



Marine & Offshore

Certificate number: 30847/B0 BV

File number: ACM 135/2709/01

Product code: 2104I

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

Vacon Ltd

VAASA - FINLAND

for the type of product

NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES

Hose Assembly type designation drawing N° 70CMC03435

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Offshore Units
- BUREAU VERITAS Rules for the Classification of Naval Ships
- BUREAU VERITAS Rules for the Classification of Yachts

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: 01 Jun 2022

For Bureau Veritas Marine & Offshore,

At BV HELSINKI, on 01 Jun 2017,

Tommy Andersson



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.

The electronic version is available at: <http://www.veristarp.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=q3aw29tbeh>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Hose Assembly type designation drawing N° 70CMC03435

1.1 Technical Data

| | |
|----------------------------------|--------------------------------------|
| Size (mm/inch) | 16 (1/2) |
| Media | Drinking water, water/glycol mixture |
| Max. Working Pressure (bar) | 6 |
| Operating Temperature range (°C) | -10 to 50 |
| Length range (mm) | 150 to 1500 |

1.2 Material/components acc. to drawing N° 70CMC03435

| | |
|--|--|
| Technobel hose type - HYT-16//UK1/2/SK1/2 or - HYT-16//SK1/2/SK1/2 (4 layers) | 1) Polyester inner wall 2) Flexible black PVC intermediate layer 3) Polyester fibre reinforcement 4) Flexible black PVC coating |
| End fittings type LHK-3026 and LHK-3027 | AISI 303 |
| Protective sleeve type Univolt HFX-40 | PP-blend |

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- Drawing N° 70CMC03435 rev. B dated 14/02/2012
- Drawing N° LHK1701 Rev. 1.0 dated 24/05/2017

No departure from the above documents shall be made without the prior consent of the Society named on this certificate. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

- Type tests carried out: proof pressure test, burst test at 30 bar /5 min, pressure impulse test, dimensional change.
- Burst test report dated 24/05/2012, witnessed by the Society.
- Test reports N° VTT-S-00623-08 dated 18/01/2008 and N° VTT-S-04936-12 dated 09/07/2012.
- Example of pressure test report issued by the supplier dated 05/09/2012

4. APPLICATION / LIMITATION

- 4.1 To use with the Vacon liquid cooled AC Drives.
- 4.2 Full details of each hose assembly installed on board BV-classed ships are to be submitted to the Society for review.
- 4.3 The hose assemblies are to be so arranged as to be accessible at all times.
- 4.4 The hose assemblies are to be installed according to manufacturer's instructions and Bureau Veritas Rules requirements

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 The products are to be supplied by **Vacon Ltd** in compliance with the type and the requirements described in this certificate.
- 5.2 This type of product is within the category IBV of Bureau Veritas Rule Note NR320.
- 5.3 BV product certificate is required.
- 5.4 Each hose with end fittings is to be hydraulically pressure tested to twice the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.

For information, **Vacon Ltd** has declared to Bureau Veritas the following production site:
Lakeuden Hydro Oy, Vaasa (Finland)

6. MARKING OF PRODUCT

Each hose assembly is to be clearly and indelibly marked with at least:

- Manufacturer name or logo
- Type designation (hose part)
- Batch number
- Society's brand as relevant

7. OTHERS

It is **Vacon 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.

This certificate supersedes the Type Approval Certificate No. 30847/A0 BV issued by the Society.

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