

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Stern Tube Seal

with type designation(s)

MK II M, MK II, 4BL, Airguard 3AS, 4AS & 4AS-B, OLS2, OLS3, OLS4, OLS3A, OLS4A, OLS2-P-C, OLS3-P-C, OLS2-P, OLS3-P, OLS4-P, OLS3A-P, OLS3A-P2, OLS4A-P

Issued to

Wartsila Japan Ltd. Seals & Bearings Japan
Toyama Toyama Pref., Japan

is found to comply with

DNV GL rules for classification – Ships

DNV GL rules for classification – High speed and light craft

Application :

The sterntube seals are approved for oil lubricated shafts. The sealing boxes meets the requirements to sealing boxes for TMON (Tailshaft Monitoring Survey Arrangement).

The design of Airguard (3AS, 4AS, 4AS-B, OLS3A, OLS4A, OLS3A-P, OLS3A-P2, OLS4A-P), 4BL, OLS4, OLS4-P sealing systems satisfies the requirements for Clean Design.

The design of MKII, OLS2, OLS2-P sealing systems satisfies the requirements for Clean Design, limited to installation at engine side.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2018-12-31**.

Issued at **Høvik** on **2016-08-18**

DNV GL local station: **Kobe**

for **DNV GL**

Approval Engineer: **Nadine Grace Mosteiro Halvorsen**

Oddvar Deinboll
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.

Product description

Seal for oil lubricated propeller shaft : MK II M, MK II, OLS2, OLS3, OLS2-P-C, OLS3-P-C, OLS2-P, OLS3-P

Size: Propeller shaft diameter 105 mm – 1172 mm

Seal for oil lubricated propeller shaft Type: 4BL, OLS4, OLS4-P

Size: Propeller shaft diameter 145 mm - 1172 mm

Airguard: 3AS, 4AS, 4AS-B, OLS3A, OLS4A, OLS3A-P, OLS3A-P2, OLS4A-P

Seal for oil lubricated propeller shaft with air chamber between the seawater and the lubrication oil.

Size: Propeller shaft diameter 115 mm - 1172 mm (Type 3AS shaft diameter 355 mm - 1000 mm.)

Seal for oil lubricated propeller shaft and composite seal casings: OLS3-P, OLS4-P, OLS3A-P, OLS3A-P2, OLS4A-P

Alternative Place of production for MK II M and OLS2-P-C, OLS3-P-C

Wärtsilä Propulsion (Wuxi), Wuxi, China

Application/Limitation

Environmentally Acceptable Lubricants (EALs) may only be applied according to manufacturer's list. Manufacturer's confirmation should be obtained separately.

The aft sterntube sealing boxes satisfy the requirements to sealing boxes for TMON (Tailshaft Monitoring).

The design of Airguard sealing system satisfies the requirements for Clean Design.

Type Approval documentation



Job Id: **262.1-010913-3**
Certificate No: **TAM00000AZ**

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every second year and before the expiry date of this certificate to verify that the conditions of the type approval are complied with.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the

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Type Approval Certificate was issued. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

In cases where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

When a Type Approved product is manufactured at other companies, the Type Approval applicant takes the sole responsibility for the conformity of the product to the applicable requirements.

Other conditions

DNV GL Product Certificate is not required.

END OF CERTIFICATE