



Marine & Offshore

Certificate number: 11099/E0 BV

File number: ACM 135/2022/004

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

Stainless Steel Corrugated Hoses and Hose Assemblies SX-SUPERFLEX and SP-PARFLEX

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: 17 Jun 2026

For Bureau Veritas Marine & Offshore,

At BV VENEZIA, on 17 Jun 2021,

Sandro BRUSEGAN



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.veristarnb.com/veristarnb/jsp/viewPublicPdfTypepec.jsp?id=noe5hl2vib>

BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Stainless steel corrugated hose and hose assemblies with/without braids

1.1 Rtings

Type	Design	Size (mm)	Maximum working pressure * (bar)
SX-SUPERFLEX	Helical corrugations: - SX.T.9100-9150-9155	DN 6 and DN 8	175
SP-PARFLEX	Annular corrugations: - SP.T.9700-9750-9755-9770-9777 - SP.T.9600-9650-9655 - SP.T.9800-9850	DN 10 to DN 300	105
		DN 10 to DN 150	105
		DN 10 to DN 150	75
SP-PARFLEX	- SP.T.4755.24.006	DN 6	300
SP-PARFLEX	- SP.T.5750S.24.008	DN 8	175
SP-PARFLEX	SP.T.5700 - 5750.24/15	DN6 to DN25	150
SP-PARFLEX	SP.T.5600 - 5650.38	DN32 to DN100	55
SP-PARFLEX	SP.T.4750.24	DN6 to DN12	250

* Nominal service pressure depends on size and number of braids per manufacturer's catalogue. Pressure reduction factors at high temperatures specified by the manufacturer are to be observed

- Letter "T" in the reference identifies the bulk hose, for the hose assembly the letter "M" is used.
- Maximum working temperature: -200°C to 550 °C

1.2 Material specification

Part	Material
Hose	Stainless steel AISI 321 (1.4541), AISI 316 (1.4401), AISI 316L (1.4404) EN 10088-1
Braid	Stainless steel AISI 304 (1.4301) EN 10088-1, AISI 316L (1.4404) EN10088-1
Fittings	Stainless steel, Carbon steel, Nickel alloys

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

2. DOCUMENTS AND DRAWINGS

- Manufacturer's publications:
 - SUPERFLEX: Product specification C10 (uploaded on 20/03/2017).
 - PARFLEX: Product specification B10, B20, B30 (uploaded on 20/03/2017).
 - Fittings specification G110 Rev. 00
 - PARFLEX : Product specification B120 uploaded on 05/06/2020 for SP.T.4750 - 4755
 - SUPERFLEX: Product specification C70 uploaded on 04/03/2021 for SX.T.9455.23.006
 - PARFLEX : Product specification B100 uploaded on 05/06/2020 for SP.T.5700 - 5750.24/15
 - PARFLEX : Product specification B110 uploaded on 05/06/2020 for SP.T.5600 - 5650.38
- Technical data sheet for large diameters (PARFLEX) dated 26/03/2001
- Derating factors N° B205 Rev. 00
- Drawing PS 3595000 rev.A dated 10/02/2014 for SP.T.4755.24.006 DN 6
- Drawing N° PS 3476000 dated 09/05/2007 for SP.T.5750S.24.008
- Technical data sheet Rev.01 dated 18/05/2016 for SP.T.5750S.24.008

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

- Burst test reports N° 2624, 2625 dated 28.06.2001 & N° 2626 dated 09/07/2001 witnessed by a BV Surveyor.
- Impulse test report N° 53017216-A 2001 dated 28/09/2001.
- Bending test reports N° 2311/B to 2332/B.
- Fatigue test reports N° 2311/C to 2332/C & 2311/C1 to 2332/C1.

SP.T.4755.24.006 DN 6 :

- Test report N°089/2020 dated 30/01/2020 including burst and elongation test for SP.T.4755.24.006 DN 6
- Test report N°130/20 dated 16/09/2020 including Pliability test for SP.T.4755.24.006 DN 6
SP.T.5750S.24.008
- Test report N°088/2020 dated 30/01/2020 including burst and elongation test for SP.T.5750S.24.008
- Test report N°128/20 dated 16/09/2020 including Pliability test for SP.T.5750S.24.008
SP.T.4750.24.006 :
- Test report N°090/2020 dated 30/01/2020 including burst and elongation test for SP.T.4750.24.006
- Test report N°129/20 dated 16/09/2020 including Pliability test for SP.T.4750.24.006
SP.T.5650.38.032 to SP.T.5650.38.100 :
- Test report N°042/19 dated 04/10/2019 including burst test for SP.T.5650.38.032
- Test report N°044/19 dated 30/01/2019 including pliability test for SP.T.5650.38.032
- Test report N°022/18 dated 08/06/2018 including U-bend test for SP.T.5650.38.032
- Test report N°025/18 dated 22/06/2018 including burst test for SP.T.5650.38.040
- Test report N°075/19 dated 12/12/2019 including pliability test for SP.T.5650.38.040
- Test report N°016/18 dated 15/05/2018 including U-bend test for SP.T.5650.38.040
- Test report N°041/19 dated 06/02/2019 including burst test for SP.T.5650.38.050
- Test report N°076/19 dated 12/12/2019 including pliability test for SP.T.5650.38.050
- Test report N°023/18 dated 15/06/2018 including U-bend test for SP.T.5650.38.050
- Test report N°043/19 dated 04/10/2019 including burst test for SP.T.5650.38.065
- Test report N°046/19 dated 07/02/2019 including pliability test for SP.T.5650.38.065
- Test report N°027/18 dated 26/06/2018 including U-bend test for SP.T.5650.38.065
- Test report N°039/19 dated 18/01/2019 including burst test for SP.T.5650.38.080
- Test report N°045/19 dated 05/02/2019 including pliability test for SP.T.5650.38.080
- Test report N°028/18 dated 30/07/2018 including U-bend test for SP.T.5650.38.080
- Test report N°040/19 dated 18/01/2019 including burst test for SP.T.5650.38.100
- Test report N°050/19 dated 07/06/2019 including pliability test for SP.T.5650.38.100
- Test report N°029/18 dated 07/09/2018 including U-bend test for SP.T.5650.38.100
SP.T.5750.24/15.006 to SP.T.5750.24/15.025 :
- Test report N°113/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.006
- Test report N°114/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.008
- Test report N°115/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.010
- Test report N°116/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.012
- Test report N°145/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.016
- Test report N°146/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.020
- Test report N°144/21 dated 02/02/2021 including burst and elongation test for SP.T.5750.24.025
- Test report N°132/21 dated 02/02/2021 including pliability test for SP.T.5750.24.006
- Test report N°133/21 dated 02/02/2021 including pliability test for SP.T.5750.24.008
- Test report N°134/21 dated 02/02/2021 including pliability test for SP.T.5750.24.010
- Test report N°135/21 dated 02/02/2021 including pliability test for SP.T.5750.24.012
- Test report N°137/21 dated 02/02/2021 including pliability test for SP.T.5750.24.020

4. APPLICATION / LIMITATION

4.1 May be used for the following services on board:

- Sea water and fresh water, lubricated and hydraulic oil, fuel oil, steam and condensate, compressed air, gases, fire fighting systems, refrigerant gases including ammonia, sanitary systems and drains, LNG and LPG systems.

4.2 The hoses assemblies intended to be used for ammonia belong to class I, those intended to be used for other refrigerants belong to class II according to the Bureau veritas requirements Pt C, Ch 1, Sec 13.

4.3 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.

4.4 The use of stainless steel is to be restricted according to the Society's Rules.

- 4.5 The use of loose flanges is only permitted for Class III water pipes and open-ended lines.
- 4.6 Tapered threaded end fittings are not to be used in engine rooms, nor in any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction..
- 4.7 The hoses assemblies are to be installed according to manufacturer's instructions and the Bureau Veritas Rules.
- 4.8 End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.
- 4.9 Not to be used in case of high level of vibrations where fitted to engines, pumps, compressors and other sources of high vibrations.
- 4.10 Not to be used where pressure impulses may occur.

5. PRODUCTION SURVEY REQUIREMENTS

- 5.1 The products are to be supplied by **TUBIFLEX SPA** 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 1.5 the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.
- 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 hose shall at least clearly and indelibly marked with:

- Manufacturer name or logo
- Date of manufacture (month/year)
- Type designation
- 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° 11099/D0 BV issued by the Society.

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