



Marine & Offshore

Certificate number: 07618/F0 BV

File number: ACM 135/101/2

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

Danfoss Power Solutions II GmbH

Baden-Baden - GERMANY

for the type of product

NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES

RUBBER HOSES, types: 2651 and FC195

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships

BUREAU VERITAS Rules for the Classification of Offshore Units

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: 30 Jun 2028

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 30 Jun 2023,

Heiko Lange

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 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Rubber hoses, types: 2651 and FC195

End fittings: - Medium Pressure series for type: 2651

- Crimp fittings series for type: FC195

1.1 Identification and technical data:

Hose type: 2651

Part number	O.D. [mm]	Max. working pressure [bar]	Min. bending radius [mm]
2651-4	13.2	207	76
2651-5	14.8	207	86
2651-6	17.3	155	102
2651-8	19.0	138	117
2651-10	23.4	120	140
2651-12	27.4	103	165
2651-16	31.6	55	187
2651-20	38.1	43	229
2651-24	44.5	35	267
2651-32	56.4	24	337
2651-40	73.2	24	610

Temperature range: - 40 °C to + 100 °C

Air: not exceed +71°C

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

Hose type: FC195

Part number	O.D. [mm]	Max. working pressure [bar]	Min. bending radius [mm]
FC195-04	18.3	396	102
FC195-06	22.2	345	127
FC195-08	25.4	293	178
FC195-10	28.6	225	203
FC195-12	32.5	207	241
FC195-16	40.9	172	305
FC195-20	51.0	155	419
FC195-24	58.7	125	508
FC195-32	71.4	103	635

Temperature range: - 40 °C to + 150 °C

Except: -40°C to +93°C maximum for phosphate-ester base fluids

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

1.2 Material specification:

Hose type	2651	FC195
Tube	Nitrile rubber inner tube	AQP inner tube
Reinforcement	Polyester inner braid, single wire reinforcement	two braids of high tensile steel wire
Cover	Chloroprene rubber cover	AQP cover
Fittings	Carbon steel	Carbon steel

2. DOCUMENTS AND DRAWINGS:

According to following drawings and documents:

Drawing no.	Rev.	Designation
2651	BR	AEROQUIP HOSE
FC195	S	AEROQUIP HOSE

3. TEST REPORTS:

- Test report no: 7/99 at WTD 71, Kiel / GERMANY, dated 21.04.1999
- Test report no: 104/95 at WTD 71, Kiel / GERMANY, dated 30.10.95
- Test report no: 112/06 at WTD 71, Kiel / GERMANY, dated 23.10.2006
- Test report no: 69/96 at WTD 71, Kiel / GERMANY, dated 12.11.96
- Test report no: 77/96 at WTD 71, Kiel / GERMANY, dated 14.11.96
- Test report no: 124/95 at WTD 71, Kiel / GERMANY, dated 07.11.95
- Test report no: 78/96 at WTD 71, Kiel / GERMANY, dated 14.11.96
- Test report no: 48/96 at WTD 71, Kiel / GERMANY, dated 31.10.96
- Test report no: 73/96 at WTD 71, Kiel / GERMANY, dated 13.11.96

4. APPLICATION / LIMITATION:

- 4.1 May be used for the following media: sea water and fresh water / fuel oil / lubricating oil / hydraulic oil / compressed air.
- 4.2 Before using on cargo piping system on board chemical tankers, the compatibility of materials with intended cargoes should be confirmed. The maximum working pressure for cargo piping system is not to exceed one fifth of the burst pressure.
- 4.3 End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.
- 4.4 Taper threaded end connections are not to be used for liquid fuel or oil circuits in engine rooms nor any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.
- 4.5 The hose assemblies are to be installed according to the Society's Rules requirements and the manufacturer's instructions.
- 4.6 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.
- 4.7 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.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 The hoses are to be supplied by **Danfoss Power Solutions II GmbH** 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 For information, **Danfoss Power Solutions II GmbH** has declared to BUREAU VERITAS the following production site:
Danfoss Power Solutions II GmbH, Baden Baden / GERMANY
- 5.5 Each hose with end fittings is to be hydraulic pressure tested to twice the maximum working pressure under witnessing of a Society's Surveyor.

6. MARKING OF PRODUCT:

Each hose with end fittings is to be clearly marked as follows to avoid any wrong utilization:

- Manufacturer's name or logo
- Type designation
- Maximum working pressure
- Maximum and minimum working temperature
- Date of manufacture
- BUREAU VERITAS' marks

7. OTHERS:

- 7.1 It is **Danfoss Power Solutions II GmbH**'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.
- 7.2 This certificate supersedes the Type Approval Certificate N° 07618/E0 BV issued on 01 Aug 2018 by the Society.

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