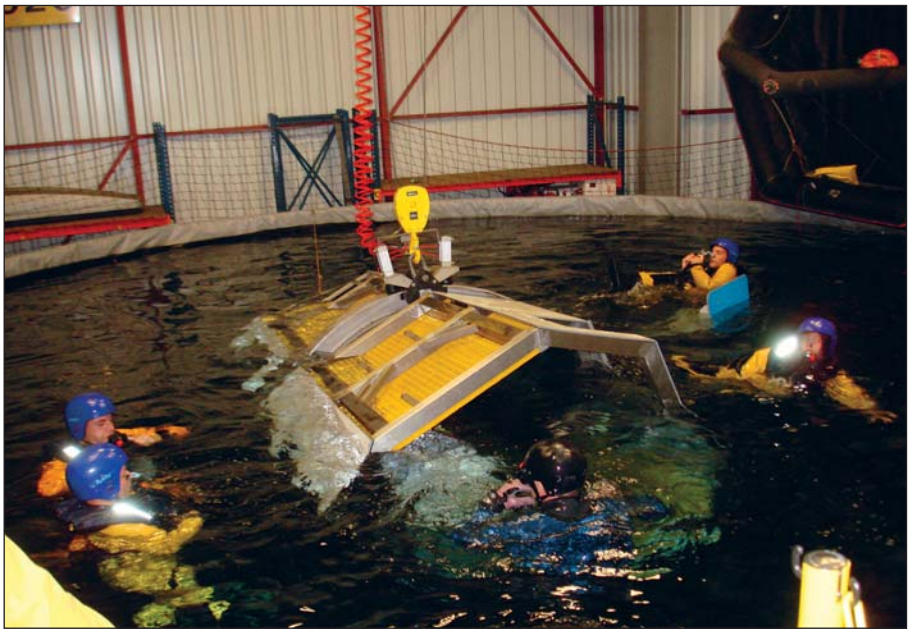
The work, which took a considerable amount of engineering precision and skill combined with diving expertise, was a major feat and validation of our underwater knowledge. It was done within the time period available. For the owners this was a major saving in time and money as the offshore unit did not have to move to drydock. ■

Hydrex diver training programs result in exceptional safety and efficiency

Hydrex can offer its customers the high quality of service they deserve while guaranteeing the safety of the divers at all times. This can only be done successfully by staff who have experiency with a wide range of operations as well as the relevant know-how. Our diver/technicians are trained and qualified to perform all required class-approved repair procedures in even the harshest conditions.

This is a result of the stringent training all divers go through. Whether they work for the Hydrex main office in Antwerp or for one of the other offices. Besides being required to have official international commercial diver certificates and taking high standard external courses, including safety and offshore courses, they also receive comprehensive in-house training.

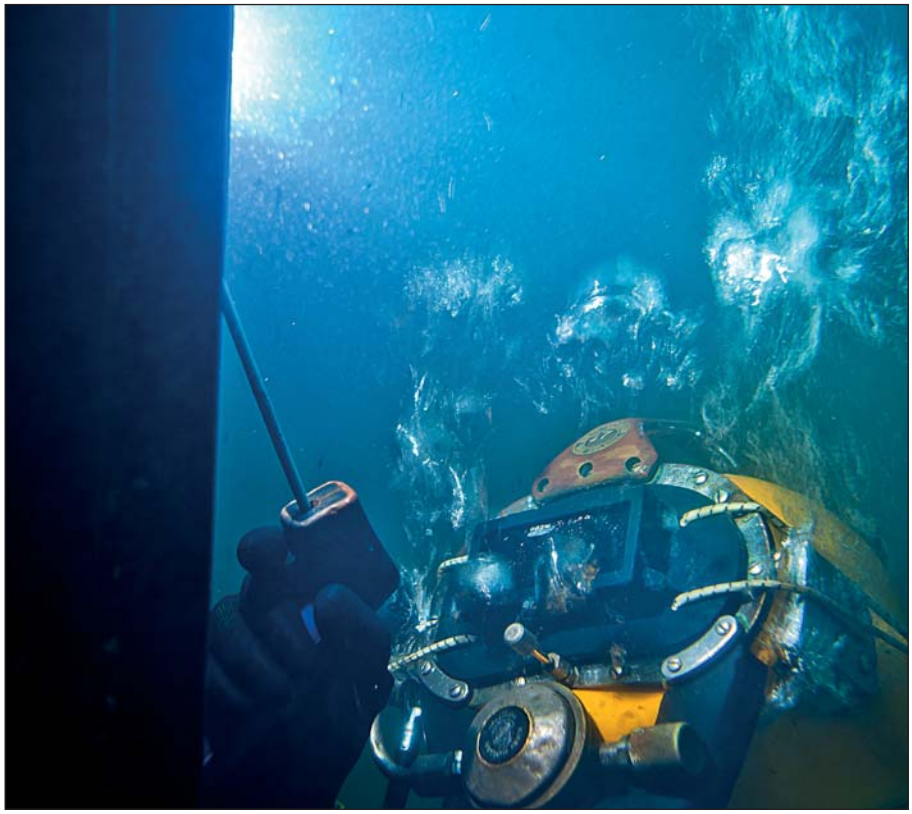
Diver ready to enter one of the training tanks at the Hydrex headquarters in Antwerp.



Offshore safety training.

Dry welding practice.

Hydrex team members preparing to mobilize from the fast response center in Antwerp.


In-house practicing of wet welding.

Training tanks and equipment in fast response center.

Training consists of both theoretical classes in the course room and practical drills on the Hydrex premises. There they have access to a wide range of underwater tools and various other equipment, including three dive tanks in which to practice underwater welding and other repair work.

In addition to these classes, new divers also get the opportunity to assist experienced Hydrex diver/technicians during operations. The training enables them to become experienced divers and technicians themselves and to take advantage of the technical know-how and practical knowledge Hydrex has accumulated over the last 45 years.

When their training is completed, Hydrex divers can carry out both simple and complex jobs even in harsh circumstances and achieve this uniformly without unnecessary loss of time, quality or safety. This has led to an outstanding safety record, with no significant accidents occurring since the company was founded in 1974. This results in the extraordinary dependability that our customers deserve. ■

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.

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