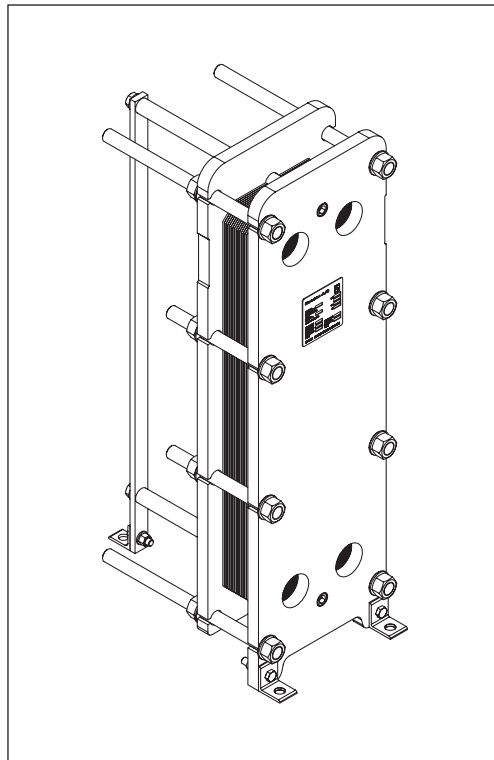


## Data sheet

# Gasketed Plate Heat Exchangers (DN 400 / 16") S145 / S210 / S315

## 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  $-10^{\circ}\text{C}$
- Max. temperature  $180^{\circ}\text{C}$
- Max. working pressure 10/25 bar (6/16 bar on request)
- Water and different fluids, steam
- Connection size DN 400 or 16"

**Approvals:**

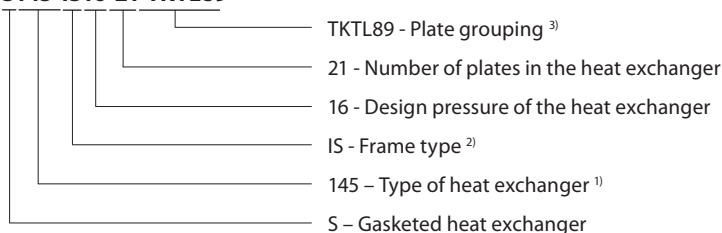
- Please contact your local Danfoss/SONDEX® sales representative for an overview of the available approvals in your region

**Construction standard:**

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

**Naming of units**

**S145-IS16-21-TKTL89**



**<sup>1)</sup> Type of heat exchanger:**

145 - ...  
 Letter S145 shows type of the attachment of gasket to plate:  
 e.g. 145 (without A) – SonderLock  
 145A (with A) – Hang-on

**<sup>2)</sup> Description of frame types:**

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

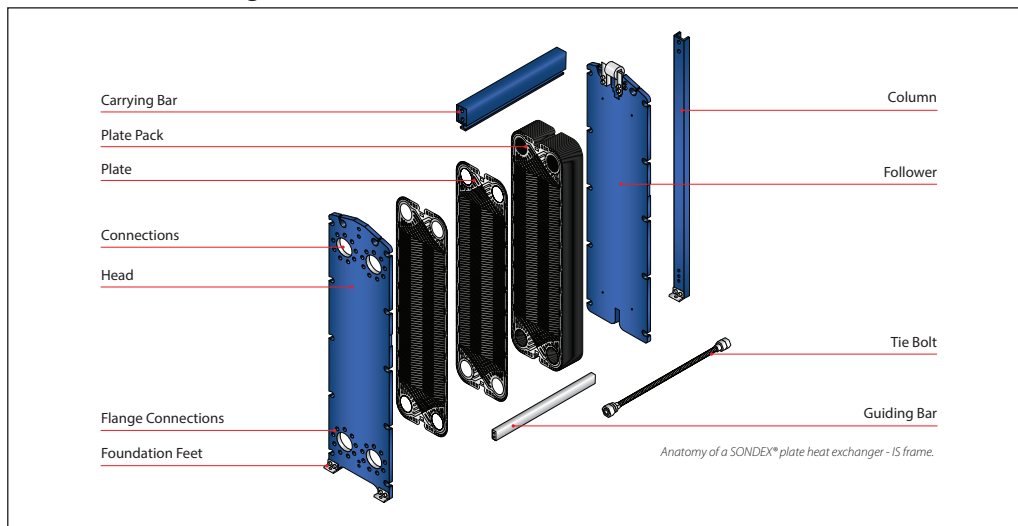
- IS – with suspension roller,
- IG – without suspension roller,
- FS – food/sanitary with suspension roller,
- FG - food/sanitary,
- ST – simple design of frame with threaded connections

**<sup>3)</sup> 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

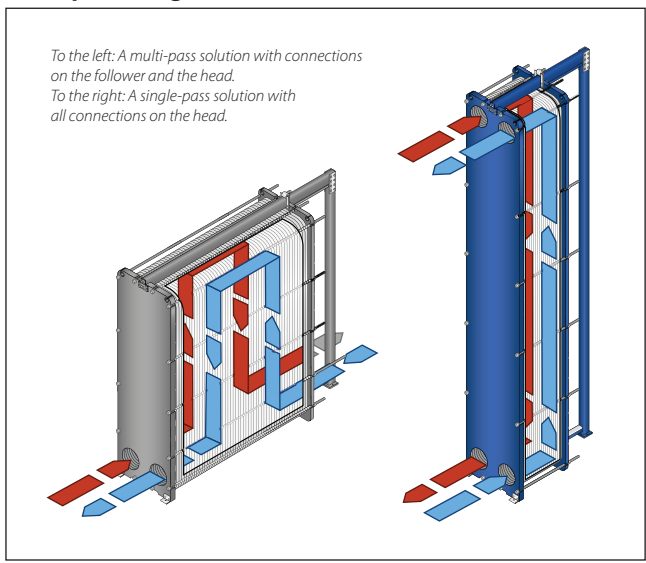
**Heat exchanger design**

**Gasketed heat exchangers consist of**



**Heat exchanger design**  
(continued)

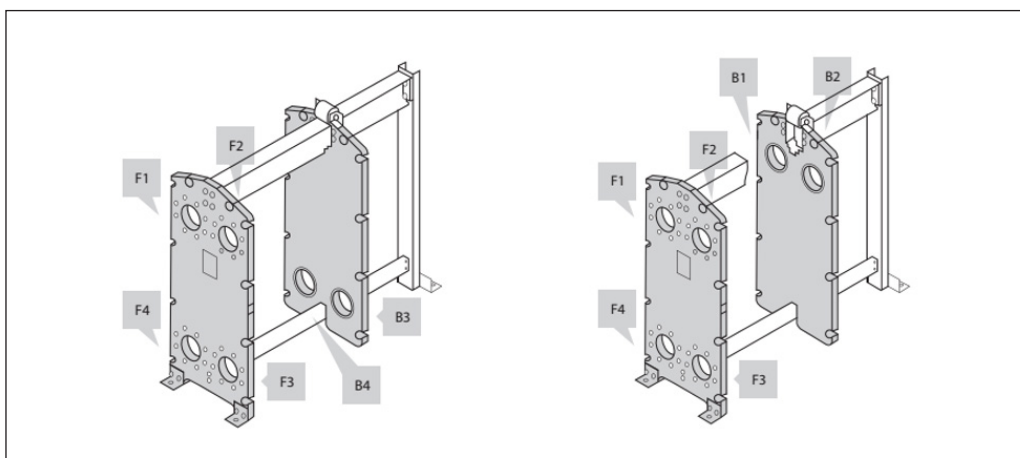
**Multi-pass design**



**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

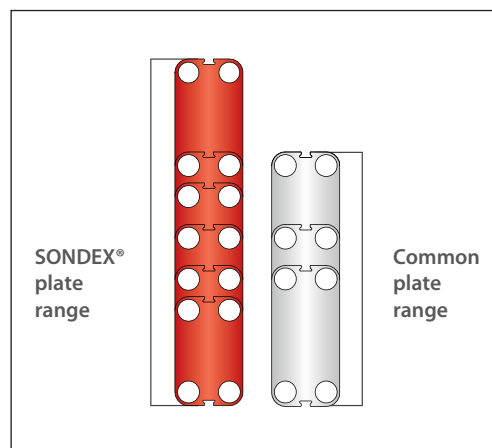
Heat exchanger **S145 / S210 / S315**

Type		S145	S210	S315
Max. working pressure	PN (bar)	(6) <sup>1)</sup> , 16, (16) <sup>1)</sup> , 25		
Max. operating temperature	°C	Up to 180		
Min. operating temperature		-10		
Flow medium		Water and different fluids, steam		
Volume / channel	l	5.7	8.3	8.3
Connection size		DN 400 / 16"		
Connection type		• DN 400/16" flanges. Carbon steel, rubberlined or clad 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	0.5; 0.6; 0.7; 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 • 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)		
Frame painting specification		Painting available for corrosion categories C2L, C4M, C5M		

<sup>1)</sup> 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/m <sup>2</sup> K	0.38 W/m <sup>2</sup> K
Insulation class	3 <sup>1)</sup>	4 <sup>1)</sup>
Heat loss	17.1 W/m <sup>2</sup>	-

**Please note:**

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

<sup>1)</sup> *The loss of heating/cooling is stated per m<sup>2</sup> 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**

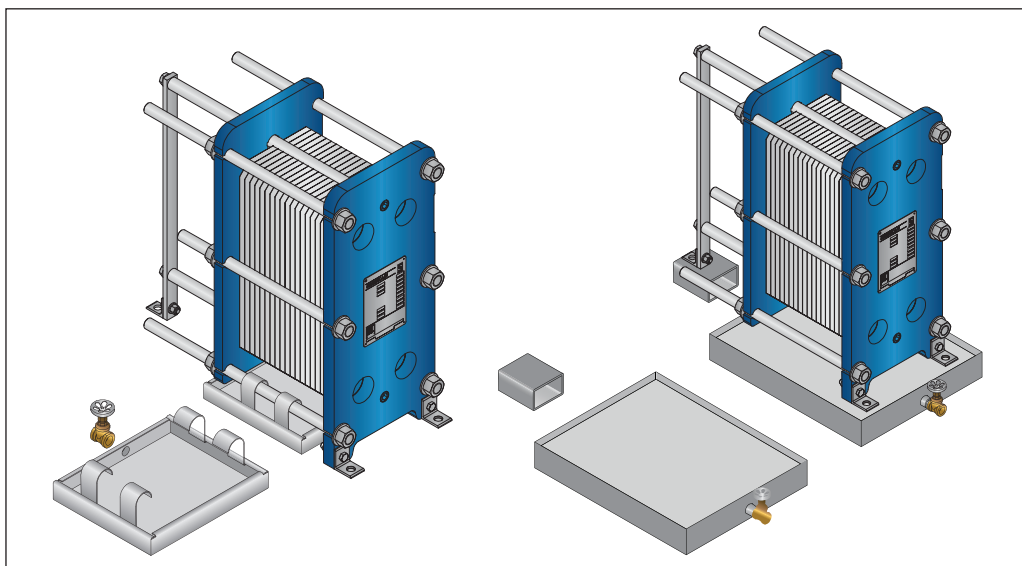
*Recommended applications:*

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.

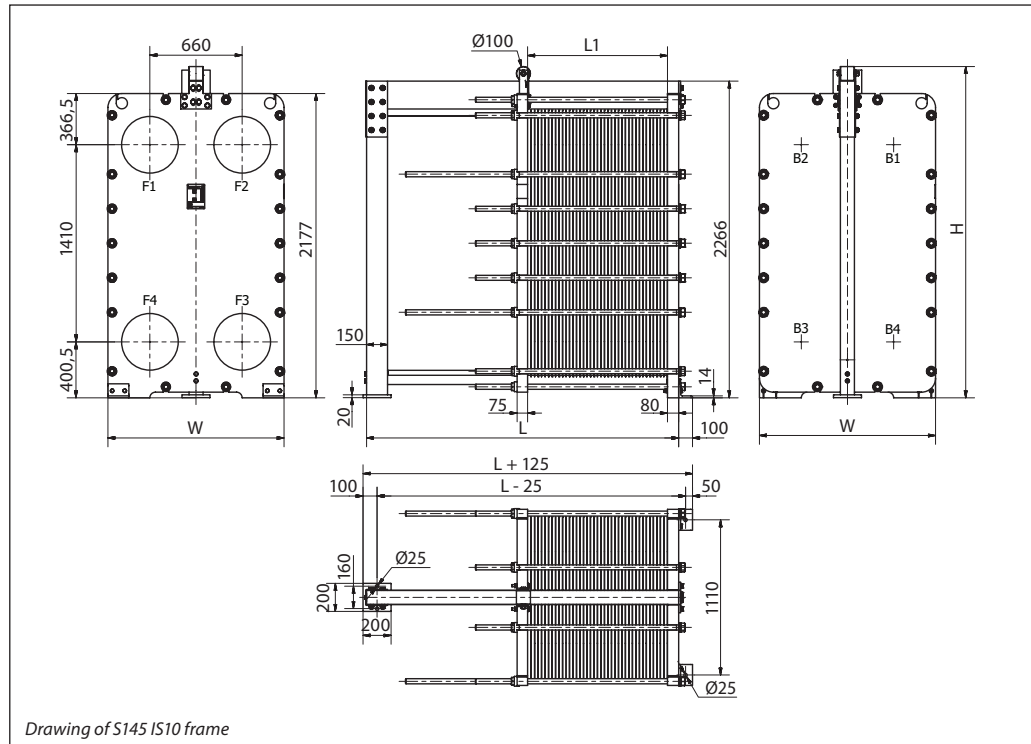
For contact information please visit <https://www.danfoss.com/en/contact-us>.

**Dimensions**

Non-sanitary applications

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

**S145 frames**



Drawing of S145 IS10 frame

Number of plates <sup>1)</sup>	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty <sup>2)</sup> (kg)	Connection type
<b>S145 IS10</b>					
7 - 104	1230	1260 (49.61")	2370 (93.31")	4174	DN 400 flange or 16" flange
105 - 195	1730			5155	
196 - 286	2230			6110	
287 - 377	2730			7159	
378 - 468	3230			8140	
469 - 650	4230			10118	
651 - 831	5230			12262	
832 - 1013	6230			14256	
<b>S145 IS25</b>					
7 - 100	1270	1290 (50.79")	2370 (93.31")	6130	DN 400 flange or 16" flange
101 - 187	1770			7471	
188 - 275	2270			8827	
276 - 363	2770			10182	
364 - 450	3270			11524	
451 - 626	4270			14235	
627 - 801	5270			16932	
802 - 977	6270			19643	

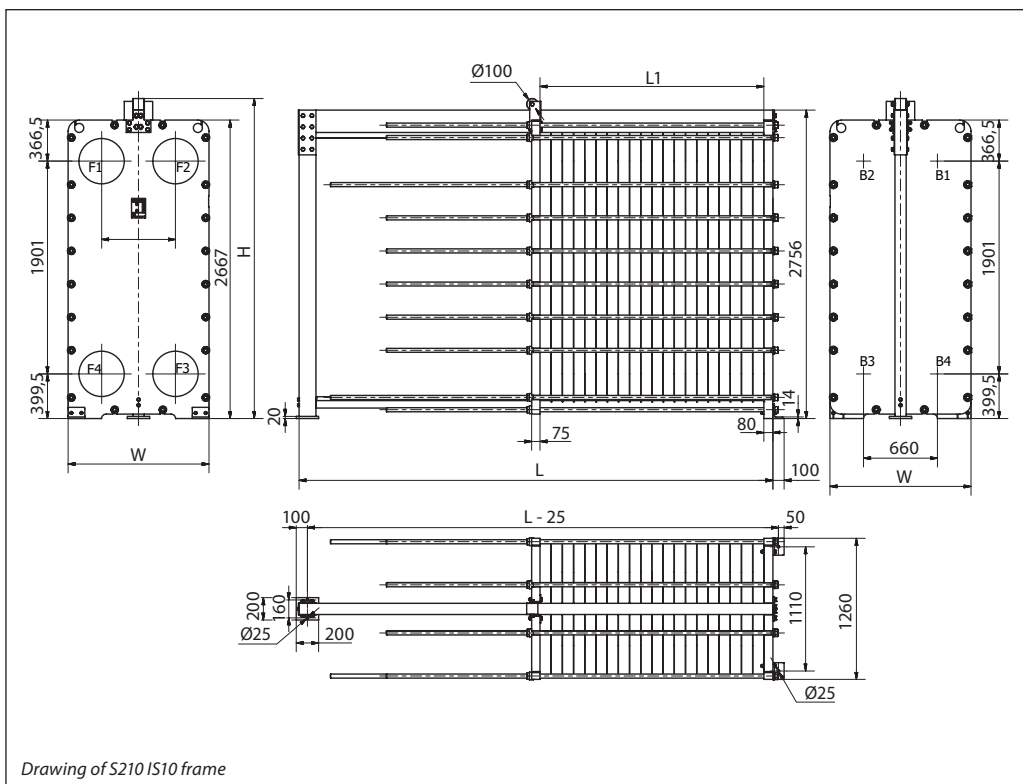
<sup>1)</sup> the indicated maximum number of plates is based on the minimum plate thickness allowable for the PN level of the unit;

<sup>2)</sup> the maximum weight of the empty unit with the maximum allowable number of plates;

<sup>3)</sup> PN class 6/16 bar is available on request.

Dimensions (continued)  
Non-sanitary applications

S210 frames



Drawing of S210 IS10 frame

Number of plates <sup>1)</sup>	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty <sup>2)</sup> (kg)	Connection type
<b>S210 IS10</b>					
7 - 104	1230	1260 (49.61")	2860 (112.60")	6183	DN 400 flange or 16" flange
105 - 195	1730			7438	
196 - 286	2230			8692	
287 - 377	2730			9946	
378 - 468	3230			11200	
469 - 650	4230			13709	
651 - 831	5230			3107 (122.32")	
832 - 1013	6230		18714		

<sup>1)</sup> the indicated maximum number of plates is based on the minimum plate thickness allowable for the PN level of the unit;

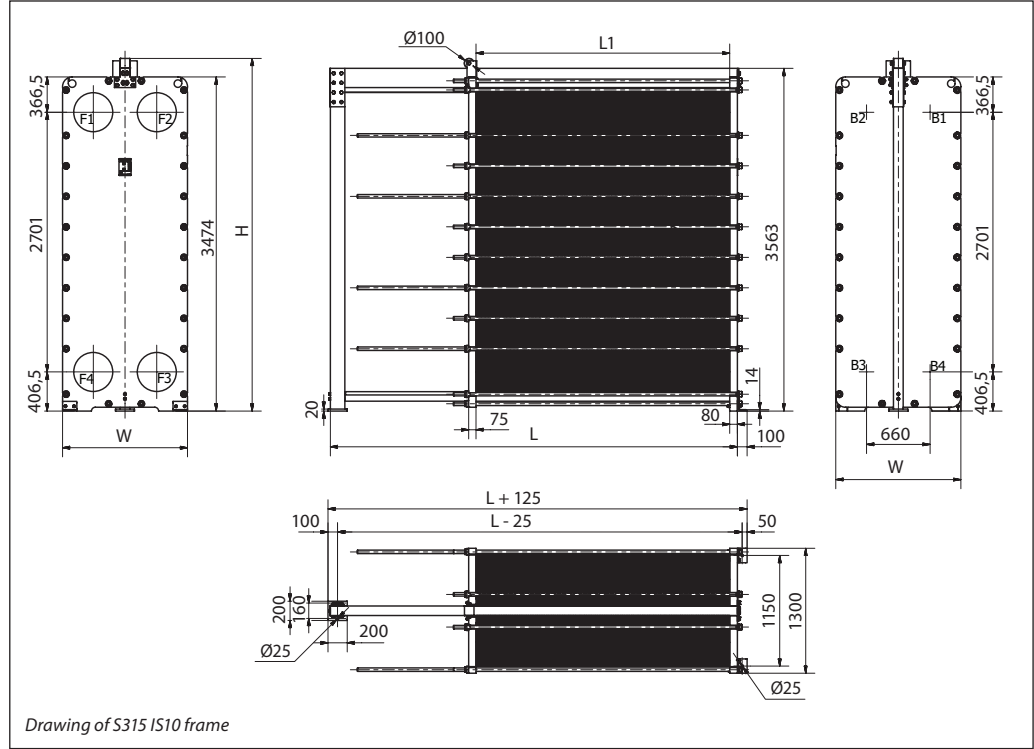
<sup>2)</sup> the maximum weight of the empty unit with the maximum allowable number of plates;

<sup>3)</sup> PN class 25 bar is available on request.

Dimensions

Non-sanitary applications

S315 frames



Drawing of S315 IS10 frame

Number of plates <sup>1)</sup>	L (frame length) (mm)	W (mm)	H (mm)	Weight max, empty <sup>2)</sup> (kg)	Connection type	
<b>S315 IS10</b>						
7 - 95	1230	1300 (51.18)	3667 (144.37")	8925	DN 400 flange or 16" flange	
96 - 186	1730			10436		
187 - 277	220			11946		
278 - 368	2730			13455		
369 - 459	3230			14965		
460 - 640	4230			17969		
641 - 822	5230			3914 (154.09")		20989
823 - 1004	6230			24009		
<b>S315 IS16</b>						
7 - 95	1250	1300 (51.18")	3667 (144.37")	8350	DN 400 flange or 16" flange	
96 - 186	1750			9908		
187 - 277	2250			11417		
278 - 368	2750			13040		
369 - 459	3250			14610		
460 - 640	4250			17735		
641 - 822	5250			3914 (154.09")		21007
823 - 1004	6250			24157		

<sup>1)</sup> the indicated maximum number of plates is based on the minimum plate thickness allowable for the PN level of the unit;  
<sup>2)</sup> the maximum weight of the empty unit with the maximum allowable number of plates.