MERCHANT FLEET
ISSUE 2023

THORDON
NEWSWORKS


*The Orkim Pearl, fitted with a Thordon COMPAC seawater-lubricated propeller shaft bearing system.*

# ORKIM TAKES TO THE WATER WITH FIVE PRODUCT TANKERS FITTED WITH ***COMPAC***

China's Fujian Southeast Shipyard delivered five new product tankers ordered by Malaysia's Orkim Sdn Bhd.

The 9000-dwt *Orkim Sapphire, Orkim Pearl, Orkim Topaz*, and 14,500-dwt *Orkim Diamond* and *Orkim Emerald* represent the first vessels in the ship operator's fleet to be fitted with a COMPAC seawater-lubricated shafting system from Thordon Bearings.

*more inside...*

## IN *THIS* ISSUE...

# ORKIM TAKES TO THE WATER WITH FIVE PRODUCT TANKERS FITTED WITH ***COMPAC*** *...continued*


*The 9000-dwt Orkim Sapphire*

Working with the shipowner's representative, Shanghai-based CY Engineering, Thordon's authorized distributor in China, supplied, installed, and commissioned COMPAC seawater-lubricated bearings machined for shaft diameters of 380mm (14.96in) and 405mm (15.94in). Thordon's Water Quality Package also formed part of the supply scope to the single screw ships.

Sam Williams, Thordon's Regional Manager – Asia Pacific, said: "We initially approached Orkim three or four years ago, so we are very pleased our presentation had an impact; they recalled the discussion during the design phase of these newbuilds."

When the 9000-dwt *Orkim Topaz*, the final vessel in the series, was delivered in late 2021, the Orkim fleet comprised of 23 oil and gas tankers totaling 187,328-dwt, ranging from 3251-dwt LPG carriers to 50,000-dwt product tankers. The average age of the fleet is under eight years old.

Orkim is a significant player in the Malaysian shipping industry, transporting petroleum products and gas for customers that include Shell, ExxonMobil, Petronas, Nippon Gas Line, and other major oil companies.

Alex Li, CY Engineering's Managing Director, said: "These charterers set stringent vessel safety and performance parameters, so it is a testament to the operational and environmental capability and reliability of the COMPAC bearing material – and a seawater-lubricated propeller shaft system in general – that Thordon continues to attract new customers."

Capt. SB Cheah, Chief Operating Officer, Orkim Sdn Bhd, said: "As we continue to grow, it has become more and more critical for us to ensure that our fleet operates safely and to optimum efficiency.

"We have progressively implemented core sustainability functions into our business strategy and regularly engage with representatives of service providers, like Thordon, in evaluating the suitability and sustainability of systems and materials for applications onboard our ships. This is good for both our business and our environment."



# THORDON'S ***SXL BEARINGS*** INSTALLED ON ***HISTORY-MAKING*** *DALEELA*

Thordon Bearings' Egyptian distributor and integrated services provider Nefertiti Marine successfully commissioned the water-lubricated Thordon SXL propeller shaft bearings installed aboard the 24,112-gt ferry Daleela.

The 1991-built, 400-passenger capacity RoPax, owned by El-Etehad International and chartered to Scandro Holdings, began operations on the revived Piraeus–Limassol route in June 2022 following an extensive refit in the floating dock operated by the Suez Shipyard in Egypt.

Nefertiti Marine supplied a total of 14 Thordon SXL forward, intermediate, and aft bearings machined to fit propeller shaft diameters of 525mm (20.6in) and 530mm (20.8in). The original rubber propeller shaft bearings had completely worn out, exceeding the maximum clearances allowed by 5 and 7mm (0.19 and 0.27in).

According to Karim Abd El Karim, Engineering Manager, Nefertiti Marine, "there were no visible cooling grooves in some areas of the rubber bearing due to the excessive wear."

El-Etehad's decision to replace the rubber propeller shaft bearings with the SXL elastomeric material followed the success of a similar installation to the owner's 1993-built sistership Amal. Suez Shipyard converted the vessel's original bronze rudder bearings to SXL in 2021.

El Karim said: "The owner was familiar with the environmental benefits of a propeller shaft bearing lubricated by seawater but wanted a more cost-effective, low maintenance solution capable of reducing time in drydock. Compared to a traditional rubber bearing system, an SXL bearing has a much longer wear life and, in this case, doubled the time between drydockings. We worked closely with the shipyard on this project and completed commissioning in early June."

Awny Gad, Engineering Superintendent, El-Etehad International, said: "It was important to have a bearing system proven to reduce the high operational expenditure associated with traditional rubber bearings. When Nefertiti Marine put forward the SXL solution, we were keen to try it. We are very satisfied with the performance of the Thordon material and the 24/7 customer service we receive from Nefertiti."

Prior to Daleela's history-making voyage, the last ferry to operate the 30-hour route between Greece and Cyprus was the Salamis Star in October 2001.

Craig Carter, Vice President Business Development, Thordon Bearings, said: "We are immensely proud to have been involved in this project, which marks the revival of a maritime link between Greece and Cyprus after more than twenty years."

Daleela sails from Piraeus to Limassol every Tuesday and Friday with the return crossing on Wednesdays and Sundays.

# *MSC SEASHORE* DELIVERED WITH THORDON'S ***COMPAC*** AS MORE CRUISE SHIPS EMBRACE SEAWATER-LUBRICATED SHAFT LINES


**The largest cruise ship built in Italy was delivered with a COMPAC seawater-lubricated propeller shaft system from Thordon Bearings.**

The 170,400-gt MSC Seashore, delivered from Fincantieri's Monfalcone shipyard in July 2021, joins the smaller 154,000-gt Seaside-class vessels MSC Seaside and MSC Seaview, both of which were delivered with a COMPAC bearing system in 2017 and 2018, respectively.

Anna Galoni, CEO, Thordon Bearings, said: "As the sector resumed service after a tumultuous 18 months, we congratulate MSC Cruises and Fincantieri on the successful and timely delivery of this very impressive new flagship.

"MSC Seashore, the cruise line's first Evo-class cruise ship, sets the benchmark in environmentally sustainable cruising. We are obviously delighted that both owner and builder continue to support the use of seawater-lubricated propulsion as a way of meeting clean shipping objectives."

In addition to a COMPAC shaft line, MSC Seashore is fitted with an array of advanced technology designed to reduce the impact of operations on the marine environment.

This includes a hybrid exhaust gas cleaning system and a Selective Catalytic Reduction (SCR) system to reduce NOx by 90%. MSC Seashore is also designed to meet the requirements of classification society RINA's 'Biosafe Ship' and 'Sustainable Ship' notations.

Scott Groves, Thordon's Vice President – Sales said: "MSC Cruises and Fincantieri not only presented the largest ship ever to be built in Italy, but also one of the sector's most advanced 'green' ships. The COMPAC system is a significant contributor to perhaps the most ecological, eco-friendly cruise ships built to date. MSC Seashore represents a cruise industry milestone."

Thordon Bearings has noted a sharp rise in cruise industry orders for COMPAC over recent months.

The system has been selected for another four 64,000-gt vessels Fincantieri is building for MSC Cruises, and the technology has been proposed for MSC Seascape, a second Evo-class ship.

Regent Seven Seas, Viking Ocean Cruises and Princess Cruises are others to have recently specified COMPAC for newbuilds slated for delivery in 2023 and 2024.

Commenting on the sector's adoption of the technology, Craig Carter, Thordon's Vice President Business Development, said several cruise operators now favour a conventional shaft line over a podded propulsion arrangement.

"Aside from the obvious environmental and financial benefits of conventional shafts lubricated by seawater, I think a lot of owners are beginning to tire of the pod's well publicized reliability issues and high maintenance contract requirements.

"With a conventional shaft line, cruise lines know they are operating tried and tested technology relied upon to get the ship through a season. In more than twenty years of COMPAC, we have never seen a cruise canceled or had to revise an itinerary due to problems with a seawater-lubricated propeller shaft bearing and there is minimal maintenance required – which is why we are seeing an uptick in orders."

# ALGOMA'S *CAPT. HENRY JACKMAN* DELIVERS FURTHER REFERENCES FOR **THORDON BEARINGS' POLLUTION-FREE BEARINGS**

*Captain Henry Jackman*, the 34,864-dwt dry bulk cargo carrier China's Jiangsu Yangzi-Mitsui shipyard delivered to Algoma Central Corporation in April 2021 and began trading on the Great Lakes-St. Lawrence Seaway in June 2021 with a water-lubricated shaft arrangement from Thordon Bearings.

The state-of-the-art vessel, Algoma's fifth Equinox Class of gearless bulkers and tenth Equinox design to enter service, is the 38th Algoma vessel to which Thordon has fitted its zero pollution bearings.

Thordon's scope of supply to the new Equinox included a COMPAC water-lubricated stern tube bearing, and ThorShield anti corrosion coating for a 630mm (24.8in) diameter, 1045mm (41.1in) long section of the tail shaft, a Thordon Water Quality Package and Thordon's new Bearing Condition Monitoring (BCMv2) system.

Thordon's distributor and engineering partner in China, CY Engineering –– supplied and machined the bearing and oversaw system installation and commissioning.

Scott Groves, Vice President – Sales, Thordon Bearings, said: "The successful delivery of *Captain Henry Jackman* was a key moment in the long-standing and collaborative relationship we have with Algoma. Algoma was one of the first shipowners to use our grease-free SXL rudder bearings and one of the first to install our water-lubricated stern tube bearings. We are delighted Thordon technology was once again selected for an Equinox ship."

In 2010, Thordon converted Algoma's 30,735-dwt bulker *Peter R. Cresswell* to COMPAC. The success of this installation led to similar retrofits. The 28,471-dwt *Tim S. Dool* was converted in 2019, the 30,640-dwt *John D. Leitch* in 2013, and the *Algoma Equinox*, the first ever Equinox Class gearless bulker, in 2012.

Thordon has been supplying water-lubricated propeller shaft bearings to the Great Lakes operators since 1999 when the 28,824-dwt Great Lakes bulker *Gordon C. Leitch* became one of the world's first commercial vessels to be retrofitted with the then relatively new COMPAC bearing system.

"We have a very collaborative approach to working together," said Bernie Johnson, Director, Special Projects, Algoma Central Corporation. "We had a lot of conversations over the years and with the new ship I wanted to make some small adjustments here and there. As always, Thordon was willing to jump in and work with us on new ideas."

Sam Williams, Regional Manager – Asia Pacific, Thordon Bearings, said: "Continuous improvement is part of the business we're in. Customers like Algoma, and people like Bernie are crucial in helping us evolve and develop better systems and solutions. Algoma is a long-term customer and listening to ship owners, such as Algoma, helps us to continuously improve our products."

Over the years, this collaborative approach has materialized in the evolution of Thordon's seal and bearing products, including COMPAC and SXL bearings.

"Marginal but practical improvements are always being made thanks to the regular feedback and valued interaction we have with our customers," said Williams. "They are often very sensible and very well-argued reasons behind the changes, so we are happy to facilitate. Collaboration between customer and manufacturer on every project can make a real difference."

The St. Catharines, Ontario, headquartered company, which operates the largest fleet of self-unloading and gearless dry-bulk carriers and product tankers on the Great Lakes, took delivery of the Equinox 3.0 vessel, Captain Henry Jackman on April 2, 2021.

Gregg Ruhl, President, and CEO of Algoma said in a statement: "The domestic dry-bulk segment has been our core business for over 100 years, and we have invested over $500 million in sustaining that business since the launch of the Equinox Class fleet renewal plan in 2010.

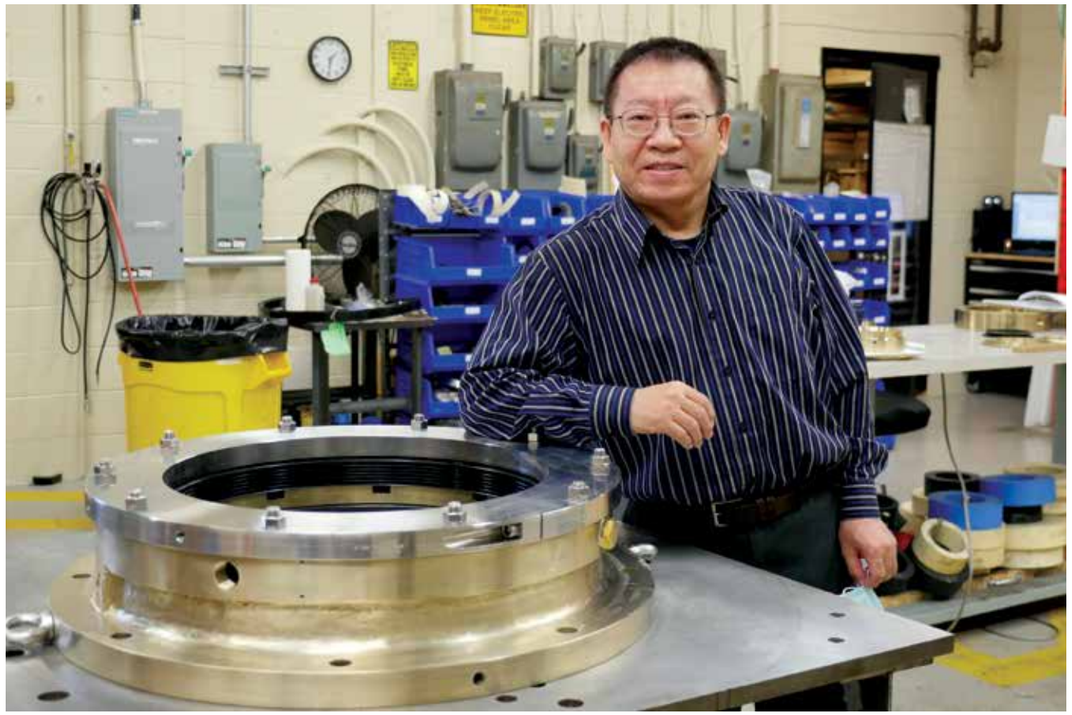
"The arrival of the Captain Henry Jackman on the Great Lakes was a proud moment for Algoma as we introduced our tenth and most efficient Equinox Class vessel yet.

"I would like to thank everyone from the team in China to our team here in Canada for their hard work and dedication in making this possible in the face of a global pandemic."

The Equinox 3.0 design improves on earlier incarnations in that it incorporates improvements in cargo deadweight capacity and equipment while maintaining the numerous performance efficiencies of the original design.

For instance, lightweight aluminum hatch covers have been used and Algoma adopted a new improved twin rudder design which utilizes Thordon's SXL rudder bearings, that significantly increases the displacement of the vessel and enables the ship to achieve increased cargo capacity without requiring an increase in the vessel's power and fuel consumption.

# THORDON BEARINGS UNVEILS ***NEW WATER-LUBRICATED SHAFT SEAL*** WITH ***SAFE RETURN TO PORT*** BENEFIT



*Chief Research Engineer, Gary Ren, and the BlueWater Seal*

In February 2022, Thordon Bearings unveiled the BlueWater Seal, a new propeller shaft seal with a unique Safe Return to Port (SRTP) design that specifically meets commercial shipping industry needs for low maintenance and robust shaft seal. The Thordon BlueWater Seal completes the COMPAC open seawater-lubricated propeller shaft bearing system.

Taking the Thordon's TG100 and SeaThigor seal products as the technical benchmark, the Thordon BlueWater Seal is a cost effective, commercial grade axial lip seal specifically designed for merchant shipping fleets.

While retaining many of the key features associated with Thordon's existing seal portfolio, the new, more commercially focused BlueWater Seal is a low-maintenance, high performance product benefitting from the same level of reliability associated with any Thordon product.

The BlueWater Seal also incorporates Thordon's unique emergency Safe Return to Port (SRTP) capability. This ground-breaking technology, first used in the company's TG100 and SeaThigor – designed for the workboat and specialized naval vessel markets respectively – represents the first SRTP seal designed for the merchant fleet.



Commenting on the development, Thordon Bearings' Technical Director, Anthony Hamilton, said: "The BlueWater Seal meets growing market demand for a complete propeller shaft line solution from a single source. Although we can offer the seal as an individual component, it forms a fundamental part of the Thordon COMPAC open seawater-lubricated propeller shaft bearing system."

The COMPAC system includes Thordon's proprietary seawater-lubricated COMPAC bearings, shaft liners, ThorShield anti-corrosion shaft coating, a Thordon Water Quality Package, a Thordon Bearing Condition Monitoring System, and, now, the new BlueWater Seal.

The seal can be installed to all vessels with shaft diameters between 300mm to 1000mm (11.8in to 39.4in) and is simple to install, operate and maintain.

"At first glance the Thordon BlueWater Seal may look like any other axial lip face seal out there," said Hamilton. "But what makes this seal unique is its SRTP capability and revolutionary RENFORM main seal ring."

This technology, developed in-house by Chief Research Engineer Gary Ren, allows the facing elements of the seal to operate almost without any friction. In practical terms, it means the seal is much better suited to variable and low draught conditions – a key benefit to a globally-operating merchant ship.

During comparative trials on Thordon's full-scale test rig in Burlington, Ontario, Canada, the seal operated without friction spikes and considerably less friction than similar seals leading to reduced wear, longer life, and less maintenance.

"This seal minimizes water leakage and dramatically improves hydrodynamic and lubrication efficiency," explained Hamilton. "The development is a real boon to those ship owners and operators looking to adopt an open seawater-lubricated shaft line arrangement as the entire propeller shaft line system can now be sourced from one company," he said.

Commenting on the inclusion of Thordon's SRTP technology, Scott Groves, Thordon Bearings' Vice President – Sales, said: "The introduction of our innovative seal technology to the wider shipping fleet means a seawater-lubricated propeller shaft is not only environmentally cleaner but even safer for ship and crew. The seal incorporates a secondary Safe Return to Port emergency seal. This inflates in the event of damage to the primary seal, allowing the shaft to continue to turn, allowing the vessel and crew to return safely to the nearest port. I believe the merchant fleet has never before had this capability."

Craig Carter, Vice President Business Development, Thordon Bearings, added: "Although seawater lubrication is not a new technology, the BlueWater Seal very much is and fits perfectly with the International Maritime Organizations' World Maritime theme for 2022: "new technologies for greener shipping". It has also been designed in accordance with United Nations' Sustainability Goal #14. Everything we do here at Thordon Bearings is geared to creating a zero-emission ship below the water line and ensuring our oceans are clean, free of any oil and grease."

Having received class approvals from ABS, LR, DNV, BV and CCS, Thordon Bearings has been actively marketing the Thordon COMPAC system and BlueWater Seal in all commercial marine sectors.

# *MARK W. BARKER* BULKER OPERATIONAL WITH THORDON'S ROBUST ***RIVERTOUGH BEARING***

*Mark W. Barker*, the first new U.S flagged Great Lakes bulker in almost 40 years, successfully completed sea trials and has begun trading throughout the freshwater lakes and river networks with oil-free propeller shaft bearings from Thordon Bearings.

Built in Sturgeon Bay, Wisconsin, by Fincantieri Bay Shipbuilding for The Interlake Steamship Company, Thordon's scope of supply includes a water-lubricated RiverTough bearing, Nickel-Chrome-Boron (NCB) alloy liner for a propeller shaft diameter of 445mm (17.5in), and two Thordon Water Quality Packages. Thordon's authorized distributor in Ohio, Advanced Sealing Technology worked with the ship owner to get the RiverTough package specified.

Designed to transport salt, iron ore, stone, and other bulk cargoes throughout some of the narrowest rivers in North America's Great Lakes region, including the tight bends of the Cuyahoga River, the single screw *Mark W. Barker* is the 6th Interlake Steamship vessel that Thordon's proprietary polymer bearings have been installed.

"Interlake has had a lot of success with our propeller shaft bearings," said Jason Perry, Thordon's Regional Manager - North America. "Their vessels operate in some of the region's narrowest, shallowest waterways which means vessels are unable to turn and instead must reverse using bow and tunnel thrusters. When operating at lower shaft speeds, the RiverTough polymer formulation reduces friction and bearing wear. The material can also withstand operations in highly abrasive, very sandy environments."

Wear rates for RiverTough are typically less than half that of rubber bearings based on ship owner feedback. Offering increased resilience, easier shaft alignment and less edge loading, lubricants in the polymer material reduce friction levels during nearly-dry starts, significantly eliminating stick-slip and vibration at low shaft speeds. Results from shipowners have shown wear rates of 0.075mm to 0.100mm (0.003in to 0.004in) in 6000 to 7000 hours of annual use.

Commenting on Interlake's long-term relationship with Thordon, Ian Sharp, Interlake's Director of Fleet Projects, said: "From the outset, Thordon always responds quickly to our requirements with their bearing expertise, technical know-how and customer service. Having multiple RiverTough bearings in operation with proven reliability made it a very simple decision to choose the same Thordon bearing for our new ship."

With a hull optimized for energy efficiency the 28,000-dwt River-class bulker is powered by a pair of 400HP main engines driving a single controllable pitch propeller through twin-input, single out-put reduction gearbox. It is the first ship to operate on the Great Lakes with engines that meet EPA Tier 4 emissions standards.

EPA Tier 4 standards entered into force in January 2017, requiring marine engines rated at 600kW and above to be fitted with technologies capable of significantly reducing nitrogen oxide (NOx), sulphur dioxide (SOx) and particulate matter (PM).

Craig Carter, Vice President Business Development added: "*Mark W. Barker* is truly a milestone ship for Interlake and we are proud to be associated with what is arguably one of the most advanced, energy efficient self-unloading bulkers to operate on the Great Lakes.

"Our relationship with Interlake Steamship and Bay Shipbuilding dates back to 1998 when we installed propeller shaft bearings to the 25,000-dwt *Kaye E. Barker*. Since then, we have enjoyed a very productive, collaborative relationship with both owner and yard and look forward to working together on future projects."

# THORDON HELPS ENSURE NEW ZEALAND'S FIRST FULLY ELECTRIC SHIP IS ALSO A ZERO POLLUTER, DOWN UNDER

The southern hemisphere's first fully electric, carbon fibre commuter ferry successfully completed its inaugural round trip with a Thordon seawater-lubricated propeller shaft arrangement supplied by New Zealand's Henley Engineering.

*Ika Rere*, Māori for flying fish, joined the East by West fleet in December 2021 operating the company's Wellington to Eastbourne route.

Commenting on the ferry's first trip, between West Queen's Wharf and Days Bay, Henley Engineering Managing Director, Mark Power, said: "*Ika Rere* runs like a Tesla Model S! It's fast, efficient, smooth, and quiet. It is a truly inspiring vessel. We hope to be involved in more projects like this."

Auckland based Henley Group – Thordon's authorized distributor for New Zealand – designed and supplied the vessel's driveshafts aft of twin 325kW battery-powered electric motors.

The scope of supply included a pair of Thordon SXL seawater-lubricated propeller shaft bearings installed in Easiflow GRP sterntubes; shaft seals with Thordon XL oil/grease-free guide bushes; shaft lines and propeller; couplings, mounts, thrust bearings and brakes.

East by West Managing Director Jeremy Ward said: "While the quiet hum of an electric boat is a much more pleasurable experience for passengers, this project was driven by our desire to take climate action. A Thordon Bearings' zero pollution package was the perfect fit for this eco vessel. A smooth, quiet, and water-lubricated driveline was an essential environmental requirement."

The 19m (62ft) long, 135 passenger-carrying fast cat is also the first vessel delivered by the Wellington Electric Boat Building Company (WEBBCo), a joint venture between the ferry operator and established boatbuilder Fraser Foote.

> ***The ferry is very quiet at 19 knots and SILENT at 10 knots. It is FASTER and uses LESS ENERGY than we anticipated.***

WEBBCo managing director Fraser Foote said: "The ferry is very quiet at 19 knots and silent at 10 knots. It is faster and uses less energy than we anticipated. Ika Rere is a hugely successful project for us. We are the first in the southern hemisphere to have taken a vessel of this kind off the drawing board and onto the water."

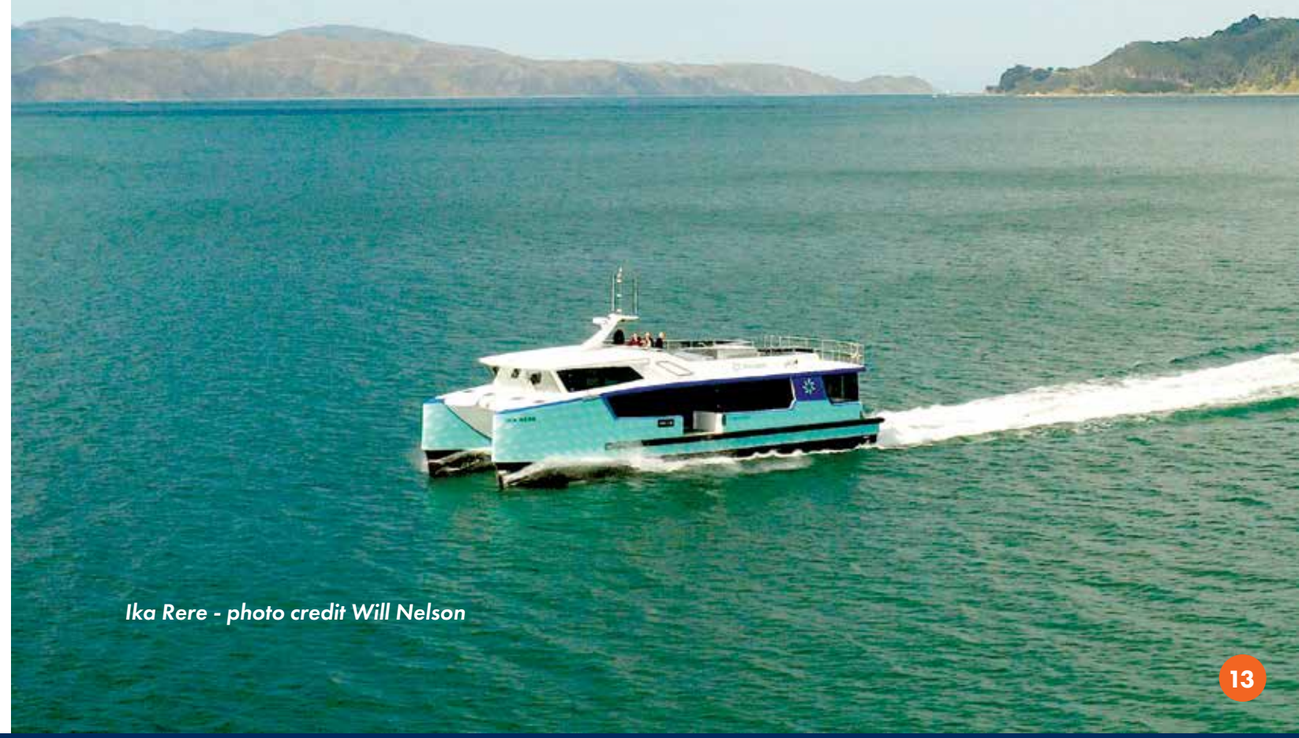
Foote furthered that collaboration between the yard's in-house design team and New Zealand's leading maritime companies "was key to this success. We are extremely proud of what we've achieved together."

Thordon Bearings' Technical Director, Tony Hamilton, furthered that the seal and bearing specialist is well placed to support shipping's transition to a sustainable future and eliminating oil pollution below the waterline.

"We are thrilled to help drive the electric ship and other alternative means of propulsion forward. The pioneering work into self-lubricating polymer materials we started in the 1970s has resulted in the portfolio of environmentally safe products we see today. We were ahead of the game then and we're still ahead of the game now. All our products are designed to reduce the maritime industry's impact on the environment," said Hamilton.

Thordon Bearings supports the International Maritime Organizations' World Maritime theme for 2022: New Technologies for Greener Shipping.

The theme is linked to the United Nations' Sustainable Development Goals (SDGs), particularly SDGs 13 and 14 on climate action and sustainable use of the oceans, seas, and marine resources; SDG 9 on industry, innovation and infrastructure; and SDG 17, which highlights the importance of partnerships and implementation to achieve these goals.



*Ika Rere - photo credit Will Nelson*

# THORDON OPENS NEW MARKET FOR ITS THORPLAS-BLUE BEARINGS WITH WILSON VESSEL RETROFIT PROJECT

In what marks a relatively new application for Thordon Bearings' pioneering polymer material, Wilson Ship Management AS ("Wilson"), a Norway-based ship manager, has replaced the greased bronze bearings on the hatch cover wheels of some of its dry cargo vessels with self-lubricating ThorPlas-Blue bearings.

Wilson, which operates Europe's largest short sea fleet of about 130 general cargo vessels, has now converted eight vessels following the success of the first retrofit three years ago.

Tommy Holmgren, Sales Director, Duwel Group – Thordon Bearings' authorized distributor in Norway – explained, "Wilson was not aware at first that the *Wilson Wisla*, which was purchased in 2019, was already operating with Thordon bearings in this application, but when they discovered it was Thordon, they ordered more for other Wilson vessels. To date, we have retrofitted ThorPlas-Blue bearings to the hatch cover wheels on a further seven vessels."

Retrofits to *Wilson Weser* took place in 2020 and further installations to *Wilson Borg*, *Wilson Leith*, *Wilson Tees*, *Wilson Alster*, *Wilson Goole*, and *Wilson Monsoon* all took place in 2022 during scheduled drydockings.


"The ship manager is closely monitoring performance but so far, the feedback is very positive. We anticipate increased interest for ThorPlas-Blue in this application," confirmed Holmgren.

ThorPlas-Blue is commonplace in ships' deck machinery, such as fairleads, winches, and lifeboat davit bearings, but as the material can withstand much higher pressures, hatch cover bearings are deemed an important and beneficial application.

Typically, a hatch cover's wheel spindles, cleat spindles, hinge pins, hydraulic cylinder protective sheaths, cleat wedges, drive chain sprockets, toothed rack, and cylinder spherical bearings need to be properly greased at least once a month. This time consuming and messy operation is carried out to ensure hatch covers open and close smoothly and to prevent damage to cargo during loading and unloading. ThorPlas-Blue removes the greasing requirement.

With ocean sustainability and responsible shipping now very much on the regulatory agenda, Thordon Bearings' environmentally focused products are being specified as part of a tranche of solutions and measures to reduce the environmental impact of operations. This successful application will open significant opportunities for Thordon and its ThorPlas-Blue line of self-lubricating bearings

ThorPlas-Blue was developed as a maintenance-free solution to replace bronze bearings and to remove the need for grease in ship deck equipment. The elastomeric polymer material is designed to withstand pressures up to 45 MPa (6,527 psi), though installation experience suggests the material can withstand much higher loads.

Anthony Hamilton, Thordon Bearings' Technical Director, said: "By replacing traditional greased bronze bearings with ThorPlas-Blue, ship operators and managers benefit both environmentally and commercially. There is a zero-grease requirement and wear rates improve dramatically. The self-lubricating properties of the Thordon material mitigates against the risk of hatch cover failure due to bearing seizure, so you do see reduced repair and maintenance costs."

# TZ INDUSTRIAS AND TNG VERACRUZ OPEN MEXICAN MARINE MARKET FOR THORDON'S ***THORPLAS-BLUE***

Mexico-based TZ Industrias has replaced the deck machinery bushing aboard the Caroil Transport Marine oil tanker *Petion* with ThorPlas-Blue, marking Thordon Bearings' first large commercial vessel project in the country.

Thordon's grease-free material replaced a competitor's spherical split bearing on the 72,714-dwt vessels' deck crane during a recent drydocking at the TNG Veracruz Shipyard, Mexico's largest ship repair facility.

According to TZ Industrias Managing Director Arturo Selvas, the bearing was delaminating due to a combination of excess grease, humidity and salt erosion. "The bearing was operating in a very harsh working environment and as a result the existing bearing was in poor condition," he said.

After providing samples of Thordon's proprietary polymer materials and discussing the proven performance of such a bearing in this type of application, the yard decided to retrofit the ThorPlas-Blue system during the vessel's March 2021 drydocking.

As part of a turnkey contract, TZ Industrias, a member of Thordon's Distributor Network, supplied, machined, and installed a 230mm (9in) fully finished bearing to the crane's hydraulic arm.

"We had a very short window to complete the job," said Selvas. "Another challenge was to replicate the spherical shape of the split bearing and its load capability. Using the original bearing as a template, we were able to machine the ThorPlas-Blue tube at our factory in Coatzacoalcos and get the new bearing installed and commissioned within the limited time frame.

"It was a unique project for us. We previously supplied Thordon products to the yard but these were installed on smaller vessels, workboats and patrol boats. This is the first time we have worked on a merchant vessel of this size. It's our first tanker so we hope this ship type becomes a regular thing for us."

The Veracruz Shipyard, the only facility in Mexico capable of drydocking large commercial vessels of 269m (882ft) in length and 36m (118ft) beam, is equipped with four drydocks, two repair berths and myriad machining and mechanical workshops.

Eng. Antonio Flores. Project Leader, Veracruz Shipyard, said: "We have worked with TZ Industrias on three projects over the past few years. The support we received from them gave us the confidence to partner with the company again for larger, more demanding projects. It also provided the opportunity for Caroil Transport Marine to switch from an unreliable and costly greased bearing to a more environmentally acceptable solution. We found ThorPlas-Blue delivers superior performance in this type of application."

Jason Perry, Thordon Bearings' Regional Manager – North America said: "This project represents a huge step forward for TZ Industrias and it really opens up the commercial market in Mexico for Thordon Bearings. TZ has made huge inroads with different companies and different markets.

"I think it has a lot to do with the support, technical knowledge, and customer service that TZ provides. Arturo and his team know the products; they know the applications and are very hands on with the whole process. Not to mention, they are also supplying a superior product."

The ThorPlas-Blue bearing can be used in all deck equipment applications and is the ideal replacement for bronze and other non-metallic bearings and bushings capable of operating pressures up to 45MPa (6,527 psi). It is available in a range of sizes and is easily machined to the dimensions required for fairleads, capstans, davits, gantries, pivot bushings, cranes, chain hoists, door and ramp hinge bearings, and steering gear ram and linkage pins.

"The elimination of grease not only offers improved safety for the Petion's crew," said Perry, "but it also results in reduced operational and maintenance costs for the owner."

Cyprus-based Caroil Transport Marine Ltd operates a fleet of oil tankers operating between the Caribbean islands of Bonaire, Curaçao and the Bahamas.

# DRYDOCKS WORLD TAKES EXPRESS DELIVERY OF THORDON'S LARGEST BEARING EVER MANUFACTURED

A 7506TEU containership left Drydocks World-Dubai (DDW) in April 2022 with the largest rudder bearing ever manufactured by Thordon Bearings.

The 2001-built vessel, operated by a European owner, was retrofitted with a 1230mm (4ft) long, 1111mm (3.6ft) diameter SXL bearing after the vessel's original bronze rudder bearing required replacement due to excessive wear.

Thordon's authorized Distributor in the U.A.E. – Ocean Power International (OPI) – was contacted by DDW to put forward an alternative rudder bearing solution, with OPI recommending Thordon's grease-free SXL polymer bearing.

With the swift supply of material that could be fitted during the vessels' scheduled drydocking being a key decision criterion, Thordon and OPI mobilized to produce and deliver the bearing in record time.

From receiving the order, it took just three days to manufacture, ship, deliver, machine, and fit the record-breaking bearing using liquid nitrogen during the twelve-day drydocking in November.

---

The owner also benefitted from Thordon's unique **15-year Rudder Bearing Wear Life Guarantee**, which covers the provision of a replacement if the bearing wears out and requires renewal within 15 years of installation.


---

Rafid Qureshi, Managing Director of Dubai-based OPI, explained: "Thordon's Burlington facility produced the self-lubricating polymer material in less than 24 hours. The bearing was then loaded on to a scheduled Emirates Airlines flight to Dubai, where U.A.E. customs quickly cleared the product, delivered, and installed in another 24 hrs.

"Ocean Power International is considered an essential service provider to the U.A.E.'s maritime industry, so we do get priority clearance on equipment headed to Dubai Drydocks. DDW couldn't believe it was manufactured, shipped, and delivered in just three days. The CEO called me personally to thank us for the quick turnaround."

Scott Groves, Vice President – Sales, Thordon Bearings, said: "The owner is very satisfied with the 24/7 customer service both Thordon Bearings and OPI provide. Rafid and his team often deliver bearings for critical, time sensitive projects in the early hours, but this is the first time they have delivered a bearing of this size... and in such record time.

"The application of grease-free deck equipment and rudder bearings fits firmly with the owner's commitment to protecting the environment, and its employees' health and safety.

"Since there is no longer a requirement to grease our bearings, the associated labour, cost, and pollution source is removed. Internal lubricants formulated into the material reduce friction, resulting in smoother, longer lasting, grease-free bearing operation."

Thordon's SXL material has a lower modulus of elasticity than other non-metallic bearings, resulting in significantly increased vibration dampening, accommodation of edge loading and better impact resistance. This reliability and performance are evident with almost 4500 rudder bearing applications on vessels.

OPI has been working with DDW on various projects to replace containership fairleads with Thordon's grease-free ThorPlas-Blue bearings.

Published by:

THORDON

THORDON BEARINGS INC.

*A Thomson-Gordon Group Company - Innovating since 1911*



3225 Mainway, Burlington, Ontario L7M 1A6 Canada
Tel: +1.905.335.1440 Fax: +1.905.335.4033
info@thordonbearings.com www.ThordonBearings.com



**Editor:** Emma Gerard
*(Statements made and opinions expressed do not necessarily reflect those of the publishers)*

**Subscriber Information:**
If you wish to subscribe/unsubscribe to our **NEWS***WORKS* via e-mail or regular mail, or if your contact information has changed please contact our Marketing Department:
marketing@thordonbearings.com

Printed in Canada | Spring 2023