

## Hydrex repairs rudders in Zeebrugge, Dunkirk and Le Havre

Headquartered in the Belgian port of Antwerp, Hydrex teams recently carried out several rudder repairs on ships in Belgium and France. In all cases cracks were found that needed to be repaired to prevent them from spreading and causing further damage to the rudders.

Hydrex can perform repairs at anchorage on any type of rudder or while the vessel is berthed. In most cases this can be done without interrupting cargo operations. The following case studies give an account of some of the recent examples of this.

### RUDDER CRACKS REPAIRS ABOVE AND UNDER WATER

A 230-meter roro ship in Zeebrugge had suffered cracks on both sides of the rudder flap. On the starboard side a branching crack was found while a single crack was present on the port side.

Hydrex divers first drilled arrests on all extremities of the cracks to prevent them from spreading. They then positioned C-shaped plates over the crack arrests and secured these with wet welding.

This allowed the owner to sail his ship without having to worry about the condition of the rudder. He can have a permanent repair carried out during the ship's next scheduled drydock visit at a more convenient time and location.

On two 229-metre sister bulker ships in Le Havre and Dunkirk respectively, cracks were found on the upper pintle corner of the hinge that connects the rudder flap to the main rudder blade. Fortunately these cracks could be repaired by grinding them out after a crack arrest had been drilled. The affected area was then filled with clad welding.

### TIMELY DISCOVERY PREVENTS MORE COSTLY REPAIRS

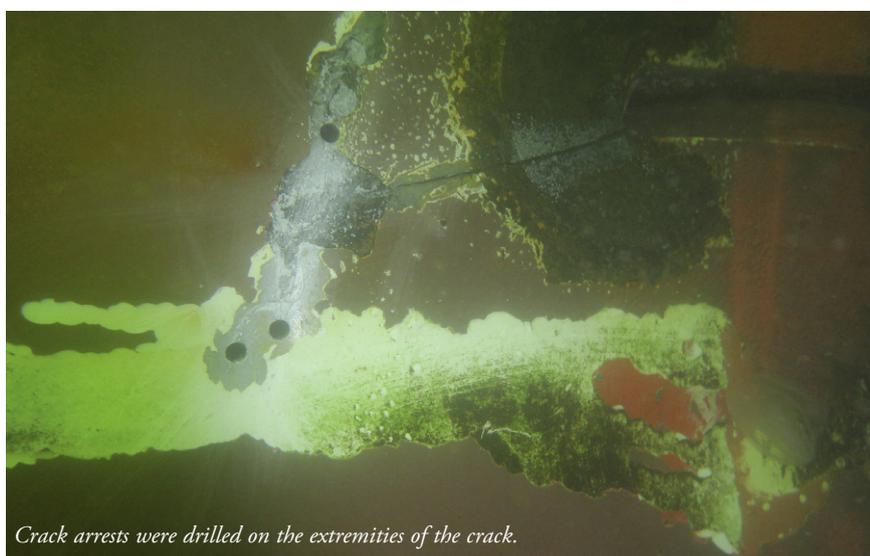
The cracks on these rudders were spotted during an underwater inspection before they caused problems for the ship. This once again shows the benefits of having regular inspections carried out by competent divers, followed by comprehensive and accurate reports. Hydrex teams can detect any problem so that they can be corrected early and prevent the more costly repair which neglect and further damage would bring about.

### ABOUT HYDREX

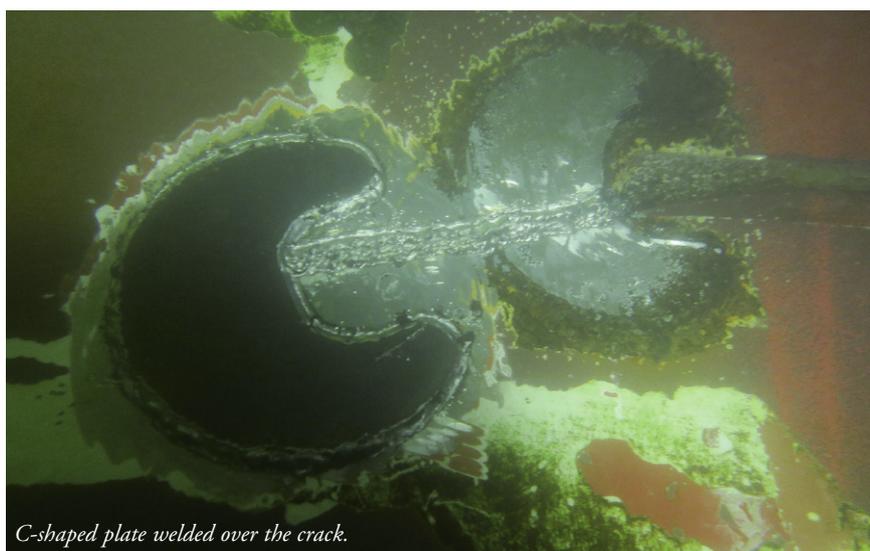
Through an ever-expanding, worldwide



*Branching crack on rudder of roro ship.*



*Crack arrests were drilled on the extremities of the crack.*



*C-shaped plate welded over the crack.*

network of offices, Hydrex can provide start-to-finish solutions economically at any location.

All Hydrex offices have fully operational fast response centers where an extensive

range of state-of-the-art equipment is available at all times for immediate deployment with its skilled diver/technician teams to wherever they are needed.