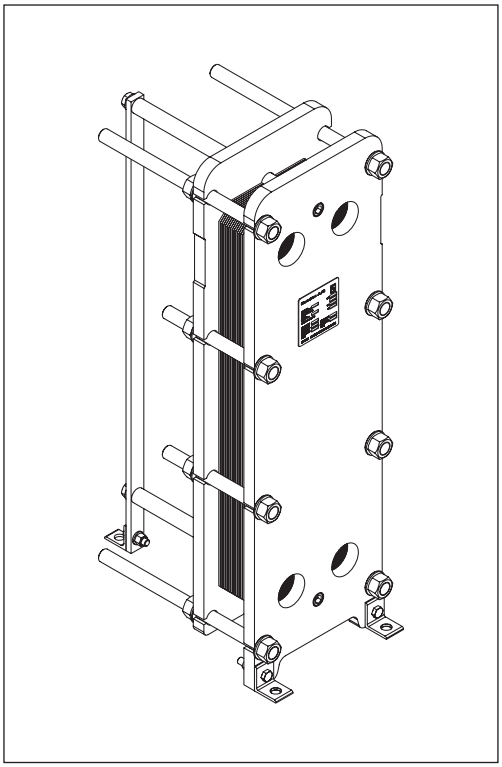
ENGINEERING
TOMORROW

Data sheet

Gasketed Plate Heat Exchangers (DN 32 / 1.25”) S1 / S4A / S6A / S8A

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 16 bar
- Water and different fluids, steam
- Connection size DN 32 or 1.25”

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

S4A-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]
- 4A – Type of heat exchanger [1]
- S – Gasketed heat exchanger

[1] Type of heat exchanger:

S4A - …

Letter S4A shows type of the attachment of gasket to plate:

e.g. 4 (without A) – SonderLock

4A (with A) – Hang-on

[2] Description of frame types:

There are few different frame types which can be offered for different applications and duties.

IT – threaded connections without suspension roller,

IS – with suspension roller,

IG – without suspension roller,

FS – food/sanitary with suspension roller,

FG - food/sanitary,

FT – food/sanitary with threaded connections without suspension roller,

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”.

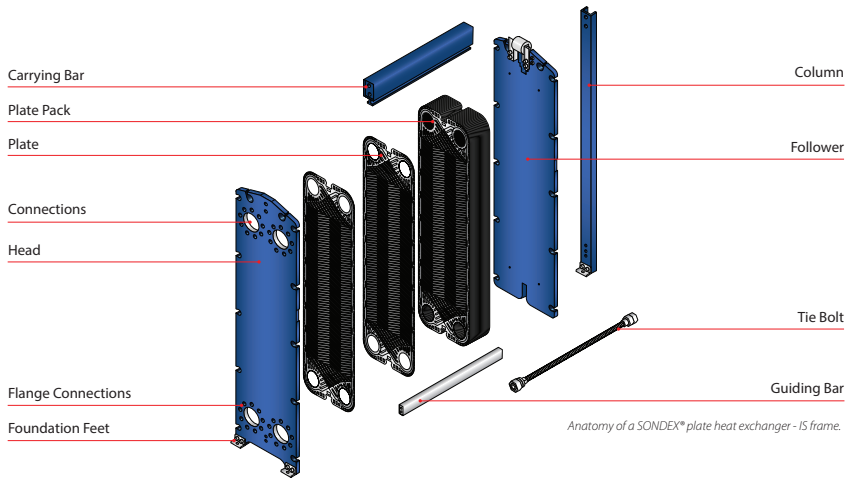
TK - short thermal length

TM - medium thermal length

TL - long thermal length

Heat exchanger design

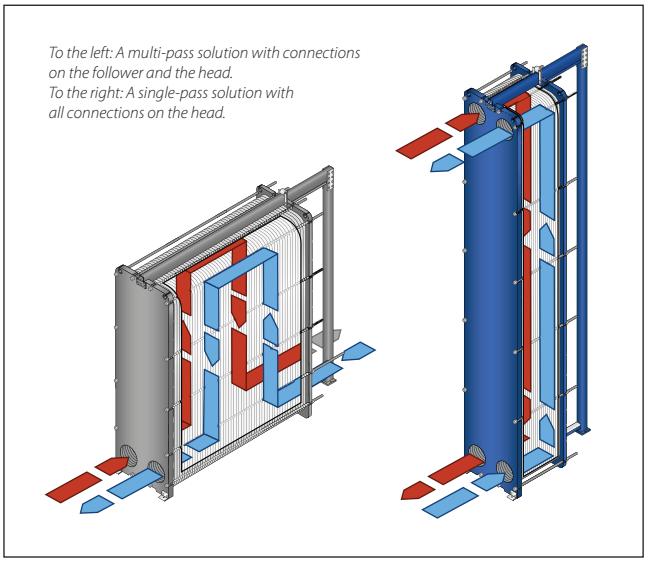
Gasketed heat exchangers consist of



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

Heat exchanger design
(continued)

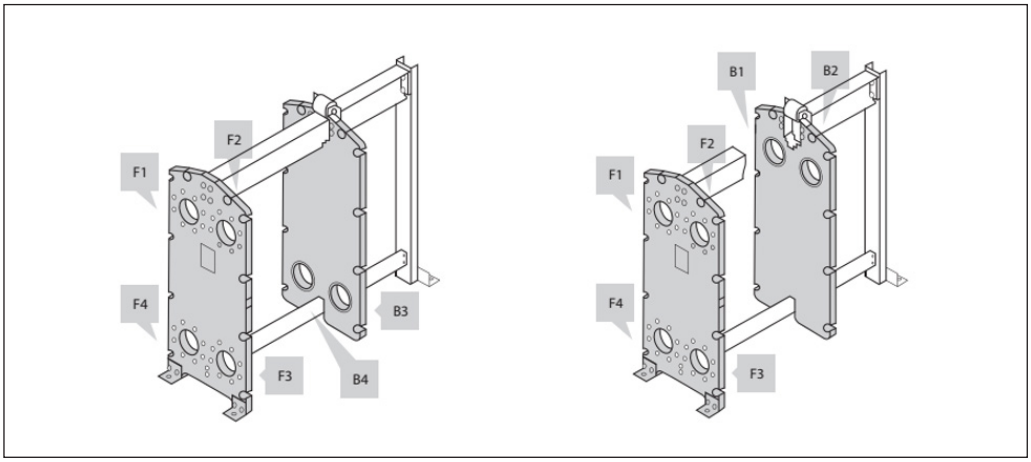
Multi-pass design



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

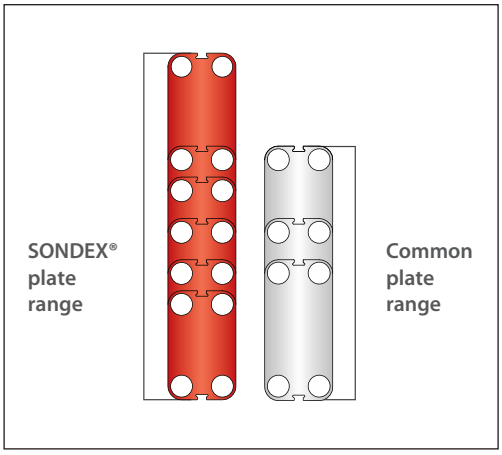
Heat exchanger **S1 / S4A / S6A / S8A**

Type		S1	S4A	S6A	S8A
Max. working pressure	PN (bar)	10, 16			
Max. operating temperature	°C	Up to 180			
Min. operating temperature		-10			
Flow medium		Water and different fluids, steam			
Volume / channel	l	0.09	0.17	0.13	0.21
Connection size		DN32 / 1.25"			
Connection type		• 1.25" pipe or threaded pipe in stainless steel or titanium (other materials available on request) • DN 25 / 1" Dairy union (for food/sanitary industry frames only)			
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	0.5 2 x 0.4 SonderSafe plates [1] Other thicknesses available on request			
Gasket material		NBR, EPDM, FKM Other materials available on request			
Gasket attachment type		Sonder Lock			
Liners in connections		• Rubber NBR, EPDM, FKM • Stainless steel EN 1.4404 (AISI 316L), EN 1.4301 (AISI 304), SMO254, Hastelloy C276, titanium Gr.1			
Frame		• Painted frame, color RAL 5010 (other colors available on request) • Stainless steel frame, designed for the sanitary applications (e.g. food and dairy industries)			
Frame painting specification		Painting available for corrosion categories C2L, C4M, C5M			

[1] *SonderSafe - double plate*

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	-

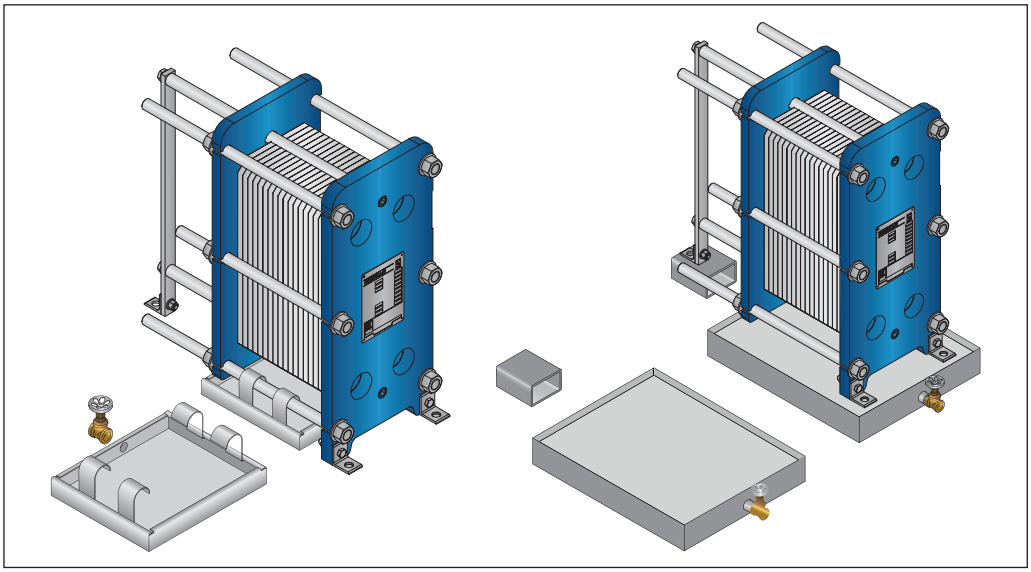
Please note:
Inlet and outlet temperatures in the exchanger have been based on 90/50 – 30/70 °C.

[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

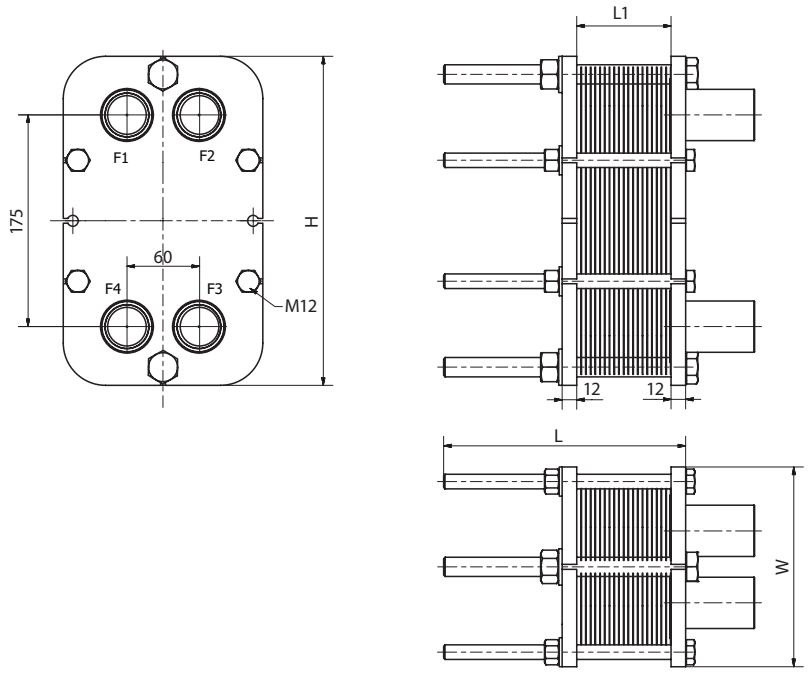
Please contact your local SONDEX® or Danfoss sales representative for the selection and / or ordering of the heat exchangers, spare parts, and accessories.

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.

S1 frames



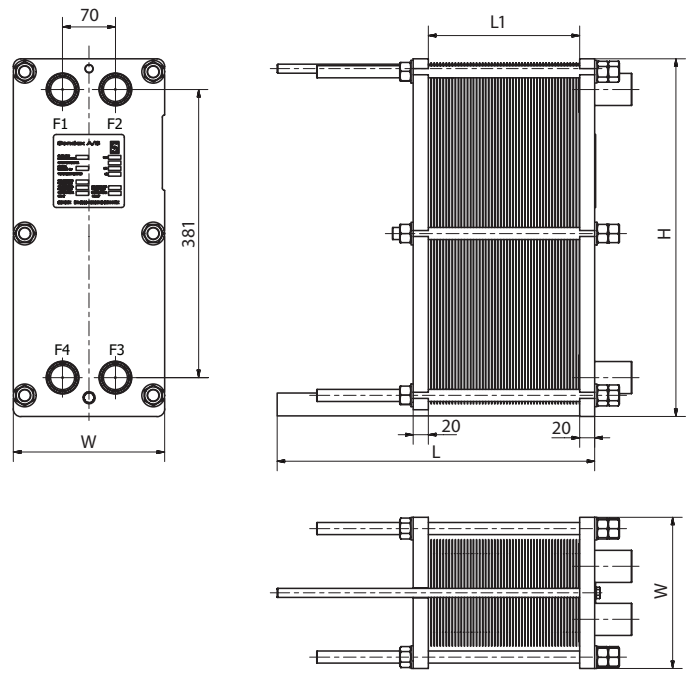
Drawing of S1 IT10 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S1 IT10					
7 – 13	112	165 (6.50″)	272 (10.71″)	13	1.25″ Threaded pipe
14 – 36	212			18	

[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

S4A frames



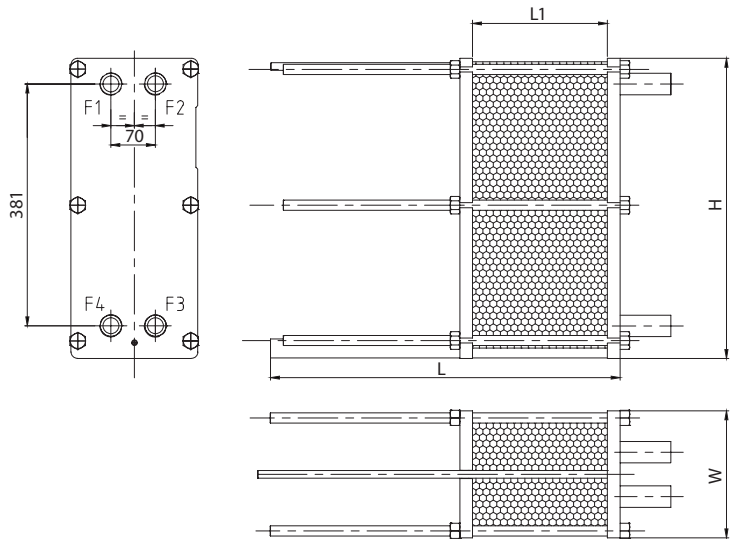
Drawing of S4A IG16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S4A IG16					
7 – 34	270	200 (7.87″)	473 (18.62″)	44	1.25″ Threaded pipe 1″ Dairy Union
35 – 45	320			47	
46 – 68	420			56	
69 – 90	520			63	
S4A IS16					
7 – 21 [3]	282	200 (7.87″)	621 (24.45″)	46	1.25″ Threaded pipe 1″ Dairy Union
22 – 32 [3]	332			49	
33 – 55 [3]	432			58	
56 – 78 [3]	532			65	
S4A IT10					
7 – 13	100	200 (7.87″)	460 (18.11″)	23	1.25″ Threaded pipe
14 – 36	200			30	
37 – 47	250			34	

[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;
[3] the indicated maximum number of plates is for units without intermediate frames. Adding an intermediate frame reduces the maximum allowable number of plates in the unit.

Dimensions *(continued)*
Sanitary applications

S4A frames



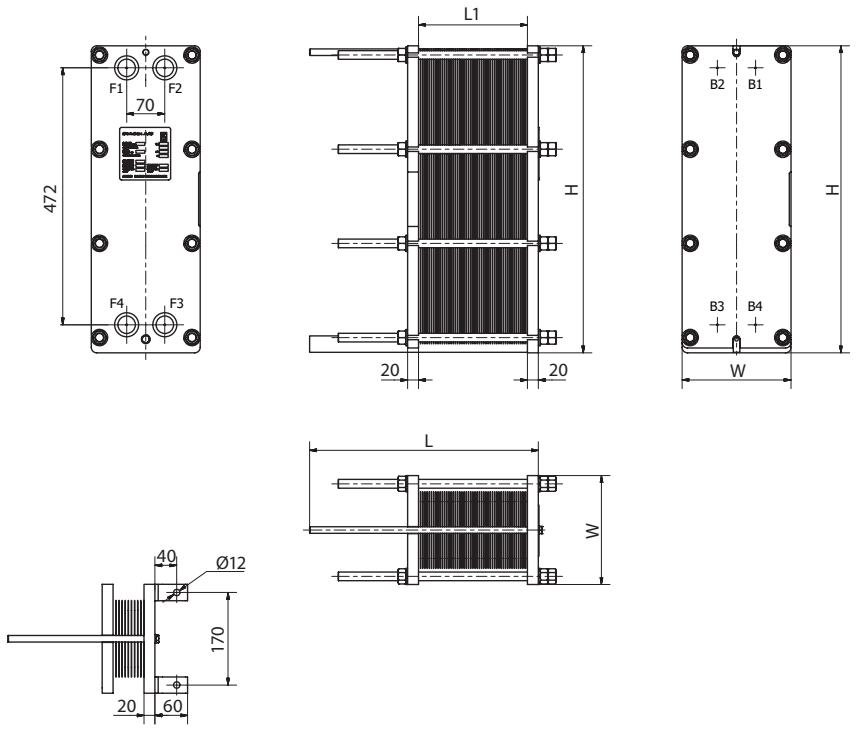
Drawing of S4A FG16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S4A FG16					
7 – 19	275	200 (7.87″)	473 (18.62″)	46	DN25 / 1″ Dairy Union
20 – 30	325			51	
31 – 53	425			59	
54 – 80	525			68	
S4A FS16					
7 – 20 [3]	305	200 (7.87″)	638 – 668 [4] (25.12″-26.30″) [4]	51	DN25 / 1″ Dairy Union
21 – 31 [3]	355			55	
32 – 54 [3]	455			63	
55 – 77 [3]	555			71	
S4A FT10					
7 – 13	100	200 (7.87″)	460 (18.11″)	23	DN25 / 1″ Dairy Union
14 – 36	200			30	
37 – 47	250			35	

[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;
[3] the indicated maximum number of plates is for units without intermediate frames. Adding an intermediate frame reduces the maximum allowable number of plates in the unit;
[4] the height of the heat exchanger can be modified with special adjustable feet.

Dimensions *(continued)*
Non-sanitary applications

S6A frames



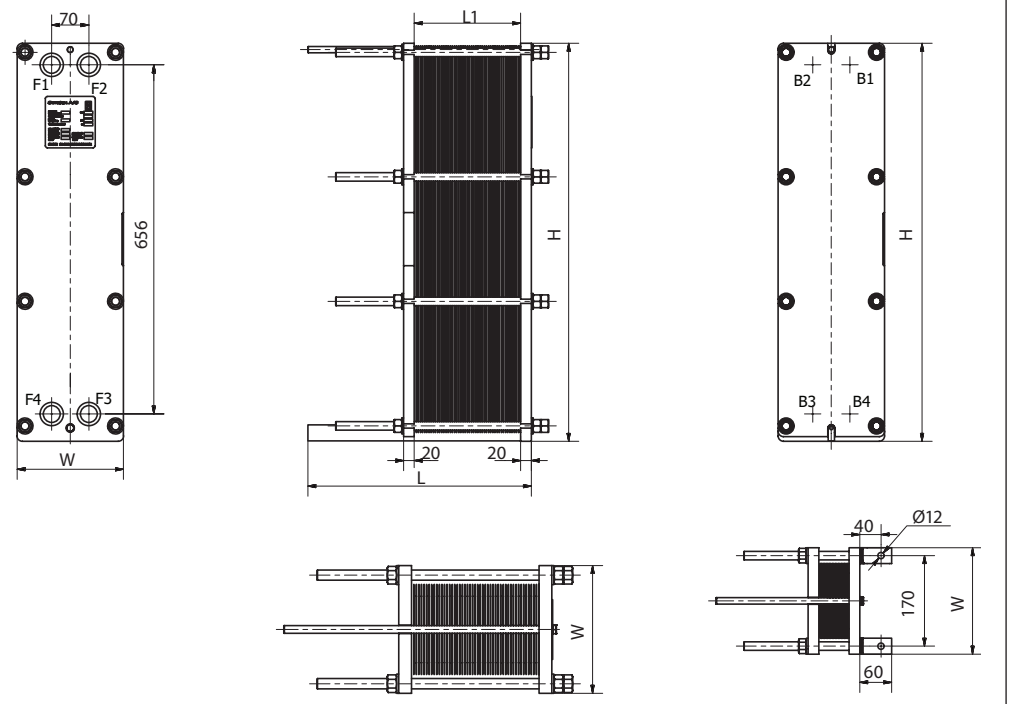
Drawing of S6A IG16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S6A IG16					
7 – 34	270	200 (7.87″)	564 (22.20″)	55	1.25″ Threaded pipe 1″ Dairy Union
35 – 45	320			60	
46 – 68	420			69	
69 – 90	520			78	
S6A IS16					
7 – 21 [3]	270	200 (7.87″)	711 (27.99″)	56	1.25″ Threaded pipe 1″ Dairy Union
22 – 32 [3]	320			61	
33 – 55 [3]	420			71	
56 – 78 [3]	520			81	
S6A IT10					
7 – 13	100	200 (7.87″)	552 (21.73″)	29	1.25″ Threaded pipe
14 – 36	200			39	
37 – 47	250			43	

[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;
[3] the indicated maximum number of plates is for units without intermediate frames. Adding an intermediate frame reduces the maximum allowable number of plates in the unit.

Dimensions *(continued)*
Non-sanitary applications

S8A frames



Drawing of S8A IG16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S8A IG16					
7 – 34	270	200 (7.87″)	748 (29.45″)	68	1.25″ Threaded pipe 1″ Dairy Union
35 – 45	320			74	
46 – 68	420			86	
69 – 90	520			98	
S8A IS16					
7 – 15 [3]	282	200 (7.87″)	895 (35.24″)	66	1.25″ Threaded pipe 1″ Dairy Union
16 – 27 [3]	332			72	
28 – 50 [3]	432			85	
51 – 72 [3]	532			97	
S8A IT10					
7 – 13	100	200 (7.87″)	736 (28.98″)	38	1.25″ Threaded pipe
14 – 36	200			50	
37 – 47	250			56	

[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;
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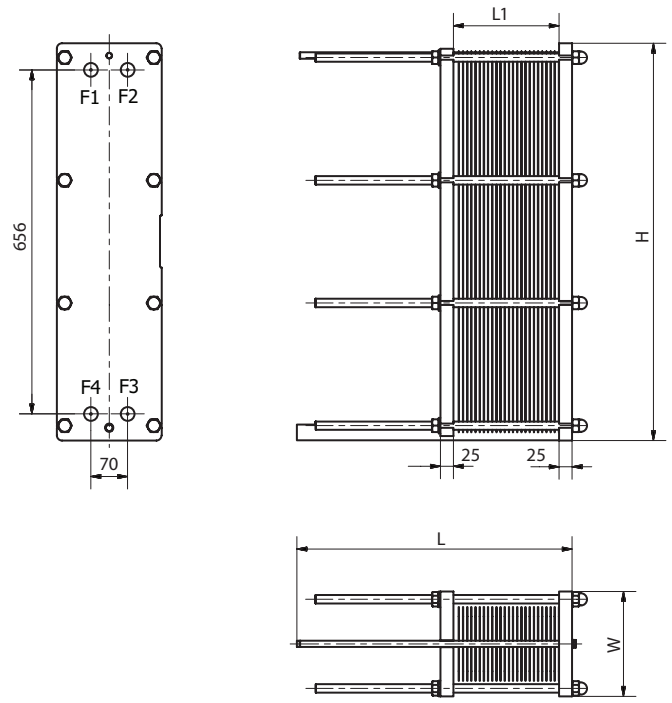
Dimensions *(continued)*
Sanitary applications

S8A frames



Drawing of S8A FG16 frame

Number of plates [1]	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty [2] (kg)	Connection type
S8A FG16					
7 - 19	275	200 (7.87″)	758 (29.84″)	74	DN25 / 1″ Dairy Union
20 - 30	325			79	
31 - 53	425			92	
54 - 76	525			105	
S8A FS16					
7 – 20 [3]	305	200 (7.87″)	913 – 943 [4] (35.95″-37.13″)	77	DN25 / 1″ Dairy Union
21 – 31 [3]	355			83	
32 – 77 [3]	555			109	
78 – 134 [3]	805			140	
S8A FT10					
7 – 13	100	200 (7.87″)	736 (28.98″)	38	DN25 / 1″ Dairy Union
14 – 36	200			50	
37 – 47	250			56	

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