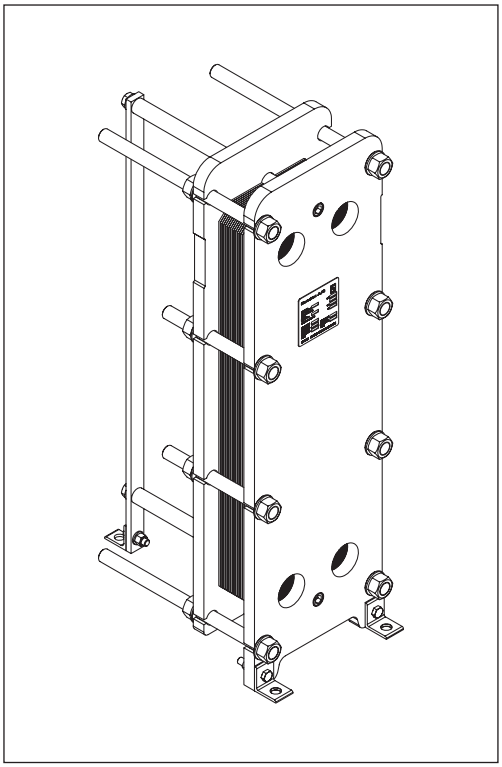
ENGINEERING
TOMORROW

Data sheet

Gasketed Plate Heat Exchangers (DN 350 / 14”) SDN352 / SDN354

Description



SONDEX® gasketed plate heat exchangers are the ideal choice for a wide range of applications across numerous market segments.

We have the largest plate portfolio in the world, and we customize each heat exchanger to meet your exact requirements. Innovative technologies and smart design make our gasketed plate heat exchangers a stellar investment.

Benefits:
- Individually customized solution that perfectly matches your requirements and lowers your energy consumption.
- High performance and a low pressure drop eliminate unnecessary burdens on your system and optimize overall system performance.
- The design results in a compact solution with a small footprint, simple installation, and easy access for maintenance.

Common applications:
- HVAC industry
- Marine/offshore industry
- Dairy/food/beverage industry
- Sugar industry
- Biogas industry
- Pulp and paper industry
- Heavy industry
- Mining industry
- Petrochemical industry
- Chemical industry

Main data:
- Min. temperature –10 °C
- Max. temperature 180 °C
- Max. working pressure 10/16 bar
- Water and different fluids, steam
- Connection size DN 350 or 14”

Approvals:
- Please contact your local Danfoss/SONDEX® sales representative for an overview of the available approvals in your region

Construction standard:
- EN13445 (PED 2014/68/EU)
- ASME sec VIII, Div. 1

Naming of units

SDN352-IS16-21-TKTL89

- TKTL89 - Plate grouping [3]
- 21 - Number of plates in the heat exchanger
- 16 - Design pressure of the heat exchanger
- IS - Frame type [2]
- 352 – Type of heat exchanger [1]
- SDN – Gasketed heat exchanger

[1] Type of heat exchanger:

352 - …

Letter SDN 352 shows type of the attachment of gasket to plate:
e.g. 352 (without A) – SonderLock
352A (with A) – Hang-on

[2] Description of frame types:

There are few different frame types which can be offered for different applications and duties.
IS – with suspension roller,
IG – without suspension roller,
FS – food/sanitary with suspension roller,
FG - food/sanitary,
ST – simple design of frame with threaded connections

[3] Channel grouping:

In this example, the heat exchanger combines TK and TL channels. The share of TL channels equals 89% of the total number of channels.
The number of channels is defined as “the number of plates - 1”.
TK - short thermal length
TM - medium thermal length
TL - long thermal length

Heat exchanger design

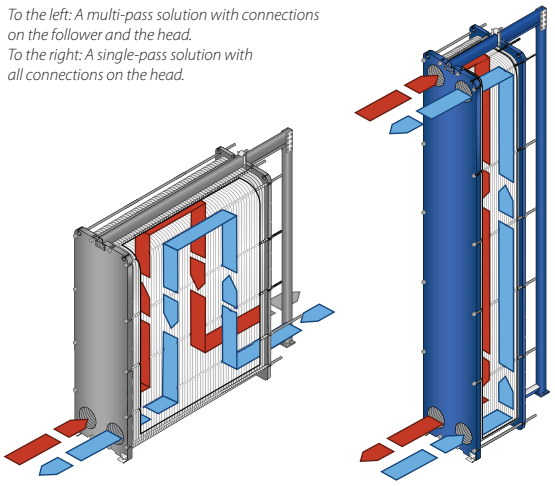
Gasketed heat exchangers consist of

Anatomy of a SONDEX® plate heat exchanger - IS frame.

Heat exchanger design
(continued)

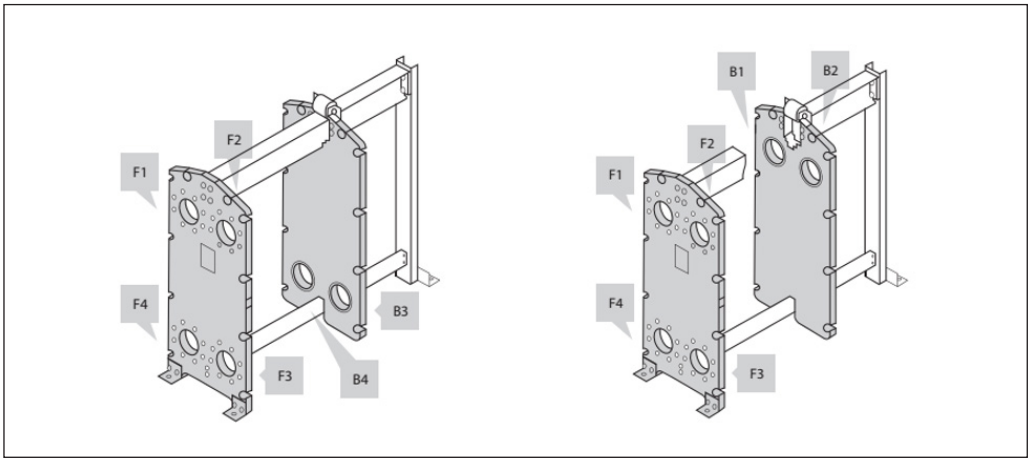
Multi-pass design

To the left: A multi-pass solution with connections on the follower and the head.
To the right: A single-pass solution with all connections on the head.



Connections
The heat exchanger may have connections on both front and back-end sides of the unit.

Connections on the front-end plate are marked with F and connections on the back-end plate are marked with B. The numbers 1, 2, 3 and 4 designate the position of the connection on the end-plate from the top-left port clockwise.



Technical data

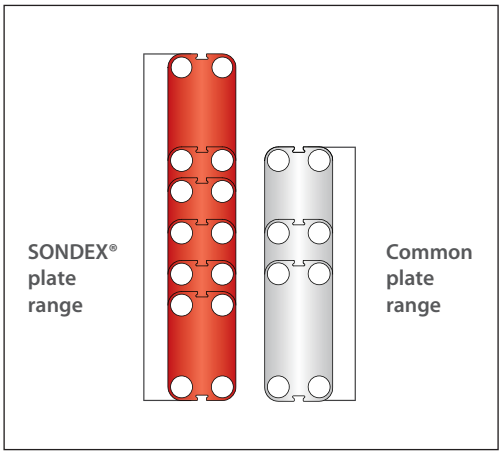
Heat exchanger **SDN352 / SDN354**

Type		SDN 352	SDN 354
Max. working pressure	PN (bar)	10, 16	
Max. operating temperature	°C	Up to 180	
Min. operating temperature	°C	-10	
Flow medium		Water and different fluids, steam	
Volume / channel	l	4.3	5.8
Connection size		DN 350 / 14″	
Connection type		• DN 350/14″ flanges. Carbon steel, rubberlined or cladded with AISI 316L (other materials available on request)	
Plate material		Stainless steel EN 1.4404 (AISI 316L), EN 1.4301 (AISI 304), SMO254, Hastelloy C276, titanium Gr.1 Other materials available on request	
Plate thickness	mm	0.4; 0.5; 0.6; Other thicknesses available on request	
Gasket material		NBR, EPDM Other materials available on request	
Gasket attachment type		Sonder Lock	
Liners in connections		• Rubber NBR, EPDM, FKM	
Frame		• Painted frame, color RAL 5010 (other colors available on request)	
Frame painting specification		Painting available for corrosion categories C2L, C4M, C5M	

[1] *Not available for all frame variations*

Using the right plate for each individual duty is very important, as it greatly impacts the efficiency of the entire installation.
It is important that the length of the plates and the type of pattern match the requirements of individual thermal duty.
We have developed a wide plate portfolio to provide the perfect plate and connection size for any duty.
No application is too small or too big for us - we provide the optimal technical solution every time.

Our extensive SONDEX® plate portfolio includes plates that lie outside the commonly manufactured plate sizes to cover all thermal duties optimally.



Accessories

Insulation

Recommended applications:
The insulation jacket for the plate heat exchanger is used in different applications with high temperatures and cooling systems.

Application	Heating	Cooling
Material	45 mm mineral wool Not flammable DIN EN 4102A2	40 mm PU-foam DIN 4102-1 B2
Outer cap	1 mm aluminium "Stucco" Embossed	
Internal insulation	0.05 mm aluminium foil	
Panel fixation	Plastic rivets	
Temperature	20 … 200 °C	-50 … -80 °C
U-value	0.55 W/m²K	0.38 W/m²K
Insulation class	3 [1)]	4 [1)]
Heat loss	17.1 W/m²	-

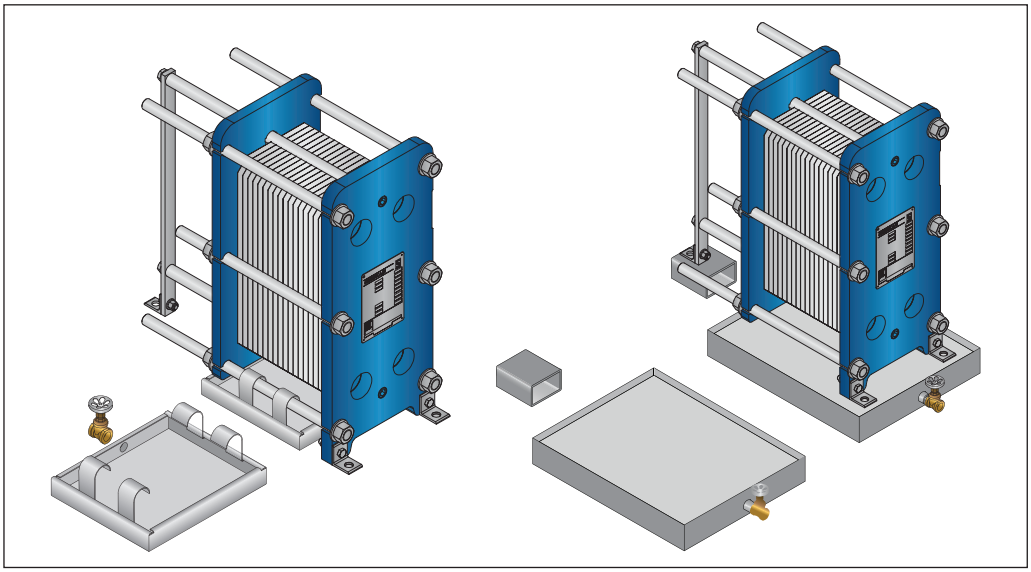
Please note:
Inlet and outlet temperatures in the exchanger have been based on 90/50 – 30/70 °C.

[1)] The loss of heating/cooling is stated per m² surface on the insulation jacket.
The bottom of the heat exchanger is not insulated and this fact has been excluded.
A possible loss of ventilation, largely dependent on the mounting of the heat exchanger, has not been taken into account either.

Drip trays

Recommended applications:
The drip tray is available in two types. A "fail-safe" solution which prevents water or liquid from leaking onto the floor, or when the heat exchanger is dismantled, or opened for inspection and maintenance. And an insulated drip tray for cooling applications, which collects condensate formed outside of the plate heat exchanger.

Materials
Drip tray consists of:
- 1 mm galvanized steel frame
- Hanging brackets in galvanized steel
- 60 mm Polyurethane insulation for cooling applications
- Draining valve.



Spare parts

Spare parts for gasketed heat exchangers, such as plates, gaskets, frame parts can be ordered for maintenance, repair, increasing heat exchanger capacity, etc.

Please contact your local Danfoss or SONDEX® sales representative to provide you with information on spare parts available for gasketed heat exchangers.

Selection and ordering

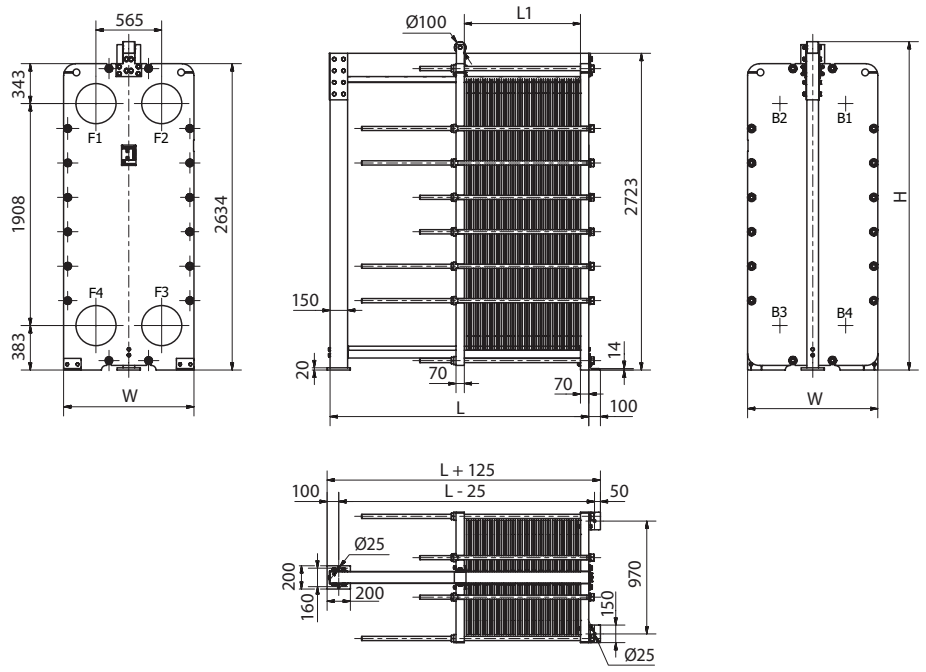
Please contact your local SONDEX® or Danfoss sales representative for the selection and / or ordering of the heat exchangers, spare parts, and accessories.

For contact information please visit *https://www.danfoss.com/en/contact-us*.

Dimensions
Non-sanitary applications

Any connection can be used for primary side in.
All the rest are made correspondingly.

SDN352 frames



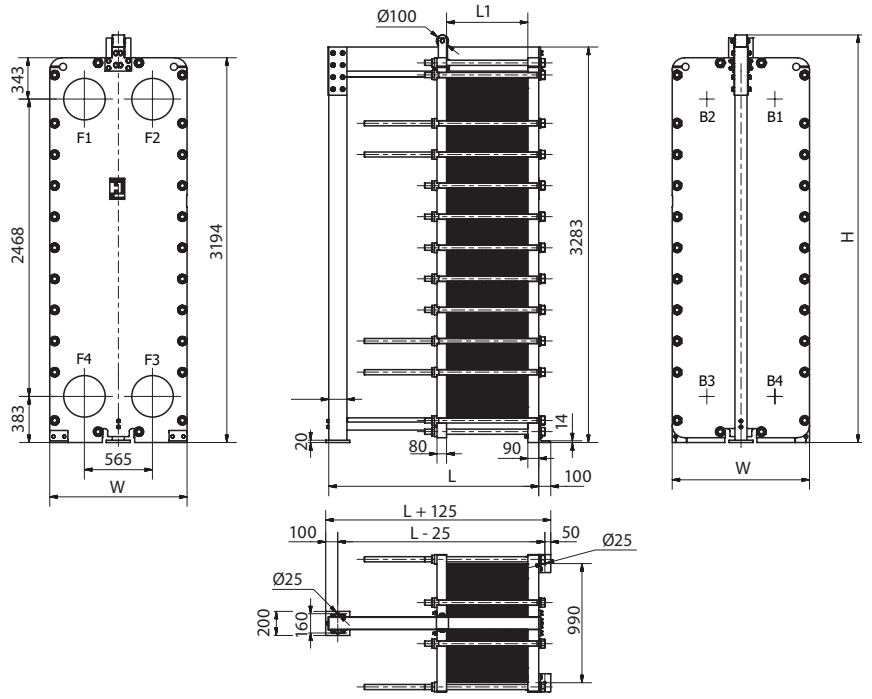
Drawing of SDN352 IS10 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
SDN352 IS10					
7 - 24	820	1120 (44.09")	2824 (111.18")	3518	DN 350 flange or 14" flange
25 - 98	1220			4166	
99 - 153	1520			4648	
154 - 190	1720			4972	
191 - 283	2220			5785	
284 - 375	2720		3076 (121.10")	6592	
376 - 468	3220			7402	
469 - 653	4220			9026	
654 - 838	5220			10645	
839 - 1024	6220			12273	
SDN352 IS16					
7 - 21	840	1030 (40.55")	2824 (111.18")	4000	DN 350 flange or 14" flange
22 - 94	1240			4768	
95 - 149	1540			5358	
150 - 185	1740			5759	
186 - 276	2240			6728	
277 - 367	2740		3076 (121.10")	7711	
368 - 458	3240			8785	
459 - 640	4240			10785	
641 - 821	5240			12922	
822 - 1003	6240			14936	

[1] the indicated maximum number of plates is based on the minimum plate thickness allowable for the PN level of the unit;
[2] the maximum weight of the empty unit with the maximum allowable number of plates;

Dimensions *(continued)*
Non-sanitary applications

SDN354 frames



Drawing of SDN354 IS16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
SDN354 IS16					
7 - 21	840	1140 (44.88″)	3384 (133.23″)	4911	DN 350 flange or 14″ flange
22 - 94	1240			5844	
95 - 149	1540			6562	
150 - 185	1740			7054	
186 - 276	2240			8221	
277 - 367	2740			9429	
368 - 458	3240			10720	
459 - 640	4240		3636 (143.15″)	13155	
641 - 821	5240			15724	
822 - 1003	6240			18171	

[1] the indicated maximum number of plates is based on the minimum plate thickness allowable for the PN level of the unit;
[2] the maximum weight of the empty unit with the maximum allowable number of plates;
**) PN class 10 bar is available on request.*

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