

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Rudder Bearing Bushing Material, Synthetic**with type designation(s)
RISHOLITE Type PR-2222

Issued to

Risho Kogyo Co., Ltd.
Osaka, Osaka Pref, Japan

is found to comply with

Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Type Approval Programme 1-501.5, 2011, Synthetic Rudder Bearing Bushing Materials**Application :****Maximum surface pressure 7.5 MPa for the synthetic bearing against steel, water lubricated. The approval is valid only when the installation of the product is according to the specified Rules and the Manufacturer's specification.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2019-08-04**.Issued at **Høvik** on **2015-08-05**DNV GL local station: **Kobe**Approval Engineer: **Gisle Hersvik**for **DNV GL**

Martin Strande
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.



Job Id: **262.1-003308-3**
Certificate No: **TAS0000031**

The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

RISHOLITE Type PR-2222; Phenolic Resin Cotton Cloth Based Laminated Tubes.

Application/Limitation

Maximum surface pressure 7.5 MPa (7500 kN/m²) for the synthetic bearing against steel, water lubricated.

Area of application will be evaluated during approval of classified objects if the surface pressure exceeds 7.5 MPa and/or for dry running (non-lubrication) installations.

The Type Approval is valid only when the installation/application of the product is according to the specified Rules and the Manufacturer's specification.

Type Approval documentation

Tests carried out

Type Testing has been carried out in accordance with **Type Approval documentation**.

Marking of product

Product or product package shall be marked with *manufacturer's name*; **Risho Kogyo Co., Ltd., Osaka, Japan** and *type designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE