

# THORDON

THORDON BEARINGS INC.

A Thomson-Gordon Group Company – Innovating since 1911



## THORDON WATER QUALITY PACKAGE FOR HYDRO-TURBINES

# THORDON WATER QUALITY PACKAGE

## PRINCIPLES OF OPERATION

A steady 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 seal and the bearings.

The Thordon Water Quality Package is designed to supply water to the main guide bearing for lubrication and cooling at a minimum flow rate of 0.3 litres/minute/mm (2 US gallons/minute/inch) of shaft diameter and to condition the water supply by removing suspended solids that can cause abrasive wearing of seals and bearings. A flow alarm is incorporated to alert the operator to any low water flow condition to the bearing. The Thordon Water Quality Package is designed to operate on a stand-alone basis, or can be fully integrated into the control and monitoring systems to allow operation in an unmanned machinery space.

Thordon offers three Water Quality Packages in configurations designed to deliver flow to suit a wide range of shaft sizes, and provide an appropriate degree of installation redundancy. Thordon can, if required, work with integrators, designers and builders to meet special needs for specific installations.

### Thordon Water Quality Package Pump & Separator Options

FLOW CAPACITY	OPTIONS		PARTICLE SIZE OUTPUT
45 - 90 l/min. (12 - 24 GPM)	Single Pump/ Single Separator	Double Pump/ Double Separator	100 microns (0.004")
75 - 150 l/min. (20 - 40 GPM)	Single Pump/ Single Separator	Double Pump/ Double Separator	80 microns (0.003")
150 - 280 l/min. (40 - 75 GPM)	Single Pump/ Single Separator	Double Pump/ Double Separator	100 microns (0.004")

## TECHNICAL INFORMATION

### Electrical Requirements:

380-420 V, 50 Hz /440-480V, 60 Hz, 3 ph (with 110V control circuit). Other requirements can be met.

### Minimum Water Flow:

0.3 litres/minute/mm (2 US gallons/minute/inch) of shaft diameter

### Water Pressure:

Pipework tested to 7 bar (102 psi)

### Particle Separation:

Specific gravity of 1.2 or higher and greater than 100 microns (0.004") in size will be removed; separation to 80 microns (0.003") is achievable using the 75-150 l/min (20-40 GPM) unit.

### Piping Requirements:

The package inlet and outlet pipes have flanged connection points. The suction and discharge piping should not be smaller than the inlet and outlet connections. The suction line must maintain adequate suction pressure and allow for smooth liquid flow to ensure proper pump operation.



Thordon SXL turbine guide bearing installed at Graus Power Station, Spain

Thordon Bearings has over 30 years experience supplying turbine guide, pump, wicket gate, operating mechanism bearings and radial or axial shaft seals for rehabilitation and new turbine projects. Long wear life, low friction, high abrasion resistance, grease/oil free operation and application engineering technical support provide customers with bearing solutions that meet, or exceed, specifications. With worldwide installations ranging from micro-turbines to units with main shafts up to 2.4 m (94"), Thordon provides a proven alternative to grease and oil lubricated bearings. Recognized internationally for superior performance in hydro-turbine applications, Thordon has an extensive distribution and service network in over 100 countries worldwide.

**THORDON**  
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ZERO POLLUTION | HIGH PERFORMANCE | BEARING & SEAL SYSTEMS



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