Thordon's Composite water-lubricated cutterhead shaft and intermediate ladder bearings cutter are now fitted to most dredgers worldwide.

At the Top of the Cutterhead Ladder

SINCE THEIR INTRODUCTION 35-YEARS AGO, THORDON'S COMPOSITE CUTTERHEAD BEARINGS ARE THE BEARINGS OF CHOICE FOR GREEN AND COST-EFFICIENT DREDGER OPERATIONS

Thordon Bearings, a global leader in seawater lubricated propeller shaft bearing systems, with over 35 years' experience in this technology, is renowned for supplying high performance, oil and grease-free bearing systems to the global marine, clean energy, pump and offshore markets. It is the only manufacturer of propeller shaft bearings to guarantee its award-winning COMPAC system for a 15-year wear-life, and in recent months has witnessed a marked increase in orders for its Composite cutterhead shaft and intermediate ladder bearings from a market that appears to have escaped the pitfalls of fluctuating market conditions that have impacted so many other shipping sectors. While large scale energy and infrastructure projects, such as the Suez Canal expansion, have undoubtedly positively impacted the dredger operators' order books, the company itself believes it is its corporate social responsibility and environmental sustainability ethos that is the main driver

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behind the demand for its proprietary polymer bearings.

George Morrison, Thordon Bearings' Regional Manager, Western Europe, Africa and Aus/NZ, explains: "Most dredging companies have instigated plans to achieve their sustainability goals with solutions that can reduce substantially the impact of operations on the marine environment. This includes the use of biodegradable lubricants, but what we are finding is that operators are also looking at solutions capable of melding high performance and environmental sustainability with cost efficiencies."

Pollution-Free Operations

The through-life performance of Thordon's Composite cutterhead shaft and intermediate ladder bearings not only affords increased longevity but compared to traditional arrangements, operational costs are much lower due to the longer periods between replacement, less downtime and the obsolescence of grease.

By lubricating its bearings in seawater, Thordon negates the need for customers to purchase, use and store costly greases and bio-degradable lubricants, resulting in a much safer, pollution-free operation. In addition to offering high resistance to abrasion, with little by way of friction, noise and vibration, the bearings are ostensibly maintenance-free and the intermediate ladder bearings can be changed with the shaft in-situ.

"Wear rates in the abrasive conditions most dredgers operate are typically half that of rubber bearings, reducing maintenance downtime over the life of the vessel," says Morrison.

Bio-degradable Solutions

However, performance is not the only reason why the dredging sector has moved away from traditional bearing materials, says Morrison: "With the emergence of more stringent regulations most dredgers are now fitted with water-lubricated cutterhead shaft and intermediate ladder bearings to mitigate against the risk of polluting the ecologically sensitive environments in which most dredgers now operate. Operators simply cannot risk polluting seas and sediments with grease and oil. Water-lubricated ladder bearings are often a key factor in being awarded these sensitive area projects."

An important milestone in the sectors' acceptance of the self-lubricating bearing technology was the successful installation to the 123.80m mega-cutter suction dredger D'Artagnan, delivered to DEME in 2005; this was affirmed in 2014 during drydock, when the bearings were removed for inspection.

At the time, Frederick Mertens, DEME's then Assistant Vessel Manager, said: "The bearings have performed well and have shown a positive wear-life compared to metallic bearings. For the intermediate ladder bearings, we noticed even less wear so did not replace them." He added that compared to bearing systems that use expensive bio-degradable greases, Thordon's water-lubricated bearings are "a real cost-saving alternative".

Durability and Robustness at its Core

NMDC, the owner of the 97m heavy duty cutter suction dredger Al Mirfa, found the Composite cutterhead bearings to be similarly unaffected, when the vessel drydocked earlier this year. After ten years and more than 100,000 operating hours dredging up silt, sand, rocks and stones in some of the toughest marine environments imaginable, Rafid Qureshi, Managing Director of Ocean Power International Inc, a Thordon distributor, noted "the Thordon Composite bearing was still in perfect working condition".

Maarten Jansen, Thordon Bearings' Regional Manager – Eastern Europe and Middle East, says: "These dredgers operate in some very tough environments, which require a tough, durable bearing capable of withstanding the excessive wear and tear encountered during dredging operations. These vessel types place inordinately high loads on the cutter shaft bearing which, in the past, often resulted in the replacement of traditional greased bronze and rubber bearings every six to eight months. That the Thordon solution didn't need replacing after ten years of heavy duty service is indicative of the durability and robustness of our polymer bearings."

Although Thordon has been supplying Composite dredger bearings to the sector for 35-years, the D'Artagnan order was pivotal in that it spurred demand for the environmentally-sound bearing to some of the most prominent and largest, state-of-the art dredgers ever built: Artemis (959mm shaft), JFJ de Nul (950mm shaft), Al Sadr (800mm shaft), Al Mariah (717mm shaft), Huta-9 (800mm shaft).

The most recent order for the Canada-based company's elastomeric cutterhead bearings, specially formulated to provide superior wear life in very abrasive water conditions, is for a 6,500m^3 dredger building for an undisclosed owner at China's Jiangsu Haixin Shipping Heavy Industry Co. When delivered the vessel will take up dredging duties in the South China and East China Seas.

i. www.thordonbearings.com