



CERTIFICATE NUMBER
17-LD1598878-PDA

DATE
18 Jan 2017

ABS TECHNICAL OFFICE
London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of
TRELLEBORG SEALING SOLUTIONS ROTHERHAM
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, Rudder and Rudder Carrier Bearings, Water Lubrica...**
Model: **TXM Marine**

This Product Design Assessment (PDA) Certificate 17-LD1598878-PDA, dated 18/Jan/2017 remains valid until 17/Jan/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

John Koutsovoulos
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).

TRELLEBORG SEALING SOLUTIONS ROTHERHAM
BRADMARSH BUSINESS PARK
ROTHERHAM S60 1BX
ROTHERHAM
United Kingdom S60 1BX
Telephone: 44-1709-789828
Fax: 44-1709-789802
Email: enquiries@trelleborg.com
Web: www.trelleborg.com

Tier: 3 - Type Approved, unit certification not required

Product: Bearing, Rudder and Rudder Carrier Bearings, Water Lubricated Stern
Tube Bearings

Model: TXM Marine

Intended Service:

Dry or water / grease lubricated rudder stock bearings
Dry or grease lubricated rudder carriers, bushes and discs
Water rudder pintle bushes
Water / grease lubricated stabiliser fin bearings
Water lubricated stern tube bearings

No axial grooves are required with lubricated rudder bearings.

Description:

Marine bearing material

Rating:

Shaft diameter size range: 50 – 1500 mm

Bearing length: 250 – 1250 mm

For all applications: Static bearing pressure up to 20 MPa

Service Restriction:

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.

Acceptance on facilities with Ice Class Notations will be carried out on a case to case basis.

Comments:

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

Bearings are to be installed in accordance with the manufacturer's recommendations and following points.

For rudder bearings:

The bearing length is to be not greater than 1.2 times the bearing outer diameter. For length/diameter ratios greater than 1.2 will be specially considered upon submission of calculations showing acceptable clearances at both ends of the bearing.

In general, clearances are to be not less than 1.5 mm on diameter. Request of clearances less than 1.5 mm will be specially considered with the submission of documented evidence, such as manufacturer's recommendation on acceptable clearance, expansion allowance and satisfactory service history with reduced clearances.

The bearing length of the rudder pintle is to be not less than 1.0 times the bearing outer diameter.

For aft (the next to and supporting the propeller) stern tube bearings:

In general, the bearing length is to be not less than four (4) times the required tail-shaft diameter. However, such may be less than four times, but not less than two times the required tail shaft diameter, provided the bearing design is being substantiated by experimental tests to the satisfaction of ABS on a case by case basis.

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Notes/Drawing/Documentation:

TSS-0014536 – Issue A – “Bearing - Blank”
Orkot TXM Marine Bearings - Mechanical Properties
Friction and Wear Testing for Orkot TXM Marine (Wet and Dry) (17 April 2008)
Orkot TLM & TXM Marine Bearings - Material Safety Data Sheet (18 August 2008)

Terms of Validity:

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STANDARDS

ABS Rules:

2017 Steel Vessel Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 3-2-14/13.1, 3-2-14/15.1, 3-2-14/15.3 and 4-3-2/5.15.1
2017 Offshore Support Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 3-2-14/13.1, 3-2-14/15.1, 3-2-14/15.3 and 4-3-2/5.15.1
2017 Steel Vessels Under 90 Meters in Length Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 3-2-11/13.1, 3-2-11/15.1, 3-2-11/15.3 and 4-3-1/13.1.2
2017 High-Speed Craft Rules 1-1-4/11.9, 1-1-A2 and A3, 3-2-8/13.1, 3-2-8/15.1, 3-2-8/15.3 and 4-3-1/13.1.2
2017 Yachts Rules 4-1-1/3.3, 3-2-9/13.1, 3-2-9/15.1, 3-2-9/15.3 and 4-3-1/13.1.2
2017 Steel Vessels for Service on Rivers & Intracoastal Waterways 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-2-1/11.1

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA