



# Wind Energy

**ELIMINATE COSTLY MAINTENANCE WITH  
RELIABLE BEARING PROTECTION**



# REDUCE BEARING MAINTENANCE & FAILURE

## THE HIGH COST OF BEARING SEAL FAILURE

As wind power emerges as a leading technology for clean, sustainable energy, wind turbine construction has grown exponentially. Even with this success, the industry is being threatened by extreme maintenance costs from bearing failure due to ineffective sealing solutions.

The nacelle houses the power transmission components of the wind turbine, including the gearbox and generator. Though critical to the operation of the wind turbine, the bearings on these applications are protected by ineffective contact seals that have a finite life expectancy, with most lasting less than three months of operation. Contact seals drag on the shaft, consuming power, and quickly fail by wearing at the point of contact or grooving the shaft, rendering them ineffective.

### Ineffective bearing seals:

- allow particulates, such as dust, debris and water, to enter the bearing housing and contaminate the bearings
- allow lubricant to leak out of the equipment and onto the nacelle floor
- require lubrication to be consistently replaced, which is a significant undertaking and high cost

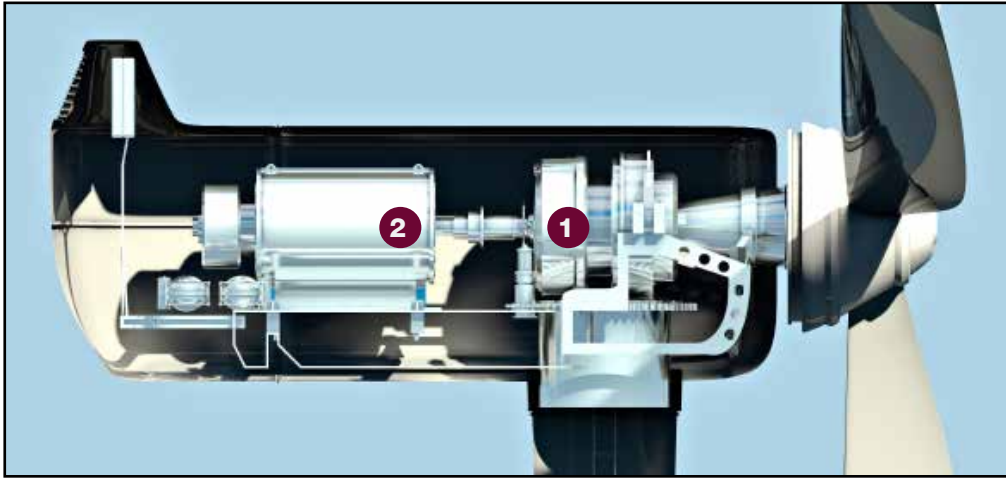
### BEARING FAILURE LEADS TO HIGH MAINTENANCE COSTS

Bearing failure leads to equipment failure, which is one of the most common breakdowns of the wind energy system. Equipment failure causes severe maintenance costs, both up-tower and down-tower, turbine downtime, safety risks and housekeeping issues.



*Bearing failure is a main cause of wind turbine equipment failure*

**Don't rely on insufficient bearing seals for an efficient operation. Keep equipment running with bearing protection that works.**



*Inpro/Seal Bearing Isolators provide permanent bearing protection against contamination ingress and lubrication loss on the gearbox (1) and generator (2) within the nacelle.*

**Inpro/Seal® Bearing Isolators are the perfect sealing solution for wind turbine gearboxes and generators.**

The Inpro/Seal Bearing Isolator is a non-contacting, permanent bearing protection device. Our patented Bearing Isolator design consists of a unitized stator and rotor that form a compound labyrinth seal with no wearing parts – ensuring permanent bearing protection.

**The Inpro/Seal Bearing Isolator:**

- utilizes a non-contacting, non-wearing design that lasts the lifetime of the equipment and does not drag on the shaft
- is IP66 rated, guaranteed to protect against both water and dust contamination ingress
- protects against lubrication loss for both grease and oil lubricated equipment
- is maintenance free
- is custom engineered to meet the requirements of the equipment and operating environment

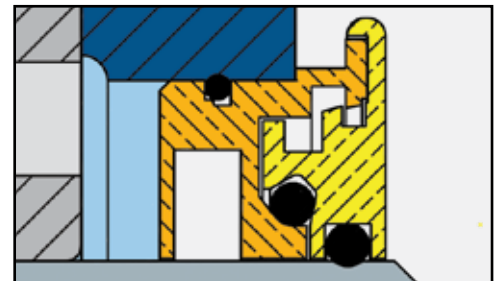
**PROVEN SUCCESS**

As the inventor of the original Bearing Isolator, we have delivered proven permanent bearing protection to rotating equipment for more than 40 years.

Inpro/Seal Bearing Isolators have been installed on wind turbine gearboxes and generators for over a decade, resulting in high cost savings through reduced equipment maintenance.



*The Inpro/Seal Bearing Isolator*



*The Inpro/Seal Bearing Isolator consists of a stator (orange) and rotor (yellow) that form a compound labyrinth seal.*

# THE INPRO/SEAL ADVANTAGE

## GUARANTEED PERFORMANCE

Inpro/Seal® is committed to delivering innovative technology and superior customer support...standard with every solution.

Inpro/Seal Bearing Isolators are backed by a performance guarantee. See our website for complete details.



## UNMATCHED CUSTOMER SERVICE

Inpro/Seal's responsive global sales network is committed to making sure you have the right technology, right when you need it. We know that time is money. That's why we offer same-day shipments on most products, even new and custom designs. No matter the application or operating environment, we can deliver a solution designed to protect your equipment.

## EXPERIENCE YOU CAN TRUST

Inpro/Seal, the leader in permanent bearing protection, has been maximizing uptime on rotating equipment for over 40 years. Known as the trusted source of Bearing Isolator technology, we have installed millions of Bearing Isolators on applications worldwide.

## READY TO GET STARTED?

Visit [www.inpro-seal.com](http://www.inpro-seal.com) to contact your local Inpro/Seal representative or submit an inquiry.



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