Creating a gamechanger for underwater repairs in 1979

This year marks the 45th anniversary of Hydrex. Over the last months we have looked back at some of the many key repairs our teams performed since the company was founded in 1974.

For our last trip down memory lane we go back to 1979. This was the year the Hydrex magazine was first published. Boud Van Rompay founded the company only five years earlier, but already Hydrex was making itself known on the international underwater ship repair market.

From the very beginning Boud was convinced that much more could be done in-situ and underwater than most believed. When Hydrex was asked to find an on-site solution for a ship that had suffered a very large gash in its double bottom, he was sure that the available options were not good enough and that a revolutionary new technique needed to be used. ■

First prefabricated cofferdam ever used for afloat repairs arriving on-site, Antwerp 1979.

The first prefabricated cofferdam

It is hard to imagine in 2019 that there was once a time when all cofferdams used for afloat repairs had to be made piece by piece on-site, but 40 years ago this was the only option. That is, until a young company from Antwerp decided there had to be a more practical way to do this. Why not use a prefabricated cofferdam that was constructed in a workshop?

In 1979 it might have looked as youthful arrogance to people in the shipping business but has with most ideas conveyed by Hydrex founder Boud Van Rompay and his team, it led to the development of a repair technique still in general use today.

“They asked us to intervene on a general cargo ship that had backed up into a breakwater in the Persian Gulf: m/v Lunar Venture,” remembers Boud. “The vessel was sailing under the Chinese flag. It had incurred severe damage but because the damage was situated in the double bottom of the engine room it had been able to make the journey to Antwerp. We were first called to perform an underwater inspection. This revealed a gash of four meters long and half a meter wide. The owner then asked us if we could give the ship repairers direct

Construction of prefabricated cofferdam in our workshop.

Arrival of the cofferdam on-site.

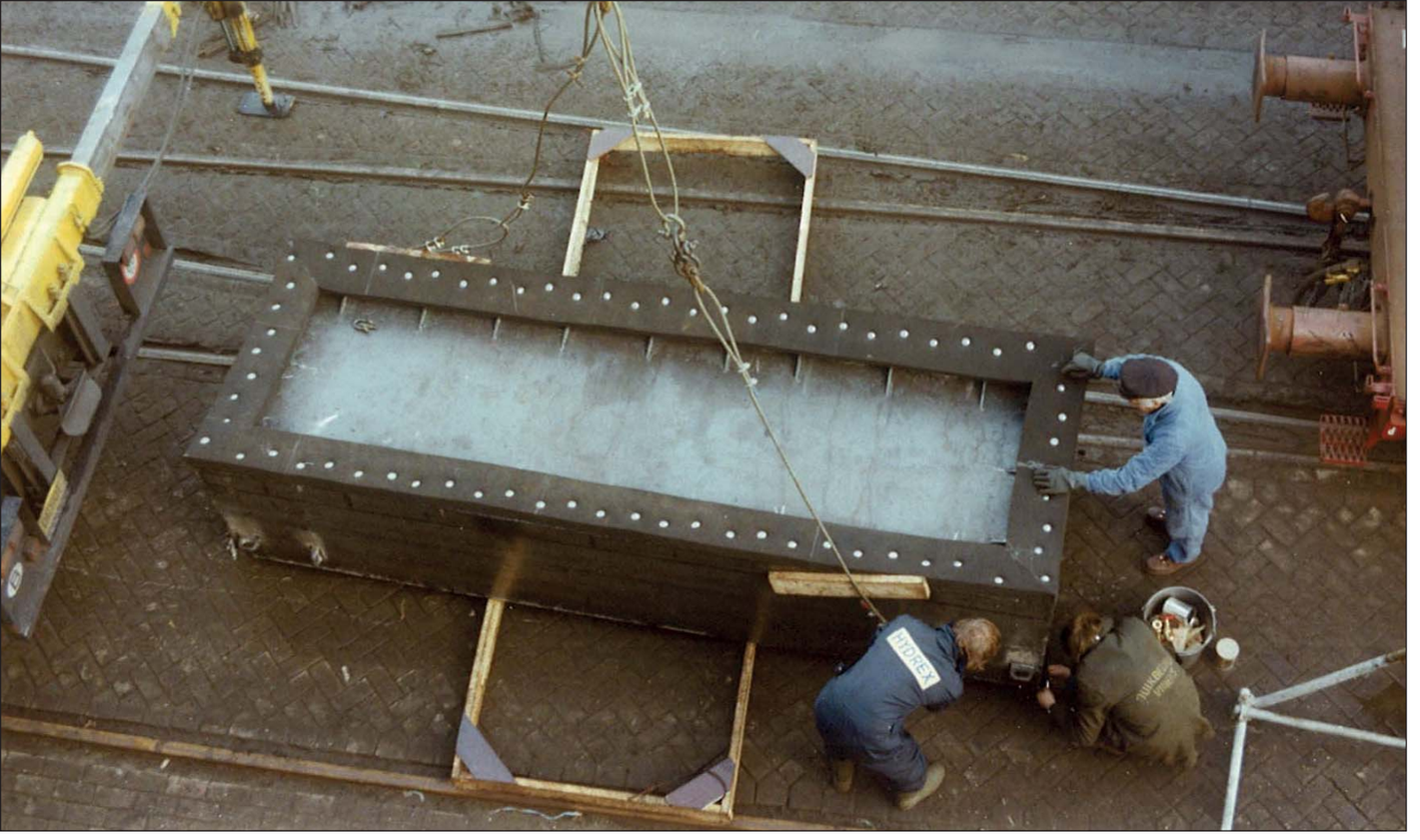
access to the damage safely. Even back then there was only one answer from Hydrex: Sure!"

Boud still gets a twinkle in his eyes when he looks back at this operation and what it meant for Hydrex and the entire industry. "I had studied all the literature on cofferdams as well as the way they were used in the salvage industry and more particularly by Siebe Gorman. These were all made on a piece by piece basis. In this case what we needed to do was build a prefabricated cofferdam, one already constructed when it arrived on the vessel's location. This had never been done. The reason for using a cofferdam was that we needed a permanent repair which could only be carried out with welding work that could be classed as permanent, so nothing could be done in the wet."

"The idea was to have the cofferdam built in one piece and to use a neoprene gasket. This gasket had to follow the contours. Otherwise it would not seal off the cofferdam completely and there would have been water ingress."

"The cofferdam was fabricated in our workshop. It was constructed as a tank. When it was lowered it filled with water so it could sink. When the cofferdam was in-situ, it was dewatered with compressed air. When we inspected the tightness, we got confirmation that all measurements were correct."

"The next step was to secure the cofferdam. This was entirely done with a range of wire pullers which were attached to the bulwark at the stern of the ship. We double checked that the cofferdam was securely fixed," says Boud. "It was the first

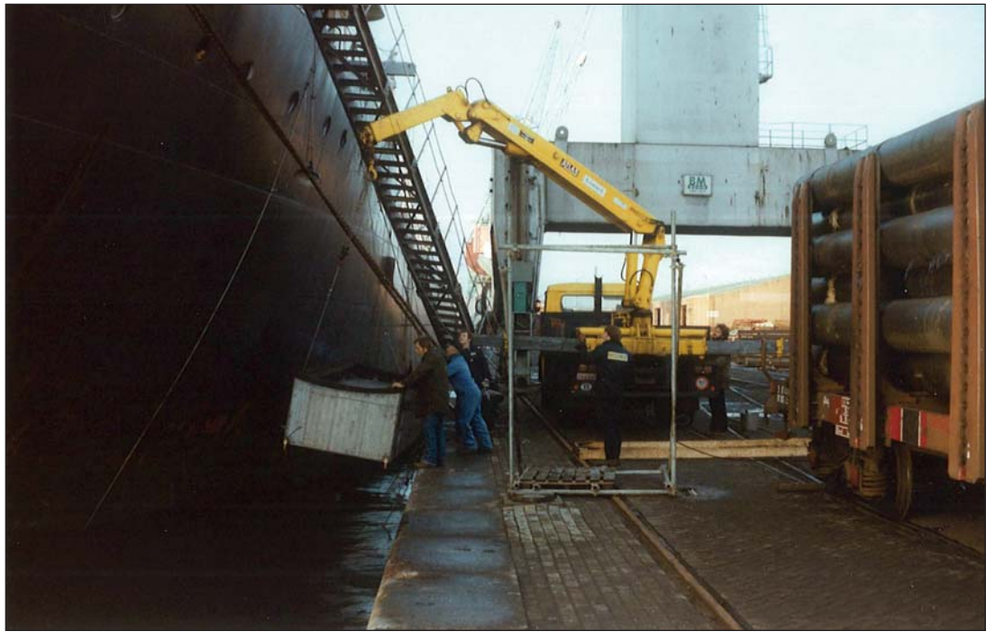


Final preparations of the cofferdam prior to installation.

time that such an operation was carried out and we wanted to make sure that the cofferdam would not dislocate or shift its position."

"As soon as the cofferdam was secured the ship repairers could go inside and had direct access to the damage in the double bottom of the engine room. All this was done over just five days, which was the time the ship had available before it had to leave Antwerp. The ship was partially loaded but no cargo had to be discharged for the operation. The owner was able to sail his vessel to China without further ado. Everything was done by our own means, which was quite remarkable considering Hydrex had only been in business for 5 years at that time."

"Later we came up with the name mobdock to



Lowering the cofferdam into the water.

Wire pullers were used to keep the cofferdam in place during the

Hydrex diver guiding the cofferdam to its position.

The cofferdam filled with water, allowing it to sink. Later it was dewatered with compressed air and gained positive buoyancy.

avoid confusion. Mobdock is short for Mobile mini drydock. This is a general term for a device that creates a dry environment around a ship in order to enable permanent repairs underwater. Mobdocks consist of cofferdams and habitats. A cofferdam is defined as a dry environment in atmospheric pressure. A habitat is defined as a dry environment underwater with ambient pressure. A diving bell for example is a habitat"

"The whole mobdock technology has been developed in-house from our headquarters in Antwerp. It took another ten years before the technology really took off, but in the nineties mobdock repairs came very high in demand. It is still a very quick and elegant method to repair ships."

Boud is proud of the breakthrough they have created in underwater repairs. "What was revolutionary at that time has become routine 40 years later. There is not a single shipowner that thinks of drydock when he has a gash in his ship's hull. The first thing he thinks is: Can we do it underwater?" ■

The damage in the double bottom of the engine room was severe.