Marine & Offshore

Certificate number: 36856/B0 BV
File number: ACM 135/2727/06
Product code: 2104I

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

www.veristar.com

TYPE APPROVAL CERTIFICATE

This certificate is issued to

BALFLEX PORTUGAL SA

PORTO - PORTUGAL

for the type of product

NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES

ZETAFLEX (DIN EN 855 R7; SAE J517 100R7) &
ZETAFLEX R7 STEELFLEX &
OMEGAFLEX (DIN EN 855 R8; SAE J517 100R8)

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: 23 Apr 2024

For Bureau Veritas Marine & Offshore,
At BV LISBON, on 23 Apr 2019,
Miguel MORGADO





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 SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

BALFLEX Rubber Hoses ZETAFLEX R7 & OMEGAFLEX R8

1.1 ZETAFLEX R7 Hose acc. to DIN EN 855 R7 / SAE J517 100R7

Nominal Size (inch)	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Internal Diameter (mm)	3,0	4,8	6,3	8,0	9,5	12,7	16,0	19,0	25,4
Max. Working Pressure (MPa)	28.0	21.0	19.0	19.0	16.0	14.0	10.5	9.0	7.0

Temperature range (°C): - 40 to +100

End connections: Balflex®2-piece fittings serie 23 with 20 serie ferrules.

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature.

1.2 ZETAFLEX R7 SteelFlex Hose

Nominal Size (inch)	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Internal Diameter (mm)	3,0	4,8	6,3	8,0	9,5	12,7	16,0	19,0	25,4
Max. Working Pressure (MPa)	35.0	30.0	27.5	24.0	22.0	17.5	14.0	11.5	10.0

Temperature range (°C): - 40 to +100

End connections: Balflex®2-piece fittings serie 23 with 20 serie ferrules.

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature.

1.3 OMEGAFLEX Hose R8 acc. to DIN EN 855 R8 / SAE J517 100R8

Nominal Size (inch)	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Internal Diameter (mm)	4,8	6,3	8,0	9,5	12,7	16,0	19,0	25,4
Max. Working Pressure (MPa)	35.0	35.0	30.0	28.0	24.5	19.5	16.5	14.0

Temperature range (°C): - 40 to +100

End connections: Balflex®2-piece fittings serie 23 with 20 serie ferrules.

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature.

1.4 Material Specification

Inner tube	Seamless oil resistant thermoplastic
Reinforcement	1 high tensile polyester braid (R7) 1 high tensile steel wire braid (R7 SteelFlex) 1 high tensile aramidic fiber braid (R8)
Outer tube	Black, oil, and weather resistant thermoplastic
Fittings	Carbon steel, zinc plated

2. DOCUMENTS AND DRAWINGS

- BALFLEX Catalogue, 2018- issue
- Instructions IT.PQ.07.02, 04 and 06 Rev.2 dated 01/03/2018; IT.PQ.07.31 Rev.2 dated 30/04/2018

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

3. TEST REPORTS

- Tests carried out: dimensional check, assembly test, leakage, hydraulic pressure test, change in length, according to DIN EN 855:2014 / SAE J517, and proof test, and burst test, according to DIN EN ISO 1402:2009 as reviewed on 04/04/2014
- Hydrostatic pressure test report dated 20/09/2018 (specimen ZETAFLEX 1/4" & 1/2")
- Hydrostatic pressure test report dated 19/09/2018 (specimen OMEGAFLEX 1/4" & 1/2")
- Impulse resistance test report N° 65-2018 dated 23/07/2018 & N° 63-2018 dated 09/07/2018 (specimen R8 1/2" & 1/4")
- Impulse resistance test report N° 60-2018 dated 02/07/2018 & N° 56-2018 dated 11/06/2018 (specimen R7 1/2" & 1/4")
- Electrical condutivity test report N° 8920404/PRT 13.L.1018/IR001 dated 29/02/2016
- Ozone resistance test performed according to ISO 7326:2016 during 72 hours at 40ºC as per test reports N° 20184000896/10-4en dated 16/07/2018 & N° 20184000896/20-4en dated 16/07/2018

4. APPLICATION / LIMITATION

4.1 May be used on the following services: fresh water and compressed air.

4.2 For use in compressed air applications the hose is to incorporate a single, double or more closely woven integral wire braid.

4.3 End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.

4.4 The installation of hose assemblies is to be in accordance with the manufacturer's instructions to take into consideration forces due to vibration. The hoses are not to be used on services when vibration test is required in Bureau Veritas Rules.

4.5 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 lengths up to 2 m. The hoses are to be installed in clearly visible and readily accessible locations at all times.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **BALFLEX Portugal SA** in compliance with the type and the requirements described in this certificate. This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 This certificate may be also used by other companies authorised by **BALFLEX Portugal SA** that would fall under the **BALFLEX** Products when same specifications, tolerances, equipment and quality control procedures are used. To this end, the concerned company shall have to apply for agreement by Bureau Veritas in writing.

5.4 BV product certificate is required.

5.5 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, **BALFLEX Portugal SA** has declared to Bureau Veritas the following production site:

BALFLEX Portugal SA: Rua Bouça dos Estilhadores 226/254, 4445-044 Alfena, Porto, PORTUGAL

6. MARKING OF PRODUCT

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

- Manufacturer name or logo (BALFLEX)
- Type designation
- Date of manufacture and lot #
- Society's brand as relevant

7. OTHERS

It is **BALFLEX Portugal SA**'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. 36856/A0 BV issued by the Society.

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