



Thordon Water Quality Package

*Propeller Shaft Lubricating Water
Control and Monitoring System*

THORDON

ZERO POLLUTION | HIGH PERFORMANCE | BEARING & SEAL SYSTEMS

THORDON WATER QUALITY PACKAGE

COMPAC SEAWATER LUBRICATED PROPELLER SHAFT BEARING SYSTEM

The COMPAC propeller shaft bearing system uses seawater as the lubrication medium in place of oil. Seawater is taken from the sea, pumped through non-metallic COMPAC propeller shaft bearings and returned to the sea. To ensure that abrasives are removed from the seawater supply, a Thordon Water Quality Package is used. A constant supply of relatively abrasive free water is an important element in ensuring long, predictable, bearing wear life. With this factor in mind, Thordon has developed a self-contained supply, conditioning and monitoring package to ensure that an adequate supply of clean water is consistently being delivered to both the forward seal and the bearings.

Principles of Operation

The Thordon Water Quality Package is designed to supply seawater to the propeller shaft bearings for lubrication and cooling at a minimum flow rate of 0.15 litre/minute/mm (1 US gallon/minute/inch) of shaft diameter and to condition seawater from the water supply by removing suspended solids with a specific gravity of 1.2 or higher and greater than 100 microns (0.004"). A flow alarm is incorporated to alert the operator to any low water flow condition to the bearings.

Essential Service

Some Classification Societies have stated that the water pumps supplying water to the propeller shaft and bearings are considered an 'essential service' – essential to the safety of the vessel since they are integral to vessel propulsion. That means that 50% propulsive power must remain after failure of any one electrical supply. For single-screw vessels to meet 'essential service' requirements, two Thordon Water Quality Packages are suitable. The system pumps must have individual electric supplies, separated from each other as much as possible; having two pumps supplied from a common electrical panel does not comply. Thordon Water Quality Packages are designed with individual electric panels and can be mounted side-by-side; the ship's automation system controls monitoring and auto start functions required for unmanned machinery space (UMS) notation.

The Thordon Water Quality Packages can be controlled by the ship's control and monitoring systems to cover auto-stand-by function required for unmanned machinery space notation.

Size Options

Thordon offers three Water Quality Packages designed to deliver water flow to suit a wide range of propeller shaft diameters:

- 45-90 l/min. (12-24 GPM)
- 75-150 l/min. (20-40 GPM)
- 150-280 l/min. (40-75 GPM)

Thordon can, if required, work with designers, integrators and ship builders to meet special needs for specific installations.

TECHNICAL INFORMATION

Integration:

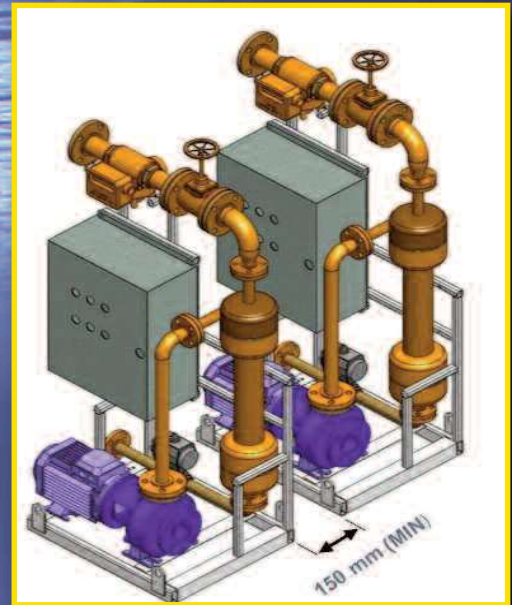
The Thordon Water Quality Package is designed to be fully integrated into the ship's control and monitoring systems to allow operation in an unmanned machinery space. Manual operation is possible.

Piping Requirements:

The water supply and discharge piping should be a minimum of 50mm diameter pipe. The water inlet line should ideally incorporate a strainer with ~3-5mm (0.12-0.20") perforations to protect the system from ingress of large debris. A minimum straight pipe length equivalent to 10x the suction pipe diameter is recommended immediately upstream of the pump suction flange. The purge line should typically be 25mm (0.985") diameter pipe and should be routed overboard as directly as possible. The package inlet and outlet have flanged connection points. The suction and discharge piping should not be smaller than the inlet and outlet connections. The pipes should be supported and not impose stresses on the Water Quality Package.

Basic Specification:

- a) Electrical Requirements: 380-420 V, 50 Hz / 440-480 V, 60 Hz, 3 ph. Other supply options can be accommodated (internal control voltage 24VDC).
- b) Water Source: Ship's sea bay, or suitable existing onboard supply of unheated seawater
- c) Minimum Water Flow: 0.15 litre/minute/mm (1 USGPM/inch) of shaft diameter
- d) Water Pressure: Thordon Water Quality Package pipework tested to 7 bar (102 psi)
- e) Particle Separation: Specific gravity of 1.2 or higher and greater than 100 microns in size will be removed



Typical Layout of Thordon Water Quality Packages for Essential Service



New York City Staten Island Ferry, Spirit of America, equipped with Thordon Water Quality Package and COMPAC seawater lubricated propeller shaft bearings.

CUSTOMER FOCUSED TO QUICKLY MEET YOUR NEEDS

Quick and Responsive Service:

It takes quality products to be globally successful in the water-lubricated bearing and shaft seal industry. It also takes great service to keep customers coming back.

Thordon Bearings Inc. is geared to respond quickly to supply high performance seal and bearing solutions. Our products arrive quickly, fit right, and last!

Extensive Distribution Network:

Thordon Bearings Inc. has an extensive distribution network of more than 85 distributors in 100 countries to supply and service our global customer base. Non-standard requests are met with responsive design, quick machining and speedy delivery.

Application Engineering:

Thordon engineers work closely with customers to provide innovative bearing system designs and solutions. We offer in-house design, CAD and the proprietary Thordon Bearing Sizing Calculation Program to help correctly size our bearings. Our decades of experience mean that we offer the right technical support during design, machining, installation and operation.

Manufacturing Quality:

Thordon Bearings is a family-owned company founded in 1911 that operates a state-of-the-art polymer processing plant, machine shop and new product development facilities in Burlington, Ontario, Canada. In addition, we own a new leading edge machining and polymer production plant in Slupsk, Poland.

We manufacture to ISO 9001:2008 Quality System requirements. Contact us for our installation references.

High Performance bearings; Industry-Leading Service:

Thordon Bearings is an industry-leader in the design, manufacture, supply and installation of high performance, pollution-free, shaft seal and bearing systems. We design all our products to last for the life of the vessel.

Your Authorized Thordon Distributor

THORDON

ZERO POLLUTION | HIGH PERFORMANCE | BEARING & SEAL SYSTEMS

3225 Mainway, Burlington, Ontario L7M 1A6 Canada

Tel: +1.905.335.1440 Fax: +1.905.335.4033 E-mail info@thordonbearings.com www.ThordonBearings.com



WQP 03/17/1500
PRINTED IN CANADA