DNV·GL

Certificate No:
TAM000011J

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Stern Tube Bearing Material

with type designation(s)
EVR

Issued to
EAGLE INDUSTRY CO., LTD. Marine Division
Takasago-shi, Hyogo Pref., Japan

is found to comply with
DNV GL rules for classification – High speed and light craft
DNV GL rules for classification – Ships

Application :

Synthetic water lubricated propeller shaft bearing material. The Type Approval is valid only when the installation/application of the product is according to the DNV GL Rules and the Manufacturer's recommendations. Maximum nominal bearing pressure: 0.2 MPa.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2019-03-12**
This Certificate is valid until **2024-03-11**.
DNV GL local station: **Yokohama**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**

Rikard Törnqvist
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

EVR; An elastomer (rubber) sterntube and bracket bearing with shell.

Build-up of the EVR (Eagle Vessel Rubber) bearing:
- The sliding face is made of an elastomer (rubber) material.
- The outer shell is made of a glass-cloth or cotton-cloth reinforced plastic (GRP or CRP).
- The elastomer is bonded to the shell by vulcanizing process.

Manufactured by

EagleBurgmannJapan Co., Ltd., 514, Nakagawashin, Gosen-city, Niigata, 959-1693, Japan

DNV GL local station: Yokohama

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

Fields of Application:	- Stern Tube/Propeller Shaft Bearings - Propeller Shaft Bracket Bearings
Lubricants;	- Water
Surface Pressure;	- 0.2 MPa, maximum, for minimum length to diameter (L/D) ratio of 2:1 for the bearing next to propeller. For all the other positions, L/D ratio as per Manufacturer’s recommendations.
Installation;	- Clearance fit
Dimensions;	- As per DNV GL Rules and Manufacturer's recommendations. - Min – max diameters (OD): 40 – 550 mm - Min – max thicknesses (WT): as per Manufacturer’s recommendations.

The Type Approval is valid only when the installation/application of the product is according to the specified DNV GL Rules and the Manufacturer's recommendations, ref. EAGLE INDUSTRY CO., LTD. “Instruction Manual of Stern Tube Bearing – EVR”, 06ME-024E-7.

Any significant changes in design and / or quality of the material will render the approval invalid.

Type Approval documentation

Tests carried out

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

Tests described in “Stern Tube Bearing Type EVR – Technical Manual”, TEC-E-4.

Marking of product

Product shall be marked with *manufacturer’s name or trademark* and *type designation or type number 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 2 and 3.5 years (Certificate Retention) and at renewal after 5 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