

7.2 Fusion Bonded Heat Exchanger

The Brazed Heat Exchangers from Alfa Laval are the perfect heat exchangers for utilities like heating-water or steam.



Application Overview	7.2.1484
Product leaflets	
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	Brazed and Fusion Bonded Heat Exchanger				
	AlfaNova				
	14	27	52	76	400
Main duties					
Dairy					
Milk Cooling					
Milk/cream pasteurization					
Cultured milk cooling					
Whey pasteurization					
Ice cream pasteurization					
Brewery					
Wort cooling					
Beer cooling					
Beer pasteurization					
Beverages					
Clarified juices, drinks, wine					
Juice/drinks with pulp/fibres					
Clarified fruit & sugar conc.					
Clody fruit concentrate					
Other food					
Low viscous products					
High viscous products					
Sticky/chunky/particles					
Vegetable oil					
Pharma					
Pre-heating in water purification					
In-line heater WFI/PW					
Point of use cooler WFI/PW					
Heating of holding tank WFI/PW					
Product heating/cooling					
Utilities					
CIP Heating	•	•	•	•	•
Water heating/cooling	•	•	•	•	•

AlfaNova 14, 27, 52, 76 and 400

Alfa Laval AlfaNova 14, 27, 52, 76 and 400 - Fusion-brazed Plate Heat Exchangers

Applications

Within Refrigeration:

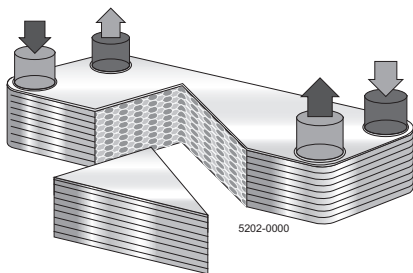
- Oil cooler
- Condenser
- Evaporator
- Economizer
- Desuper heater
- Absorption systems

Other main applications:

- Domestic hot water heater
- Process cooling
- Hydraulic oil cooling
- Laser cooling
- Hygienic/sanitary
- Water/water cooling & heating

Working principles

The heating surface consists of thin corrugated metal plates stacked on top of each other. Channels are formed between the plates and corner ports are arranged so that the two media flow through alternate channels, always in counter-current flow. The media are kept in the unit by a bonded seal around the edge of the plates. The contact points of the plates are also bonded to withstand the pressure of the media handled.

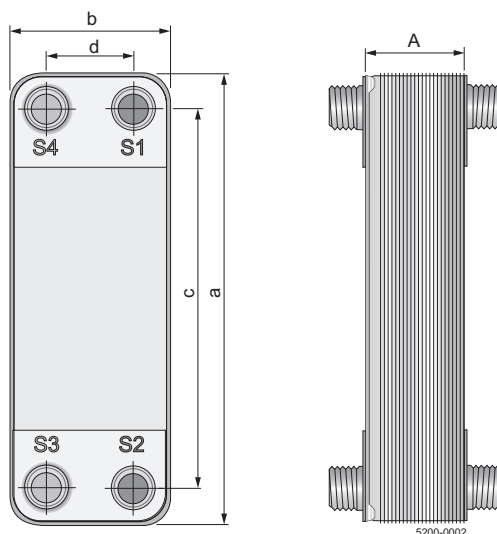


Flow principle of an AlfaNova plate heat exchanger

Standard materials

- Cover platesStainless steel AISI 316
- ConnectionsStainless steel AISI 316
- PlatesStainless steel AISI 316
- AlfaFusion fillerStainless steel AISI 316

Dimensions



Fusion bonded plate heat exchanger (FHE) data and dimensions

	AlfaNova 14	AlfaNova 27	AlfaNova 52	AlfaNova 76	AlfaNova 400
Channel type	H	H, L	H, L	H, A, E	H, L
Max./min. design temperature [°C]	175/160	175/160	175/160	175/160	175/160
Max. design pressure S3-S4/S1-S2 [PSI] *)	21/21	27/22	27/22	27//22	17/17
Volume/channel [litres]	0.02	0.05	0.095	0.25 ¹ /25	0.74
Max. flowrate [m ³ /h] **)	4.5	7.5	14.5	34	170
Height a [mm]	207	310	526	618	990
Width b [mm]	77	111	111	191	390
Vertical connection distance, c [mm]	172	250	446	519	825
Horizontal connection distance, d [mm]	42	50	50	92	225
Plate pack length, A [mm]	(n x 2.35) + 8	(n x 2.4) + 11	(n x 2.85) + 11	(n x 2.85) + 11 ³⁾	(n x 2.65) + 14
Weight empty [kg]	(n x 0.046) + 0.74	(n x 0.13) + 1.5	(n x 0.23) + 2.2	(n x 0.47) + 11***	(n x 1.5) + 44***
Standard connection, external thread [inch]	2"/3"	1¼"/1"	1¼"/1"	2"	4"
Plate material	Stainless steel				
Connection material	Stainless steel				
Bounding material	Stainless steel				
Max. number of plates	50	100	150	150	270
Radiator heating, capacity [kW] ²	90	400	500	1200	3300
Tap water heating, capacity [kW] ²	60	180	380	700	2700

*) according to PED

**) water at 5 m/s (connection velocity)

***) Weight with test and LI-S12 flanges

n = number of plates

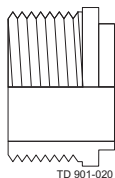
1) E channel 0.18/0.18 - A channel 0.18/0.25

2) Vanes from country to country depending on temperature only. Given values are for typical district heating installations.

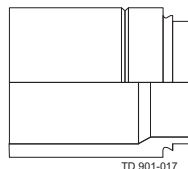
3) Valin for H-plate

Standard connections

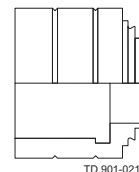
External thread connection



Sweat connection

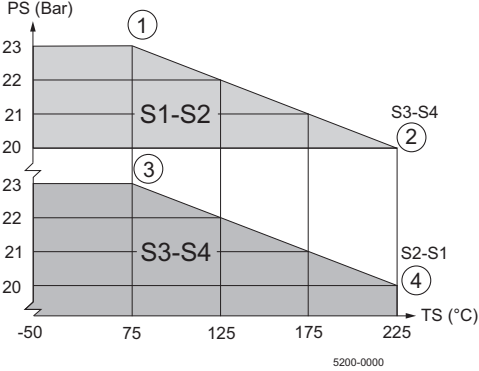


Internal thread connection



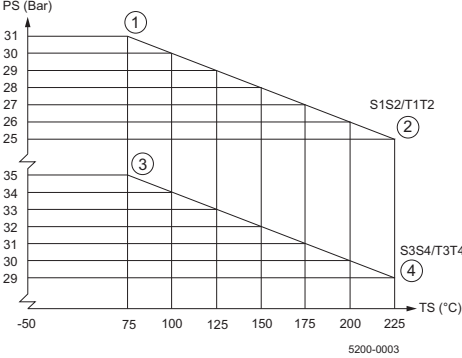
CE approval pressure/temperature graph

(Alfa Nova HP 14)



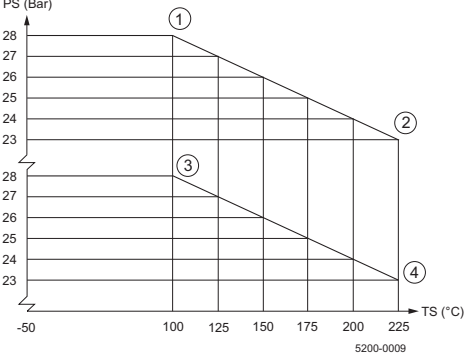
CE approval pressure/temperature graph

(Alfa Nova HP 27)



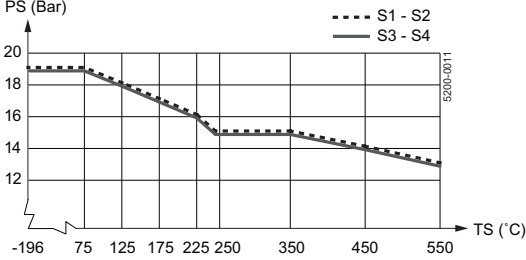
CE approval pressure/temperature graph

(Alfa Nova HP 52 - HP 76)



PED approval pressure/temperature graph

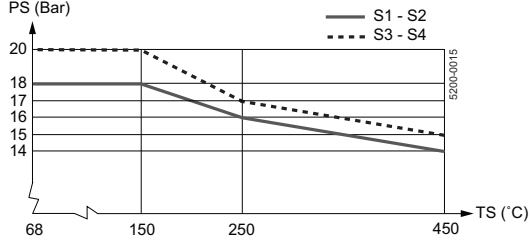
(AlfaNova 400)



Min. temperature -50°C (-58°F) with connection tubes made of carbon steel.

ASME approval pressure/temperature graph

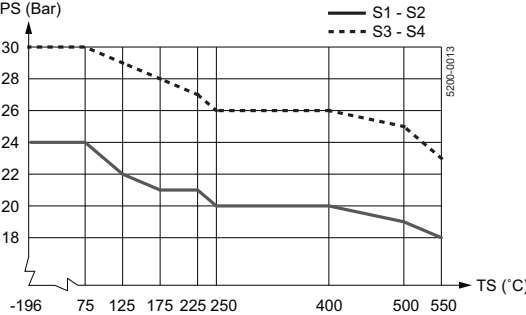
(AlfaNova 400)



Min. temperature -49°C (-45°F) with connection tubes made of carbon steel.

PED approval pressure/temperature graph

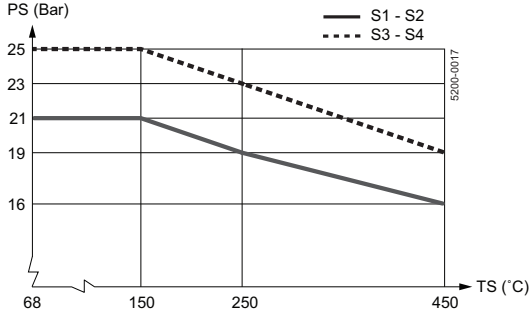
(AlfaNova HP 400)



Min. temperature -50°C (-58°F) with connection tubes made of carbon steel.

PED approval pressure/temperature graph

(AlfaNova HP 400)



Min. temperature -49°C (-45°F) with connection tubes made of carbon steel.

Product code: 4650 (AlfaNova 14)
 Product code: 4655 (AlfaNova 27)
 Product code: 4660 (AlfaNova 52)
 Product code: 4665 (AlfaNova 76)
 PED approved

Design temperture °C, min./max. (S3/S4, S1/S2): -50/+175
 AlfaNova 14: Design pressure (S3/S4, S1/S2): 20/20
 AlfaNova 27: Design pressure (S3/S4, S1/S2): 27/22
 AlfaNova 52: Design pressure (S3/S4, S1/S2): 27/22
 AlfaNova 76: Design pressure (S3/S4, S1/S2): 27/27

Heat Exchanger						Insulation Type	
Model		Item No.	PPL EUR	Dim. (mm) L x W x H	Weight kg/unit	Item No.	PPL EUR
AlfaNova 14 - Connections: ISO G 3/4" Externally threaded						Insulation Type B	
AlfaNova 14-10H (A21,A21)		3287050661	593	32 X 77 X 207	1.6	3456119701	36
AlfaNova 14-20H (A21,A21)		3287050662	746	55 X 77 X 207	2.7	3456119702	38
AlfaNova 14-30H (A21,A21)		3287050663	900	79 X 77 X 207	3.7	3456119702	38
AlfaNova 14-40H (A21,A21)		3287050664	1056	102 X 77 X 207	4.7	3456119702	38
AlfaNova 14-50H (A21,A21)		3287050665	1208	126 X 77 X 207	5.8		
For extras see CB14							
AlfaNova 27 - Connections: S1/S2 ISO G 1 1/4" Externally threaded, length 45 mm - S3/S4 ISO G 1" Externally threaded, length 45 mm						Insulation Type A	
AlfaNova 27-10H (V22,V24)		3288001188	817	80 X 111 X 310	3.6	3236000881	140
AlfaNova 27-18H (V22,V24)		3288000763	1032	100 X 111 X 310	4.6	3236000881	140
AlfaNova 27-24H (V22,V24)		3288000901	1194	114 X 111 X 310	5.4	3236000882	142
AlfaNova 27-34H (V22,V24)		3288000764	1466	138 X 111 X 310	6.7	3236000882	142
AlfaNova 27-50H (V22,V24)		3288000970	1898	177 X 111 X 310	8.8	3236000883	144
AlfaNova 27-70H (V22,V24)		3288000999	2442	225 X 111 X 310	11.4	3236000884	147
AlfaNova 27-100H (V22,V24)		3287050287	3387	298 X 111 X 310	15.4	3236000886	155
AlfaNova 52 - Connections: S1/S2 ISO G 1 1/4" Externally threaded, length 45 mm - S3/S4 ISO G 1" Externally threaded, length 45 mm						Insulation Type B	
AlfaNova 52-10H (V22,V24)		3288001442	1163	81 X 111 X 526	5.4	3236000892	157
AlfaNova 52-20H (V22,V24)		3288001139	1567	106 X 111 X 526	7.5	3236000892	157
AlfaNova 52-30H (V22,V24)		3288001047	1968	130 X 111 X 526	9.7	3236000892	157
AlfaNova 52-40H (V22,V24)		3288001265	2370	155 X 111 X 526	11.9	3236000893	161
AlfaNova 52-50H (V22,V24)		3287050288	2773	180 X 111 X 526	14	3236000893	161
AlfaNova 52-60H (V22,V24)		3288001266	3174	205 X 111 X 526	16.2	3236000894	165
AlfaNova 52-80H (V22,V24)		3287050289	3980	254 X 111 X 526	20.5	3236000895	168
AlfaNova 52-100H (V22,V24)		3287050290	4783	304 X 111 X 526	25.1	3236000896	171
AlfaNova 76 - Connections: ISO G 2" externally threaded, length 48 mm, stud bolts for feet included						Insulation Type B	
AlfaNova 76-20H (B23,B23)		3287050291	2797	116 X 191 X 618	19.2	3236000901	180
AlfaNova 76-30H (B23,B23)		3287050292	3473	145 X 191 X 618	24.1	3236000901	180
AlfaNova 76-40H (B23,B23)		3288000893	4193	173 X 191 X 618	29.2	3236000902	188
AlfaNova 76-50H (B23,B23)		3287050293	4829	202 X 191 X 618	34.1	3236000902	188
AlfaNova 76-60H (B23,B23)		3288001138	5556	230 X 191 X 618	38.9	3236000902	188
AlfaNova 76-70H (B23,B23)		3287050294	6179	259 X 191 X 618	43.8	3236000903	198
AlfaNova 76-80H (B23,B23)		3287050295	6855	287 X 191 X 618	48.6	3236000903	198
AlfaNova 76-90H (B23,B23)		3287050296	7529	316 X 191 X 618	53.5	3236000903	198
AlfaNova 76-100H (B23,B23)		3288001052	8205	344 X 191 X 618	58.3	3236000904	206
AlfaNova 76-110H (B23,B23)		3287050297	8883	373 X 191 X 618	63.6	3236000904	206
AlfaNova 76-120H (B23,B23)		3287050298	9557	401 X 191 X 618	68.4	3236000904	206
AlfaNova 76-130H (B23,B23)		3287050299	10233	430 X 191 X 618	73.3	3236000905	215
AlfaNova 76-140H (B23,B23)		3287050300	10912	458 X 191 X 618	78.1	3236000905	215
AlfaNova 76-150H (B23,B23)		3287050301	11585	487 X 191 X 618	83.0	3236000905	215