Track record on azipod thruster repairs

Hydrax underwater technology has been carrying out repairs on cruise ship azipod thrusters around the world. Owing to tight schedules, the window for such operations is very small, notes the Antwerp HQ'd company.

Hydrax were called on when the azipod blade of a 293mtr long ship had been damaged and repaired earlier but was still causing speed loss. It was requested to arrange the replacement of the blade. The ship also experienced problems with the rudder and the owners asked Hydrex to perform a detailed underwater inspection during the ship's stay in the Azores and to design a plan for possible underwater repairs.

In advance of the vessel's arrival in Kiel, Hydrex technicians made all arrangements for both repairs in the company's fast

response centre. These consisted of the standard preparations and the construction of tailor-made equipment needed for this specific job. Two diver/technician teams remained on standby and mobilised immediately when the vessel arrived in Europe so that they were on-site and ready to start the repair as soon as the vessel was berthed.

By working in two teams and in shifts, Hydrex was able to finish both repairs at the same time and within 36 hours, far less than the available window.

Owner's lighten up to Thorplus-Blue bearings

Thordon Bearings' Thorplus-Blue, a highly engineered replacement for traditional greased bronze rollers on mooring line fairleads (and also on lifeboat davits and embarkation gangways on passenger vessels) eliminate pollution, while also reducing costly maintenance and replacement of frayed ropes. Cruise lines are now starting to change original bronze rollers for the new thermoplastic bearings; typically, the switch can be done by the ship's crew, while underway. Thordon indicates that the Thorplus-Blue solution is now finding its way on to Makers Lists of equipment to be fitted on newbuilds at shipyards.

Scott Groves, Thordon Bearings' business development manager-marine, explains that the thermoplastic bright blue bearings are seven times lighter than the bronze rollers they replace.

Thordon points to a number of advantages, in a comparison with traditional metal rollers. Bronze rollers require frequent applications of grease, entailing a labor expense (and also a possible hazard to seafarers who must apply lubricants into equipment that is ordinarily inaccessible), as well as creating a source of pollution, deleterious environmentally at a time of increasing regulation.

Grease applications can also be very unsightly, and pose a subtle negative for a cruise line's branding. At the micro level, the grease will attract abrasive particles – which can cause the fairleads to seize up and stop spinning. The abrasion can also cause mooring ropes and davit lines to fray, hastening the need for replacement.

Thorplus-Blue also finds its way into other applications – including watertight doors and all manner of winches, also as an alternative to conventional metal bearings. Bearing sizes are not standardised; as necessary, Thordon's engineers work closely with customers to engineer parts that provide a precise fit; the company's proprietary Bearing Sizing Calculation Program enables customers to size bearings correctly for each installation.

Evac watches out for MBBR

MBBR isn't the most often used acronym in the cruise business, but may be someday soon.

Moving Bed Biofilm Reactors, or MBBRs, are onboard wastewater treatment plants that enable vessels to purify wastewater by oxidation and entrapment of organics. In simplest terms, MBBR technology allows ships to meet land-based standards for wastewater treatment.

'MBBR allows a ship to operate without limitations,' says Evac's senior process specialist Jari Jokela (pictured). With Evac MBBRs, ships may operate in many Environmentally Sensitive

Sea Areas (ESSAs) and Special Areas (SAs) defined nationally or internationally, where special discharge restrictions apply.

Evac Complete Cleantech Solution is a total waste and wastewater management package. It includes dry and wet waste treatment systems, an incinerator, a recycling equipment covering glass, plastic, paper, cardboard and aluminum waste, plus food waste vacuum systems, a bio sludge treatment unit, and vacuum collecting systems including vacuum units and vacuum toilets.

Evac's system requires only one chemical for precipitation, 'and also offers one control system to take care of it all,' adds Jokela, 'which frees the ship operator from the headache of having to manage three to four interfaces between earlier systems.'

Jokela says savings come from two sources: 'On the waste side there are cost savings. But from the wastewater system you also save significantly on operational costs.'

In April 2016, Evac announced a new €10m plus contract including its Evac Complete Cleantech Solution covering integrated waste and wastewater management.

'Evac's long-term approach to product development has enabled us to minimise overall energy consumption by, for example, adding sensors and frequency converters to the process control.

ABB Azipod propulsion moving with the times

Azipod propulsion, originally developed in the 1980's by ABB, has become integral to the cruise business, enabling vessels to maneuver in tighter quarters (and in many more ports) than would have otherwise been possible.

As itineraries take passengers to more remote destinations, where icy waters may be encountered, Azipod propulsion units have a special appeal. Marcus Högblom, vp in ABB's Passenger Ship & Azipod business, says Arctic conditions require a stronger motor and a different propeller shape than conventional props. The composition is also different; for ice conditions, stainless steel replaces aluminum bronze propellers.

Högblom says, ABB recently secured firm orders to supply Azipod propulsion for the first two Crystal Cruises, 1,000 pax Exclusive Class newbuilds at Lloyd Werft (Bremerhaven) yard. Scenic Cruises' new expedition vessel Scenic Eclipse, arriving in 2018, will see the newly designed compact Azipod D deployed. The Azipod D, marketed to the offshore sector as well as to owners of smaller cruise ships, will offer a breakthrough beyond previous designs. The installation on Scenic Eclipse, in a 3 MW configuration, will be a first for the cruise sector. The vessel's first season will include both Arctic and Antarctic waters. The Crystal and Scenic vessels will be the first newbuildings to be compliant with Polar Code, which comes into effect next year.

Scenic Eclipse