

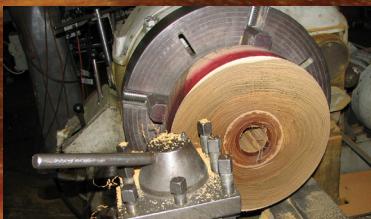


Lignum-Vitae

Water Lubricated Bearings



Custom Marine Bearings



Lignum-Vitae Water Lubricated bearings commonly replace composite, plastic, bronze, babbitt and oil filmed bearings. Lignum-Vitae is the first water lubricated technology with unmatched longevity in water applications. It has tremendous load bearing and unique shock absorbing qualities that no other material can match. Lignum-Vitae is the only material with over 130 years of proven success.

Finally a proven solution for wind turbines... It is a game changer!

Powhatan, Va (October 15, 2015) – Bob Shortridge, President of Lignum Vitae North America, LLC. Announced today that his company has secured a patent on a new innovative Wind Turbine Bearing.

"Lignum-Vitae is on the leading edge of Innovation for the renewable energy sector. We have saved the Hydro Power Industry significant money in terms of reduced maintenance cost and keeping aging assets running. Now we can offer this technology to the Wind Industry." Said Shortridge.

As a result we know that many of you in the hydropower industry will be in charge of the Wind Turbine Assets within your power company. At Lignum-Vitae we understand that keeping your assets generating electricity when you need it is your top priority. Unplanned outages are always costly but Wind Turbines have an enormous maintenance cost associated with them. Bearing failures account for about 57% of mechanical failures in Wind Turbines.

Current metallurgy, lubricants and bearing configurations struggle to successfully handle the loads as turbines grow in size. Renting cranes or purchasing a crane just to service these turbines is a big expense. Lignum-Vitae has 100's of years of proven performance in rotating equipment. From large ships to large Hydro Lignum-Vitae is the answer.

Why is Lignum-Vitae the Solution?

- Lignum-Vitae offers a solution that is adjustable in place, water lubricated, non-conductive, removes thrust at source reducing forces downline.
- Lignum-Vitae allows "modular component bearing replacements" Vs. entire replacement.
- Lignum-Vitae removes threat of fire by using water vs. oils resulting in lower insurance costs.

Lignum-Vitae has been the Gold standard in Hydro water lubricated bearings for over 130 years. There is no other bearing that has been in existence longer or with more real world experience. We can help guide design decisions that will add longevity, reliability, remove all threat of oil and grease.

A Brief History from: United States Naval Institute Proceedings, Volume 45 P. 1929

Lignum-vitae, The Vital Wood.—The propeller shaft of every battleship, every destroyer, every transport, in fact, every large steamship, revolves in a wooden bearing at the stern end. Of all the thousands of woods in the world, true lignum-vitae, is the only one that has been found equal to this exacting service.



Wind Turbine Bearings



Lignum-Vitae
Water Lubricated Bearings

Lignum-Vitae North America

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Shell Bearings

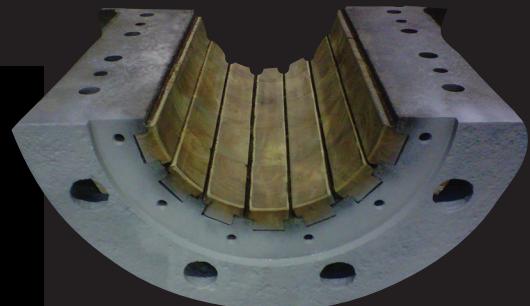


Horizontal Bearings



Finally a proven solution for
wind turbines...game changing.

- 1) Only 100% renewable bearing
- 2) Non-conductive
- 3) Non-arcing with no shaft pitting
- 4) Water lubricated
- 5) EAL lubricated for 3100 and 3168
- 6) No moving parts lower friction low COF
- 7) Fully and only adjustable in place bearing
- 8) Lasts lifetime of turbine 20-30 years
- 9) Removes thrust at source
- 10) Modular bearing components for easy field replacement
- 11) Lower insurance costs from risk of fire
- 12) Eliminates thrust from reaching gearbox
- 13) NSF-61 designation eliminating metallic contamination
- 14) Wear aids in lubrication
- 15) Works within current bearing configuration
- 16) Zero potential for fire or explosion
- 17) Requires no exotic lubricants
- 18) Requires no exotic metals or new metallurgy
- 19) Time tested bearing configuration in similar service over 160 years
- 20) Nothing toxic in manufacturing or in use
- 21) Dampens vibration and shock
- 22) Only Environmental Bearing with Positive ROI.



Stacked Block



Stern Tube