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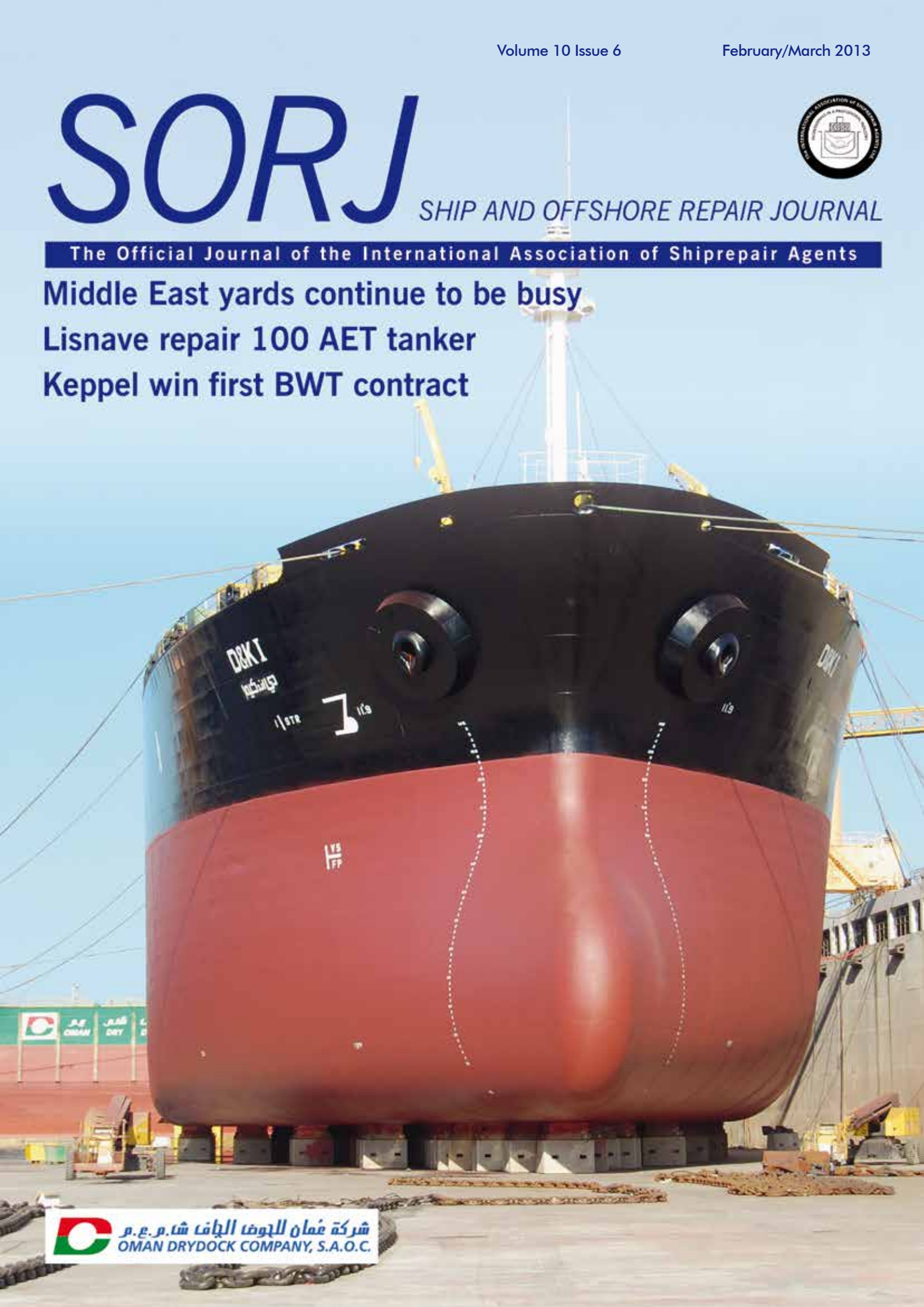
Middle East yards continue to be busy

Lisnave repair 100 AET tanker

Keppel win first BWT contract



The *Crown Mary*, coated with Ecospeed, operating in ice-conditions

W&R Shipping chooses Ecospeed

When it comes to protecting the hulls of ice-going vessels, the glassflake reinforced surface treated composite (STC) Ecospeed has proven to be remarkably durable, typically outperforming many specialised ice class paints. The fact that the coating is non-toxic is also particularly important for ice trading vessels where toxic AF coatings are rapidly scraped off and deposit their toxic ingredients in what are often particularly sensitive environments.

W&R Shipping converted its existing fleet to Ecospeed and specified Ecospeed as the coating for newbuilds ordered. Based in Holland's Zwijndrecht, W&R Shipping was founded in 2005, the result of a cooperation in the shipping business between Captain G C (Wim) van Eck and Mr R A (Rob) Stornel, which dates from 1999. (The W is for Wim and the R is for Rob, hence W&R.) Captain Van Eck is the technical supervisor, while Mr Stornel handles the in-office duties. Both their careers in shipping are longstanding, starting in 1969 for Mr Stornel and in 1981 for Captain Van Eck. In addition to ship and fleet management, W&R Shipping BV also has hands-on experience and expertise in new builds of multipurpose vessels in China, partly on commission.

The first vessel to be converted to Ecospeed was the 3,400 dwt general cargo *Crownbreeze*. Like the other W&R vessels, the *Crownbreeze* previously had a high abrasive specialty ice coating. The *Crownbreeze* came into service in December 1999 so by August 2007 it was time for her second intermediate survey (third drydocking).

The 3,171 dwt general cargo vessel *Thea Marieke* followed in the wake of the *Crownbreeze* with an Ecospeed application in 2008. Those were the two where the original coating was replaced. Subsequently, the 3,500 dwt general cargo vessel *Crown Mary* and sister vessel *Tina* both had Ecospeed applied at newbuild stage which is the ideal time to apply the coating.

The only ship of the W&R fleet not currently coated with Ecospeed is the 3,060 dwt general cargo *Monica*, an older vessel which may be sold in the not-too-distant future. W&R currently has two ships on the assembly line in China. One already has Ecospeed. The other has another coating. Since it is a new coating already applied, Wim has not decided whether to remove the coating and apply Ecospeed immediately or sail with the existing coating for a few years until it is time to change it and then have Ecospeed applied.

The *Crown Mary* went to drydock in June 2012 after 2 ½ years' sailing in ice with Ecospeed. "There was some small mechanical damage but nothing really major," says Wim. "We didn't need to do anything with the hull paint in drydock." The *Crownbreeze* was docked in 2009 and again in 2012, five years after the Ecospeed was applied. Nothing had been done with the paint in the 2009 drydocking. Because of the different dock block positions, the 2012 drydocking was an excellent opportunity to coat the parts of the hull which were missed due to the dock block position when the Ecospeed was originally applied.

While W&R is still refining the aspects of paint touch-ups in drydock, and working out the best way to accomplish in-water cleaning for the Ecospeed coated ships.

Meanwhile, during January, several rudders were coated with Ecospeed in China. The rudder of a 294 m container vessel was treated in Shanghai. Around the same time a 125 m LPG tanker had its rudder coated in Dalian.

The owners decided to use Ecospeed after cavitation damage had appeared on the rudders of their vessels. Ecospeed will prevent similar damage from occurring again. The coating provides the rudder (and/or the entire underwater hull) with an impenetrable protective layer. At the same time its toughness and flexibility enables absorption of the forces that are produced by cavitation. This prevents the damage normally caused by this phenomenon. Without proper protection against cavitation and the resulting erosion and corrosion damage, the financial consequences can be severe.

Tests in a flow channel were carried out in Grenoble. These have confirmed that Ecospeed performs extremely well under severe cavitation. The tests were divided into six stages. Ecospeed was exposed to an increasing pressure drop, leading to a growing cavitation force. Even after the last stage no erosion was present on the test patch coated with Ecospeed.

Underwater Repairs

Underwater repair activities of Hydrex

In recent months Belgium's Hydrex has carried out bow thruster blade replacements on several occasions in Rotterdam. Three 366 m container ships belonging to one owner were given the same speedy treatment during unloading. More ships are scheduled for the same operation in the upcoming months.

The owner of the ships had the luxury of being able to schedule the blade replacements well in advance. This allowed the Hydrex technical department to get a team on the road before the vessel arrived. As a consequence, the diver/technicians were ready to start the operation as soon as the ship was berthed.

The same procedure was used during each of the operations. The new blades were lowered from the deck onto the workboat with the ship's crane. Meanwhile the rest of the Hydrex team prepared the bow thruster tunnel for the operation. The Hydrex flexible mobdocks were then installed on both sides of the thruster tunnel. Next the team could remove all water from the tunnel. In this manner a dry working environment was created.

The diver/technicians then removed the first blade of the bow thruster. They brought it to the surface. A replacement blade was then lowered into the water and taken to the thruster tunnel. The team positioned the new blade on the bow thruster and secured it with bolts. This procedure was repeated for the other blades. After the blades had been replaced, the divers removed the flexible mobdocks. This finished the repair.

During each of the replacements a local representative of the bow thruster manufacturer was present. He supervised the operations and gave his approval. In cases like these, timing

is of the highest importance. Hydrex team members are trained to carry out the approved procedures within a short time frame. Only a skilled and efficient team can perform this kind of operation without mistakes or delays. The bow thruster blade replacements in Rotterdam were carried out during loading or unloading. The operations were concluded well before the end of these commercial activities. This allowed the container vessels to leave Rotterdam again perfectly on schedule.

Near the end of 2012, an 86 m research vessel needed the stainless steel belt in one of its thruster tunnels replaced. A Hydrex diver/technician team therefore flew to Pointe- Noire, Congo to perform the repairs.

The stainless steel belt is installed around the perimeter of a thruster tunnel at the location of the thruster blades. There the impact of the cavitation caused by the movement of the blades is the most severe. Extra protection against cavitation damage is therefore essential. When the stainless steel belt in the thruster tunnel of the research vessel suffered cracks, the underlying steel was exposed to cavitation. The belt needed to be replaced as soon as possible to prevent the thruster tunnel from getting damaged too severely. The owner of the vessel would have had to take his vessel to drydock if no on-site solution was found.

Repair and maintenance to thrusters without the need for drydock saves time and money. Hydrex provides a worldwide fast-response solution to deal with most thruster problems, including complete overhaul and replacement of blades or seals of all types. The work is done on-site and underwater and can usually be completed within a few days of contact.

A tailor-made open-top cofferdam was designed by the Hydrex technical department. It was constructed in a local workshop in Pointe-Noire under the supervision of Hydrex diver/technicians. At the same time a regular shaped second cofferdam was also built. Cofferdams like these are used to close off the thruster tunnel on both sides. Water can then be drained from the tunnel, creating a dry working place. This allows the team members to descend into the tunnel through the open top. They can then carry out any necessary welding work in drydock-like conditions.

This prevented an unscheduled drydock visit for the ship and saved the owner precious time and money. After the cofferdams had been constructed they were transported to the vessel's location in Congo. The diver/technician team then started the underwater operation. However, infrastructure and dredging work in the port of Pointe-Noire brought the visibility down to almost zero. The safety of the divers could not be guaranteed. For this reason Hydrex proposed a new location for the operation.

The owner gladly accepted the proposal to move the research vessel to Port Gentil, Gabon. Port Gentil offers safe anchorage for all types of vessels (up to ULCC) on a sand/mud seabed with depths up to 50 m and more. Thanks to the sheltered environment of the bay the swell is limited. This makes it an excellent location to carry out repair or maintenance work on a ship, barge or rig and this in ideal conditions. The central location on the African West coast also makes Port Gentil the ideal place for a Hydrex logistic and equipment support base for the entire region. This allows us to mobilise to any other suitable location in West Africa in a very short time frame, making both emergency and scheduled operations possible.

After a short trip the ship arrived in Port Gentil with the Hydrex team and all the equipment on board. A diving station was set up and the diver/technicians started the installation of the cofferdams. Next they emptied all water from the thruster tunnel. They then descended into the tunnel and carried out the repair. The old, damaged, belt was removed and replaced with a new stainless steel belt.

Bow thruster repairs in Rotterdam

The actual operation was finished in only five days. The team removed the cofferdams and the ship was ready to continue its schedule with its thruster tunnel fully protected against cavitation once more.

Recently Hydrex diver/technician teams have carried out two underwater stern tube seal repairs. One on a 143 m general cargo ship in Galveston, Texas, USA, and one on a 292 m container vessel in Panama. Both vessels were experiencing oil leaks and a fast repair was required by the classification societies. Using the company's flexible mobdocks, Hydrex teams were able to perform both operations on-site and underwater. This saved time and money for both owners.

Both stern tube seal repairs were carried out in less than perfect conditions. There was almost no water visibility in Galveston at the time of the repair. This made the diving operations a lot more challenging than expected. In Panama the circumstances were better, but still far from ideal. This did not present any problem to the Hydrex diver/technicians. They are trained to be flexible and adapt to constantly changing working conditions. On top of this, our technical department has many years of experience in dealing with all kinds of weather circumstances in locations around the world. The combination of this theoretical knowledge and the means for a practical execution, allowed Hydrex to perform both stern tube seal repairs in these harsh circumstances. This was done under the strictest safety regulations, to the highest quality standards and without any unnecessary delay.

Hydrex has carried out on-site, underwater repairs and replacements on all types of seals for a number of years now. A dry environment is created underwater, in which the divers can work. Several major classification societies have also awarded Hydrex certificates that accept the Hydrex revolutionary flexible mobdock technique to perform permanent underwater seal repairs which previously would have had to be done in drydock.

Every Hydrex office has a fast response centre equipped with all the latest facilities, lightweight equipment and tools. These centres were designed specifically to increase speed of service. This allowed us to mobilise a team together with all the needed equipment to the general cargo vessel's location within the shortest possible time frame.

After the diving team had set up a monitoring station, the operation started with a thorough underwater inspection of the stern tube seal assembly. The divers then removed the rope guard. The team then installed the flexible mobdock around the stern tube seal assembly creating a dry underwater environment for the divers to work in drydock-like conditions. This is a necessity for permanent stern tube seal repairs. After cleaning the entire assembly, the divers disconnected the split ring and brought it to the surface to be cleaned. Next the team removed the three damaged seals one by one and replaced them with new ones.

Oil was leaking from the stern tube seal assembly of a container vessel. Hydrex diver/technicians therefore mobilized to the vessel's location in Panama, together with all the needed equipment. The diving team first set up a monitoring station. Next they started the operation with a thorough underwater inspection of the stern tube seal assembly.

The underwater inspection revealed that the rope guard was missing. Fishing lines tangled around the liner had caused the oil leak. These were removed by the diver/technicians. The team then installed the flexible mobdock around the assembly. After cleaning the entire assembly, the divers removed the first seal and replaced it with a new one which was then bonded. This procedure was repeated with the other two damaged seals.

Both operations ended with the conducting of pressure tests with positive results, the removal of the flexible mobdock and the reinstallation of the rope guard. Off-hire causes a substantial loss of money. The teams therefore worked in shifts to perform the stern tube seal repairs within the shortest possible time frame. This saved both owners the time and money which going to drydock would have entailed. **SORJ**