Type Approval Certificate

[Flexible Rubber Hoses Assembly]

Initial Approval 17 December 2024

Manufacturer Danfoss Power Solutions II, LLC
1225 West Main Street, Van Wert, OH 45891 USA

Product Description Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

- Type : FC234
- Application : Lubricating, Hydraulic oil systems, Water cooling systems

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 5 Ch. 6 Sec. 1 and Annex 5-9 of the Rules for Classification of Steel Ships.
Ch. 3 Sec. 17 of Guidance for Approval of Manufacturing Process and Type Approval, Etc.

This Certificate is valid until 16 December 2029

Issued at Busan, Korea on 17 December 2024

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME24059338838) and certificate No.(NYK49068-HS001).

KOREAN REGISTER

General Manager of
Marine & Ocean Equipment Team

Note : *1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.*
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 17 December 2024

A. Product Description

1. Product Specification

1) Size and Pressure Range

Part Number	DN	Hose I.D [mm]	Maximum Working Pressure [bar]
FC234-05	6	6.4	103
FC234-06	8	7.9	103
FC234-08	10	10.3	86
FC234-10	12	12.7	86
FC234-12	16	15.9	52
FC234-16	22	22.2	28

2) Production Places
- Hose Assembling and Coupling : Danfoss Power Solutions II, LLC (USA)
- Hose Manufacturer : Danfoss Power Solutions II, LLC (USA)
  Danfoss POLIMER KAUCUK SAN. VE PAZ. (Turkey)

2. Approved Drawings and Documents

1) Approved Drawings
- Hose Drawing : FC234 Rev.P
- Fitting Drawing : FJ3114-0606S Rev.D

3. Test Reports, etc.

1) Test Report (TR-007928A) dated 26 June 2012
2) Test Report (TR-015655A) dated 28 April 2016
3) Test Report (TR-047677A) dated 25 May 2022
4) Summary Test Report (TR-053457A) dated December 2023
5) Fire Test Reports (2063.0ISO110/23 to 2063.0ISO110/23) issued by LAPI dated 11 December 2023
6) Burst Test Reports dated 29 January 2024

B. Approval Condition

1. Application & Limitation

1) The number of flexible hoses is to be kept to minimum and to be limited for the purpose stated on the certificate.
2) Flexible Hose assemblies are not to be installed where they may be subjected to torsional deformation(twisting) under normal operating conditions.
3) The flexible hoses in high pressure fuel oil injection systems are not to be accepted.
4) The number of flexible hoses is to be kept to minimum and to be limited for the purpose stated on the certificate.
5) The flexible hoses are to be installed in clearly visible and readily accessible locations.
6) The certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered directly by the Manufacturer.
7) The installation and maintenance of the flexible hose assemblies are to be in accordance with the manufacturer's instructions and use limitations with particular attention to the following.
   - Orientation
   - End connection support (where necessary)
   - Avoidance of hose contact that could cause rubbing and abrasion
   - Minimum bend radius

2. Individual Product Cert. and Drawing Approval Requirement

1) Individual Product Certification is required where the flexible hoses are intended to use for Class Ⅰ & Ⅱ piping system.

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Date of Issue : 17 December 2024

3. Marking

1) Hoses should be marked with the following items.
   - Hose manufacturer' s name or trademark
   - Date of manufacture (month/year)
   - Designation type reference
   - Nominal diameter
   - Pressure rating
   - Temperature rating
2) Where a flexible hose assemblies are made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing.

4. Others

Nil

< End of Certificate >

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