SBI VOL. 17 ISSUE 3 | 2023

Ship Building industry

Teunis Huibertus

THE LATEST TRAILING SUCTION HOPPER DREDGER

ELECTRIC & HYBRID MARINE EXPO

TOGETHER TOWARDS ZERO-EMISSION SHIPPING

REINFORCING THE DUTCH COAST

VOX ARIANE AND VOX APOLONIA JOIN FORCES



Continuously evolving repair techniques

Hydrex was established in Antwerp in 1974 and has since then steadily grown into a company the shipping and offshore industry can depend upon whenever there are tough and difficult jobs to do, as well as for regular, routine maintenance and repairs.

ALL PHOTOS COURTESY OF HYDREX.

REPAIR & MAINTENANCE





Hydrex has state-of-the-art diving equipment.



ver the years Hydrex has sent highly trained diving teams to virtually every part of the world. The company has built up an everexpanding worldwide network of support bases, enabling it to provide fast service at reasonable costs. Besides these support bases, Hydrex has offices in Rotterdam, the Tampa Bay Area (U.S.A.) and Algeciras (Spain).

As skill and confidence is accumulated year by year, the high level of expertise offered by Hydrex is validated by a steadily increasing list of certificates from all the main classification societies. Already in 1992 Hydrex had received a certificate for class-approved permanent underwater crack repairs without condition of class and just recently several big classification societies have awarded Hydrex certificates validating the Hydrex revolutionary flexible mobdock technique to perform permanent underwater stern tube seal repairs.

To be able to provide a large part of the necessary training in-house and to offer

the fastest possible service to customers, the Hydrex premises were expanded in 2001 with a brand-new fast response centre where an extensive range of state-of-the-art tools and diving support equipment is available at all times for the Hydrex underwater teams. Hydrex is renowned for bringing drydock-like conditions to the vessel or offshore unit. This helps owners to extend drydock intervals and eliminates the loss of time and production that docking entails. Civil repairs can also be carried out in-situ with the Hydrex large >>

REPAIR & MAINTENANCE





habitat system that was designed and built for the first time in 1991 to carry out repair work on locks.

Development of the cofferdam technology

Hydrex was the first company ever to use a prefabricated cofferdam, introduced as early as 1979 and used to carry out repairs to the m/v Lunar Venture. By 1983, the technology was in use to perform insert repairs in double bottom tanks. The company has advanced this concept extensively over the last 30 years, along with the technology to ensure that fast, professional and high-quality work can be done while the vessel is in-situ and even while continuing normal ship operations. For its innovative work in this field Hydrex won the 2002 Lloyd's List SMM Award in the category of 'Innovation in Naval Shipbuilding and Marine Technology.'

Hydrex continues to invest in the research necessary to keep evolving the available repair techniques along with continual training and development of its engineers and diver/technicians. This is done to offer customers the most efficient solution, whether the required services involve the inspection of a vessel's external condition and any required maintenance work or highly technical major repairs and replacements of a ship's external underwater equipment and machinery.

Recent operations on sister vessels in Denmark

Recently Hydrex diver/technicians carried out scrubber overboard pipe repairs on two ships in Munkebo, Denmark. In total seven corroded pipes were repaired. On five pipes the corroded areas of the scrubber pipes were ground out and rewelded. The pipes were then protected with Ecospeed, a chemically resistant coating produced by Subsea Industries. The same protection was given to the two new pipes that were installed.

Exhaust scrubbers are systems that filter out the harmful noxious elements from the exhaust gases of marine diesel engines. These can severely corrode the





pipes of the scrubber which can result in water ingress if not handled quickly enough.

Replacement and repairs

A 295m LNG carrier needed maintenance and repair work carried out at the Fayard shipyard in Munkebo, Denmark. Hydrex was asked to perform repairs on three scrubber overboard pipes while the ship was berthed at the yard.

A team travelled to the vessel's location. After arriving at the ship on one of yard's workboats they first performed an inspection of the damaged areas on both the waterside and the onboard side of the hull.

This revealed that two of the pipes needed to be completely replaced. As the corrosion on the third scrubber overboard pipe was not yet severe, a full replacement was not needed. Because of the location of the damaged parts of the pipes, welding work on the inside shell plating of the hull was needed. As a result, the outside of the overboards could not be sealed off with a simple patch. Custom cofferdams were designed and constructed at the Hydrex workshop.

After the installation of the cofferdams, the team cut away the old pipes. The shell plating was then prepared for the installation of the replacement part. New pipes had also been constructed at the company's workshop in Antwerp. The To prevent both the new and the repaired pipes from corroding, the inside was coated with Ecospeed. This product is produced by Hydrex's sister company Subsea Industries.

pipes were then positioned and secured with a full penetration weld. Next an independent inspector carried out NDT testing of the welding work.

The diver/welders then sealed off the outlet of the final overboard pipe. The team ground away the corroded area before rebuilding it back to its original thickness.

When the welding was complete the surface was cleaned and a Magnetic Particle Inspection (MPI) was carried out by an independent inspector.

Lasting corrosion protection

To prevent both the new and the repaired pipes from corroding, the inside was coated with Ecospeed. This product is produced by Hydrex's sister company Subsea Industries. Ecospeed is highly chemically resistant. Considering the nature of the process taking place inside a scrubber, this is essential for lasting protection of the pipe. Ecospeed should also be used to protect a newly installed scrubber system from day one. A month later the LNG ship's sister vessel came to the yard and Hydrex was once again asked to perform an inspection and any needed repair of the scrubber overboard pipes.

Luckily the corrosion on the scrubber overboard pipes of this vessel was less severe. A full replacement of the four pipes was not needed.

The diver/welders repaired the pipes using the same procedure as on the first ship. The inside of these pipes was also coated with Ecospeed to keep them safe from further corrosion.

i. hydrex.be