

Data sheet

Strainers in stainless steel

Type FIA SS



In certain specific areas such as outdoor applications and corrosive atmospheres, such as coastal installations, there is a need for high surface protection to prevent failure due to corrosion.

Today's food safety standards often call for daily treatment with detergents to protect against bacteria growth, again producing a need for high surface protection.

FIA SS strainers are a range of angle-way and straight-way strainers which are carefully designed to give favourable flow conditions.

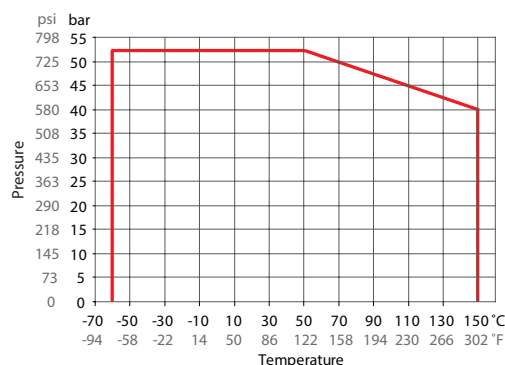
The design makes the strainer easy to install, and ensures quick strainer inspection and cleaning.

FIA SS strainers are used ahead of automatic controls, pumps, compressors etc., for initial plant start-up and where permanent filtration of the refrigerant is required. The strainer reduces the risk of undesirable system breakdowns and reduces wear and tear on plant components.

Features

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO₂) and all flammable refrigerants.
- Designed to give favourable flow conditions.
- Housing is made of special cold resistant stainless steel approved for low temperature operations.
- Easy to disassemble for inspection and service.
- Butt-weld DIN and ANSI connections.
- Max. operating pressure: 52 bar g (754 psig)
- Temperature range: -60/+150°C (-76 +302°F).
- Compact and light valves for easy handling and installation.
- Classification: DNV, CRN, BV, EAC etc.
To get an updated list of certification on the products please contact your local Danfoss Sales Company.

Pressure and temperature range



— FIA SS DN15-DN65

Design
Connections

Available with the following connections:

- Butt-weld DIN (EN 10220)
DN 15 - 65 (½ - 2½ in.)
- Butt-weld ANSI (B 36.19M)
DN 15 - 65 (½ - 2½ in.)

Strainer Insert

A filter grid and filter net of stainless steel ensure long element life. The filter net offers a very high degree of cleanability.

Housing

Made of stainless steel approved for low temperature operations.

Pressure Equipment Directive (PED)

FIA SS strainers are approved in accordance with the European standard specified in the Pressure Equipment Directive and are CE marked. For further details / restrictions - see Installation Instruction.

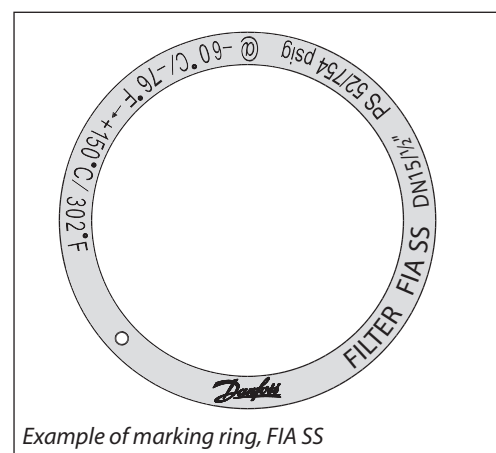
Installation/Maintenance

The strainer is designed to resist high internal pressures. However, the piping system in general should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion.

Install the strainer with the cover in downward position.

Danfoss recommends replacement/cleaning of the strainer when the differential pressure loss >0.5 bar (7.3 psi) in the liquid line and >0.05 bar (0.7 psi) in the suction line. The max. permissible differential pressure is 1 bar (15 psi).

For further information refer to installation instruction for FIA SS.

Identification:


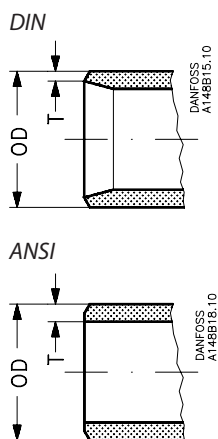
Example of marking ring, FIA SS



FIA SS		
Nominal bore	DN ≤ 25 (1 in.)	DN 32-65 mm (1¼ - 2½ in.)
Classified for	Fluid group I	
Category	Article 3, paragraph 3	II

Technical data

- **Refrigerants**
Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO₂) and all flammable refrigerants. For further information please see installation instruction for FIA SS.
- **Temperature range**
-60°C/+150°C (-76°F/+302°F).
- **Max. working pressure:**
52 bar g (754 psi g).

Connections


Size	OD	T
Butt-weld DIN (EN 10220)		
15	mm	21.3
½	in.	0.839
20	mm	26.9
¾	in.	1.059
25	mm	33.7
1	in.	1.327
32	mm	42.4
1¼	in.	1.669
40	mm	48.3
1½	in.	1.902
50	mm	60.3
2	in.	2.37
65	mm	76.1
2½	in.	3

Size	OD	T
Butt-weld ANSI (B 36.19M, SCHEDULE 40)		
15	mm	21.3
½	in.	0.839
20	mm	26.9
¾	in.	1.06
25	mm	33.7
1	in.	1.33
32	mm	42.4
1¼	in.	1.67
40	mm	48.3
1½	in.	1.9
Butt-weld ANSI (B 36.19M, SCHEDULE 10)		
50	mm	60.3
2	in.	2.37
65	mm	73
2½	in.	2.87

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Selection of strainer size

The mesh aperture size of the strainer must satisfy the requirements stated by the suppliers of the equipment to be protected.

The following recommendations of aperture size apply in general to refrigeration installations:

All lines

First start up: **50 μ**
 (Use filter element with removable insert for FIA SS DN15-40 or separate filter bag for FIA SS DN 50-65. 50 μ insert should normally be removed after the first 24 hours of operation)

Liquid Lines

Ahead of pumps: **500 μ** [38 mesh]
 After pumps: **150 μ** [100 mesh] / 250 μ [72 mesh]
 In front of AKVA valves **100 μ** [150 mesh]

Protection of automatic regulation equipment

Generally **150 μ** [100 mesh] / 250 μ [72 mesh]
 Sensitive equipment, e.g.
 suction regulators with low temperature **250 μ** [72 mesh]

Definition

Mesh is the number of threads per inch.
 μ (microns) is the distance between two threads ($1\mu = 1/1000$ mm).

Suction Lines

Ahead of screw compressor **250 μ** [72 mesh]
 Ahead of piston compressor **150 μ** [100 mesh]

Flow coefficient (DIN/ANSI)

Connection size (DN)	μ	mesh	wire	wire	free space	screen area			
						Plain elements		Pleated elements	
						cm ²	in ²	cm ²	in ²
FIA SS			mm	in.	%				
15 - 20 (½" - ¾")	100		0.068	0.003	35	25	3.9	45	7.0
	150	100	0.10	0.004	36	25	3.9	45	7.0
	250	72	0.10	0.004	51	25	3.9	45	7.0
	500	38	0.16	0.006	57.6	25	3.9	45	7.0
25 - 40 (1" - 1½")	100		0.068	0.003	35	71	11	160	25.0
	150	100	0.10	0.004	36	71	11	160	25.0
	250	72	0.10	0.004	51	71	11	160	25.0
	500	38	0.16	0.006	57.6	71	11	160	25.0
50 (2")	100		0.068	0.003	35	71	11	200	31.2
	150	100	0.10	0.004	36	87	13.5	200	31.2
	250	72	0.10	0.004	51	87	13.5	200	31.2
	500	38	0.16	0.006	57.6	87	13.5	200	31.2
65 (2½")	150	100	0.10	0.004	36	127	19.7	305	47.6
	250	72	0.10	0.004	51	127	19.7	305	47.6
	500	38	0.16	0.006	57.6	127	19.7	305	47.6

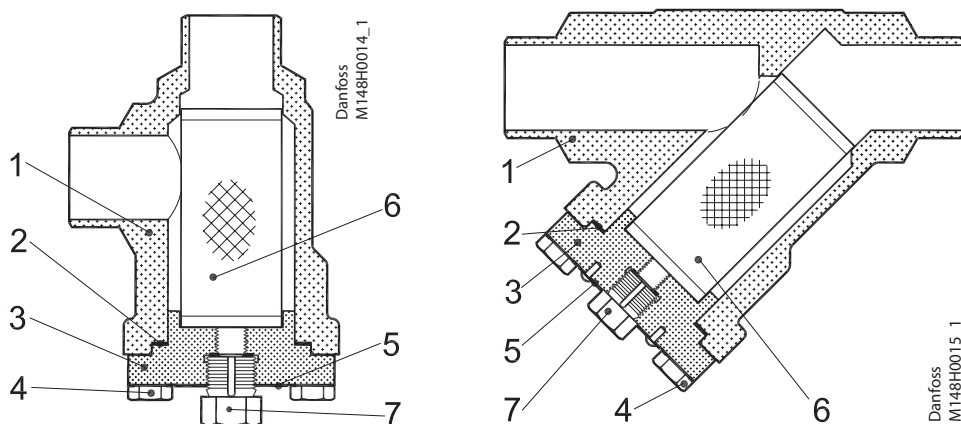
K_v values

DN	FIA SS angle - plain filter net				FIA SS angle - pleated filter net		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	3.3	3.4	3.5	3.7	4.2		
20	6.9	7.1	7.3	7.7	8.8		
25	13.8	14.0	14.5	15.2	17.2	17.9	
32	23.0	23.8	24.7	25.5	29.2	30.5	
40	25.1	25.5	26.4	28.1	31.4	32.6	
50	45.1	45.9	47.6	50.2	56.7	58.8	62.0
65		56.1	57.8	60.4	69.3	71.4	74.6

DN	FIA SS straight - plain filter net				FIA SS straight - pleated filter net		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	2.5	2.6	2.7	2.8	3.3		
20	5.3	5.4	5.6	5.9	6.9		
25	10.5	10.7	11.1	11.6	13.8	14.5	
32	17.6	18.2	18.9	19.5	23.9	24.7	
40	19.2	19.5	20.2	21.5	25.5	26.4	
50	34.5	35.1	36.4	38.4	45.9	47.6	50.2
65		42.9	44.2	46.2	56.1	57.8	60.4

Material specification

FIA SS 15 - 65 (½ in. - 2½ in.)

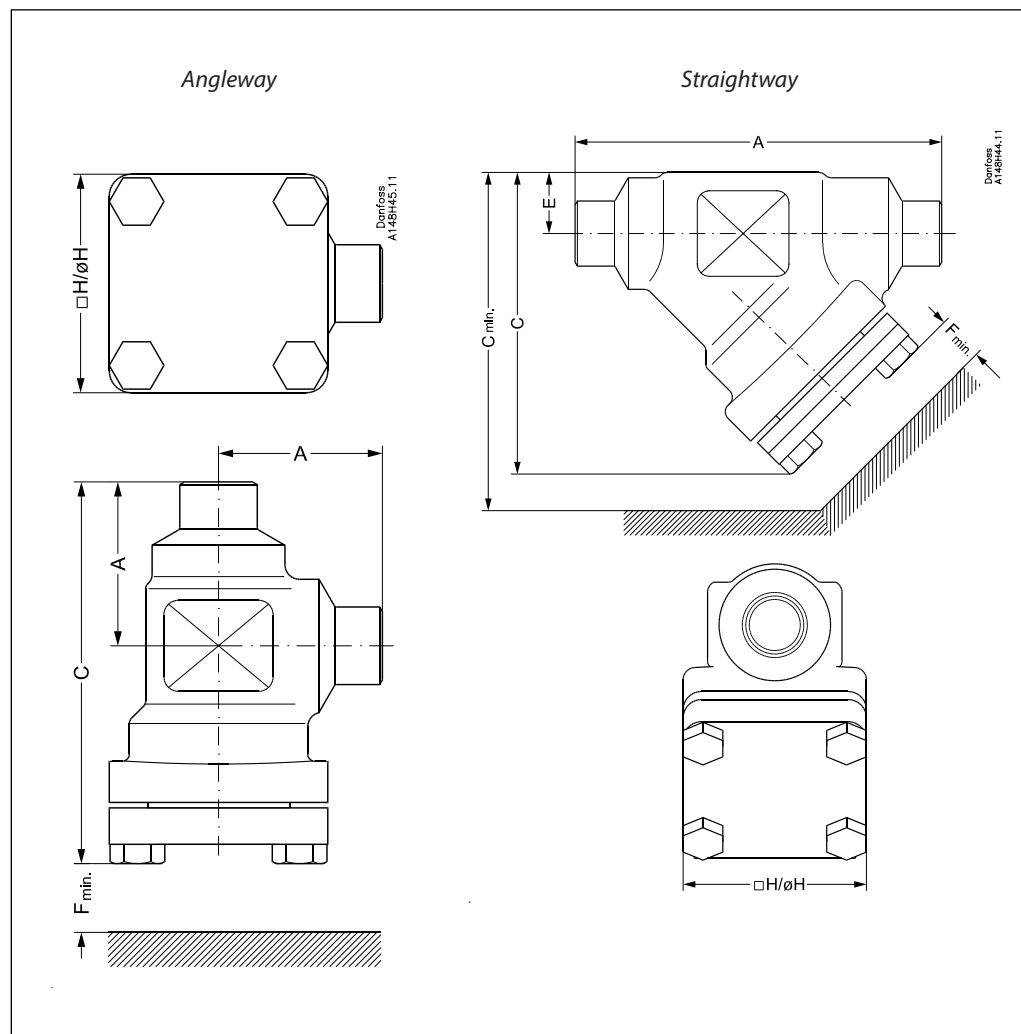


FIA SS 15-65 (½ in. - 2½ in.)

No.	Part	Material	DIN	ISO	ASTM
1	Housing	Stainless steel (FIA SS only)	GX5CrNi19-10 EN10213-4		AISI 304
2	Gasket	Fibre, Non-asbestos			
3	Cover	Stainless steel (FIA SS only)	GX5CrNi19-10 EN10213-4		AISI 304
4	Bolts	Stainless steel	A2-70	A2-70	Type 308
5	Marking label	Aluminium			
6	Filter element	Stainless steel			
7	Pressure relief (screw)	Stainless steel			

Dimensions and weights

FIA SS 15 - 65



Angleway

Strainer size		A	C	H	F _{min.}	Weight
FIA SS 15-20	mm	45	105	60	68	1.1 kg
(½" - ¾")	in.	1.77	4.13	2.36	2.68	2.4 lbs
FIA SS 25-40	mm	55	132	70	95	1.7 kg
(1" - 1½")	in.	2.17	5.20	2.76	3.74	3.7 lbs
FIA SS 50	mm	60	132	77	92	2.8 kg
(2")	in.	2.36	5.20	3.03	3.62	6.2 lbs
FIA SS 65	mm	70	152	90	107	3.8 kg
(2½")	in.	2.76	5.98	3.54	4.21	8.4 lbs

Straightway

Valve size		A	C	C _{min.}	H	E	F _{min.}	Weight
FIA SS 15-20	mm	120	99	133	60	20	68	1.4 kg
(½" - ¾")	in.	4.72	3.90	5.24	2.36	0.79	2.68	3.1 lbs
FIA SS 25-40	mm	155	129	177	70	26	95	2.4 kg
(1" - 1½")	in.	6.10	5.08	6.97	2.76	1.02	3.74	5.3 lbs
FIA SS 50	mm	148	138	184	77	32	92	3.5 kg
(2")	in.	5.83	5.43	7.24	3.03	1.26	3.62	7.7 lbs
FIA SS 65	mm	176	165	219	90	40	107	5.3 kg
(2½")	in.	6.93	6.50	8.62	3.54	1.57	4.21	11.7 lbs

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Ordering

The table below is used to identify the strainer required. Please note that you have to order **FIA SS strainer without element, a strainer element and accessories.**

Example:

FIA SS 50 D ANG + FIA-X 50 150 μ Strainer Element + Filter Bag = **148H5757 + 148H3130 + 148H3150**

Size		Type	FIA SS Without Filter Element	Filter Element 100 μ 150 mesh	Filter Element 150 μ 100 mesh	Filter Element 250 μ 72 mesh	Filter Element 500 μ 38 mesh	Pleated filter element 150 μ 100 mesh	Pleated filter element 250 μ 72 mesh	Pleated filter element 500 μ 38 mesh
mm	in.									

Butt-weld DIN (EN 10220) - Angleway

Size (mm)	Size (in.)	Type	Code	148H3122	148H3124	148H3126	148H3128	148H3303	148H3363	
15	1/2	FIA SS 15 D ANG	148B5295							-
20	3/4	FIA SS 20 D ANG	148B5383							
25	1	FIA SS 25 D ANG	148B5492							
32	1 1/4	FIA SS 32 D ANG	148B5587	148H3123	148H3125	148H3127	148H3129	148H3304	148H3269	-
40	1 1/2	FIA SS 40 D ANG	148B5666							
50	2	FIA SS 50 D ANG	148B5757	148H3157	148H3130	148H3138	148H3144	148H3179	148H3184	148H3189
65	2 1/2	FIA SS 65 D ANG	148B5851	-	148H3131	148H3139	148H3145	148H3180	148H3185	148H3190

Butt-weld ANSI (B 36.19M SCHEDULE 10) - Angleway

Size (mm)	Size (in.)	Type	Code	-	148H3131	148H3139	148H3145	148H3180	148H3185	148H3190
65	2 1/2	FIA SS 65 A10 ANG	148B6498							

Butt-weld DIN (EN 10220) - Straightway

Size (mm)	Size (in.)	Type	Code	148H3122	148H3124	148H3126	148H3128	148H3303	148H3363	
15	1/2	FIA SS 15 D STR	148B5296							-
20	3/4	FIA SS 20 D STR	148B5384							
25	1	FIA SS 25 D STR	148B5493							
32	1 1/4	FIA SS 32 D STR	148B5588	148H3123	148H3125	148H3127	148H3129	148H3304	148H3269	-
40	1 1/2	FIA SS 40 D STR	148B5667							
50	2	FIA SS 50 D STR	148B5758	148H3157	148H3130	148H3138	148H3144	148H3179	148H3184	148H3189
65	2 1/2	FIA SS 65 D STR	148B5852	-	148H3131	148H3139	148H3145	148H3180	148H3185	148H3190

Butt-weld ANSI (B 36.19M SCHEDULE 40) - Straightway

Size (mm)	Size (in.)	Type	Code	148H3122	148H3124	148H3126	148H3128	148H3303	148H3363	
15	1/2	FIA SS 15 A40 STR	148B6493							-
20	3/4	FIA SS 20 A40 STR	148B6494							
25	1	FIA SS 25 A40 STR	148B6495							
32	1 1/4	FIA SS 32 A40 STR	148B6496	148H3123	148H3125	148H3127	148H3129	148H3304	148H3269	-
40	1 1/2	FIA SS 40 A40 STR	148B6497							

Butt-weld ANSI (B 36.19M SCHEDULE 10) - Straightway

Size (mm)	Size (in.)	Type	Code	148H3157	148H3130	148H3138	148H3144	148H3179	148H3184	148H3189
50	2	FIA SS 50 A10 STR	148B5758							
65	2 1/2	FIA SS 65 A10 STR	148B6499	-	148H3131	148H3139	148H3145	148H3180	148H3185	148H3190

- D = Butt-weld DIN
- A = Butt-weld ANSI
- ANG = Angleway
- STR = Straightway

Accessories

Part	Accessory for	Code number
Filter element μ 150 with removable element μ 50 for the first start up	FIA SS 15-20	148H3301
	FIA SS 25-40	148H3302
Part	Accessory for	Code number
Filter bag	FIA SS 50	148H3150
	FIA SS 65	148H3151
Part	Accessory for	Code number
Blind nut with gasket	FIA SS 50 - 65	148H3450

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