HYDREX®

UNDERWATER TECHNOLOGY

Magazine

Number *211*

On-site propeller operations keep your ships sailing

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Editorial

The first article in this month's magazine talks about a recent bow thruster repair in Gdansk. Our divers replaced the seals of the thruster unit underwater in drydock-like conditions. This was done by using our special thruster mobdocks. The on-site operation prevented an unscheduled drydock visit for the owner.

Further on in the magazine we give an overview of how Hydrex can carry out permanent hull repairs on vessels without disturbing commercial activities. These operations are fully approved by all the major classification societies. They can be carried out very swiftly and save you precious time and money.

The last article talks about the international sales conference that Hydrex and Subsea Industries hosted on the 11th and 12th of June. The conference was attended by many of the companies' agents from around the world.

If you would like to learn more about the Hydrex services, please visit our website (www.hydrex.be) or call us 24/7 with your underwater repair needs, routine or emergency. We can offer custom solutions that include the engineering as well as the practical part of any operation.

Best regards,

Hydrex founder
Boud Van Rompay

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On Time Worldwide High Quality Underwater Services

ISO 9001 certified

Underwater services and technology approved by:

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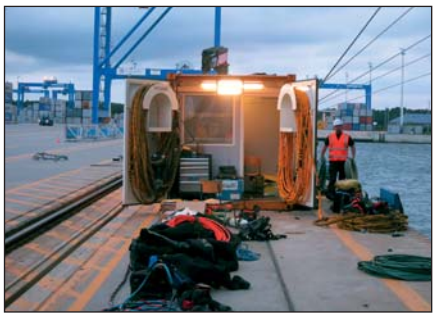
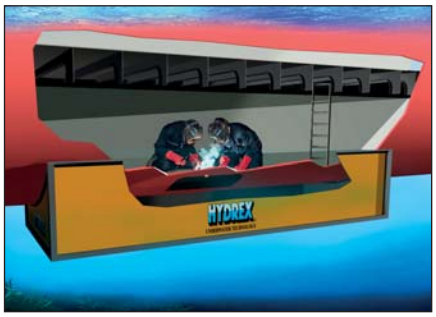




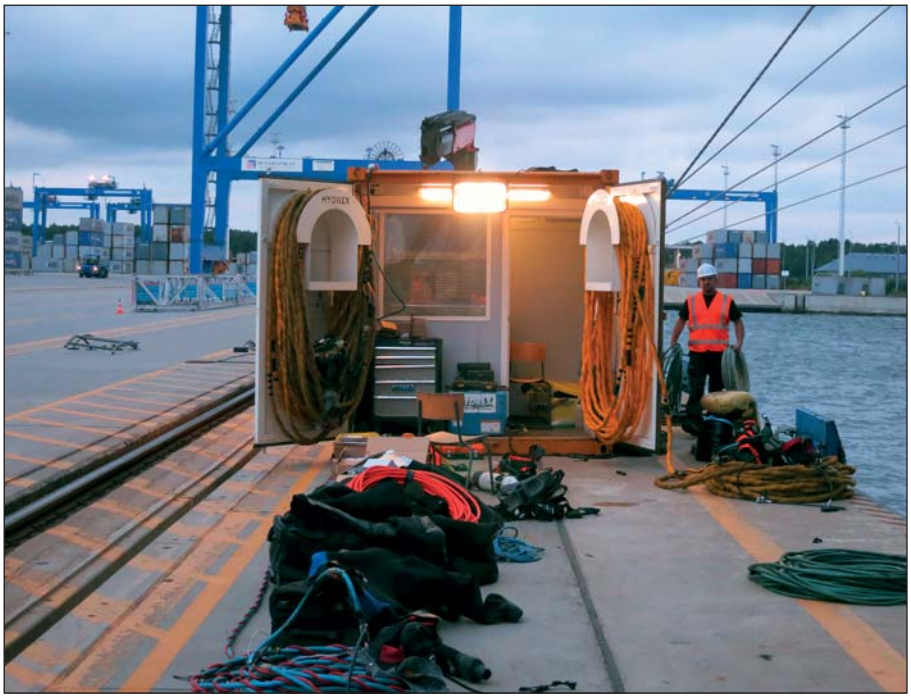
Underwater bow thruster seals replaced in Poland without hindering cargo operations

At the end of June, a Hydrex team replaced the three leaking bow thruster shaft seals of a 400-meter container ship in Gdansk, Poland. The operation was performed on-site and underwater using the company's flexible mobdocks. The vessel was able to continue its commercial activities without any hindrance or delay.

Hydrex on-site, making preparations for operation on 400-meter container vessel.

Together with all the necessary equipment, the diver/technicians mobilized from the Hydrex fast response center in Antwerp to the vessel's location. After they set up a monitoring station on the quay, the divers started the operation by removing the rope guard covering the thruster seals. They could then perform a detailed inspection of the seal assembly and make a good assessment of the damage.

The Hydrex flexible mobdocks were installed at both ends of the thruster tunnel. Next the team evacuated all water from the tunnel. In this manner a working environment with drydock-like conditions was created. This is essential for any permanent seal replacement. The divers removed the first seal and replaced it with a new one which was then bonded. This procedure was repeated with the other two damaged seals. All seals showed cuts at the underside, which had caused the oil leak.



A monitoring station was set-up next to the vessel.

The operation ended with succesful leakage tests, the reinstallation of the rope guard and the removal of the flexible mobdocks.

During the operation representatives of both the manufacturer of the shaft seals and the bow thruster OEM were present. They followed the operation and gave their approval.

Hydrex team member supervising the underwater operation.

Diver/technician working on the shaft seal assembly.

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 much time and money.

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 for a wide range of actions.

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.

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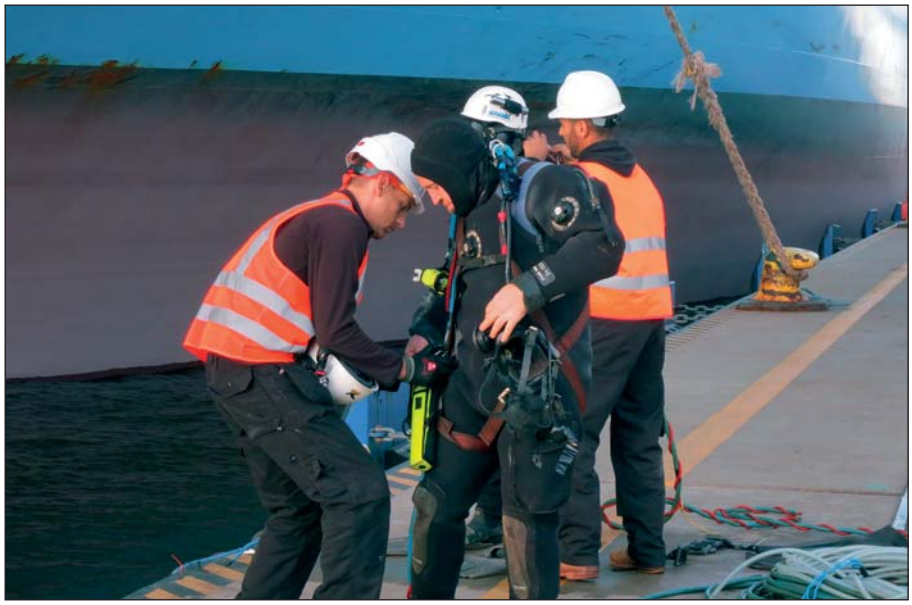
New seal positioned and bonded.

The old seals had cuts at the bottom, causing the leak.



Divers getting ready for underwater operation.

Hydrex diver/technician taking the plunge.

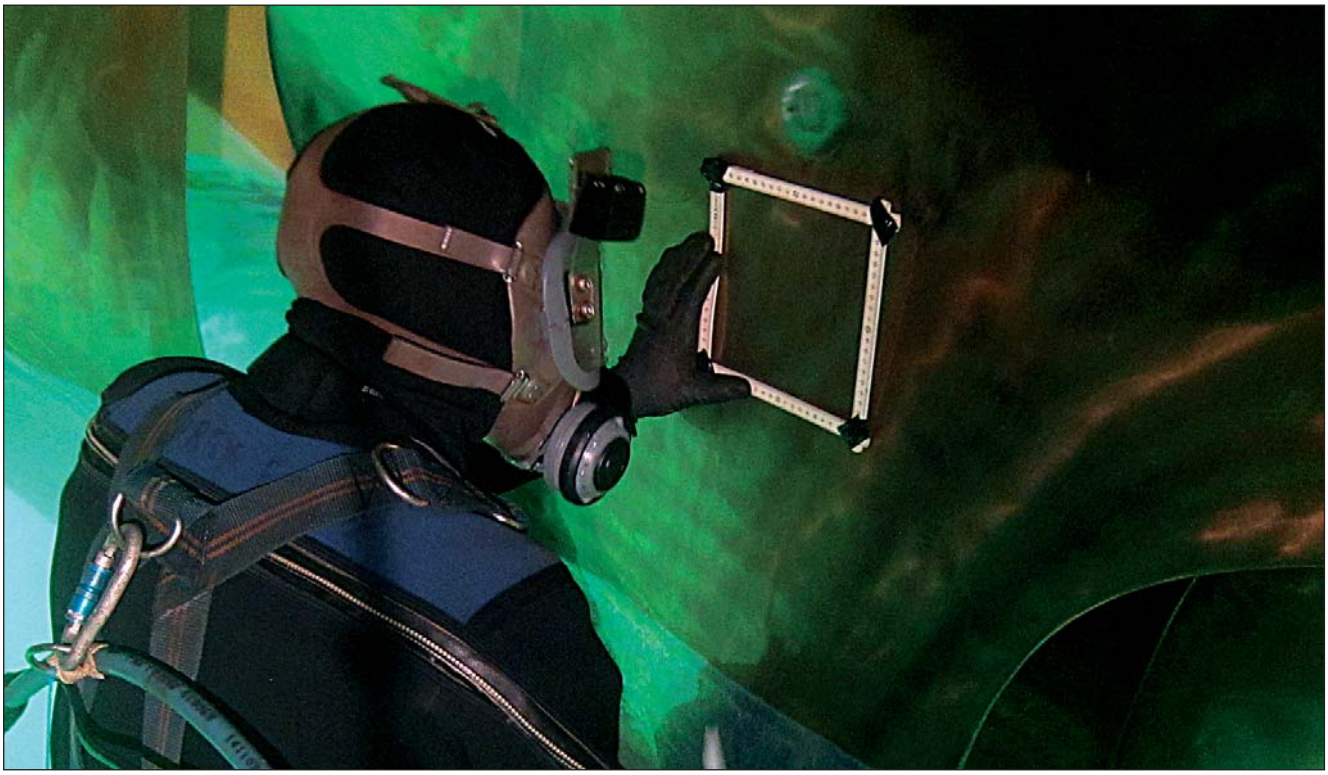
Conclusion

Ultra large container vessels like this 400-meter one have a corresponding large thruster tunnel. This was however no problem because the Hydrex flexible mobdocks can be easily adapted to the circumstance. They can be used for a wide range of repair or maintenance work on all types and sizes of thrusters and vessels.

By performing the operation on-site and underwater, the divers made it possible for the owner to keep his vessel out of drydock. This was extremely important because the ship was only six months old. The Hydrex team worked in shifts around the clock. They finished the job well before the crew had concluded the cargo operations. This allowed the ship to sail perfectly on schedule. ■

KEEPING SHIPS IN BUSINESS

World premiere: permanent underwater repairs to all types of propellers now possible



Over the years the Hydrex R&D department has continuously improved underwater repair techniques to make it possible for Hydrex diver/technicians to perform permanent repairs on seals, thrusters, rudders and almost any other part of the underwater vessel without the ship needing to go to drydock.

The final step has now been taken by the development of a repair system that allows Hydrex to perform permanent underwater repairs to every type of propeller in dry conditions. All kinds of repair or maintenance work can be carried out to propellers, twin propellers, variable pitch propellers, azipod and collapsible thrusters.

This is especially important news for supply vessels, navy ships or any vessel under contract or on a location far away from available drydock possibilities. Staying on hire for underwater repairs will save precious time and money.

This new repair system can be transported by air transport to any location around the world from the Hydrex fast response centers within a very short time frame. It can be assembled very quickly (12 hours) on-site.

With the implementation of this technique our diver/technicians can now perform permanent repairs to all parts of the underwater ship propulsion system in drydock-like conditions. ■

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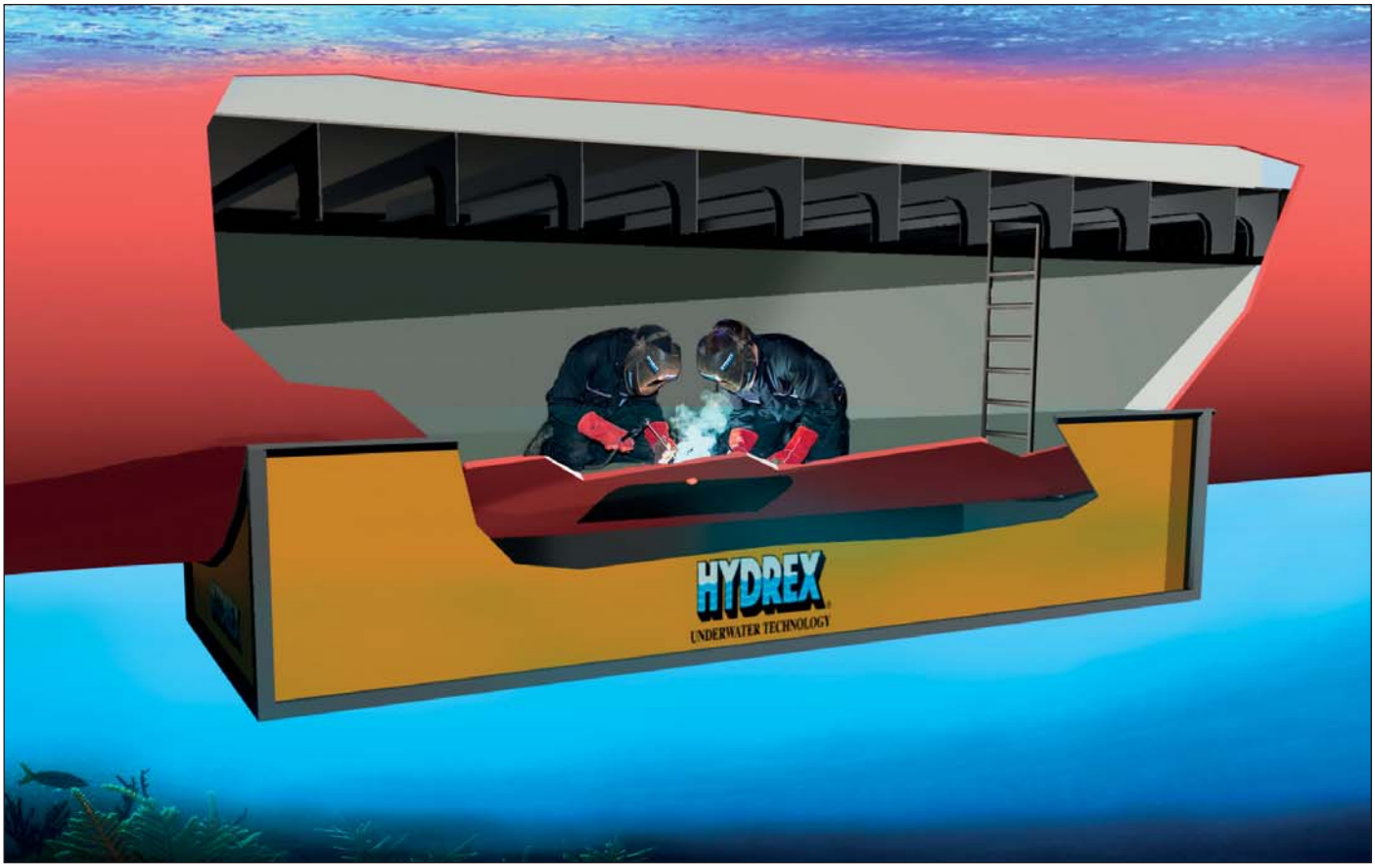
Hydrex *permanent* hull repairs out of drydock



Hydrex carries out permanent hull repairs without interruption of operations, approved by all major classification societies.

Hydrex developed and delivers *permanent* hull repairs on vessels afloat, fully approved by all the major classification societies. No need to go to drydock. No need to redo later in drydock. Gets your ship back in business fast, saving time and money.

How do we do it?

1. We start off with an inspection to determine extent of defect.
2. Made-to-measure cofferdam secured on outside of hull to keep water out and create a dry environment during repair
3. Crack removal/defective plating cropped
4. Insert fitted
5. Insert tacked in place
6. Full penetration welding from inside the ship and frame renewed as needed
7. Independent ultrasonic testing to verify the welding.
8. The cofferdam is then removed.

Each step is checked by class before proceeding.

Example of recent permanent hull repair:

Inspection of a 172-meter general cargo vessel located in Rotterdam last month revealed a crack in the port side water ballast tank. An insert measuring 300 x 300 x 15mm needed to be welded and the frame renewed. The Hydrex team located the crack and installed a cofferdam large enough to cover the crack. They created a dry environment so that the plate could be cropped and the insert welded from inside the ballast tank. The cropped area was prepared, the insert fitted and then full penetration welding was carried out. Following ultrasonic testing the frame was fitted and rewelded.

This is just one example of the many permanent insert repairs carried out by Hydrex over the last few months. Don't wait to go to drydock. Get hull cracks and damage repaired now, afloat, *permanently*. ■

Cofferdam placed over crack.

Opening in plate prepared inside tank.

Preparing the edge of the opening for the new insert.

Insert cut and fitted.

Insert tacked in place.

Full penetration weld.

Independent testing.

New frames welded.

Swift on-site bow thruster operations

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.

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Hydrex international sales conference

On the 11th and 12th of June 2014 Hydrex and Subsea Industries hosted an international sales conference which was attended by many of the companies' agents from around the world. The conference was a highly instructive event for all those attending and everyone left with renewed enthusiasm for selling and supporting Hydrex underwater repair and maintenance services and Ecospeed and Ecoshield in all parts of the world.

Agents attended from Canada (new agency just appointed), China, Croatia, Denmark, Greece, Japan, Russia, Sweden, with Hydrex sales personnel from the USA and Belgium. Hydrex International Sales Manager Rob Wolthuizen led the event. There were technical and commercial presentations from Rob, Manuel Hof, Dave Bleyenberg and David Phillips, guest presentations from Mr. Gert Hendriksen, Managing Director of Maritime Propeller Repairs BV and Mr. Peter Zoeteman, Managing Director of Netherlands Maritime Technology. There were also practical demonstrations of Hydrex technology and a tour of Antwerp harbor on a Hydrex workboat.

Feedback from the conference was excellent. It has promoted a greater spirit of cooperation amongst agents and between Hydrex and Subsea and its agencies.

The Hydrex/Ecospeed agency network has been expanding considerably recently. A full list of current, active Hydrex and Ecospeed agencies is included for all of our customers. We encourage all our customers to work with their local Hydrex and Ecospeed agent as well as with our central offices. ■

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

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KEEPING SHIPS IN BUSINESS






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Keeping ships in business

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 has a long track record of performing 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, our diver/technicians 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.

Headquartered in the Belgian port of Antwerp, we have offices in Tampa (U.S.A) and Algeciras (Spain).

All Hydrex offices have fully operational fast response centers where an extensive range of state-of-the-art equipment is available at all times.

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