

Data sheet

Strainer

Type FIA 250-300 (10-12 in.)



FIA 250-300 (10-12 in.) strainers are a range of angleway 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 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.

FIA 250-300 (10-12 in.) strainers are equipped with a screen mesh of stainless steel, available in sizes 150 and 250 (microns*), (US 100 and 72 mesh*).

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

Features

- Applicable to HC, HCFC, HFC, R717 (Ammonia) and R744 (CO₂)
- Available with DIN and ANSI connections.
- Filter net of stainless steel mounted direct. without extra gaskets means easy servicing.
- FIA 250-300 (10-12 in.) can be equipped with a magnetic insert for detention of iron particles and other magnetic particles.
- Each strainer clearly marked with type, size and performance range.
- Housing and bonnet of low temperature steel in accordance with the requirements of the Pressure Equipment Directive and those of other international classification authorities.
- Temperature range: $-60/+150^{\circ}\text{C}$ ($-76/+302^{\circ}\text{F}$)
- Max. working pressure: 40 bar g (580 psi g)
- Classification: DNV, CRN, BV, EAC etc. To get an updated list of certification on the products please contact your local Danfoss Sales Company.

Design

Connections

Available with the following connections:

- Butt-weld DIN (EN 10220)
DN 250 - 300 (10-12 in.)
- Butt-weld ANSI (B 36.10 Schedule 40),
DN 250 - 300 (10-12 in.)

Housing

The strainer housing is made of special, cold resistant steel.

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.

Pressure Equipment Directive (PED)

FIA 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



Nominal bore	DN 250 mm (10 in.)	DN 300 (12 in.)
Classified for	Fluid group I	
Category	III	IV

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.

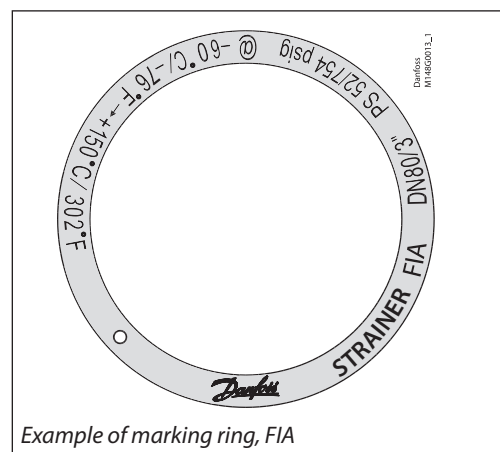
(0.7 psi) in the suction line. The max. permissible differential pressure is 1 bar (15 psi).

For further information refer to installation instruction for FIA.

Install the strainer with the cover in downward position.

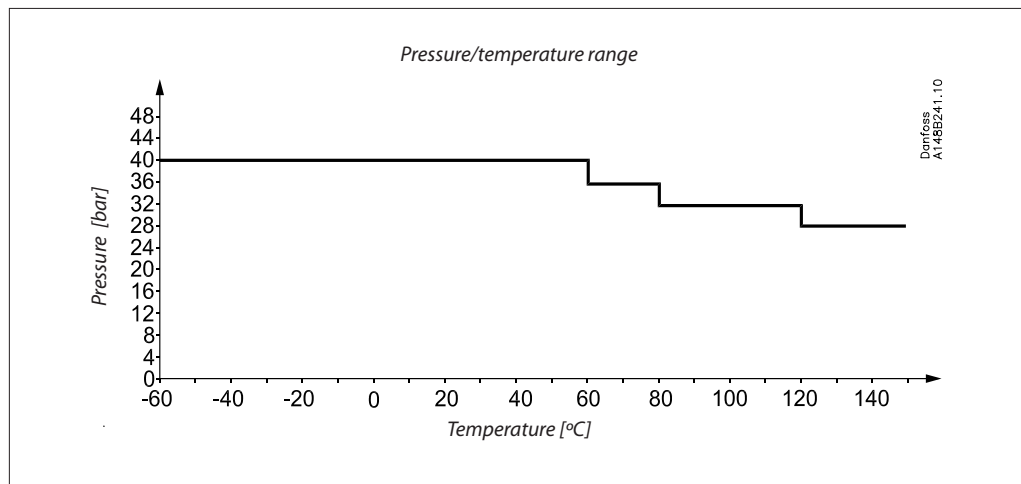
Danfoss recommends replacement/cleaning of the strainer when the differential pressure loss >0.5 bar (7.3 psi) in the liquid line and >0.05 bar

Identification:



Technical data

- *Refrigerants*
Applicable to HC, HCFC, HFC, R717 (Ammonia) and R744 (CO2)
- *Pressure range*
40 bar g (580 psi g) at -60°C to +60°C (-76°F to +140°F)
36 bar g (522 psi g) at +60°C to +80°C (+140°F to +176°F)
32 bar g (464 psi g) at +80°C to +120°C (+176°F to +248°F)
28 bar g (406 psi g) at +120°C to +150°C (+248°F to +302°F)
- *Temperature range*
-60/+150°C (-76/+302°F)



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:

- Liquid Lines*
After pumps: **150μ** [100 mesh] / 250μ [72 mesh]
In front of AKVA valves **100μ** [150 mesh]
- Protection of automatic regulation equipment*
Generally **150μ** [100 mesh] / 250μ [72 mesh]
Sensitive equipment, e.g. suction regulators with low temperature **250μ** [72 mesh]
- Suction Lines*
Ahead of screw compressor **250μ** [72 mesh]
Ahead of piston compressor **150μ** [100 mesh]

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

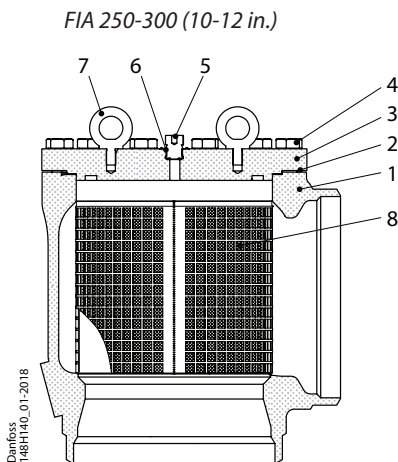
Flow coefficient (DIN/ANSI)

Connection size (DN)	μ	mesh	wire mm	wire in.	free space %	screen area	
						Plain inserts	
						cm ²	in ²
250 (10")	150	100	0.10	0.004	36	1800	70.9
	250	72	0.10	0.004	51	1800	70.9
300 (12")	150	100	0.10	0.004	36	2590	102.0
	250	72	0.10	0.004	51	2590	102.0

K_v values

DN	FIA angle - plain filter net	
	μ150	μ250
250	784.5	808.9
300	1062.3	1095.4

Material specification

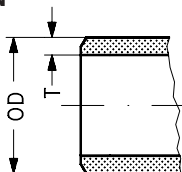


FIA 250-300 (10-12 in.)

No.	Part	Material	DIN	ISO	ASTM
1	Housing	Steel	G20Mn5QT, 10213-3 ----- P285QH+QT, 10222-4		LCC, A352 ----- LF2, A350
2	Gasket	Fibre, Non-asbestos			
3	Cover	Steel	P285QH EN10222-4 ----- P275NL1 or 2 EN10028-3		LF2, A350 ----- A, A662
4	Bolts	Stainless steel	A2-70	A2-70	Type 308
5	Pressure relief screw	Stainless Steel			
6	Packing washer	Stainless steel			
7	Eye bolts DIN 580	Steel			
8	Strainer insert	Stainless Steel			

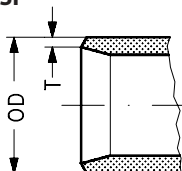
Connections

DIN



Size mm	Size in.	OD mm	T mm	OD in.	T in.
<i>Butt-weld DIN (EN 10220)</i>					
250	10	273	6.3	10.75	0.25
300	12	323.9	7.1	12.75	0.28

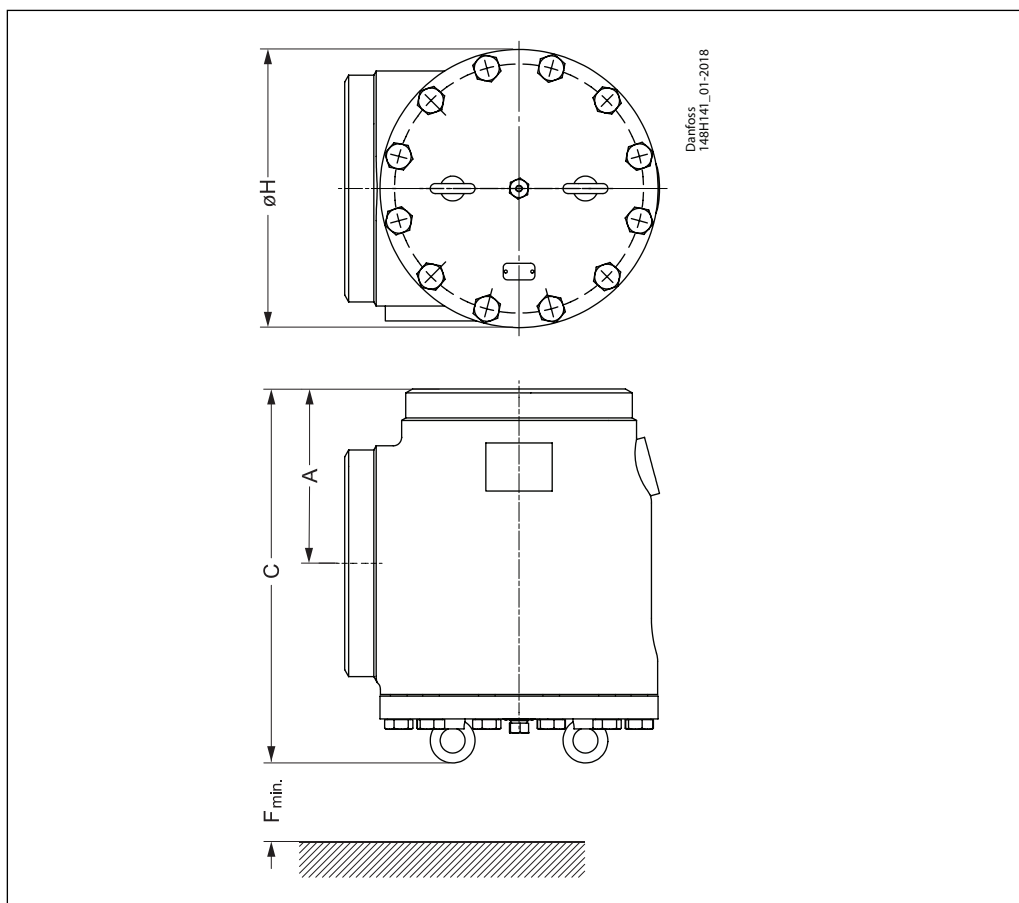
ANSI



Size mm	Size in.	OD mm	T mm	OD in.	T in.
<i>Butt-weld ANSI (B 36.10 Schedule 40)</i>					
250	10	273	9.3	10.75	0.25
300	12	323.9	9.5	12.75	0.28

Dimensions and weights

FIA 250-300



Angleway

Strainer size		A	C	H	F _{min.}	Weight
FIA 250 (10")	mm	210	450.5	334	285	89.6 kg
	in.	8.27	17.74	13.14	11.22	197.5 lbs
FIA 300 (12")	mm	240	510.5	384	340	122 kg
	in.	9.45	20.1	15.12	13.39	269 lbs

Ordering

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

Example:
 FIA 250 D ANG + 150µ Strainer insert =
148H3171 + 148H3136

Size		Type	FIA Without strainer insert	Strainer insert 150µ 100 mesh	Strainer insert 250µ 72 mesh
mm	in.				
<i>Butt-weld DIN (EN 10220) - Angleway</i>					
250	10	FIA 250 D ANG	148H3171	148H3136	148H3175
300	12	FIA 300 D ANG	148H3172	148H3137	148H3176
<i>Butt-weld ANSI (B 36.10 Schedule 40) - Angleway</i>					
250	10	FIA 250 A ANG	148H3173	148H3136	148H3175
300	12	FIA 300 A ANG	148H3174	148H3137	148H3176

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

ENGINEERING
TOMORROW



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