

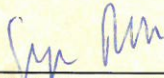


TYPE APPROVAL CERTIFICATE
No. MAC135615XG

This is to certify that the product identified below is in compliance with the regulations herewith specified.

<i>Description</i>	Sterntube bearings
<i>Type</i>	TLM Marine bearings
	A) TLM MARINE STERNTUBE BEARINGS
	B) TLM MARINE RUDDER BEARINGS
<i>Applicant</i>	TRELLEBORG SEALING SOLUTIONS ROTHERHAM BRADMARSH BUSINESS PARK S60 1BX ROTHERHAM UNITED KINGDOM
<i>Manufacturer</i>	TRELLEBORG SEALING SOLUTIONS ROTHERHAM
<i>Place of manufacture</i>	BRADMARSH BUSINESS PARK S60 1BX ROTHERHAM UNITED KINGDOM
<i>Reference standards</i>	Part C, Chapter 1 Section 7 of RINA Rules
<i>Reference documents</i>	RINA TYPE APPROVAL SYSTEM

Issued in **Hamburg** on **August 18, 2015**. This Certificate is valid until **August 17, 2020**



RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure



TYPE APPROVAL CERTIFICATE

No. MAC135615XG

Enclosure - Page 1 of 1

TLM Marine bearings

Description of the products

a) Orkot TLM Marine sterntube bearings

Water lubricated synthetic sleeve bush bearings up to 1500 mm O.D.

b) Orkot TLM Marine rudder bearings

Water lubricated synthetic sleeve bush bearings up to 1500 mm O.D. for upper, middle and lower rudder stock and pintle bearings.

Reference documents

- BMT Defence Service Ltd. friction and wear performance report No. JD 115 - January 1990.
- BMT Defence Service Ltd. physical properties report No. 34177/R2636 - November 1994.
- ORKOT Research & Development friction and wear engineering report - October 1994.
- ORKOT TLM Marine Engineering Manual.

Fields of application

a) Orkot TLM Marine stern tube bearings.

Length/diameter ratio not less than 2, for aft sterntube bearing.

Nominal bearing pressure up to 0,55 N/mm².

b) Orkot TLM Marine rudder bearings

Nominal bearing pressure up to 10 N/mm².

Acceptance conditions

- For each application the relevant constructional drawings are to be sent to RINA Germany Plan Approval Office.
- For sterntube bearings, forced water circulation with flow indicators is to be provided.
- The installation on board is to be made in accordance with the manufacturer's recommendations in compliance with all applicable RINA Rules.
- This type approval is valid on the assumption that the manufacturer of the aforementioned bearings assures, under his own responsibility, that the product characteristics are in accordance with the ones specified on the documentation submitted.
- The acceptance of the a.m. products on board ship and other units classed with RINA is subject to the satisfactory outcome of testing as per the RINA rules.
- The approval may be withdrawn by RINA in the case of changes in the design not brought to the knowledge of RINA or in the case of changes in the RINA rules.
- This Certificate is issued for uses allowed by the laws and acts of Government in force.

Remarks

This certificate annuls and replaces the previously issued MAC108010XG/001 issued on August 24, 2010

Hamburg August 18, 2015

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