HYDREX®

UNDERWATER TECHNOLOGY

Magazine

Number *261*

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

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Editorial

When we send a team to an operation, any operation, we have one goal in mind: to get the job done in the shortest possible time and to the highest standards. This has been our policy since Hydrex was founded in 1974. Our track record proves that this is not a false claim.

Keep his ships on schedule is extremely important for a shipowner. Going off-hire for days or even weeks to have underwater repairs carried out or pay an unscheduled visit to a drydock costs a tremendous amount of money. That is why we have developed technologies that allow us to perform underwater repairs within a very short time frame and to drydock standards.

If a shipowner needs assistance we can send a team to the vessel immediately without losing time. Our diver/technicians can carry out both simple and complex jobs even in harsh circumstances. They do this uniformly without loss of time, quality or safety.

Hydrex founder
Boud Van Rompay

Cover: We treat every assignment with the same professionalism and enthusiasm.

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

ISO 9001 certified

Underwater services and technology approved by:

BUREAU VERITAS
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ClassNK
ADC International
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Small though essential maintenance operations

In our magazine we often write about the larger projects that our teams perform across the globe. This might give readers the idea that we only mobilize when such major challenges come up. However, this is definitely 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 cleaning.

We are ready to assist you 24/7, all around the world.

Smaller maintenance operations are performed by our divers on a daily basis and are dealt with in a skilled and proficient manner. They include:

- Installation or replacement of anodes
- Blankings
- Replacement of transducers
- Propeller cleanings
- All types of inspections

This article focusses on some examples of those smaller maintenance operations.

Team leader following underwater operation inside monitoring station.

Inspections

Building upon conventional technical skills and know-how while also taking advantage of the latest technology, we offer a unique hull monitoring service to our customers. This gives shipowners total control of their ship's hull condition and consequently its performance, with only a minimum of work on their part.

Underwater inspections represent a small investment and, if properly done, have the potential to save an owner a great deal of money. Regular inspections carried out by competent divers and followed by comprehensive and accurate reports can detect problems so that they can be corrected early. This prevents the more costly repair which neglect and further damage would make necessary.

Because we have over 40 year of experience in both maintenance and repair services, we can carry out any required follow up repair very fast

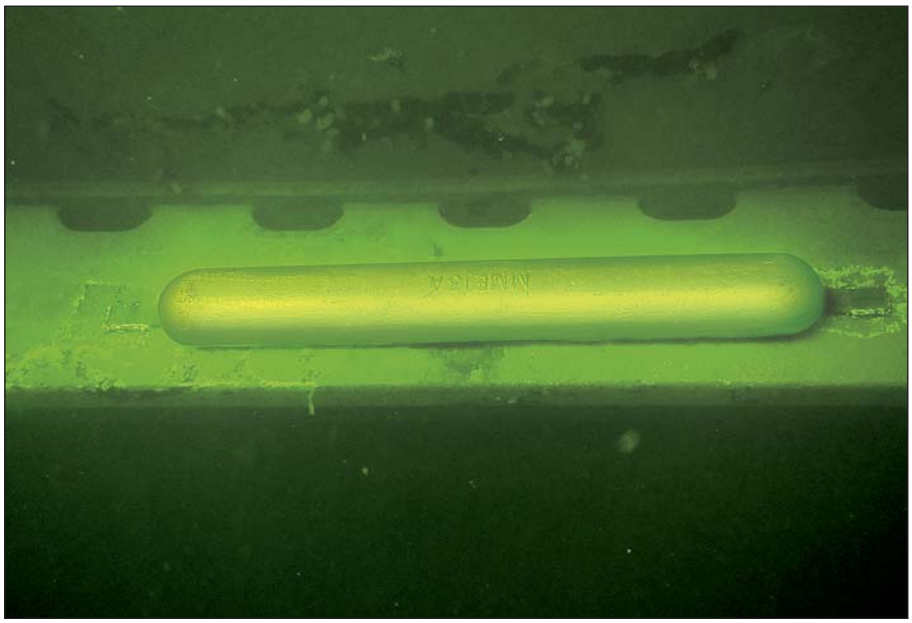
without any unnecessary loss of time. Planning in a new date is not needed as all our diver/technicians are skilled to perform the repair work as well.

If the damage found during an inspection can be anticipated, the required equipment can be mobilized in advance. Otherwise it can be transported to the location of the vessel immediately from one of our fast response centers where a large stock is available for our teams at all times

This was demonstrated when a rope guard had come loose, which was revealed during an underwater inspection. Our team secured the rope guard without any delay for the owner.

Anode installation

When on a oceanographic research vessel needed 52 sacrificial anodes installed, we sent a diving team to Dunkirk to perform the underwater installation.



Any type of anodes can be installed very quickly and on-site.

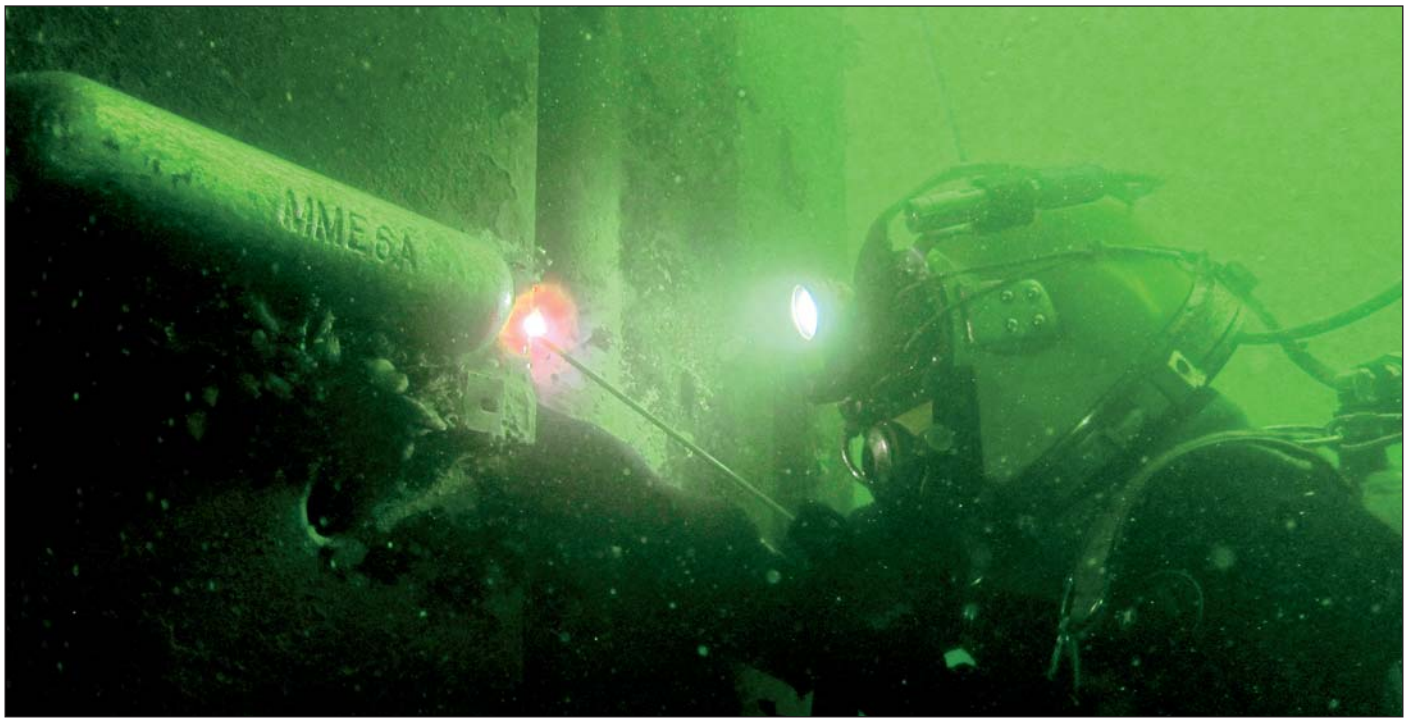
The customer had passed on all the necessary information to our technical department and after preparations in our fast response center the equipment was loaded onto one of our trucks and transported to the vessel's location.

In this case the anodes were supplied by us, saving the owner the trouble of having to arrange the delivery himself.

The anodes were then installed by our diver/technician team, giving the vessel protection against corrosion.

Blanking

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.



Hydrex diver welding an anode.

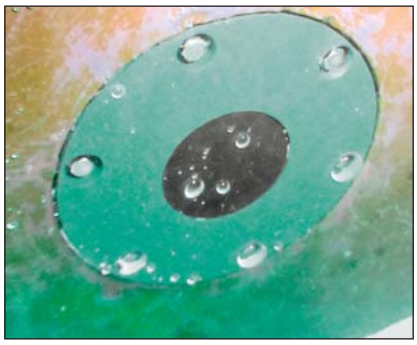
Two hydrographic survey vessels, an oceanographic vessel and an offshore installation vessel were layed up in Dunkirk for a long period. It was essential that they were kept safe during this period.

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.

Transducer installation

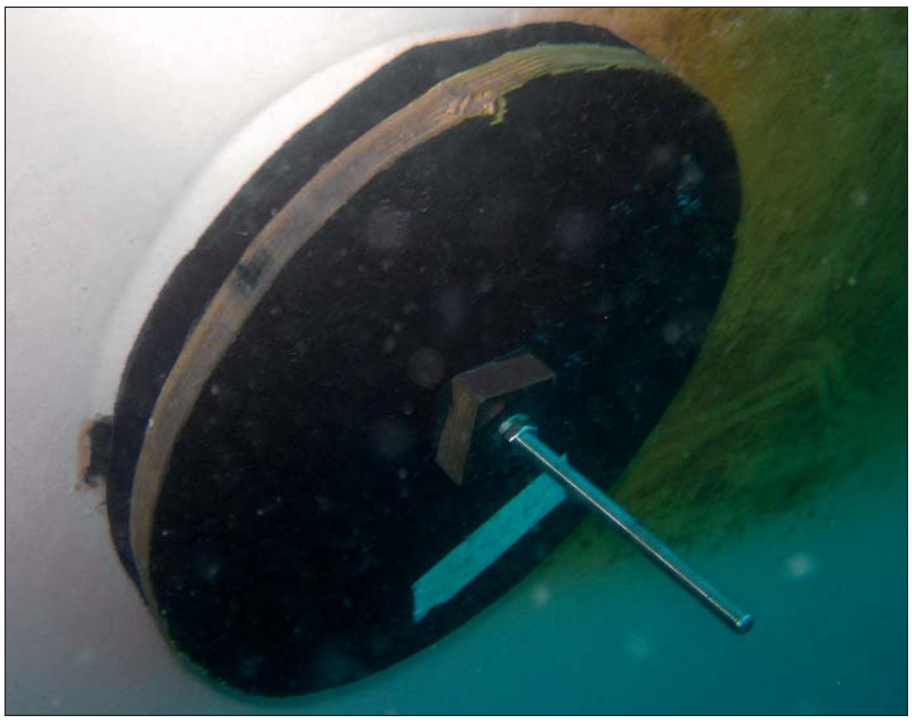
Our teams can very quickly replace any type of transducer without any hindrance to a ship's schedule. We can however also install them should this be required. This was the case when two 193-meter general cargo vessels needed a speed log installed during their stay in Antwerp.

Any type of transducer can be installed or replaced afloat.



New speedlog after installation by our divers.

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.



Blankings can be used to close off any underwater aperture.

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.

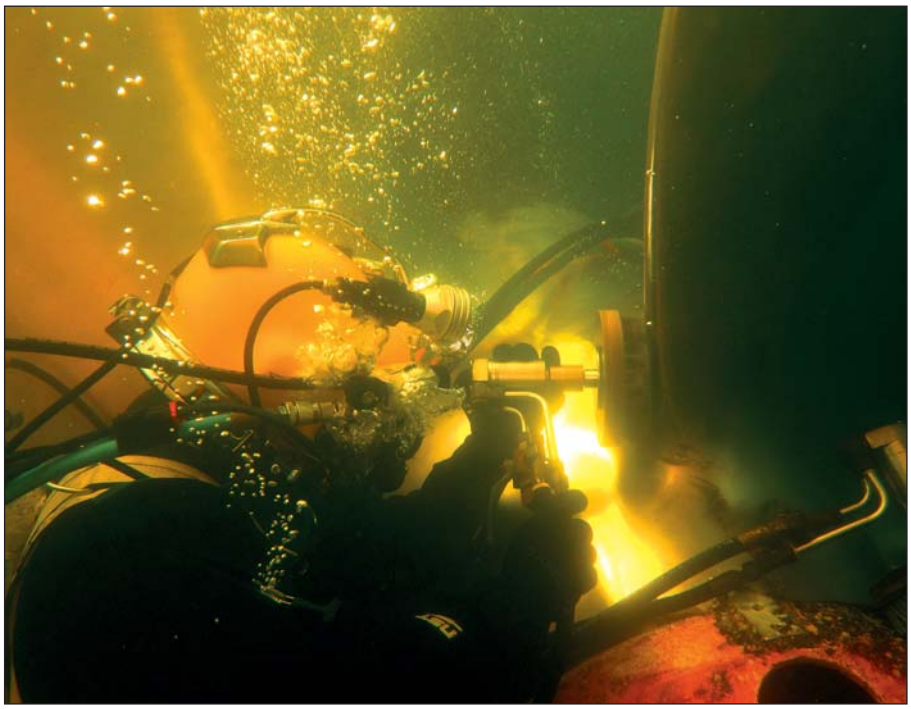
Simultaneously the rest of the team prepared the wiring for the speed log which was connected to the housing. At this point the mobdock was removed. The wiring was then installed inside the vessel and the speed log was connected to the ship's electrical system.

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

Propeller cleaning

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 maintenace 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



Hydrex diver using our new propeller cleaning technology.

savings far outweigh the cost of the propeller cleaning itself. Because the propeller is treated 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.

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]."

Easy to combine with other operations

Our teams consist of highly trained and experienced divers who can spot problems that are not directly related to the operation at hand. If they do we will communicate this with you. We can immediately follow up on this if needed.

Small operation like the ones described in this article can be combined with one or more other operations very easily. This can be another maintenance operation or any type of repair job.

By doing this, the shipowner is saved the hassle and cost of multiple mobilizations and possible delays to his vessel's sailing schedule.

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. Thanks to our network of offices and local support bases we can mobilize quickly to locations around the world. ■

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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Permanent insert repairs
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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

Hydrex and Subsea Industries at SMM 2018

Last month Hydrex and sister company Subsea Industries took part in SMM 2018 in Hamburg, together with 2.288 other exhibitors. This year's event was attended by 50.000 trade visitors from more than 120 countries, once again highlighting SMM's importance as the leading international maritime trade fair.

Bernd Aufderheide, President and CEO of Hamburg Messe und Congress GmbH, was highly pleased with the outcome of the four-day event: "SMM 2018 was a full success, not only for us as the organisers but also, and especially so, for the exhibitors and visitors. We again welcomed the Who's Who of the maritime world to our exhibition halls this year, and we have seen again that there is nothing that can replace the person-to-person interaction between the key players of the sector. We successfully addressed the shipping community's most pressing issues, delivering fresh impetus for the future."[1]

Hydrex Production Executive Dave Bleyenberg explaining the wide range of underwater services Hydrex offers. Source: NMT

The Hydrex/Subsea Industries booth was a popular meeting spot, strategically located on a corner as part of the Dutch pavilion. As always representatives of both companies were ready to give precise and on point answers to visitors.

SMM 2018 was a great success and we would like to thank all of you who visited us there for coming. We look forward to working with you on an ongoing basis. If you require assistance with a vessel or want to find out how our products or services can benefit you, feel free to contact us. We will gladly help you in any way we can.

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Subsea Industries Production Executive Manuel Hof (seen in the middle) during SMM.

According to Hydrex Sales Officer Steven De Keyzer (right) the event was a great success for both companies.

[1]SMM: Maritime Sector Shows Strength and Innovative Power, https://www.smm-hamburg.com/en/press-service/press-service/news/press-release/article/smm-maritime-branche-zeigt-staerke-und-innovationskraft/, accessed September 27 2018.

Underwater bow thruster installation in stages allows vessel to stay on schedule

Two and a half months after our diver/technicians removed the bow thruster of a 363-meter container vessel in Rotterdam, a team once again mobilized to reinstall the overhauled unit underwater with the use of one of our flexible mobdocks. Like the removal, the operation was performed in stages at several locations to allow the vessel to keep to its sailing schedule.

The superintendent of the ship was very satisfied with the first part of the operation. For this reason the customer asked us to take care of the reinstallation as well. The job was completed well within the available time frame thanks to good team work of the divers and the ship staff.

Hydrex diver during the reconnection of the thruster to the engine room.

The available time window was very short for the ship. The time required to reinstall the thruster unit therefore needed to be brought back to the absolute minimum. For this reason the operation was split in parts. The first part of the procedure was carried out during the vessel's stop in Le Havre.

Overhauled thruster unit on workboat next to container vessel.

Installing the bow thruster unit in Le Havre

We have a special R&D department that is continuously looking for new ways to streamline the repair procedures used by our teams. One of the results of their research his a cradle designed especially for thruster operations. This device allowed the divers to lower the bow thruster unit into the water in Le Havre and maneuver it inside the thruster tunnel in one take.

Preparation of the thruster for reinstallation in Le Havre.

Another technology developed in-house are our mobdocks used to close off a thruster tunnel. Mobdock is short for 'Mobile mini drydock' because they enable our diver/technicians to create a dry environment to work in, while the vessel stays afloat. These mobdocks have been used during thruster operation for 20 years now. Initially rigid mobdocks were used, but later a lightweight flexible variant was designed and put in use. These can be shipped to anywhere in the world by plane very fast.

After all water was removed from

Thruster unit being lowered into the water.

The Hydrex workboats can be used for a wide range of operations.

the tunnel, the team secured the unit and connected it to the engine room. This finished the first part of the operation. The divers returned to the Antwerp headquarters, ready to mobilize again when the vessel was arriving at the Port of Rotterdam.

Phase two of the operation carried out in Rotterdam

Deployment to Rotterdam was done using one of our workboats loaded with all the needed equipment. These are fully equipped as dive support stations that can be used for

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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The thruster was removed by Hydrex 2,5 months earlier in Rotterdam.

Example of a thruster tunnel closed off underwater with the Hydrex flexible mobdocks.

a wide range of operations. They increase flexibility of operation. This is essential during operations like these where speed is of the utmost importance.

In Rotterdam the team once again used the lightweight mobdocks to close off the thruster tunnel on both sides. Once this was done they installed the thruster propeller blades one by one. With the thruster blades in position, the ship left Rotterdam on schedule.

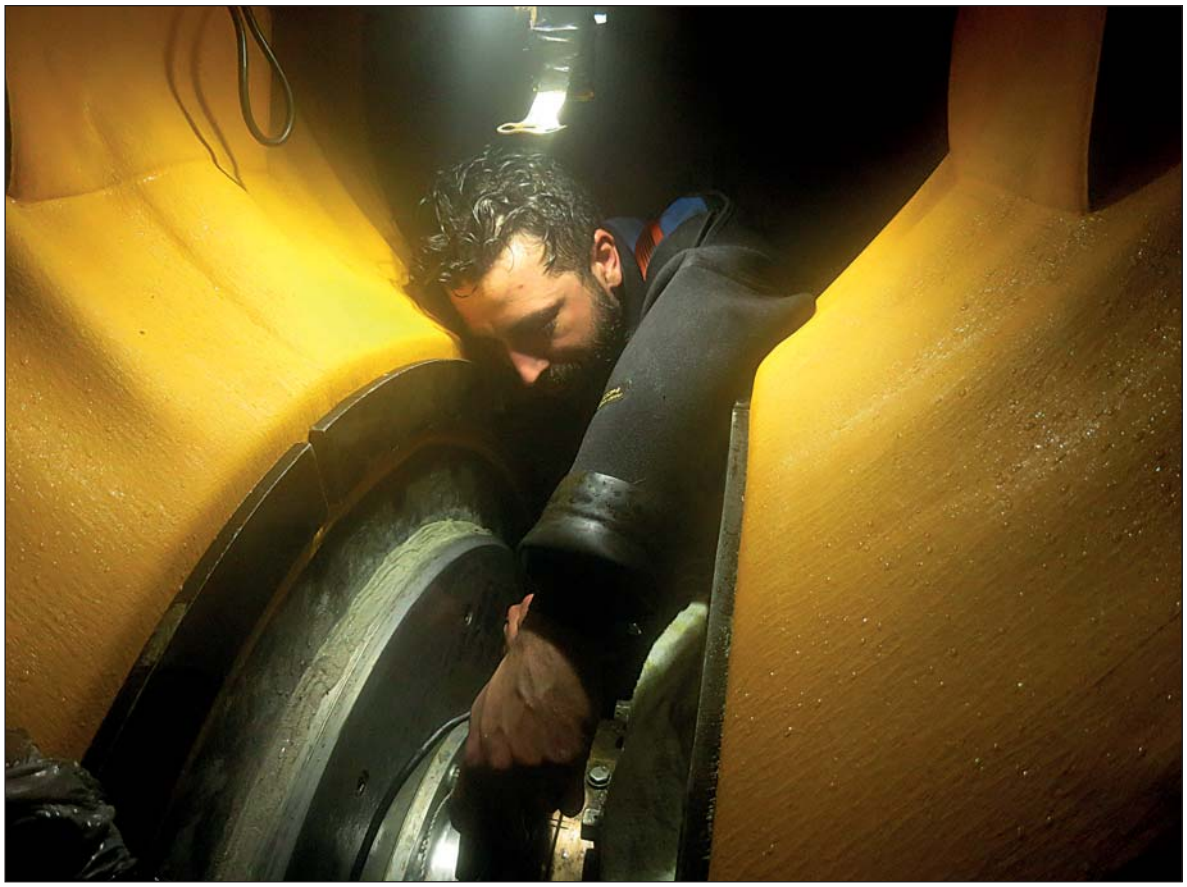
Conclusion

We can assist shipowners with almost any problem they encounter with their vessel's thruster. A wide range of underwater repair or maintenance work can be carried out to all types of thrusters. An entire unit can be overhauled, propeller blades or seals can be replaced or repair work on a specific part of a thruster can be performed by our diver/technicians on site.

Our team members are trained to be flexible and adapt to rapidly changing circumstances. They worked in shifts around the clock and finished the job well within the available time frame. By performing the operation in steps on-site and underwater the owner could stick to his schedule. ■

KEEPING SHIPS IN BUSINESS

In-water 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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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.

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