



Marine & Offshore

Certificate number: 23065/C0 BV

File number: ACM 135/2022/08

Product code: 2103I

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

TUBIFLEX SPA
ORBASSANO -TO - ITALY

for the type of product

METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES
FLEX-PRO-VACUUM2

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: 25 Oct 2027

For Bureau Veritas Marine & Offshore,

At BV VENEZIA, on 25 Oct 2022,

Sandro BRUSEGAN

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.

The electronic version is available at: <http://www.veristarm.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=u8gmbpurg2>

BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

FLEX-PRO-VACUUM2 Flexible Assembly

1.1 Technical Data

Size (mm)	ID 40 / ID 50 OD 56 / OD 66
Media	Sewage
Pressure range (bar)	-0.4 to -0.55
Temperature range (°C)	10 to 35
Minimum bending radius (mm)	120
Length (mm)	300 to 2000

Fittings: as per drawing PS3770000/B dated 16/07/2012

1.2 Material

Inner tube	PVC
Outer tube	Stainless steel AISI 304
Fittings	Stainless steel AISI 316 or multi-layer polypropylene

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

2. DOCUMENTS AND DRAWINGS

- Drawing PS3770000/B dated 16/07/2012
- Typical mounting arrangement Rev.0 dated 09/06/2010
- User Instruction Rev.0 10/06/2010
- Qualification Test Program QTP PS3770000/B issue 01 dated 23/07/2012

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, witnessed by a Society's Surveyor: Visual inspection, cycling (static) on minimum bending radius, vacuum pressure test and vacuum pressure test on minimum bending radius. Test report QTR PS3770000/B issue 00 dated 06/07/2012.

- Pressure and elongation test not performed

4. APPLICATION / LIMITATION

- 4.1 - To use for vacuum operated sewage system.
- 4.2 - End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.
- 4.3 - Full details of each flexible assembly installed on board BV-classed ships are to be submitted to the Society for approval.
- 4.4 - The flexible assemblies are to be installed according to manufacturer's instructions and Bureau Veritas Rules requirements
- 4.5 - The hoses are to be installed in clearly visible and readily accessible locations at all times.
- 4.6 - The hose assemblies intended for use in piping systems where high levels of vibration are expected to occur in service are to be designed for the maximum expected forces due to vibration. Otherwise, this use is to be subject to special consideration by the Society for each case.
- 4.7 - The hoses are to be limited to a length necessary to provide for relative movement between fixed and flexibly mounted items of machine/equipment or systems and are only to be used in length up to 2m. The hoses are to be installed in clearly visible and readily accessible locations at all times.

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 - The hoses are to be supplied by the manufacturer in compliance with the types 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 - Bureau Veritas Product Certificate is required.

5.4 - Each hose with end fittings is to be hydraulically pressure tested to 1.5 times the maximum working pressure under witnessing of a Society's Surveyor.

5.5 - For information, **TUBIFLEX SPA** has declared to Bureau Veritas the following production site:

TUBIFLEX SPA
STRADA TORINO 25
10043 ORBASSANO -TO
ITALY

6. MARKING OF PRODUCT

Each flexible assembly is to be clearly marked with at least:

- Manufacturer name or logo
- Date of manufacture
- Type designations
- Nominal diameter
- Pressure rating
- Temperature rating
- Society's brand as relevant

7. OTHERS

It is **TUBIFLEX SPA**'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 N° 23065/B0 BV issued by the Society.

*** END OF CERTIFICATE ***