

# Beltship renews COMPAC commitment

Shipowners are under scrutiny as never before over oil discharges. Bulk carrier operator Beltship Management recently selected seawater lubricated stern tube bearings for a second time, as part of its continuing commitment to non-polluting technology

Until recently considered 'normal', leakages into the sea from oil lubricated stern tubes could now fall into a grey area, adding an imperative to the growing preference for non-polluting seawater lubricated, non-metallic stern tube bearings.

Some of the best known names in shipping, among them BP Tankers, Carnival Corporation and Scanscot Shipping, have switched to seawater lubricating stern tube bearings.

In fact, though, uptake has gone far beyond shipping's highest profile brands. Key supplier Thordon Bearings said that deliveries of its COMPAC seawater lubricated stern tube bearing systems had passed the 600 ship mark.

Among those convinced of the system's merits is United States Gypsum Corporation (USG), which recently specified the Thordon COMPAC seawater lubricated stern tube bearing system for the 47,761dwt self unloading newbuild bulk carrier Gypsum Integrity.

Delivered in 2009 by Estaleiro in Brazil, the ship is now plying the gypsum trade from the east coast of the US East Coast and Canada, and taking backhauls of coal from Columbia to the US Eastern seaboard.

Operated by Beltship Management Limited (BML), of Monaco, this new vessel is a sister ship to Gypsum Centennial, launched in 2001, which was specifically designed to operate in environmentally sensitive waters. Gypsum Centennial also features the COMPAC system.

John McMillan, technical director, BML, says that the initial selection of the COMPAC solution had been art of a rigorous review regarding the overall safety and environmental impact of ships operated on behalf of USG.

"Operating along the Eastern Seaboard and on to Canada, Gypsum Centennial crosses some environmentally sensitive areas, and it was therefore critical to a high profile company like USG that their ships were environmentally friendly," says Mr McMillan.

Ten years before protected fuel tanks became mandatory, Gypsum Centennial already featured double hulls aft of the fuel tanks. Exemplary of other new design features was the ship's dust suppression system, which cuts dust by around 90%. Again, to cut noise pollution, the hydraulics room was situated in the centre of the ship, with fuel tanks either side, and a 10m void space above. Gypsum Centennial was also the first ship to feature Wärtsilä's low emission RT-Flex, electronically controlled, common rail, main engine

Mr McMillan explains that the inclusion of the COMPAC seawater lubricated stern tube bearings fitted completely with the ship's overall design ethos.

"Seawater lubricated stern tube bearings were not new, but they were new to us. Our design consultant, C R Cushing had some experience of their operation, however, and brought the system to our attention. We considered the possibility of removing any chance of oil leakage from the stern of the vessel to be a huge advantage.

"Operating along the Eastern Seaboard means a ship has to cross several fishing areas and, as a company with over 40 years experience in this trade, it has not been unusual for nylon cords to get wrapped around the propeller shaft, which can damage the seal. If an oil lubricated system is in place, the result can be oil leakage."

Since the delivery of Gypsum Centennial, there have been two key developments in the Thordon stern tube offering that Mr McMillan says made it even more attractive. First, the company concluded that a steady supply of relatively abrasive-free water to lubricate the bearing will ensure long, predictable, bearing wear life. With this factor in mind, Thordon superseded its engine room-based seawater circulating system with a self-contained water conditioning and monitoring package to ensure that an







adequate supply of clean water is delivered to both the forward seal and the COMPAC bearings. It is this system that is installed on board Gypsum Integrity.

"While we have not experienced any detrimental effect on the bearings on Gypsum Centennial as a result of the seawater circulating system, it makes sense wherever possible for water to be purified and the flow controlled, in order to reduce any risk," Mr McMillan says.

"The quality of the seawater supplied to the bearings is critical in ensuring long predictable wear life," explains Craig Carter, Director of Marketing and Customer Service at Thordon Bearings. "To ensure that abrasives are removed from the seawater supply, a Thordon Water Quality Package uses centrifugal forces to remove particulate from



the water stream, then collects it and discharges it through a blow down line." The new approach features its own pumps, separators and flow monitoring equipment.

Also coming after the delivery of Gypsum Centennial was Thordon's development of 'Thor-Coat' a protective coating specifically formulated to work in combination with Thordon stern tube bearings.

Gypsum Centennial experienced a tailshaft defect, identified during her first five year survey.

"Minor corrosion was discovered in the shaft between the fore and aft bearings," says Mr McMillan. "The epoxy resin coating was found to have broken down." The epoxy coating (a non-Thordon product) was removed entirely, as was the corrosion. In place of the old coating, Thor-Coat was supplied and applied under Thordon supervision.

No corrosion has subsequently been witnessed, while the Thor-Coat applied remains intact. "The big difference is that epoxy resin sets solid and is hard and brittle and likely to crack," Mr McMillan says. "Thor-Coat has shown itself to be flexible and durable and was specified right from the beginning for Gypsum Integrity."

A toughened, 2-part epoxy coating, Thordon says that Thor-Coat is three to nine times more flexible than products currently in use as propeller shaft coatings. The coating can provide 10 year integrity, potentially eliminating the need for the five year shaft withdrawal and inspection, according to Thordon.

Thor-Coat has provisional Classification Society approval from ABS, LRS, BV, NKK, GL and RR. DNV is reviewed on a case-by-case basis and RINA approval is not required.

"Taken together, the new water management system and Thor-Coat have meant that Thordon now offers a 15 year guarantee for its seawater lubricated stern tubes," states Mr McMillan. "Thordon has even extended this guarantee retrospectively to take in Gypsum Centennial.

"Looking forward, if the right type of newbuild project were to come along, I would have no hesitation in specifying this system again." ■