HYDREX®

UNDERWATER TECHNOLOGY

NEWS

LETTER | 308

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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.

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Ships don’t wait

The importance of speed in ship repair and maintenance

Rapid response and intervention was built into the philosophy and culture of Hydrex when the company was founded in 1974.

“The idea that the ship will not wait, that the job has to be done now, that we need to be ready with everything and then go, always appealed very much to me,” says Boud Van Rompay, founder and CEO of Hydrex. “I liked the idea that you could mobilize a team and you didn’t have to explain that speed was of the essence. There is no time for excuses or delays. The ship is there. It needs us. We have to go now and get the job done.”

Dave Bleyenberg, technical services, (left) going over the planning for a local thruster repair job with Chief Diver, Toon Joos (right) while a Hydrex workboat is being loaded for departure.

Boud also took great pleasure in having the right equipment and in the efficient handling of logistics. He recalls in the very early days when the fledgling company was mainly involved in hull cleaning, he received a call to clean a 110 m coaster in Denmark. With a student as an assistant, he set off immediately in his Peugeot 304 pulling a trailer with equipment all the way to Denmark and cleaned the ship in a day.

Today, thousands of major and minor interventions later, the operations are more sophisticated, the team larger and more experienced, the equipment more streamlined, the expectations higher. But the same spirit of getting the job done rapidly and efficiently pervades the company and all who work here.

Equipment Officer, Koen Smouts, loading a truck in the Hydrex Antwerp depot.

Rapid response

“We respond as soon as an inquiry comes in,” says Yannick Wyckmans, an experienced diver now in charge of technical estimations. Ship equipment failures, groundings and other problems do not adhere to a 9-5, Monday-Friday schedule. Delays in repair are costly to the owner, possibly dangerous for the crew. Hydrex

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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Senior Diver Clément Paquet (left) oversees welding training for learning divers at the Antwerp depot.

operates a 24/7 line for this purpose.

Estimations immediately requests the information needed to estimate the job rapidly and accurately. The chief diver and senior divers estimate manpower and time needed. "We aim to get the estimate out to the client the same day we receive the inquiry," says Yannick.

When the estimate has been approved and a purchase order received, the whole team goes into action to get the job successfully completed on schedule. There are a thousand variables to deal with, including flights, customs, weather and diving conditions, and the efficiency of local suppliers.

Toon Joos, chief diver, who has been with Hydrex for close to twenty years, explains, "It all starts with good planning: assembling the team, making sure it is the right size and that the individuals have the right knowledge for the job. You have to know who you can put together to create a really strong team."

Technical services take care of the planning, logistics and running the job long distance. Dave Bleyenberg

Hydrex workboat on the way to a scrubber repair job in the port of Rotterdam.

has been with Hydrex for 27 years, first as a diver and later in technical services, where he works with another experienced diver, Timoty Verhoegstraete. They arrange transport, flights, shipping of equipment, a workboat or other equipment, as well as fabrication at a local workshop if, for example, a cofferdam needs to be designed and constructed. Everything must dovetail. "You don't want a team of divers waiting for a workboat or class inspector," says Dave.

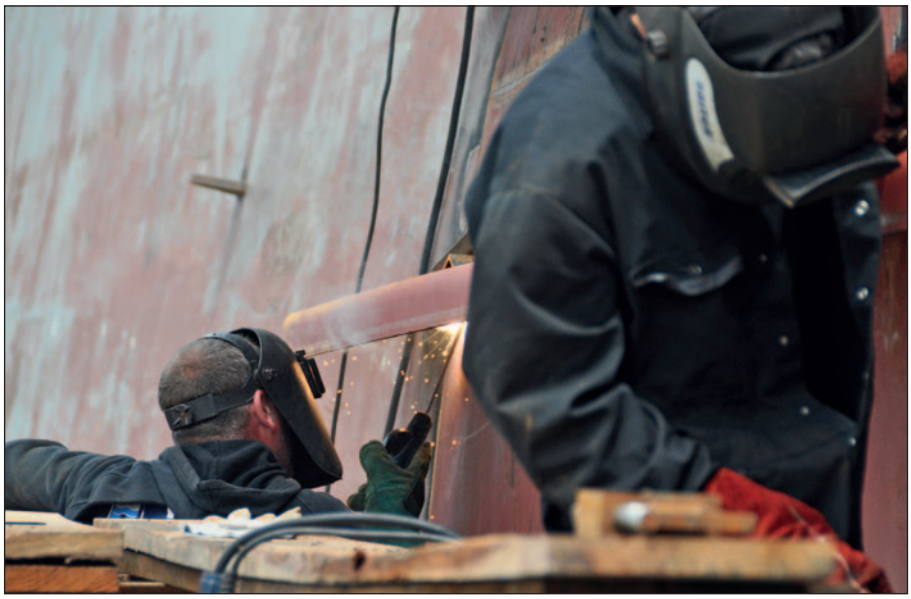
"Communication with the client, classification society, captain, crew and all involved is vital," he continues. "They need to know the plan. Also there is the communication from our team in the field to us. When they need information or help, we must act fast so as not to slow the job down."

Raquel Aparicio, manager of our Algeciras office, says, "Speed of getting the job done requires constant monitoring, close follow-up and fast, efficient communication. To achieve that it is essential to have a good network of contacts you can trust – suppliers, third parties, agencies, and so on. We demand high speed and quality of service from our suppliers since this inevitably affects our speed of performance." Excellent local support is something that Hydrex has consciously built up over the years since the early days.

Hydrex truck arriving on-site for a ship repair operation.

Senior Diver, Philip Martens, organizing the transfer of a bow thruster in the port of Tacoma, Washington, USA.

Yannick Wyckmans, now in charge of technical estimations, assisting a fellow diver to prepare for a dive.



Hydrex diver/technicians welding a hull during a repair operation.

A well-equipped and organized rapid response center in Antwerp is crucial to the success of every job. Thousands of pieces of equipment and supplies must be purchased, maintained and rapidly deployable. This is the domain of Equipment Officer, Koen Smouts, a 23-year Hydrex veteran who runs the depot with military precision, ready to mobilize for any job at a moment's notice.

Get the job done

The real work begins once the team has been assembled, equipment and logistics taken care of, flights for personnel and freight arranged and the team has arrived on site.

Philip Martens, a senior diver who started with Hydrex in 1993, and has successfully led many teams, says, "Safety comes first. You can't rush. Next comes the education and briefing of the team members. You must maintain quality. Better do one job well than ten poorly."

The team leaders have an enviable record of getting jobs done within the estimated time. Toon Joos summarizes the recipe for success. "Create a strong team. Make sure everyone knows what to do. Good toolbox talks. Very thorough shift turnovers so everyone knows what still has to be done and what the immediate action is. Even with the best planning you always run into unexpected situations – that's shipping! Be prepared for them and just deal with them."

Clément Paquet, an experienced senior diver, says, "The most efficient way to get the job done as quickly as possible is to put the right people on the job. Each diver has different strengths and skills. As team leader you select the right peo-

Hydrex diver working on the rope guard during stern tube seal operation.

ple and prepare day and night shifts, making sure the teams are equally strong. Training is vital. Initial training occurs at the depot. But in the end you will learn the profession not in the practice tank but on the job."

Recent examples

On a recent stern tube seal repair in Australia, Hydrex estimated two 5-man teams would take three days to complete the repair. Another company estimated twice as many people to get the job done in the same time. The owner's insistence on Hydrex doing the job was vindicated when the seals of both propellers were fully and successfully repaired 50 hours after our team's arrival.

Another vessel suddenly found itself without a reliable depth sounder since both transducers had chosen the same moment to stop working. They couldn't sail. Drydock was a very expensive option. The captain recalls, "Time was extremely important for us, not knowing our exact schedule. We were incredibly impressed with what we could accomplish and organize with Hydrex over a weekend. Having initially reached out on Saturday, by Sunday evening we had a team that was flying in on the Tuesday to complete the job on the Wednesday. Extremely swift, helpful correspondence; solutions, not problems."

A cruise ship grounded in Europe needed immediate help. The call came in over the weekend. A team of divers rapidly drove to the location and soon had a cofferdam in place over the damage, enabling the ship to sail to drydock for permanent repair. The job was finished well within the estimated time.

A great team

"You can have the best equipment, procedures, service station, facilities, network of contacts and so on, but you cannot achieve quality and speed of service without the human team that makes that possible," says Raquel. "Personnel must be motivated and committed as well as having the qualifications and skills required to perform their duties in the most effective and efficient manner."

And Philip Martens says proudly, "We've got a great team! Everybody goes for it. That includes the newer guys. We are professional on the job. Everyone knows what to do. And there is great team spirit."

The customer wins

Speed of response and rapid completion of the job has been a Hydrex hallmark since the early 1970s, just as the company's founder conceived it.

Those who benefit the most are the many satisfied customers who call us with confidence and whose trust is vindicated by the results. ■

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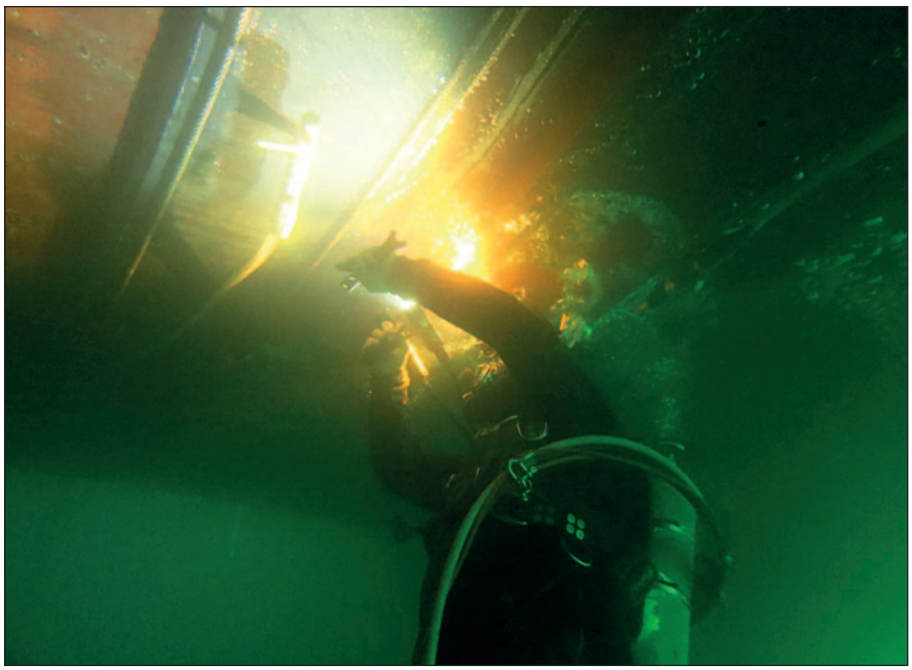
Afloat hull repairs close at home and far away

Our diver/technician teams mobilized to vessels in Belgium and Curaçao for underwater hull plating repairs. In Zeebrugge a crack needed to be closed off and prevented from spreading further. For the operation in Curaçao a cofferdam had to be designed and constructed by us and then secured on the flat bottom of a fast support vessel.



Hydrex diver/technician during installation of cofferdam in Curaçao.

This would allow the local shipyard to perform extensive work on the shell plating of the vessel from the inside without putting the ship in the dry, as there was no space available in the yard. The difficulty lay in the fact that the support vessel was made of aluminum, which prevents wet welding work. Our R&D department therefore designed a cofferdam that could be secured to the hull by other means.

The shipyard and the owner gladly accepted the proposal as it offered a fast and easy solution. Immediately after the operation was confirmed, a team mobilized to Curaçao. In the meantime the needed technical information was sent to our local support base. They took care of the construction of the cofferdam so that it would be ready when our team arrived on-site.

Two cofferdams were secured to a support vessel without welding.

The team set-up a workstation on a workboat next to the vessel and then started the installation of the cofferdam. After it was secured, the crew of the shipyard could start the onboard repair work on the hull plating.

The hull of the ship had been damaged in two locations and initially the plan was to move the cofferdam after the first area had been repaired. Because of the deformation of the bottom plating it was however decided to construct a second cofferdam and cover up both damaged areas at the same time. Our teams are trained to effortlessly adapt themselves if the scope of work changes. Working together with our local support base for the material, they quickly made the additional cofferdam and secured it to the shell plating.

The shipyard needed to perform work on the shell plating from the inside while the vessel was afloat.

Newly installed frame.

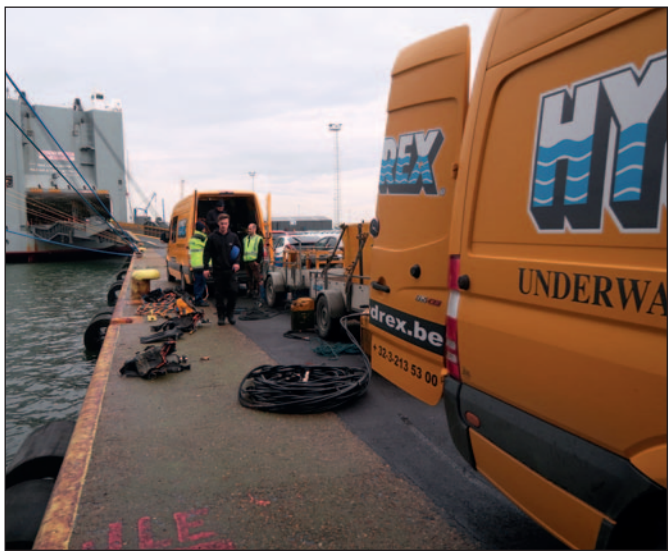
The shipyard could then carry out all needed repair work on the shell plating in ideal circumstances without having to put the vessel in the dry, much to the satisfaction of the owner who did not have to wait for a space to become available.

Emergency crack repair

Our divers are also certified welders and they can take care of any wet or dry welding work required for an operation, as was the case during the hull repair in Zeebrugge.

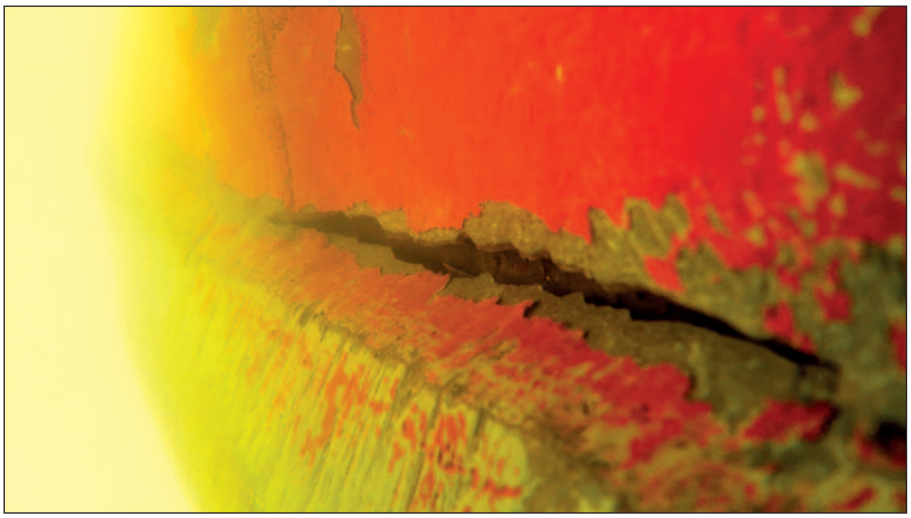
A roro vessel had collided with a quay wall and the owner contacted us to perform an inspection of the damage as well as any needed repair. A team immediately mobilized from our headquarters in Antwerp.

The operation started with a detailed underwater inspection of the damage. This revealed a 780 mm long crack on the bulbous bow, two meters under the waterline. Crack arrests were drilled on each side of the crack to prevent it from spreading further. A 850 mm x 60 mm doubler plate was then positioned over the damage and secured with wet welds.

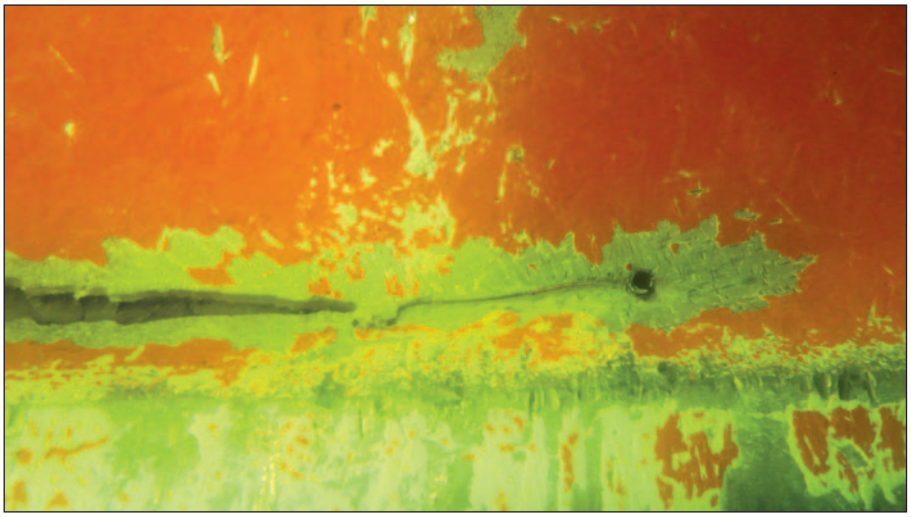


Hydrex team and equipment during crack repair in Zeebrugge.

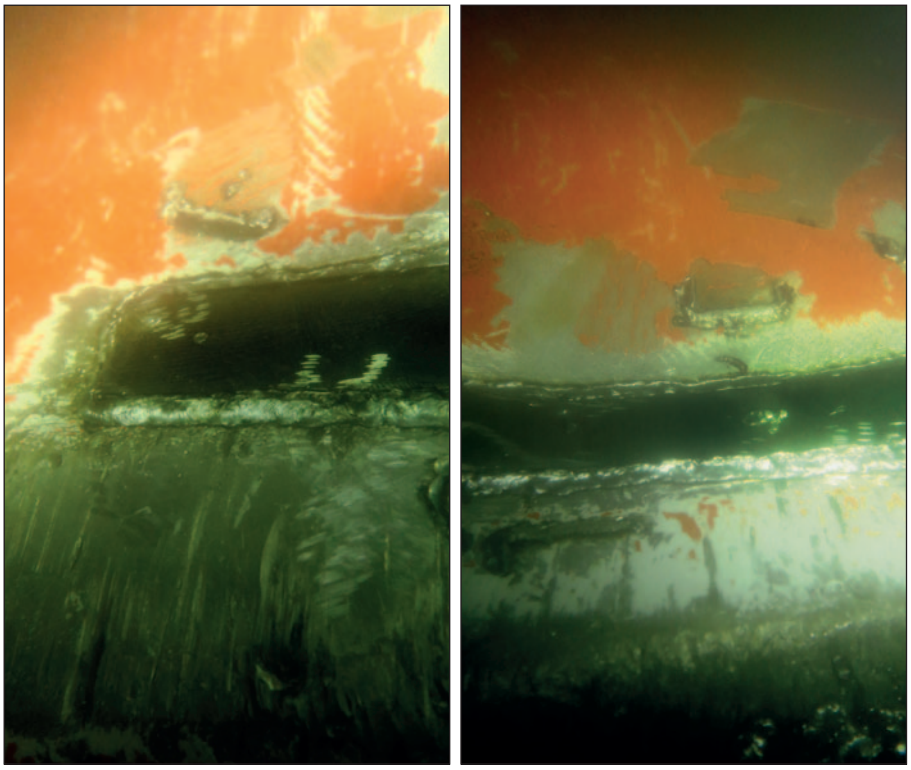
Diver getting ready for underwater operation.



Crack on bulbous bow of roro vessel after collision with quay wall.



Arrests were drilled on both ends of the crack.



A doubler plate was installed over the crack.

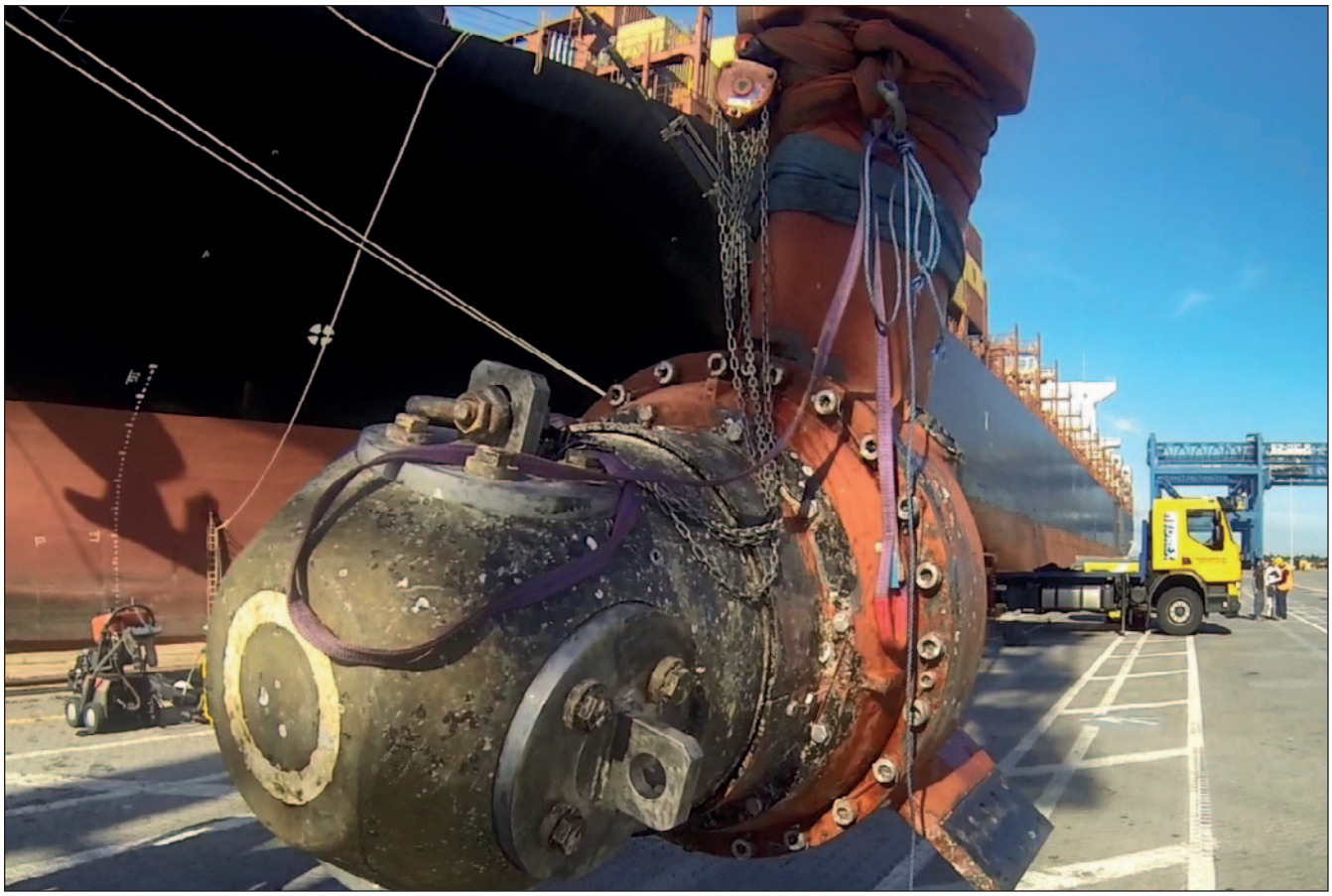
Measuring the width of the crack.

A leakage test confirmed that the operation had been successful and the repair was approved by the classification society. This allowed the owner to keep the roro vessel sailing until the next scheduled dry-docking.

Conclusion

We have the know-how and experience needed to find the best solution for any problem you might encounter with your vessel. This can be a simple routine repair or a unique complex one, as illustrated by these case studies. We can easily adapt a repair to your schedule. If required we can split up an operation and perform it in parts on different locations. Our goal is to keep you sailing with as little delay as possible. ■

In-water bow thruster repairs



Our 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 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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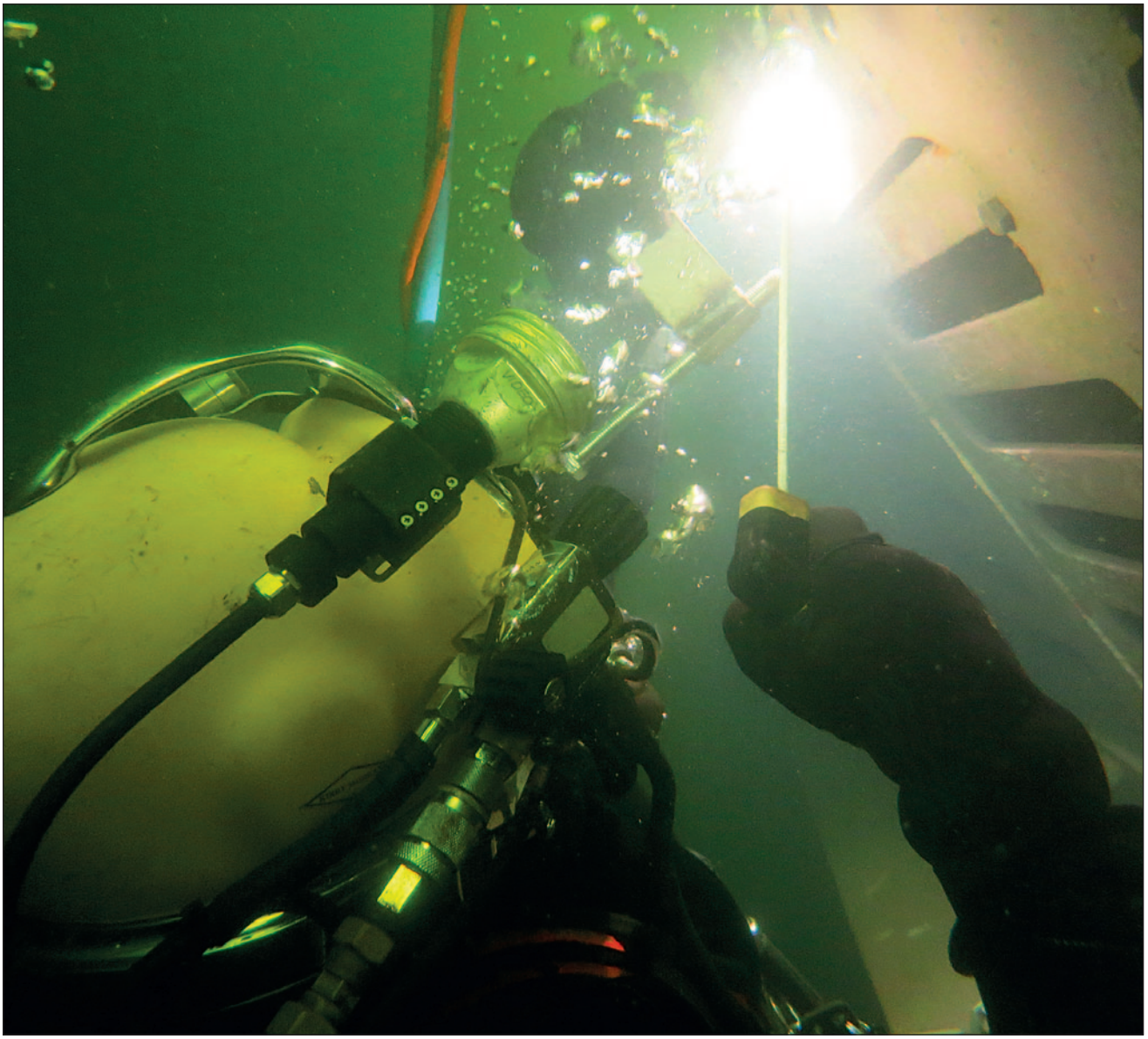

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