

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Refrigerant Filter**

with type designation(s)
FIA, FIA SS

Issued to

Danfoss A/S
KOLDING, Denmark

is found to comply with

Det Norske Veritas' Rules for Classification of Ships Pt.4, Ch.6 "Piping Systems"
Det Norske Veritas' Standards for Certification 2.9 No. 5-794.40

Application :

Approved for use in refrigerant piping systems containing Group 1 or Group 2 refrigerants as defined in DNV Ship Pt.4 Ch.6 Sec.6 C100.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Temperature range:	Operating media:	Design pressure:
FIA	-55 °C to +150 °C	Group 1 or 2 refrigerants	See cert
FIA SS	-55 °C to +150 °C	Group 1 or 2 refrigerants	See cert

This Certificate is valid until **2019-10-13**.

Issued at **Høvik** on **2015-10-14**

DNV GL local station: **Fredericia**

for **DNV GL**

Approval Engineer: **Simon Ratcliffe**

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Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Angleway and straightway strainers based on a valve body design intended to be used in refrigerant piping.

Strainer body design as per design standard EN 12284. Designs approved according to burst test reports/DNV TAP.

Welding connections according to: DIN EN 10220 or ANSI/ASME B36.10.

Materials – Type FIA

Part	Material	Grade and Standard	
		European	North American
Body	Carbon steel	G20Mn5QT EN 10213-3	ASTM A352 LCC
		P285QH EN 10222-4	ASTM A350 LF2
Cover	Carbon Steel	G20Mn5QT EN 10213-3	ASTM A352 LCC
		P285QH EN 10222-4	ASTM A350 LF2
		P275NL1 EN 10028-3	ASTM A662 A
Bolt	Stainless steel	A2-70 ISO 3506	AISI 303 UNS S30300
Pressure relief screw	Stainless steel	X8CrNiS18-9 EN 10088	Type 308 UNS S30900

Materials – Type FIA SS

Part	Material	Grade and Standard	
		European	North American
Body & Bonnet	Stainless steel	X5CrNi18-10 EN 10222	ASTM A182 F304
		GX5CrNi19-10 EN 10213	ASTM A743 CF8
Bolt	Stainless steel	A2-70 ISO 3506	Type 308 UNS S30900

Application/Limitation

Models	Sizes	Pressure rating	
		Standard	Special
FIA	DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80, DN100, DN125, DN150	PN52	PN65
	DN200	PN52	N/A
	DN250, DN300	PN40	N/A
FIA SS	DN15, DN20, DN25, DN32, DN40, DN50, DN65	PN52	N/A

Minimum design temperature: -55 °C

Maximum design temperature: 150 °C

Screwed-on bonnets are normally not to be used for valves/strainers with nominal diameter exceeding 40 mm in Class I piping systems, for valves on ship's side and bottom or for valves in systems for flammable fluids. (DNV Ship Pt.4 Ch.6 Sec.8 C103).

Type Approval documentation

Tests carried out

Burst testing

Production testing

Each strainer body shall be subjected to a hydrostatic pressure test at minimum 1.5 times the design pressure. The test pressure need not be more than 70 bar in excess of the design pressure.

Holding time: 2 min. for sizes up to 100 mm/4"

Job Id: **262.1-018278-1**
Certificate No: **TAP000000S**

5 min. for sizes 125 - 250 mm/5" - 10",
10 min. for sizes 300 mm - 450 mm/12" - 16",
No leakage is permitted.

Certification

DNV product certificates are required for valves/strainers with D N > 100 mm and PN > 16 bar. For other valves/strainers manufacturer's certificate may be accepted.

Material certificates for the strainer bodies are required in line with DNV Ship Pt.4 Ch.6 Sec.2 Table A2. Note that the complete refrigerant circuit, including both low and high pressure sides, shall be considered as pertaining to Class II piping systems except R744 (CO₂) with design pressure above 40 bar which shall pertain to Class I (DNV Ship Pt.4 Ch.6 Sec.6 E103).

Marking of product

Each strainer shall be clearly marked for identification. The identification marking may be performed on the body or on a plate of non-corrosive material. When a metallic plate is used, the plate shall be permanently fixed to the body.

Identification marking on the body shall be located to nonstressed areas and shall be clearly legible. The identification marking shall as a minimum include the following:

- manufacturer's name or trade mark
- type designation
- size
- maximum design pressure or pressure class
- arrow to indicate direction of flow.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with.