



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. S-5718

This Certificate consists of 3 pages

This is to certify that the

Rudder Bearing Bushing Material, Synthetic

681.62

with type designation(s)

**VESCONITE, VESCONITE HILUBE,
VESCONITE SUPERSTAVES, SUPERCLAD**

Manufactured by

Vesco Plastics

VIRGINIA, South Africa

is found to comply with

Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Type Approval Programme 1-501.5, 1999, Rudder Bearing Bushing
Materials, Synthetic

Application

Max. surface pressure 5.5 MPa for the synthetic bearing against steel, non-lubricated; max. 10 MPa grease, oil or water lubricated. The Type Approval is valid only when the install./appl. is acc. to the specified Rules and manufacturer's specification.

Place and date

This Certificate is valid until

Høvik, 2009-06-11
for Det Norske Veritas AS

2013-06-30

Helge Drange
Head of Section

Local Office
DNV Durban

Gisle Hersvik
Surveyor

Product description

VESCONITE: Thermoplastic based Bearing Bushing Material made from an internally lubricated polymer.

VESCONITE HILUBE: Thermoplastic based Bearing Bushing Material made from an internally lubricated polymer.

VESCONITE SUPERSTAVES, SUPERCLAD: Reinforced epoxy sleeve material.

Application/Limitation

Max. surface pressure:

- 10 MPa for the synthetic bearing against steel, grease, oil or water lubricated
- 5.5 MPa for the synthetic bearing against steel, non-lubricated (dry running)

Area of application will be evaluated during approval of classified objects if the surface pressure exceeds 5.5 N/mm².

The maximum surface pressure of 10 N/mm² will be subject to evaluation w.r.t. service experience etc. in connection with renewal of the certificate.

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

Limitations given in Vesconite Design Manual MDM 1/98.

Type Approval documentation

Tests carried out

Type Testing carried out according to **Type Approval documentation**, and in accordance with DNV's Type Approval Programme no. 1-501.5 of January 1999.

Marking of product

Product and/or package shall be marked with *manufacturer's trade name*; **Vesconite**, and batch no.

Certificate Retention/Renewal Survey

The scope of the Retention/Renewal Survey 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.

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

The main elements of the survey are:

- 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 Type Approval Certificate.

END OF CERTIFICATE

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

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

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