

# ThorPlas-Blue Bearings for Hydroturbines



**THORDON**  
THORDON BEARINGS INC.

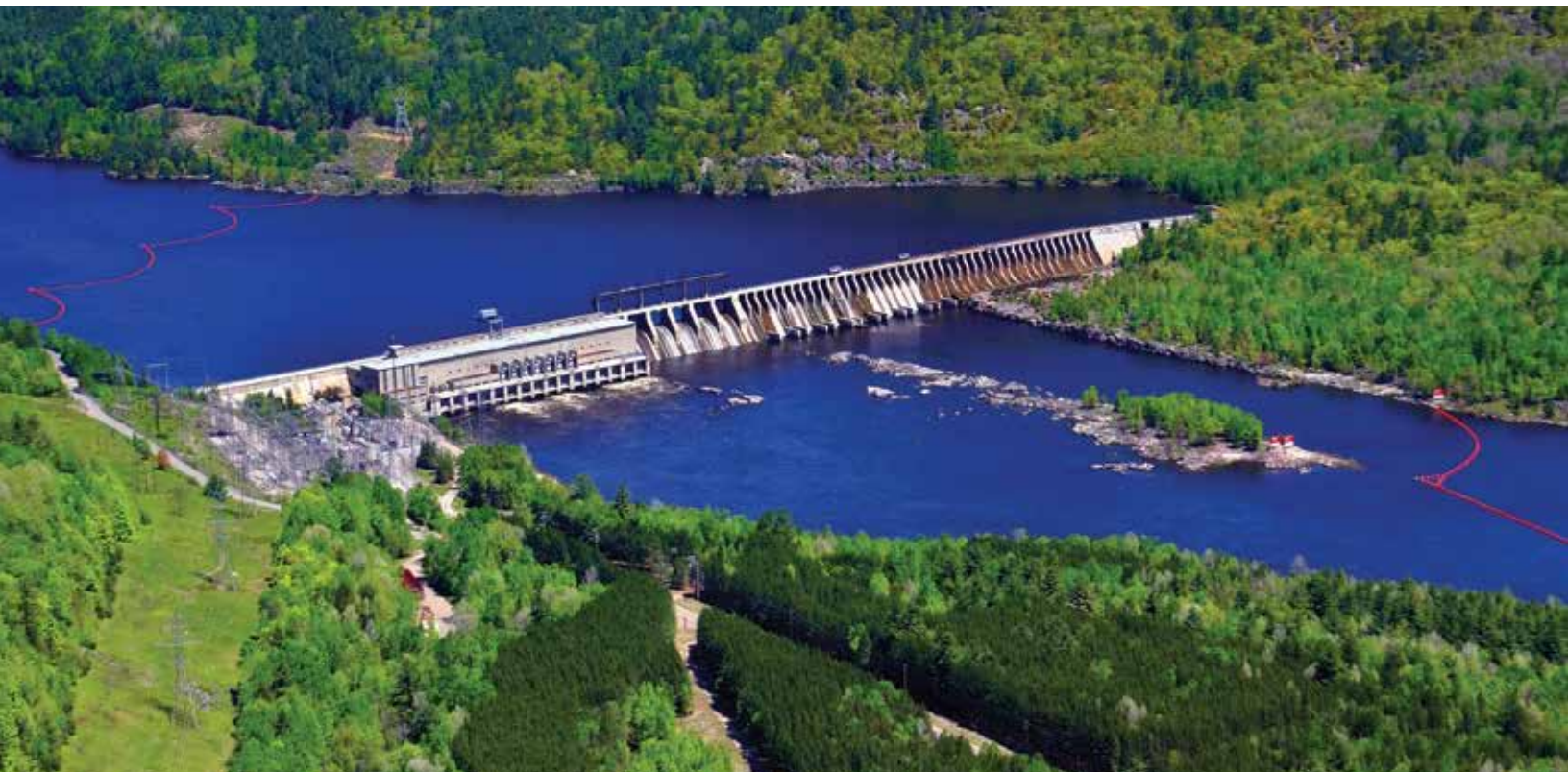
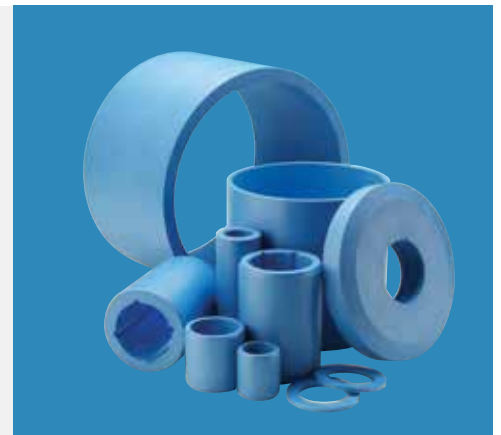
# INNOVATIVE SOLUTIONS FOR HYDRO TURBINE REHABILITATION AND NEW PROJECTS

- ✓ Long wearlife and lower maintenance costs mean lower life-cycle costs
- ✓ Self-lubrication eliminates pollution risk
- ✓ Superior customer service means quick delivery and less downtime
- ✓ Full-cycle technical support includes system design, machining, installation and after-sales service
- ✓ Certification to ISO 9001 Quality System requirements ensures consistent high quality in both custom and stock solutions

Thousands of customers across the world, in both rehabilitation and new turbine projects, know Thordon Bearings is the proven choice for performance and value. Thordon bearings last.

## THORPLAS-BLUE

- ✓ Engineered thermoplastic for high pressure applications up to 45 MPa (6527 psi)
- ✓ Friction coefficient typically <0.10-0.15
- ✓ Full-form tubular configuration
- ✓ Very low wear
- ✓ Operates in water up to 80°C (176°F)



# WICKET GATE AND OPERATING LINKAGE BEARINGS

Thordon wicket gate and linkage bearings operate wet or dry and eliminate the cost, maintenance and pollution risk associated with greased bearings.

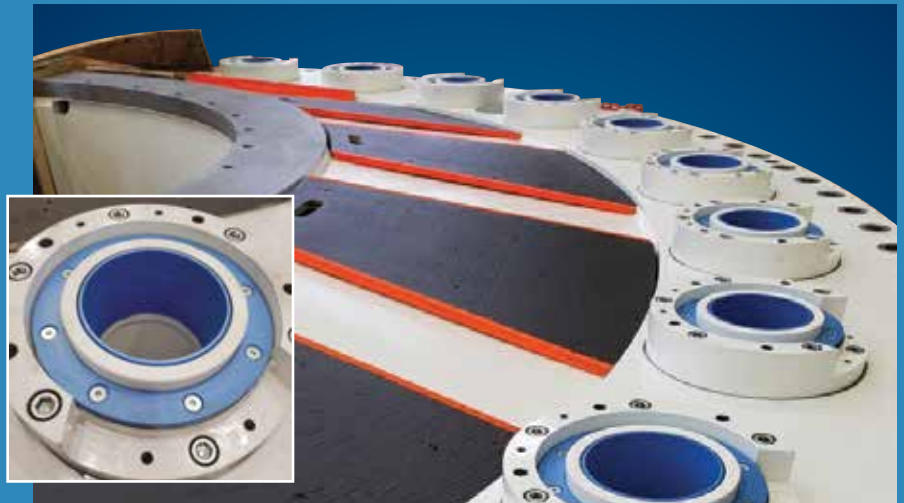
## Thordon offers the following benefits:

- ✓ Self-lubricating to ensure performance in limited-motion applications
- ✓ No galling from edge loading caused by misalignments or gate deflections
- ✓ Can be easily machined to final sizes on site, to accommodate older units that may have inconsistent housing sizes
- ✓ No stick slip if equipment is stationary for long periods of time
- ✓ Homogeneous product means uniformly distributed low friction lubricant through the full thickness of the bearing, without layers or limited depth working surfaces
- ✓ Quick stock and custom delivery to meet demanding rehabilitation schedules

**Choose Grease-free ThorPlas-Blue for Wicket Gate and Operating Linkage Bearings.**

## ADDITIONAL PRODUCTS:

- Kaplan Hub Bushings
- Operating Ring Wear Pads
- Servomotor and Servo-Link Bearings
- Wicket Gate Thrust Bearings



## 15 YEAR BEARING WEARLIFE GUARANTEE

### Engineered to Perform. Built to Last.

ThorPlas-Blue Wicket Gate and Linkage Bearings' 15 Year Wearlife Guarantee demonstrates Thordon's confidence in ThorPlas-Blue bearings and the proven experience. Since the introduction of ThorPlas-Blue to the hydro-turbine market over 18 years ago, the excellent wearlife and low friction levels achieved worldwide, is significant.

Thordon guarantees that the diametric clearance of ThorPlas-Blue Wicket Gate & Linkage Bearings after 15 years in service will not exceed 5x the original installed clearance, or Thordon Bearings will supply new bearings free of charge.

For more information regarding eligibility and requirements to qualify for the 15 Year Guarantee, please visit:

[www.ThordonBearings.com/WearLifeGuarantee](http://www.ThordonBearings.com/WearLifeGuarantee)





# THORSEAL

Thorseals are made of a Thordon proprietary elastomer with no shelf life or degradation of properties over time. They are customized seals to be made for your specific application.

They are used in hard-to-reach wicket gate bearings to prevent contamination by abrasive laden waters or to seal water from entering the plant. They can also be integrated into ThorPlas-Blue bearing designs for easy one-piece installation.

In hydraulic/pneumatic applications, high performance, tough Thorseal self-lubricating polymer lip seals offer positive sealing up to 100 MPa (15,000 psi). Thorseals provide long wearlife with no need for periodic adjustments; resist tearing and extrusion; and as a result of their internal lubricants, operate with less drag and reduced cylinder wear.

Thorseal Applications include: Wicket Gate Seals / Kaplan Hub / Servo Motors / Turbine Brake Seals (cup or lip style) / Replacement for Rubber or Fabric Chevron or V-packing Seals.

- ✓ Keep abrasives from bearing surfaces
- ✓ Sealed Pressures from 0-100 MPa (0-15,000 psi)
- ✓ Tough - won't cut or tear
- ✓ Low friction – self-lubricating and suitable for use in oil or water
- ✓ Single & stacked for limited motion & reciprocating linear applications
- ✓ Can be custom designed to solve difficult sealing solutions



Thorseals are not only available in a wide range of standard sizes, but can also be quickly machined to custom size requirements up to 1.5 m (60") in diameter. With over 40 years of experience designing and optimizing sealing applications Thorseal is the right material for your application.

## ZERO POLLUTION BEARING SYSTEMS

Thordon bearings help preserve the natural environments in which they operate. Our bearings and seals are pollution-free solutions.

### **Additional Applications for Thordon products:**

- Main inlet valve seals and trunnion bearings (butterfly & spherical valves)
- Intake traveling screen bearings
- Stop log or head gate sliding wear pads
- Head gate roller wheel bearings
- Spherical linkage and servo-rod end bearings
- Grease-free gate hoist and winch bearings
- Pump bearings (dewatering pumps, station sump pump, etc.)
- Tainter gate & radial gate trunnion bearings
- Kaplan blade and cross head bearings



**Ask us about proven Thordon solutions for many other Hydro applications as well!**

# THERE'S MORE TO THORDON BEARINGS THAN JUST POLLUTION-FREE SEALS & BEARINGS

Our experienced **Global Service & Support (GSS)** team can provide the following maintenance, installation and commissioning services:

## TURBINE GUIDE BEARINGS

- ✓ Housing, bearing and liner measurements
- ✓ Thordon bearing and liner machining supervision
- ✓ Thordon bearing and liner installation
- ✓ Bearing service quality inspection
- ✓ Thordon bearing removal and re-installation (in-situ)
- ✓ Borescope inspection – bearings/liner/coating
- ✓ Water Conditioning System commissioning
- ✓ Oil-to-water conversion management
- ✓ Shaft alignment and measurement



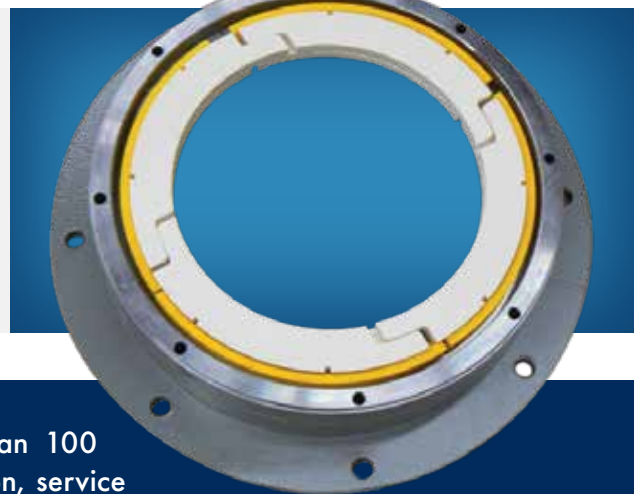
## WICKET GATE AND LINKAGE BEARINGS

- ✓ Housing, bearing and liner measurements
- ✓ Bearing and seal installation
- ✓ Bearing machining supervision
- ✓ Bearing installation



## SHAFT SEALING SOLUTIONS

- ✓ SXL segmented shaft seal installation
- ✓ Maintenance
- ✓ Commissioning



With a global service network operating 24/7 in more than 100 countries, Thordon Bearings' GSS team can install, commission, service and maintain the full range of Thordon Bearings' environmentally-safe products.

To find out more about Thordon Global Service & Support email: [service@thordonbearings.com](mailto:service@thordonbearings.com)

# 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 bearing and seal solutions. Our products arrive quickly, fit right and last!

## Extensive Distribution Network

Thordon Bearings has an extensive distribution network of more than 70 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 and shaft seal system designs and solutions.

The Global Service and Support team can install, commission, service and maintain the full range of Thordon Bearings' environmentally-safe clean power generation products.

## Manufacturing Quality

Thordon Bearings Inc. is a family-owned company with manufacturing and new product development facilities in Burlington, Ontario, Canada. In addition, we operate a leading edge manufacturing plant in Slupsk, Poland.

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

## High Performance Bearings and Seals; Industry-Leading Service

Thordon Bearings is an industry leader in the design, manufacture, supply and installation of high performance, pollution-free, shaft bearing and seal systems.

**Your Authorized Thordon Distributor**

**THORDON**  
THORDON BEARINGS INC.

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TPBHT 02/25  
Printed in Canada