DNV·GL

Certificate No:
TAM00000CT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Stern Tube Bearing Material

with type designation(s)
NORDEN 788 MARINE

Issued to
Norden Maritime AS
Os, Norway

is found to comply with
DNV GL class programme DNVGL-CP-0081 – Type approval – Synthetic bearing bushing materials
DNV GL rules for classification – Ships

Application :

Synthetic propeller shaft bearing material.

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

This Certificate is valid until **2021-11-08**.

Issued at **Høvik** on **2016-11-09**

for **DNV GL**

DNV GL local station: **Bergen**

Approval Engineer: **Gisle Hersvik**

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

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Job Id: **262.1-018208-1**
Certificate No: **TAM00000CT**

Product description

NORDEN 788 MARINE; A fibre-reinforced thermosetting resin material with additional lubricant.

Place of Manufacture

Norden Maritime AS, Industriveien 13, N-5210, Os, Norway

Application/Limitation

Fields of Application:	- Stern Tube/Propeller Shaft Bearings - Propeller Shaft Bracket Bearings
Lubricants;	- Water
Surface Pressure;	- 0.6 MPa, maximum, for minimum length to diameter (L/D) ratio of 2:1
Installation;	- Press fit - Freeze fit - Adhesive bonded - Tapered keyset
Dimensions;	- As per DNV GL Rules and Manufacturer's specification.

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 specification.

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

Type Approval documentation

1.
2.
3.
4.
5.
6.
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8.
9.
10.

Tests carried out

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

Marking of product

Product shall be marked with *manufacturer's name*; **Norden Maritime AS, Os, Norway**, *type designation*; **NORDEN 788 MARINE**, *item number* and *dimensions*.

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 2.5 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