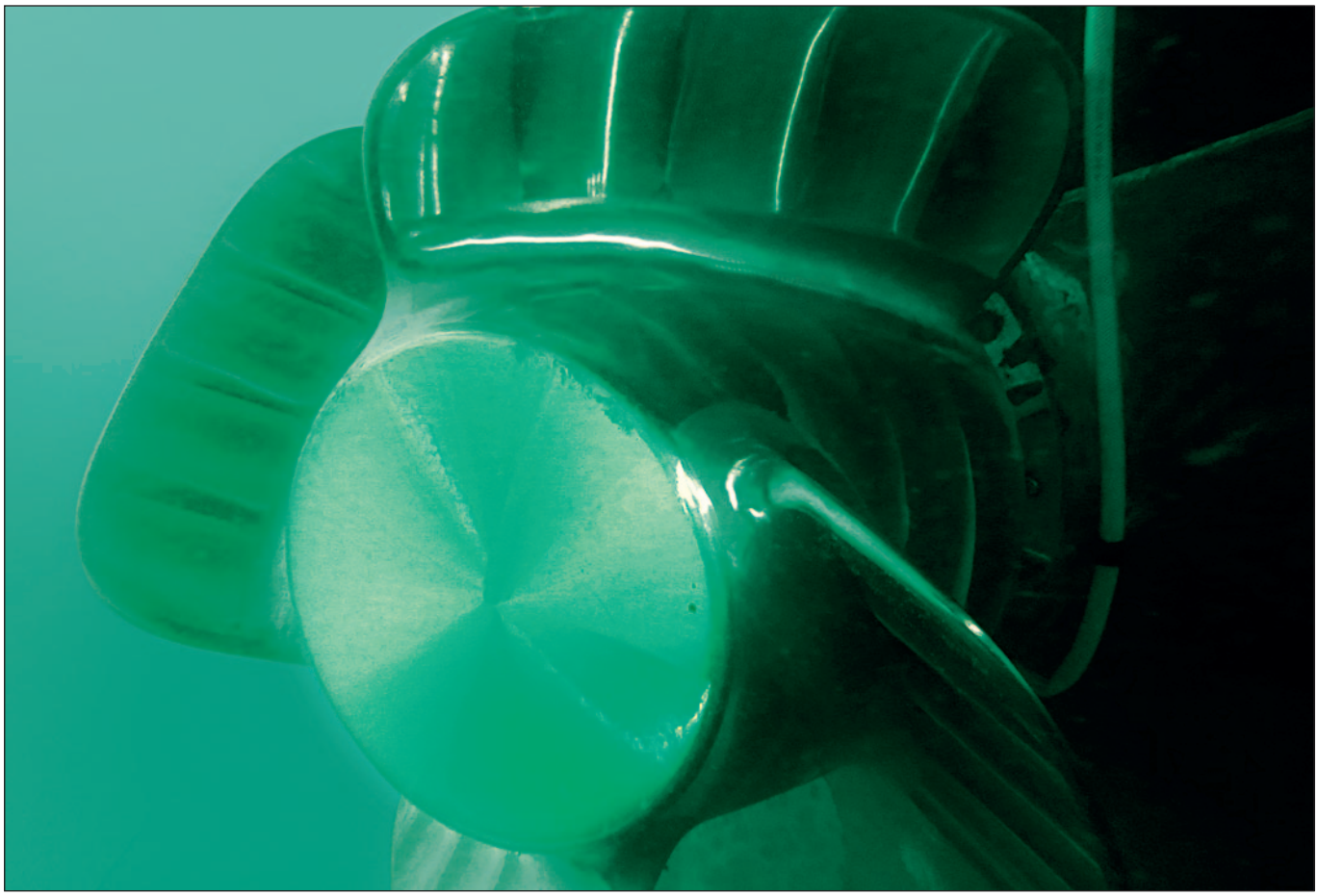
HYDREX®

UNDERWATER TECHNOLOGY

Magazine

Number *339*

Start saving fuel with your propeller cone fin now



We regularly install propeller cone fins on different types of vessels. We can carry out these operations underwater, out of drydock, all over the world without interrupting the ship's schedule.

Propeller cap energy saving devices can recover energy loss of a propeller hub vortex in the propeller's slipstream. This decreases fuel consumption from 3% up to 5% according to the manufacturers and reduces cavitation on rudders and hulls.

As a result of our underwater installation, the owner of the vessel can start enjoying the fuel savings right away. Not having to wait for the next scheduled drydocking can win him up to four years of fuel savings. Since he will have earned back the cost of the underwater installation in only a few weeks, the savings are considerable.

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Editorial

At Hydrex, we know that in the maritime industry, time is money. A delayed repair can mean lost revenue, disrupted schedules, and increased costs. That's why speed is at the heart of everything we do: from the moment we receive an inquiry and propose a solution, to mobilizing a repair team and coordinating logistics, up until the operation is finished. This is done to ensure fast, efficient service anywhere in the world.

Our 24/7 availability and fast response centers allow us to deploy teams swiftly, often arriving on-site within hours. Whether it's a stern tube seal repair in Australia completed within 50 hours or an urgent transducer replacement in the Netherlands over a weekend, we help vessels stay operational with minimal downtime.

Speed doesn't mean cutting corners. Every operation is carefully planned, executed with precision, and backed by our commitment to quality and safety. Our clients trust us because we deliver fast, effective, and lasting solutions—keeping their ships in business.

At Hydrex, speed is not just a promise, it's a priority.

Hydrex founder
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ISO 9001 & 45001 certified

Underwater services and technology approved by:

BUREAU VERITAS · ABS SERVICE SUPPLIER · LRQA CERTIFIED ISO 9001 · LRQA CERTIFIED ISO 45001 · APPROVED SERVICE SUPPLIER DNV DNV.COM/AF · ADC International · ClassNK · RINA · LR

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HYDREX® UNDERWATER TECHNOLOGY

Underwater rudder repair in the Shetland Islands

We received an enquiry for a rudder repair on a 120-meter trawler. The ship was operating off the coast of the Shetland Islands when a defect occurred on its flap rudder, making it difficult to navigate safely. We immediately mobilized a diver/technician team to the vessel's location in Lerwick.

The diver/technicians arrived at the ship's remote location very quickly after the green light for the operation had been given.

All bolts connecting the rudder flap to the rudder horn were broken off.

Lowering one of the stiffeners into position.

Hydrex diver/welder securing a stiffener.

The stiffeners were fabricated using the exact measurements taken during a comprehensive inspection done by our divers.

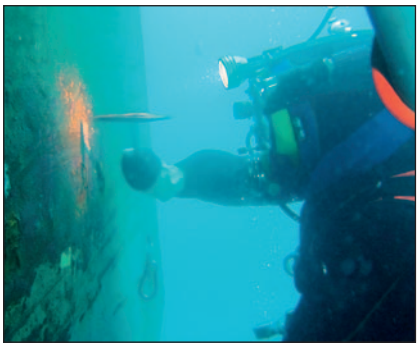
All welding work was carried out by our certified welders.

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 shipowners 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 shipowners. 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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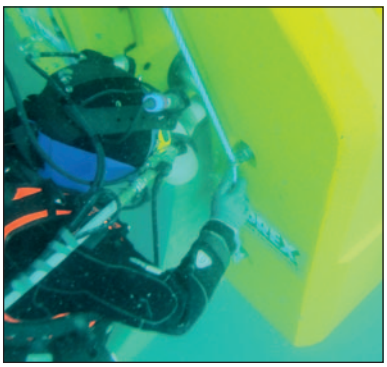
Fast underwater propeller blade straightening



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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4 stiffeners were installed on each side of the rudder to secure the rudder flap.

A comprehensive inspection revealed that all bolts connecting the rudder flap to the link pin were broken. As a result, the rudder flap had come loose. This made it impossible to correctly position the flap, which in turn made steering difficult. To keep on sailing without a repair posed a great risk as there was a real chance that the damage would get worse. Securing the rudder flap was the only possible underwater solution.

During this inspection exact measurements were taken. Combined with drawings received from the OEM, this gave our team all the information necessary to fabricate eight stiffeners.

The rudder and its flap were then put in the neutral position. Four stiffeners were placed on each side of the rudder, securing the flap to it. The plates were welded underwater by our divers. Next the sliding pin was also secured with welding plates. A steering test was successfully performed, concluding the repair.

The ship had a well calibrated rudder again. Because of the remote location of the vessel there was no suitable drydock close by. By immediately mobilizing a team to the Shetland Islands to carry out a temporary repair, we made it possible for the owner to sail his vessel safely to a drydock of his choice in the Netherlands. ■

Bow thruster reinstallation in Algeciras

Two months after we removed the bow thruster of a 150-meter roro ship, our men once again mobilized to Algeciras, Spain to reinstall the unit. By performing both operations underwater, the thruster could be overhauled without making costly changes to the schedule to take the ship to drydock.

Overhauled thruster unit ready for reinstallation.

The reinstallation was carried out by reversing the procedure used for the thruster's removal. The team once again set up a monitoring station next to the vessel. The divers then started the operation with a detailed inspection of the bow thruster tunnel. In the meantime, initial preparations were made in the bow thruster room for the reinstallation of the unit so that there would be no ingress of water once it was taken out.

Because the thruster was fully assembled and prepared, it could be installed in its entirety without the need to create a dry environment in the tunnel as is required when the blades are installed separately. Our diver/technicians lowered it into the water and brought it into the thruster tunnel. The team secured the unit and connected it to the bow thruster room.

The bow thruster was lowered into the water using the crane of one of our trucks.

The operation ended with the removal of the pad eyes and the reinstallation of the thruster tunnel grids.

We worked in shifts around the clock and finished the job within the available time frame. This allowed the ship to sail on schedule, which was a key benefit for the owner.

Performing a job like this takes a lot of planning. This can only be done successfully by staff who have familiarity with such operations and have the relevant know-how and equipment.

Unit being guided into the thruster tunnel.

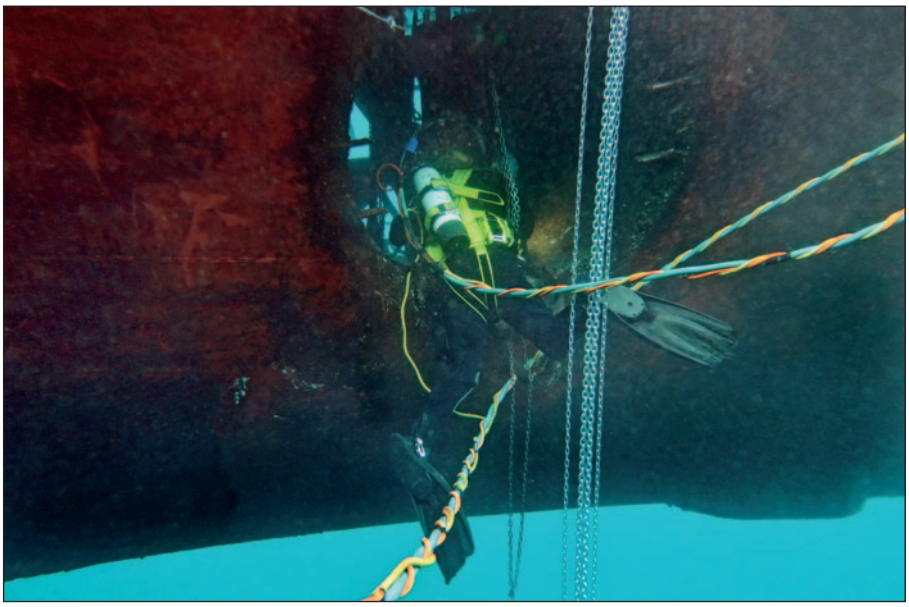
Hydrex diver/technician preparing the tunnel for reinstallation of the thruster.

The unit being lined up with the connection to the bow thruster room by Hydrex diver.

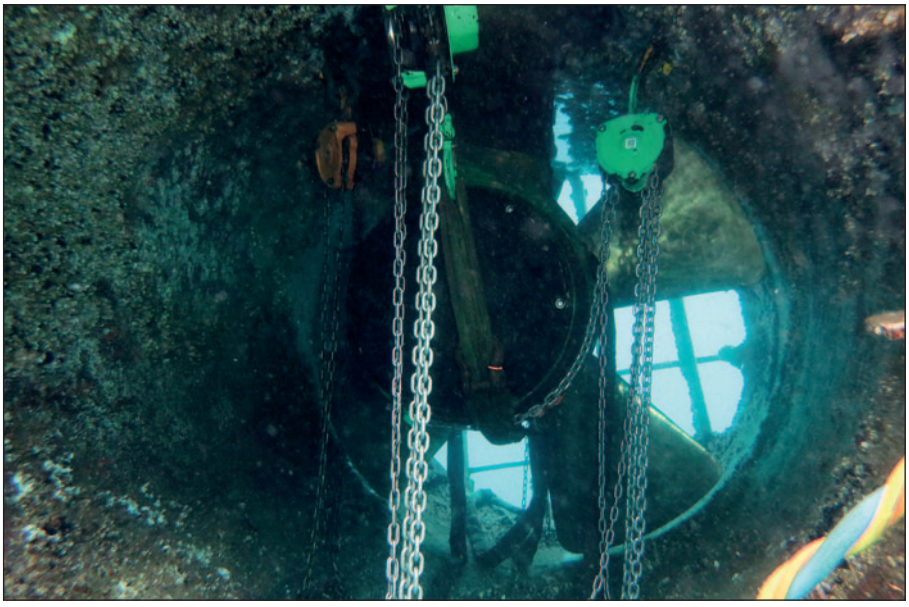
All types and sizes of thrusters

We can assist shipowners with almost any problem they encounter with their vessel's thrusters. A wide range of underwater repair or maintenance work can be carried out on all types of thrusters. An entire unit can be overhauled, as was the case with this operation, but propeller blades or seals can also be replaced if needed or repair work on a specific part of a thruster can be performed on-site.

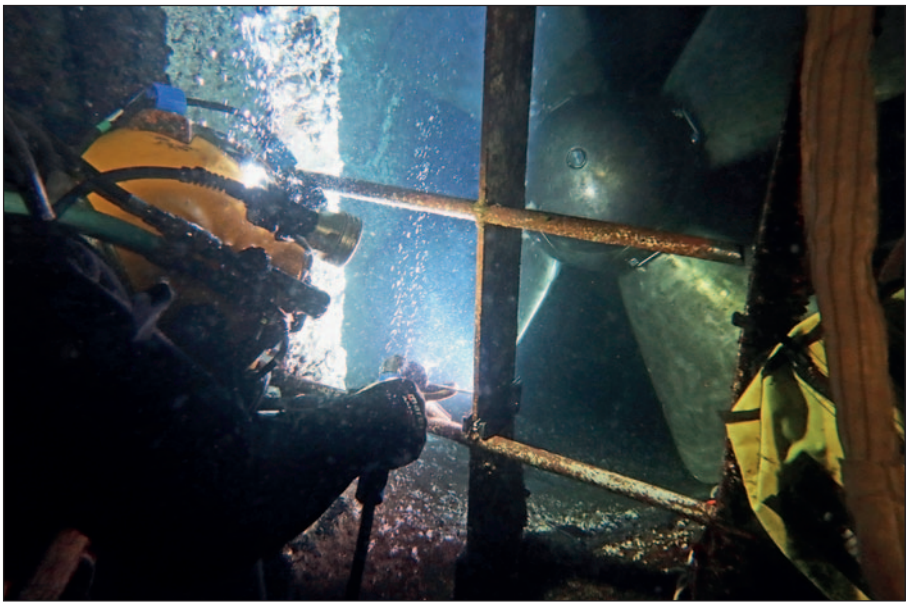
Both the removal and reinstallation of the thruster in Algeciras were done underwater, but this is not always the case. Our teams can also remove the unit before the ship enters drydock so that it can be brought to the manufacturer for



Hydrex diver entering the bow thruster tunnel.



The overhauled unit after being secured.



Reinstalling the grids concluded the underwater operation.

overhaul ahead of time. When the vessel enters drydock the overhauled unit is ready for reinstallation without any delay. The reverse procedure is also possible. If the thruster is removed in drydock, we can reinstall it underwater in dry conditions at a later date after it has been overhauled. In this way the ship can leave drydock while the unit is still with the manufacturer.

Despite the scope of some these operations, bow thruster removals can be performed very fast. The removal of the unit can always be done in the wet, even if the blades need to be removed, because the thruster has to be overhauled.

If the bow thruster unit and blades need to be installed separately during the reinstallation, our teams make use of our flexible mobdocks that close off the tunnel on both sides. These can quickly be transported to any location. They allow our divers to work in a dry environment around the unit.

All these repairs are performed in cooperation with OEMs. They can be carried out with the vessel afloat with minimum impact on its schedule.

If you have any questions regarding a possible bow thruster repair, do not hesitate to contact us. We are at your disposal 24/7 and ready to mobilize almost immediately.■

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KEEPING SHIPS IN BUSINESS

Pit lane


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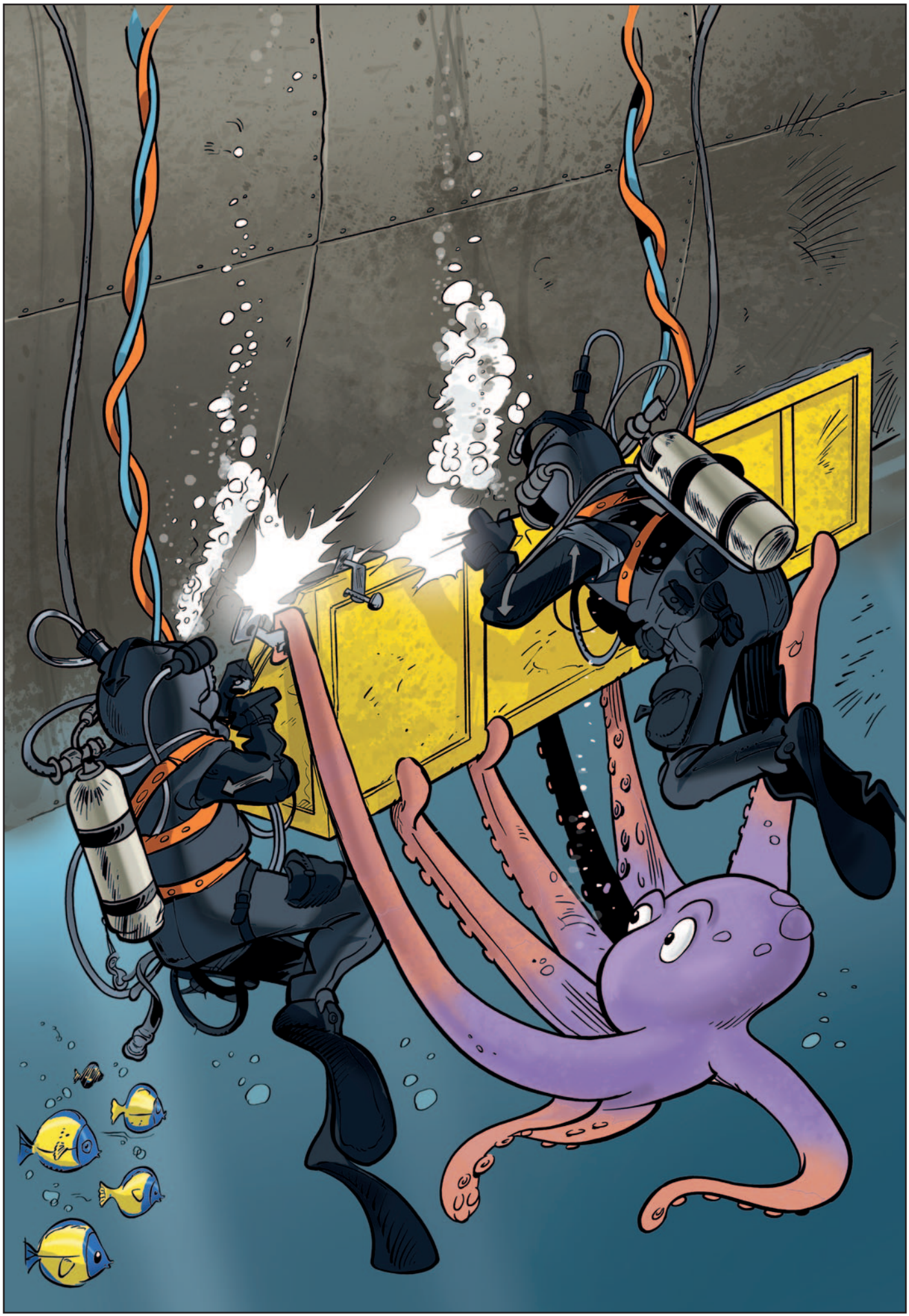

Ready to work throughout the port of Rotterdam

To enable a fast mobilization throughout the entire Rotterdam port without delaying a ship's commercials operations, our teams have a fleet of dive support vessels at their disposal. These workboats are fully equipped with hydraulic cranes, winches, a dive spread and control room.

This allows us to offer simple maintenance operations as well as repairs on all parts of the underwater ship propulsion system and the hull. These operations are class approved and carried out alongside or at anchorage while commercial activities continue without disruption. We do this with qualified and experienced diver/technicians, state-of-the-art equipment and advanced techniques that create drydock-like conditions underwater.

Fully equipped Hydrex workboat, ideal for a fast mobilization.

We have been active in Rotterdam since Hydrex was founded over 50 years ago. Examples of recent operations in the port are a bow thruster removal on a container ship and a stern tube seal repair performed on a roro vessel. Another good example of how we can assist you is a technique called propeller buffing. Keeping a propeller in its optimum shape will give you an instant increase in fuel efficiency. Using this method on a regular basis will result in considerable savings on your fuel bill.

Easy accessible port

Hydrex work and dive support boat alongside container ship in Rotterdam.

Our workboats are equipped at all times with the materials needed for a wide range of operations.

Please feel free to contact us if you would like to have more information on any of our services or if you want to find out how we can assist you and your vessel. ■

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Our workboats allow us to mobilize throughout the entire port of Antwerp and Rotterdam.

Scrubber pipe repairs and lasting protection

Exhaust scrubbers filter out all harmful toxins from exhaust gases of marine diesel engines. These hazardous pollutants can severely corrode the pipes of the scrubber. Using the experience we have accumulated over the years allows us to assist you at moment's notice if this happens.

We offer a full package to owners that are experiencing similar damage. Not only can we replace the corroded exhaust pipe while your vessel stays on schedule, but we can make sure that you will not have to call us again in a few months time for the same problem. This is done by coating the pipes with a highly corrosion resistant coating called Ecospeed.

Contact us for more information on scrubber pipe replacements or other underwater repairs. We are at your disposal 24/7.

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