HYDREX®

UNDERWATER TECHNOLOGY

NEWS

LETTER | 250

Contents

KEEPING SHIPS IN BUSINESS

ISO 9001 certified

Underwater services and technology approved by:

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.

Finding the best solution for specific conditions

An 180-meter oil tanker had a leaking stern tube assembly. The owner contacted us and asked us to find the best possible afloat repair solution. Because the vessel could be trimmed we suggested to replace the damaged seals above water during the ship's stop in Flushing. The repair would be done in cooperation with the OEM.

Hydrex technicians during the removal of the rope guard.

Prior to the operation the vessel was trimmed to lift the working area above the water. Our team then built a scaffolding around the stern tube seal assembly. Next our technicians removed the rope guard. This allowed them to clean the entire area and perform an inspection. The assembly was then opened to give the service engineer of the OEM access to the seals.

After the seals had been replaced the assembly was closed again. Leakage tests were then successfully carried out. Our technicians repositioned and secured the rope guard. They removed the scaffolding to conclude the operation.

While the service engineer of the OEM was working on the stern tube seals our team performed a UWILD inspection of the oil tanker. It could easily be combined with the repair. By doing this the owner was saved the hassle and cost of multiple mobilizations and possible delays to his vessel's sailing schedule.

This operation is a perfect example of how we use our experience and know-how to offer the best solution for a specific situation. Often an underwater seal replacement using our flexible mobdock technique is the only option, but in this case trimming the vessel was more efficient.

The rope guard was brought onshore and prepared for reinstallation.

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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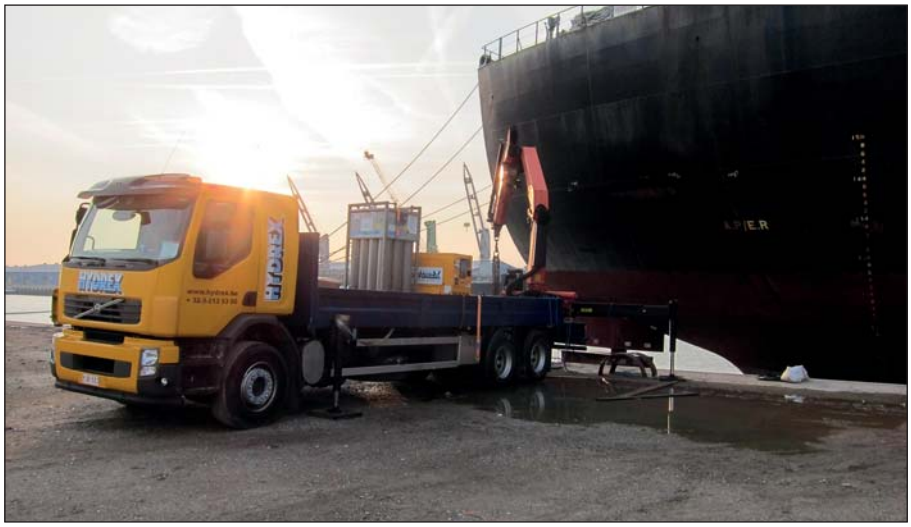
Scaffolding was erected around the assembly.

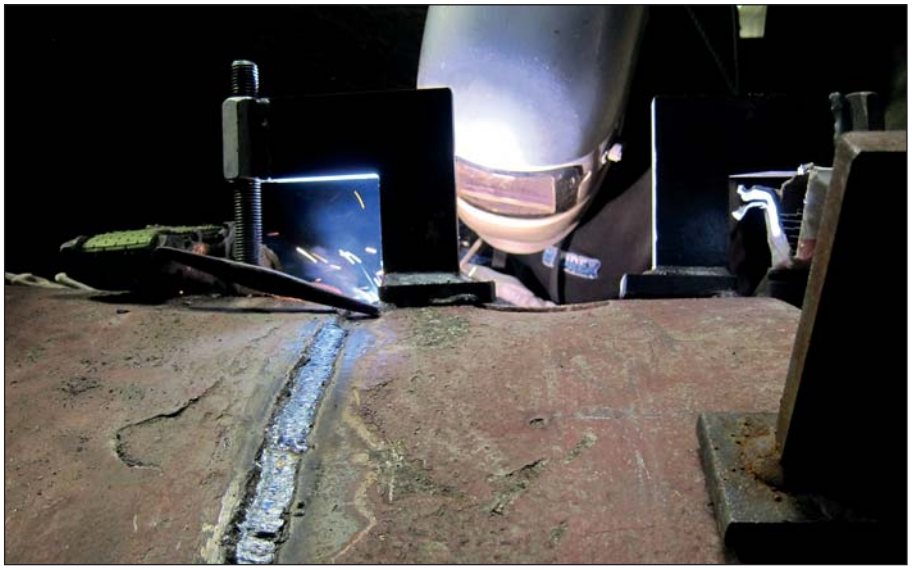


Hydrex truck and equipment next to tanker in Flushing.

Stern tube assembly after replacement of the seals.

We aim to reduce cost and off- hire time for customers while maintaining the highest safety and quality standards of repair and maintenance. This is true whether the scope of work entails a smaller operation with a limited time-frame, or more complex repairs that usually take a lot more planning and require the construction of specific equipment.

If you have a problem, any problem, with a vessel give us a call. We will evaluate the situation and let you know if an in water solution is feasible. ■



Reinstalling the rope guard after the replacement… and welding it.

Our team during the final inspection of the stern tube 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 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.

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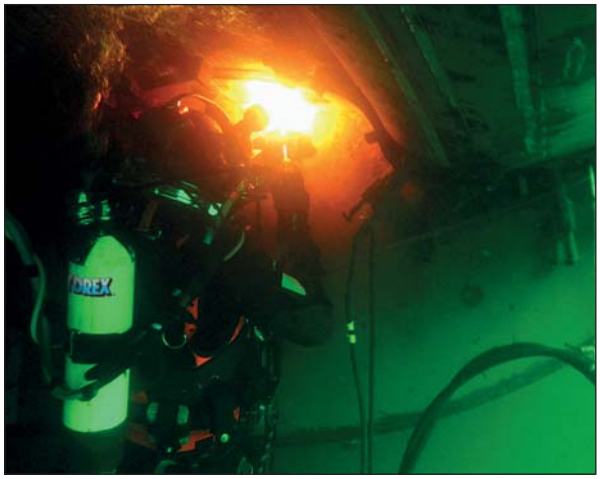
When your ship has a problem, we will assess the underwater repair options free of charge



You need to know your options. Is underwater repair possible? How long would it take? How could it be done?

You can call us any time for an expert assessment, free of charge.

An underwater solution might save you days or even weeks of lost income. We'll tell you what can and can't be done.

We pretty much wrote the book on underwater repair, and our experience is at your disposal. Our engineering team will give you fast and clear answers to your questions.

Hydrex delivers underwater solutions based on over 40 years of experience, with a long history of pioneering underwater repairs. We'll give you certainty about what is possible while your vessel is afloat.

Do not hesitate to contact us. Our consultation is free and we are ready to help.

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Small but essential maintenance operations

Recently we have been reporting on a few of the larger projects we have carried out. These are jobs that show how we can easily adapt ourselves to different situations, even in circumstances that might at first glance seem too complex to allow on-site work.

This might give readers the idea that we can only assist you when such major challenges come up, but this is not the case. We treat every assignment with the same professionalism and enthusiasm, whether it is the replacement of a giant azimuth thruster or an underwater propeller buffing.

Hydrex is ready to assist you 24/7, all around the world.

This article focusses on some examples of those smaller maintenance operations, which are also dealt with in a skilled and proficient manner.

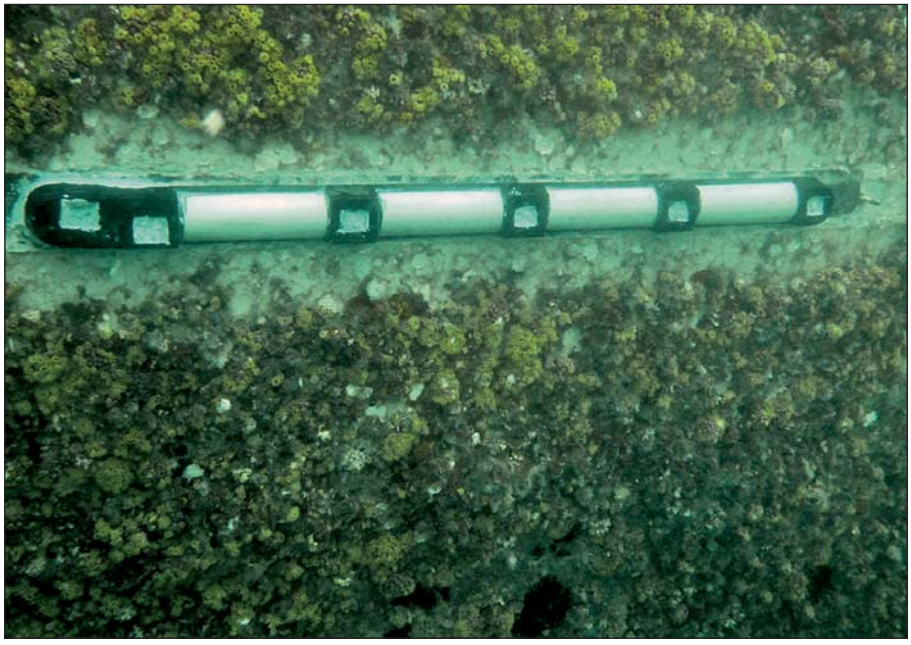
Impressed current anode replacement in Le Havre

When both the port and starboard side impressed current anodes on a 286-meter container vessel were malfunctioning, we sent a diving team to Le Havre to perform an underwater replacement.

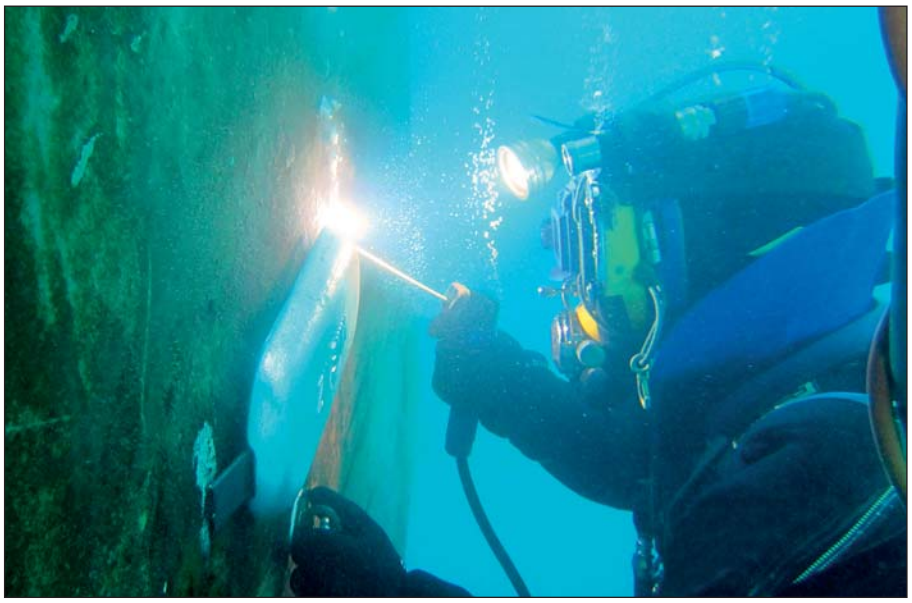
The customer passed on all the necessary information to our technical department and after preparations in our fast response center the equipment was loaded onto one of our trucks and transported to Le Havre.

The Hydrex team arrived on site and carried out an inspection on the port and starboard side ICCP anodes. This revealed that the anodes on both sides were indeed in poor condition.

They were therefore swiftly removed and replaced with new ones by the diver/technician team. This restored the vessel's protection against corrosion.



We can replace ICCP anodes and restore your vessel's protection against corrosion.



Hydrex diver welding an anode.

Blanking in Dunkirk

A team of our diver/welders blanked all underwater openings of four offshore vessel to keep them safe during a cold stacking period. This was done in Dunkirk, France, over a period of four weeks.

Two hydrographic survey vessels, an oceanographic vessel and an offshore installation vessel were layed up in Dunkirk for a long period. It was essential that they were kept safe during this period.

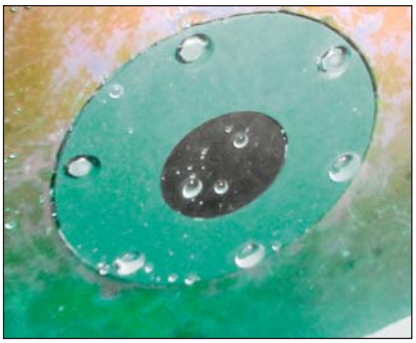
Especially the underwater part of the ships needed additional protection against the constant exposure to salty seawater. For this reason we were asked to develop a fast and complete solution to close off all the underwater openings of the vessels including sea chests, overboard valves and box coolers. Between 30 and 40 blanks were installed on each ship, ranging from small 10 x 10 cm plates up to very large 4 x 4 meter ones.

Speed log installation on two sister ships

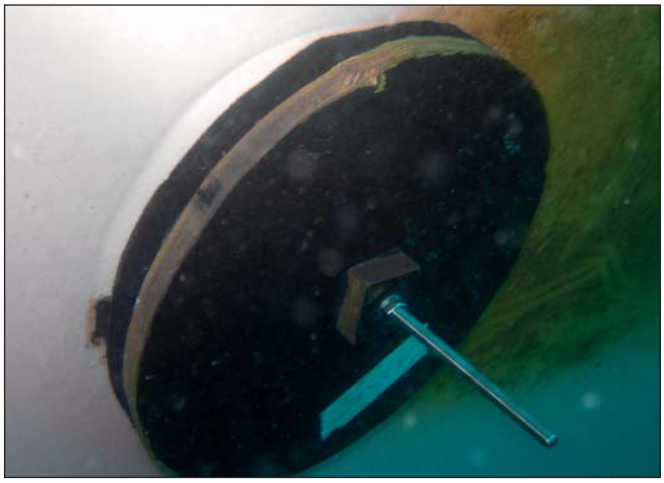
Our teams can very quickly replace any type of transducer without any hindrance to a ship's schedule. We can however also install them should this be required. This was the case when two 193-meter general cargo vessels needed a speed log installed during their stay in Antwerp.

Our diving team started the operation with an inspection to determine the best place to install the speed log. They then marked the exact position where the speed log was to be positioned.

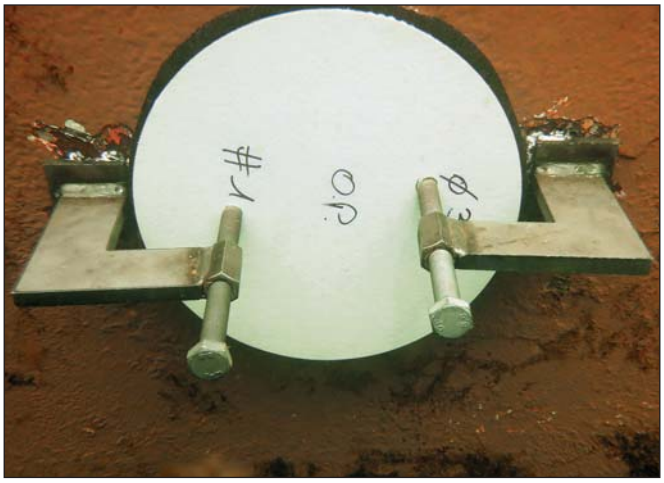
Any type of transducer can be installed or replaced afloat.



New speedlog after installation by our divers.



Blankings can be used to close off any underwater aperture.



Blanking on offshore vessel in Dunkirk.

The next step was to install a mobdock over this area creating a dry space within it. Part of the team cut a hole on the inside of the hull to the exact dimensions of the speed log. They then fitted and installed the housing. An oil ring seal was used to closed off the housing from water ingress.

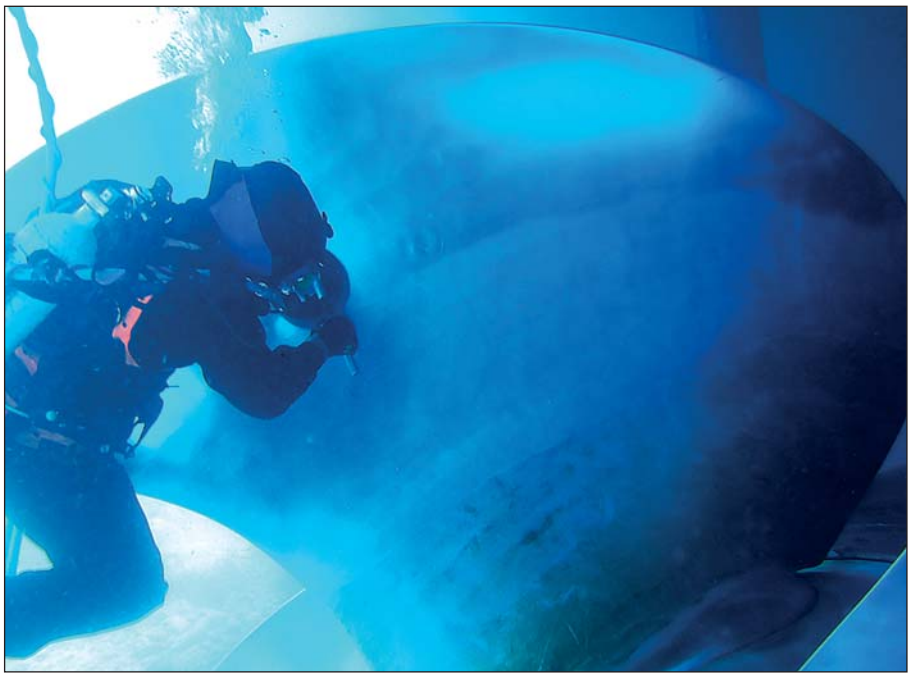
Simultaneously the rest of the team prepared the wiring for the speed log which was connected to the housing. At this point the mobdock was removed. The wiring was then installed inside the vessel and the speed log was connected to the ship's electrical system.

The installation was done flawlessly and afterwards both vessels had a fully operational speed log system on board.

Propeller buffing increases efficiency

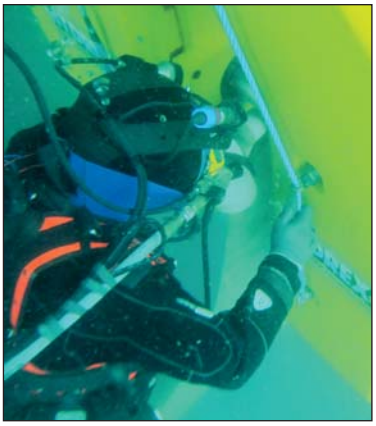
We have developed a new method of propeller cleaning. The traditional approach in the industry is to let the propeller foul and build up a calcareous growth and polish once or twice a year underwater or in drydock. This polishing is done with a grinding disk and can be quite damaging to the propeller because a substantial amount of metal is removed. This can alter the shape and efficiency, cause roughness and increase rather than reduce friction. It is also a major source of marine pollution which is a problem in many ports.

We discovered that more frequent, lighter buffing of the propeller is the optimum approach to propeller cleaning. This is done using a different tool to a grinding disk to catch the propeller before a calcareous layer builds up. If done right and done regularly this can result in 5% or even more fuel savings. These savings far outweighs the cost of the propeller cleaning itself. Because the propeller is being cleaned regularly, the cleaning is 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 and this is where the fuel savings are achieved.



Propeller buffings bring large fuel savings.

Fast underwater propeller blade straightening



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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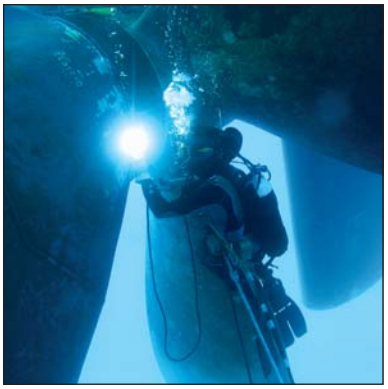
Hydrex US ready to mobilize immediately



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.

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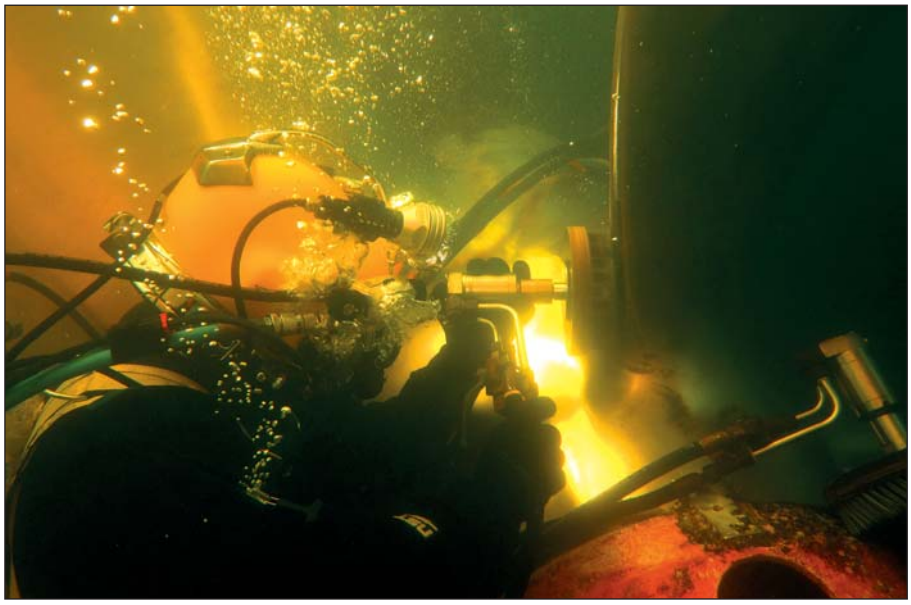

Hydrex diver using our new propeller buffing technology.

Many of our customers who have used this service have noticed a remarkable difference in their fuel efficiency after each cleaning. One Chief Engineer said that 'you can clearly tell the difference in a ships' performance after Hydrex has done its thing [propeller cleaning]."

Conclusion

If a problem arises, no matter how big or small, it is important for you that it gets solved as quickly and as efficiently as possible. Solving problems is exactly what we do, so do not hesitate to contact us for advice on dealing with both unusual and typical situations. ■

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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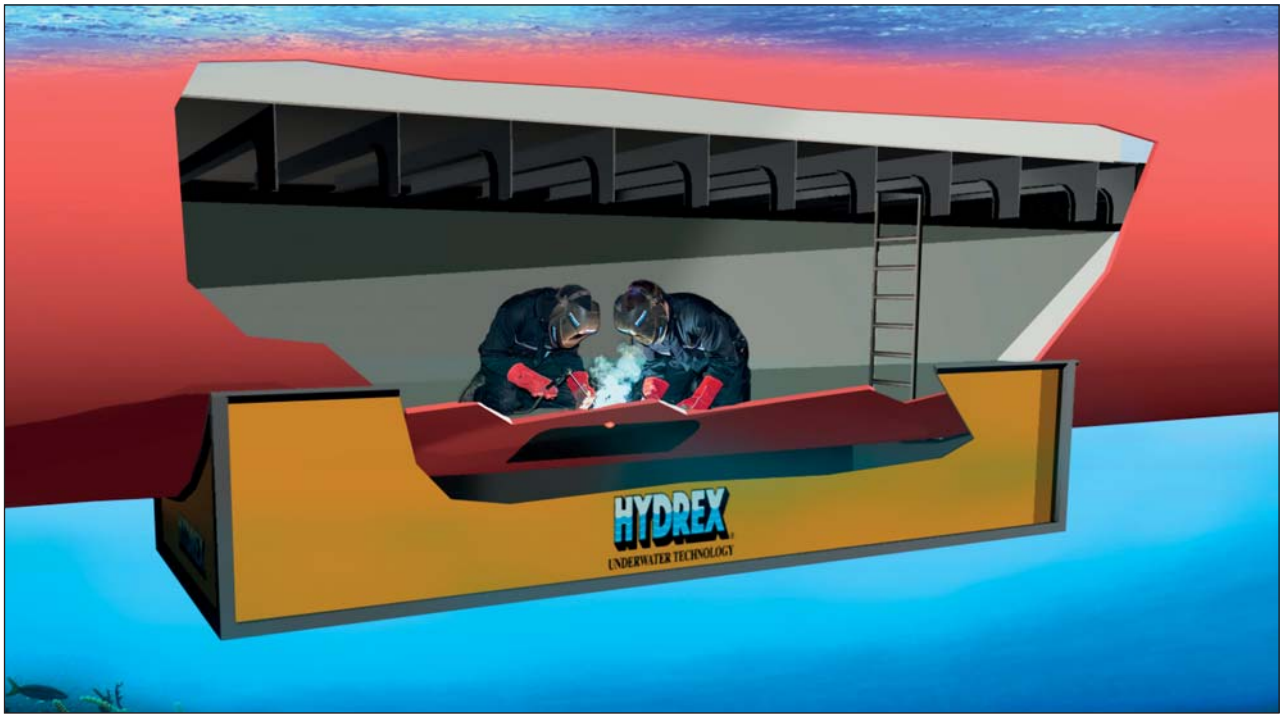
One of our divers after underwater operation.

Hydrex hull repairs save time and money



Hydrex on-site hull repair services include the renewal of both small and large areas of damaged hull plating. These repairs can be carried out above or below water, according to the circumstances, with tailor-made cofferdams. Normal commercial activities can therefore continue without disruption. These operations follow the Hydrex procedure for welding cracks in the vessel's shell plating and they are approved by all major classification societies.

Hydrex diver/technician teams carry out these on-site hull repairs all over the world. In most cases the damaged area can be replaced with a permanent insert and no condition of class is imposed. On the rare occasions where the damage does not allow such a repair, a temporary doubler plate is installed over the affected area. This allows the owners to keep to their schedule and have a permanent repair carried out during the next scheduled drydock visit.

To offer the fastest possible service to customers, Hydrex offices have fast response centers where an extensive range of state-of-the-art tools and diving support equipment is available at all times for the repair teams to mobilize to your location.

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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 Rotterdam, 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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