



Marine & Offshore

Certificate number: 74430/A0 BV

File number: ACM119/2217/1

Product code: 0720H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Tufcot Engineering Ltd
Sheffield - UNITED KINGDOM

for the type of product

BEARING MATERIALS
T100 Marine

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 19 Jul 2028

For Bureau Veritas Marine & Offshore,

At BV LONDON, on 19 Jul 2023,

Spencer Yule

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Bearing material T100 Marine

Synthetic bearing material meant for dry or water/grease lubricated rudder stock, pintle bushes, rudder carrier bush and disk, dry or water lubricated stabiliser fin bearings, water-lubricated stern tube bearings.

2. DOCUMENTS AND DRAWINGS :

Tufcot T100 Marine datasheet version 2, dated 2023/02/28

3. TEST REPORTS :

Laboratory test report n°C19020 dated 2019/04/18

Water lubricated coefficient of friction results n°TR0035 dated 2021/03/03

Dry & water lubricated coefficient of friction results n°TR0036A dated 2022/08/01

Friction & wear testing report n°TR0060 dated 2022/11

Compressive properties report n°TR0064 2023/01/10

4. APPLICATION / LIMITATION :

4.1 - Application / Limitation of use:

- May be used as dry or water lubricated sternbush propeller shaft bearings
- May be used as rudder stock bearings, dry or water/grease lubricated
- May be used as dry or water lubricated stabiliser fin bearings
- The maximum allowable pressure is 10 MPa for sterntube bushing
- The maximum allowable pressure (static condition) is 10 MPa for rudder bushing & stabiliser fin bushing
- The maximum operating temperature over the range is approximately 60 °C
- The length of the aft bearing of synthetic material is to be not less than 2 (two) times the rule diameter. Refer to Pt C, Ch 1, Sec 7 [2.4.2] & [2.4.4] of the Bureau Veritas Rules
- The length / diameter ratio of the bearing surface for pintle bearings is not to be less than 1 and not to be greater than 1.2. Refer to Pt B, Ch 12, Sec 1 [6.3] of the Bureau Veritas Rules.

4.2 - On board installation & Maintenance requirements:

- The drawings of the actual dimension of the "HD"Rudder and Stern tube bearings / bushes are to be submitted for each particular application (supplied by installer)
- The propeller shaft bearing clearances are to be in accordance with manufacturer's recommendations
- The rudder bearing clearances are to be in conformity with the requirements Pt B, Ch 12, Sec 1 [6.3.4] of the Bureau Veritas Rules
- Complete justifications will be sent to the Society about the distribution of loads on the shafts-line bearings or the rudder pintles.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The **T100 Marine bearing materials** are to be supplied by **Tufcot Engineering Ltd** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **Tufcot Engineering Ltd** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 - For information, **Tufcot Engineering Ltd** has declared to Bureau Veritas the following production site(s):

Tufcot Engineering Ltd
30 Coleford Road
Darnall
Sheffield
UNITED KINGDOM

6. MARKING OF PRODUCT :

The product or packing is to be marked according to manufacturer's specification with at least:

- Weight and dimension
- Manufacturing data and lot number.
- Date of fitting.

7. OTHERS :

It is **Tufcot Engineering Ltd's** responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

***** END OF CERTIFICATE *****