



CERTIFICATE NUMBER
17-HS1605316-PDA

DATE
10 May 2017

ABS TECHNICAL OFFICE
Corporate HR Aspire

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

LIGNUM VITAE AMERICA LLC

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Bearing, Water Lubricated Bearings**

Model: **Lignum Vitae Bearing.**

This Product Design Assessment (PDA) Certificate 17-HS1605316-PDA, dated 10/May/2017 remains valid until 09/May/2022 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Tim Kimble
Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

LIGNUM VITAE AMERICA LLC

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Web: www.lignum-vitae-bearings.com

Tier: 2 - PDA Issued

Product: Bearing, Water Lubricated Bearings

Model: Lignum Vitae Bearing.

Intended Service:

Marine and Offshore Applications - a) Water Lubricated Stern Tube & Strut Bearings , b) Bearings for Rudder Stocks, Shafts and Pintles.

Description:

Water Lubricated Sleeve Bush Bearings and Staves (Dovetail) manufactured from Lignum Vitae Wood.

Contains guaiac gum that acts as lubricant. This water impervious gum glazes the bearing surface, which stays intact for decades, even in dirty or silty water.

Zero Pollution.

Rating:

Manufacturer's Specified Rating for Shaft Sizes 2 inch to 40 inch Diameter, maximum surface pressure (static): 40 psi (0.276 N/mm²) for propulsion shaft bearings.

For Rudder Bearings, the Allowable Bearing Surface Pressure is 360 psi (2.5 N/mm²)

Service Restriction:

i) Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

ii) Design Criteria Stern Tube and Strut Bearings are: a) Bearing Pressure not to exceed 40 psi (0.276 N/mm²) and b) the Bearing next to propeller, the length (L) not to be less than 4 times the Rule Required Tail shaft Diameter as per 4-3-2/5.15 of the Steel Vessel Rules.

iii) Design Criteria for Rudder Shaft/Stock/Pintle Bearings: a) Allowable Bearing Surface Pressure of 360 psi (2.5 N/mm²), b) length/diameter ratio not greater than 1.2 and c) Projected area of bearing surface not to be less than calculated as per 3-2-14/15.1 of the Steel Vessel Rules.

iii) Installation of the bearings shall be as per manufacturer recommended procedures.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

i) Bearings are to be effectively secured against Rotation

ii) A continuous flow of water through the bearing in sufficient quantities is recommended to wash away the abrasive particles for extending the wear life of the bearing.

Notes/Drawing/Documentation:

Drawing No. Correspondence, ABS App, Revision: -, Pages: -

Drawing No. Number Req, Number Req, Revision: -, Pages: -

Drawing No. Sales sheet 1, Sales sheet 1, Revision: -, Pages: -

Drawing No. Sales sheet 2, Sales sheet 2, Revision: -, Pages: -

Terms of Validity:

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STANDARDS

ABS Rules:

Rules for Conditions of Classification, Part 1 2017 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 3-2-14/15, 4-3-2/5.15;

2017 ABS Rules for Conditions of Classification, Part 1 – 2017 Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3;

2017 ABS Rule for Building and Classing Steel Vessels under 90M in Length 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-3-1/13.1;

2017 ABS Rules for Building and Classing Steel vessels for Service on Rivers and Intracoastal Waterways 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-2-1/11.1;

2017 ABS Guide for Building and Classing Yachts 4-1-1/3.3, 1-1-A3, 1-1-A4, 4-3-1/13.1.

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA