

ENVIRONMENTALLY FRIENDLY BEARING SOLUTIONS

PRINCESS CRUISES CONTINUES TO INSTALL WATER LUBRICATED PROPELLER SHAFT BEARINGS

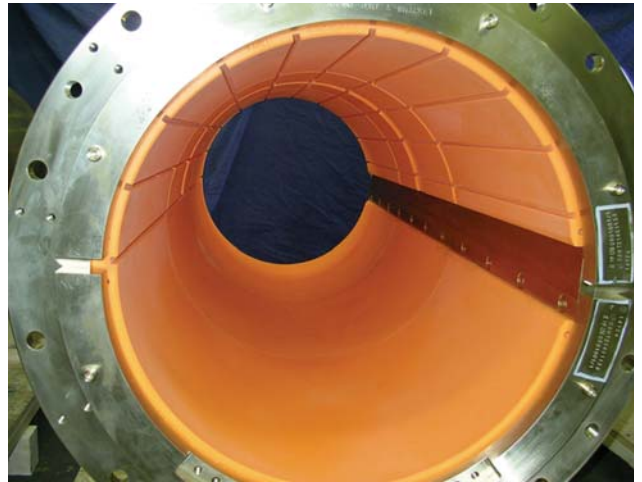
Princess Cruises has specified Thordon water lubricated COMPAC propeller shaft bearing systems for two new GRAND Class cruise ships (Hull No.'s 6131 and 6132) being built at Fincantieri Cantieri Navali Italiani SpA for 2007 and 2008 delivery. There is an option for a third bearing system for a follow-on ship.

Princess Cruises, part of Carnival Corporation, currently has seven vessels fitted with water lubricated COMPAC bearings after the first installation in 1998 on *Grand Princess*. "The water lubricated bearings from Thordon have been problem free," says Richard Vie, Vice President Newbuildings for Carnival Corporation. "Based on bearing wear data, we are not expecting to replace the bearings more than once in the life of the vessel, or perhaps not at all."

Thordon Bearings is supplying its unique COMPAC Single Key Design Bearings for the 116,000 GRT twin screw newbuild

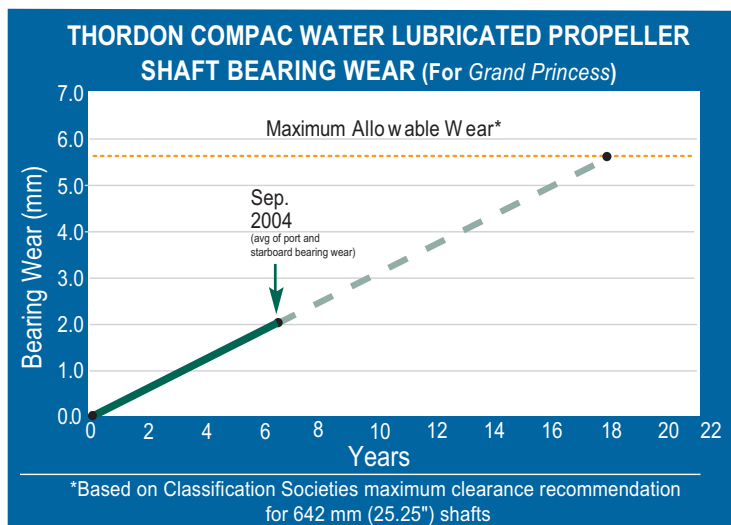
vessel. The tapered Single Key Design allows the bearings to be easily withdrawn from the bronze carrier, inspected and re-installed with the shaft still in place. The COMPAC elastomeric polymer alloy bearings for the 642 mm (25 in.) diameter propeller shafts are designed to promote hydrodynamic operation at low shaft speeds and provide long wear life. A flow of seawater will be provided to the bearings for efficient cooling and lubrication in this pollution free propeller shaft bearing system.

By completely eliminating oil from the stern tube and struts, Thordon's COMPAC system ensures there is no risk of



COMPAC Propeller Shaft Bearing With Single Key Design

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LONGER FRAZZLED BY DOWNTIME CONCERNS

Clearly, Inco needed a better solution. And they found it, in Thordon SXL.

A Track Record That Speaks For Itself

Proven in demanding hydroelectric applications around the globe, Thordon SXL has become the industry standard. An elastomeric polymer, the bearing features grease-free operation, remarkably low wear and exceptional performance in dirty water conditions. It's the bearing of choice for water lubricated main shafts and pumps in both rehabilitation and new turbine projects.

"Inco not only wanted to lower maintenance costs, but they also wanted to eliminate lead chinking. Thordon SXL was the answer to both of these issues," says Thornton.

To reduce downtime in the future, Thornton and the engineers at Thordon Bearings recommended a stave configuration. This helped reduce the time it would take to remove, service and reinstall the bearings from the current standard of three to four months to just a few days!

The new bearings were installed in Unit #3 (one of three turbines in total) at the Nairn Falls plant in 1999. After excellent performance over the next 24 months, SXL was installed in the other two units.

"So far, Thordon has lasted twice as long as the previous phenolic bearing," says Mailloux. "And the longer lifespan has kept labour and materials costs down while expanding uptime." Bearing performance is monitored continuously and has been running within acceptable parameters for more than five years. "This is remarkable considering the rough operating conditions and the fact that the turbines are nearly one hundred years old!"

stopped five times, each time running dry. The fear was that the bearing would be burnt and require immediate changeout, something that would be expected from a phenolic material. It wasn't. In fact, after inspection, Thordon SXL was only mildly scuffed.

"And the good news is," says Thornton, "Inco's maintenance staff was able to clean the exfoliated material from the water grooves and



Split SXL Stave Main Guide Bearing

reinstall the bearing in the same day."

This allowed Inco to keep this unit on line for the upcoming spring run-off period and have a planned outage in the summer for the changeout of the bearing during the low water flow period. **Nw**

Getting Frazzled Once Again

Then mother nature struck. In January 2004, frazzle ice once again formed on The Spanish River. During this inclement period, Unit #2 started and

Princess Cruises... (cont'd. from cover story)

pollution or subsequent environmental violations that could result from stern tube oil leakage, however small. There are currently over 380 Commercial and Naval vessels that are equipped with Thordon COMPAC water lubricated propeller shaft bearings plus many more on order. **Nw**

Star Princess Equipped With COMPAC Water Lubricated Propeller Shaft Bearings Since 2002

