

VAU Thermotech GmbH & Co. KG

Brazed Plate Heat Exchanger



About us

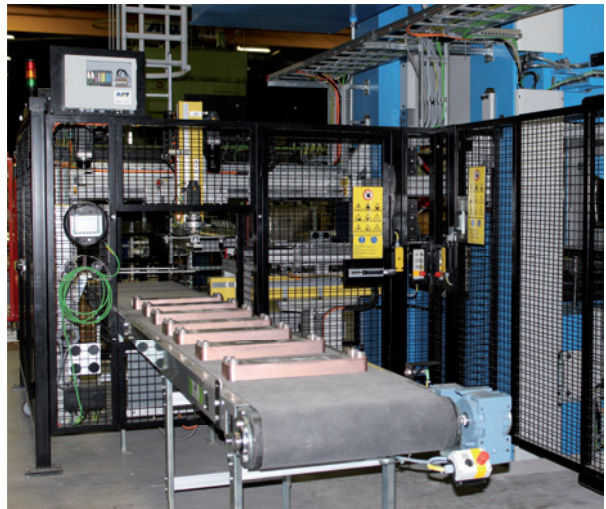
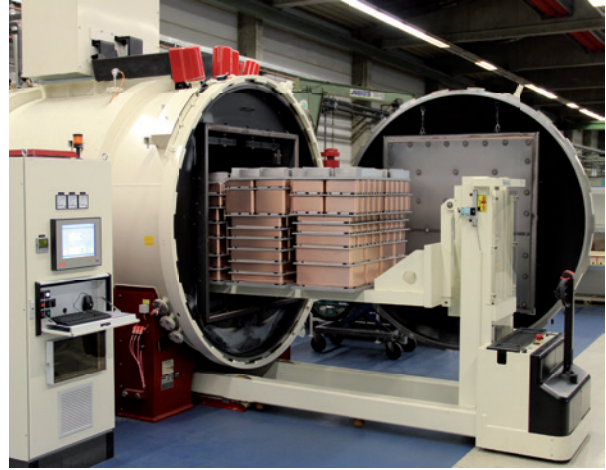
VAU Thermotech GmbH & Co. KG is an independent and owner-managed company. The traditional metal company, which was formerly known as VAU Werkzeug- und Gerätebau GmbH & Co. KG since 1977, learned a complete realignment in 2008 as plate heat exchanger company. Decades of expertise in this specialized area found its way in VAU Thermotech GmbH & Co. KG. As one of the few German specialists for plate heat exchangers VAU Thermotech GmbH & Co. KG commits to self and in Germany made products.

The company invested several million of euros in the latest machinery and systems. Among other things a new vacuum brazing furnace was purchased which is the most advanced on the market and allows an increase in the production rate. The high-tech furnace can braze up to 3,500 kg of material per batch which enables a production period of ten to twelve hours. Goods that are not in stock can be produced nearly overnight to ensure short delivery times within 24 hours.

The main investment has been made in the automated production system for heat exchanger plates. The new press system ensures maximum productivity, process reliability and maximum flexibility in production. The line with the 650 tons hydraulic press was customized to our needs and built to our specifications.

Both brazed and welded heat exchanger plates of different sizes can be produced by this line. In addition, the press line can also be operated manually.

VAU has the most advanced production equipment for plate heat exchangers worldwide.



Brazed Plate Heat Exchanger

Design & construction

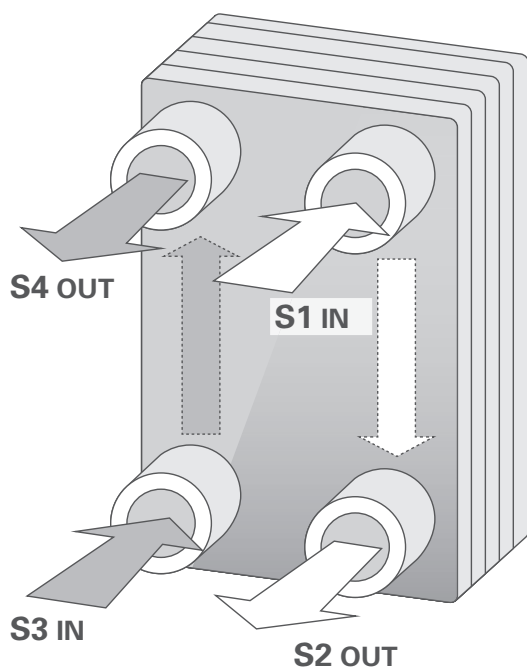
The Brazed Plate Heat Exchanger is designed to achieve the maximum transfer of heat between two media of different temperatures, without allowing the media to mix. The Brazed Plate Heat Exchanger is constructed of several layers of baffled stainless steel plates. The unique stamping pattern of the baffled plates maximizes the effectiveness of the heat transfer. The plates within a Brazed Plate Heat Exchanger are made of AISI 316L (1.4404) stainless steel, pressed and jointed to a plate pack and brazed with a 99.99% pure copper brazing agent using a vacuum oven process.

Each baffled stainless steel plate has an opening in each of the four corners. During the manufacturing process of units, every other baffled stainless steel plate is rotated 180° in order to create two distinct media chambers, or channels.

These two distinct media channels allow for the asymmetric flow of media across a multitude of intersections, created by the unique pattern of the baffled stainless steel plates, and causes high turbulence of the media flowing through the two distinct channels. The result is a high heat transfer value, as well as a significant reduction of deposits on the plates from the media flowing through the unit, as compared to a shell and tube heat exchanger.

Applications:

- District heating
- Heat Pumps
- Heating Technology
- Air Conditioning
- and many more branches of industry
- Refrigeration
- Solar Technology
- Energy recovery
- Domestic water heating



Short installation guide

Assembly:

Media with particulates and/or heavy solids are not appropriate for use with the brazed plate heat exchanger, as they will cause clogging and early failure of the unit. To avoid fatigue of the brazed joints and the potential of a failure, installations must be made in a manner to avoid pulsations and vibrations to the unit. The unit must be installed and operated in a manner which limits bending and twisting torque on the connection ports to the maximums

Mounting position:

The plate heat exchangers should be installed in a vertical position to provide draining of flow channels.

Connection:

The media must flow through the device in counter flow paths.

Venting:

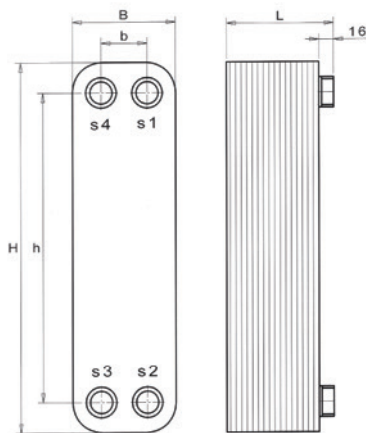
During initial media flow through a drained or new unit, vent valves should be open to allow all trapped air to escape from the system.

Cleaning:

The brazed plate heat exchanger can be cleaned by flushing and back-flushing, in place, with chemical cleaners.

Technical Specifications

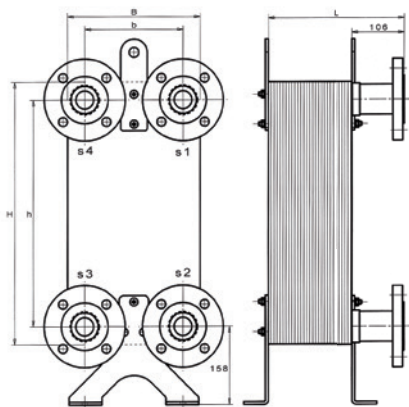
Size	Item #	liter		Depth L/inches	Width B/inches	b/inches	Height		Weight lbs.	Port Fittings
		primary	secondary				H/inches	h/inches		
VM 15/ 10	0151001	0,10	0,13	1.69	2.87	1.65	7.95	6.77	2.43	¾" MNPT or G ¾
VM 15/ 20	0152001	0,23	0,26	2.60	2.87	1.65	7.95	6.77	3.53	
VM 15/ 30	0153001	0,36	0,39	3.50	2.87	1.65	7.95	6.77	4.41	
VM 15/ 40	0154001	0,49	0,52	4.41	2.87	1.65	7.95	6.77	5.29	
VM 25/ 8	0250801	0,11	0,14	1.50	2.83	1.65	12.13	10.94	3.52	¾" MNPT or G ¾
VM 25/ 10	0251001	0,14	0,18	1.69	2.83	1.65	12.13	10.94	3.75	
VM 25/ 14	0251401	0,21	0,25	2.05	2.83	1.65	12.13	10.94	4.41	
VM 25/ 16	0251601	0,25	0,28	2.24	2.83	1.65	12.13	10.94	4.85	
VM 25/ 20	0252001	0,32	0,35	2.60	2.83	1.65	12.13	10.94	5.73	
VM 25/ 24	0252401	0,39	0,42	2.95	2.83	1.65	12.13	10.94	6.17	
VM 25/ 30	0253001	0,50	0,53	3.50	2.83	1.65	12.13	10.94	6.83	
VM 25/ 40	0254001	0,67	0,71	4.41	2.83	1.65	12.13	10.94	8.38	
VM 25/ 50	0255001	0,85	0,88	5.31	2.83	1.65	12.13	10.94	10.14	
VM 25/ 60	0256001	1,03	1,06	6.22	2.83	1.65	12.13	10.94	11.68	
VM 25/ 80	0258001	1,38	1,41	8.03	2.83	1.65	12.13	10.94	16.31	
VM 30/ 8	0300801	0,16	0,21	1.50	4.17	1.97	12.05	9.84	5.15	
VM 30/ 10	0301001	0,21	0,26	1.69	4.17	1.97	12.05	9.84	5.51	
VM 30/ 14	0301401	0,31	0,36	2.05	4.17	1.97	12.05	9.84	6.36	
VM 30/ 16	0301601	0,36	0,42	2.24	4.17	1.97	12.05	9.84	6.76	
VM 30/ 20	0302001	0,47	0,52	2.60	4.17	1.97	12.05	9.84	7.28	
VM 30/ 24	0302401	0,57	0,62	2.95	4.17	1.97	12.05	9.84	8.16	
VM 30/ 30	0303001	0,73	0,78	3.50	4.17	1.97	12.05	9.84	9.48	
VM 30/ 40	0304001	0,99	1,04	4.41	4.17	1.97	12.05	9.84	11.68	
VM 30/ 50	0305001	1,25	1,30	5.31	4.17	1.97	12.05	9.84	13.89	
VM 30/ 60	0306001	1,51	1,56	6.22	4.17	1.97	12.05	9.84	16.09	
VM 30/ 80	0308001	2,03	2,08	8.03	4.17	1.97	12.05	9.84	19.60	
VM 30/ 100	0310001	2,55	2,60	9.84	4.17	1.97	12.05	9.84	23.59	
VM 55/ 6	0550601	0,24	0,35	34	4.17	1.97	20.47	18.35	11.24	1" MNPT or G 1
VM 55/ 8	0550801	0,35	0,47	38	4.17	1.97	20.47	18.35	11.90	
VM 55/ 10	0551001	0,47	0,59	43	4.17	1.97	20.47	18.35	12.79	
VM 55/ 14	0551401	0,71	0,83	52	4.17	1.97	20.47	18.35	14.33	
VM 55/ 20	0552001	1,06	1,18	66	4.17	1.97	20.47	18.35	16.76	
VM 55/ 24	0552401	1,30	1,42	75	4.17	1.97	20.47	18.35	18.08	
VM 55/ 30	0553001	1,65	1,77	89	4.17	1.97	20.47	18.35	20.50	
VM 55/ 40	0554001	2,24	2,36	112	4.17	1.97	20.47	18.35	24.47	
VM 55/ 50	0555001	2,83	2,95	135	4.17	1.97	20.47	18.35	28.22	
VM 55/ 60	0556001	3,42	3,54	158	4.17	1.97	20.47	18.35	31.97	
VM 55/ 80	0558001	4,60	4,72	204	4.17	1.97	20.47	18.35	39.68	
VM 55/100	0510001	5,78	5,90	250	4.17	1.97	20.47	18.35	47.40	



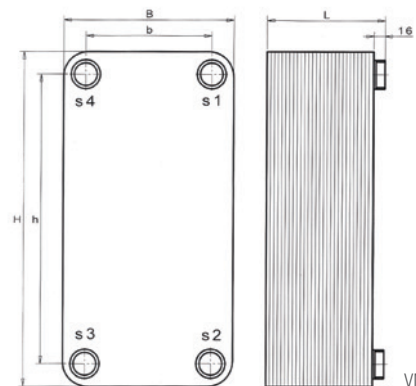
Standard Model
VM 15 to VM 60

Technical Specifications

Size	Item #	liter primary	liter secondary	Depth L/inches	Width B/inches	b/inches	Height H/inches	h/inches	Weight lbs.	Port Fittings	
VM 60/ 6	0600601	0,25	0,38	1.33	4.88	2.72	20.94	18.74	11.68	1 ¼" MNPT or G 1 ¼	
VM 60/ 8	0600801	0,38	0,50	1.51	4.88	2.72	20.94	18.74	12.57		
VM 60/ 10	0601001	0,50	0,63	1.69	4.88	2.72	20.94	18.74	13.45		
VM 60/ 14	0601401	0,76	0,88	2.06	4.88	2.72	20.94	18.74	15.21		
VM 60/ 20	0602001	1,13	1,26	2.60	4.88	2.72	20.94	18.74	17.86		
VM 60/ 24	0602401	1,39	1,51	2.95	4.88	2.72	20.94	18.74	19.62		
VM 60/ 30	0603001	1,76	1,89	3.50	4.88	2.72	20.94	18.74	22.27		
VM 60/ 40	0604001	2,39	2,52	4.41	4.88	2.72	20.94	18.74	26.68		
VM 60/ 50	0605001	3,02	3,15	5.31	4.88	2.72	20.94	18.74	31.09		
VM 60/ 60	0606001	3,65	3,78	6.22	4.88	2.72	20.94	18.74	35.49		
VM 60/ 80	0608001	4,91	5,04	8.03	4.88	2.72	20.94	18.74	44.31		
VM 60/100	0610001	6,17	6,30	9.84	4.88	2.72	20.94	18.74	53.13		
VM 85/ 30 G2	0853001G2	3,64	3,90	3.50	10.67	7.80	20.94	18.11	47.18		2" MNPT or G 2
VM 85/ 40 G2	0854001G2	4,94	5,20	4.41	10.67	7.80	20.94	18.11	56.66		
VM 85/ 50 G2	0855001G2	6,24	6,50	5.31	10.67	7.80	20.94	18.11	66.14		
VM 85/ 60 G2	0856001G2	7,54	7,80	6.22	10.67	7.80	20.94	18.11	75.62		
VM 85/ 80 G2	0858001G2	10,14	10,40	8.03	10.67	7.80	20.94	18.11	94.58		
VM 85/100 G2	0810001G2	12,74	13,00	9.84	10.67	7.80	20.94	18.11	113.54		
VM 85/120 G2	0812001G2	15,34	15,60	11.65	10.67	7.80	20.94	18.11	132.50		
VM 85/150 G2	0815001G2	19,24	19,50	14.37	10.67	7.80	20.94	18.11	160.94		
VM 85/180 G2	0818001G2	23,14	23,40	17.09	10.67	7.80	20.94	18.11	189.38		
VM 85/200 G2	0820001G2	25,74	26,00	18.90	10.67	7.80	20.94	18.11	204.59		
VM 85/ 30	0853001DN50	3,64	3,90	7.05	10.67	7.80	20.94	18.11	75.18	DN 50/ PN 40 Flange	
VM 85/ 40	0854001DN50	4,94	5,20	7.95	10.67	7.80	20.94	18.11	84.66		
VM 85/ 50	0855001DN50	6,24	6,50	8.86	10.67	7.80	20.94	18.11	94.14		
VM 85/ 60	0856001DN50	7,54	7,80	9.76	10.67	7.80	20.94	18.11	103.62		
VM 85/ 80	0858001DN50	10,14	10,40	11.57	10.67	7.80	20.94	18.11	122.58		
VM 85/100	0810001DN50	12,74	13,00	13.39	10.67	7.80	20.94	18.11	141.54		
VM 85/120	0812001DN50	15,34	15,60	15.20	10.67	7.80	20.94	18.11	160.50		
VM 85/150	0815001DN50	19,24	19,50	17.91	10.67	7.80	20.94	18.11	185.19		
VM 85/180	0818001DN50	23,14	23,40	20.63	10.67	7.80	20.94	18.11	214.29		
VM 85/200	0820001DN50	25,74	26,00	22.44	10.67	7.80	20.94	18.11	232.81		



Size VM 85
flange DN 50 is possible



VM 85 G2

Accessories

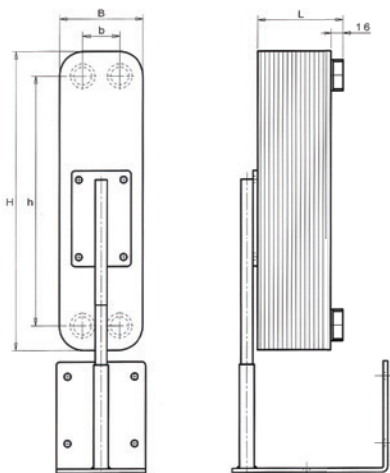
Insulated Enclosures

Size	Plate Count	Dimensions		Item #
		LxBxH (inches)		
VM 15	10 - 20	3.45 x 5.51 x 11.02		0151002
VM 15	30 - 40	5.51 x 5.51 x 11.02		0153002
VM 25	8 - 30	5.91 x 6.69 x 14.96		0251002
VM 25	40 - 60	8.27 x 6.69 x 14.96		0254002
VM 25	80	10.63 x 6.69 x 14.96		0258002
VM 30	8 - 30	5.91 x 6.69 x 14.96		0301002
VM 30	40 - 60	8.27 x 6.69 x 14.96		0304002
VM 30	80 - 100	10.63 x 6.69 x 14.96		0308002
VM 55	6 - 30	5.51 x 7.48 x 23.62		0550602
VM 55	40 - 60	8.66 x 7.48 x 23.62		0554002
VM 55	80 - 100	12.20 x 7.48 x 23.62		0558002
VM 60	6 - 30	5.51 x 7.48 x 23.62		0600602
VM 60	40 - 60	8.66 x 7.48 x 23.62		0604002
VM 60	80 - 100	12.20 x 7.48 x 23.62		0608002
VM 85	30 - 60	8.86 x 13.39 x 24.21		0853002
VM 85	80 - 100	12.60 x 13.39 x 24.21		0858002
VM 85	120 - 150	15.94 x 13.39 x 24.21		0812002
VM 85	180 - 200	24.21 x 13.39 x 24.21		0818002

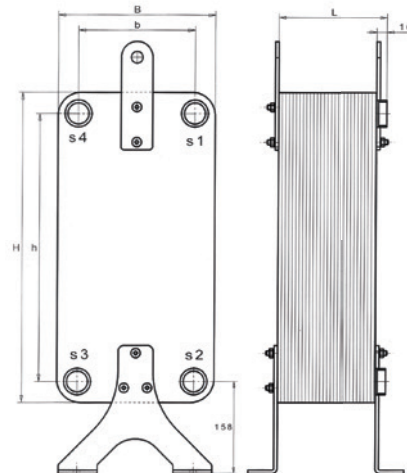


Consoles

Size	Model	Item #
VM 30	1 pc. Floor-wall-console	0600007
VM 55	incl. 4 pcs. threaded bolts M 8 x 20	
VM 60		
VM 85	2 pcs. Floor console	0850008
	incl. 4 pcs. threaded bolts M 8 x 20	
	2 pcs. Transport hooks	0850009
	incl. 4 pcs. threaded bolts M 8 x 20	



Floor-wall-console

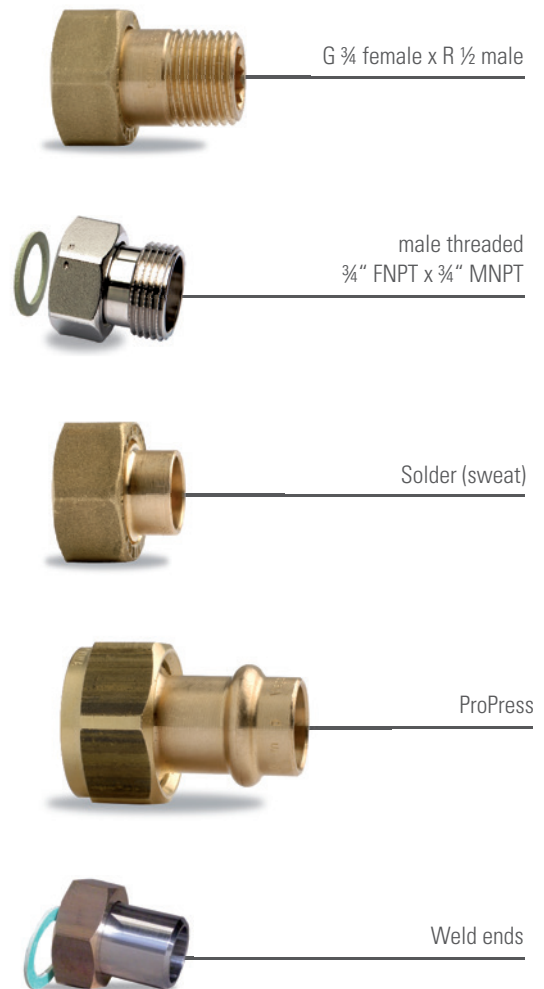


Floor console VM 85

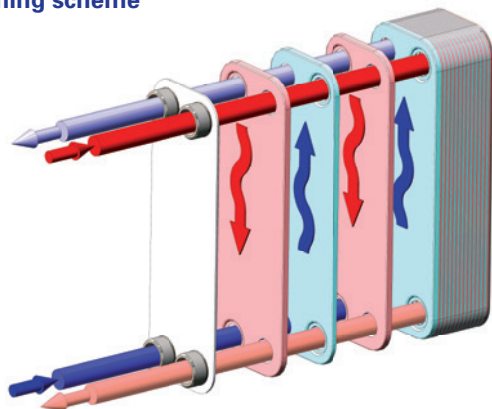
Accessories

Adapter Options

Size	Model	Connection size (sold in packages of 4)	Item #
VM 15 VM 25	male threaded	G ¾ female x R ½ male	0151004-EU
	male threaded	¾" FNPT x ¾" MNPT	0151014-US
	solder (sweat)	G ¾ female x 15	0151005-EU
	solder (sweat)	¾" FNPT x ¾"	0151005-US
	ProPress	G ¾ female x 15	0151006-EU
	ProPress	¾" FNPT x ¾"	0151006-US
	weld ends	G ¾ female x 15	0151007-EU
	weld ends	¾" FNPT x ¾"	0151007-US
VM 30 VM 55	male threaded	G 1 female x R ¾ male	0301004-EU
	male threaded	1" FNPT x 1" MNPT	0301014-US
	solder (sweat)	G 1 female x 22	0301005-EU
	solder (sweat)	1" FNPT x 1"	0301005-US
	ProPress	G 1 female x 22	0301006-EU
	ProPress	1" FNPT x 1"	0301006-US
	weld ends	G 1 female x 20	0301007-EU
	weld ends	1" FNPT x 1"	0301007-US
VM 60	male threaded	G 1 ¼ female x R 1 male	0600604-EU
	male threaded	1 ¼" FNPT x 1 ¼" MNPT	0600614-US
	solder (sweat)	G 1 ¼ female x 28	0600605-EU
	solder (sweat)	1 ¼" FNPT x 1 ¼"	0600605-US
	ProPress	G 1 ¼ x 28	0600606-EU
	ProPress	1 ¼" FNPT x 1 ¼"	0600606-US
	weld ends	G 1 ¼ x 25	0600607-EU
	weld ends	1 ¼" FNPT x 1 ¼"	0600607-US
VM 85 G2	male threaded	G 2 female x R 1 ½ male	0853004-EU
	male threaded	G 2 FNPT x 2 MNPT	0853014-US
	solder (sweat)	G 2 x 42	0853005-EU
	solder (sweat)	2" FNPT x 2"	0853005-US
	ProPress	G 2 x 42	0853006-EU
	ProPress	2" FNPT x 2"	0853006-US
	weld ends	G 2 x 48	0853007-EU
	weld ends	2" FNPT x 2"	0853007-US



Functioning scheme



Operating parameters

Material

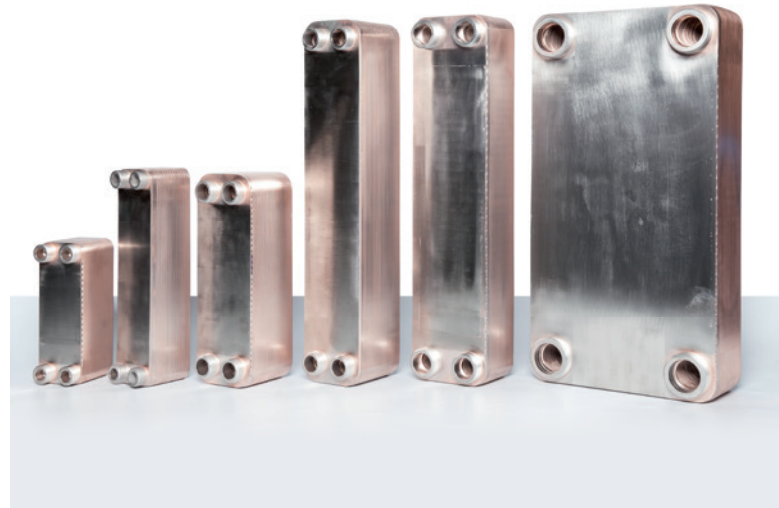
- Plates: Stainless Steel AISI 316L SS
- Connections: Stainless Steel AISI 316L SS
- Brazing material: Copper

Operating conditions

- Maximum operating pressure: 435 psi (30 bar)
- Maximum operating temperature: 383 °F (195 °C)
- PED 97/23/EC approval

Resistance chart

The following values for water substances are to be respected and not exceeded:



Water parameters	Unit	max. allowed values
pH-value		7 - 9
Saturation Index		-0,2 < 0 < +0,2
Total hardness	°dH	6 - 15
Conductivity	µS/cm	10 - 500
Filtered Substances	mg/l	< 30
Chlorides	mg/l	< 300 (≤ 50 °C) < 100 (≤ 75 °C) < 10 (≤ 90 °C) more than 100 °C Chlorides prohibited
Free Chlorine	mg/l	< 0,6
Hydrogen sulphide	mg/l	< 0,05
Ammonia	mg/l	< 2
Sulphates	mg/l	< 100
Hydrogen Carbonate	mg/l	70 - 300
Hydrogen Carbonate / Sulphates	mg/l	> 1
Sulphates	mg/l	< 1
Nitrate	mg/l	< 100
Nitrite	mg/l	< 0,1
Iron	mg/l	< 0,2
Manganese	mg/l	< 0,1
free aggressive carbonic acid	mg/l	< 20

Quickfinder

System Isolation: boiler / underfloor heating

maximum thermal efficiency BTU/h:				52000	103000	137000	171000	205000	274000	342000
primary		secondary		Type of heat exchanger						
input	output	input	output							
194 °F	158 °F	104 °F	122 °F	VM 15-10	VM 15-20	VM 15-30	VM 15-40	VM 30-50	VM 30-60	VM 30-80
158 °F	122 °F	95 °F	113 °F							
158 °F	122 °F	104 °F	122 °F							
140 °F	122 °F	86 °F	113 °F							

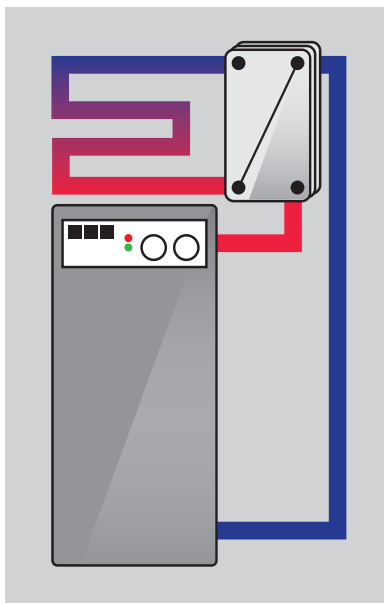
Solar Unit Glycol 35%: fresh water heating

maximum thermal efficiency BTU/h:				18000	52000	86000	120000	171000	240000	308000
primary		secondary		Type of heat exchanger						
input	output	input	output							
158 °F	122 °F	50 °F	140 °F	VM 25-10	VM 25-20	VM 25-30	VM 25-40	VM 30-20	VM 30-30	VM 30-40
158 °F	77 °F	50 °F	140 °F	VM 30-20	VM 60-14	VM 60-20	VM 60-30	VM 60-40	VM 60-50	VM 60-60
149 °F	104 °F	50 °F	140 °F	VM 30-10	VM 30-20	VM 30-30	VM 30-40	VM 30-50	VM 30-60	VM 30-80

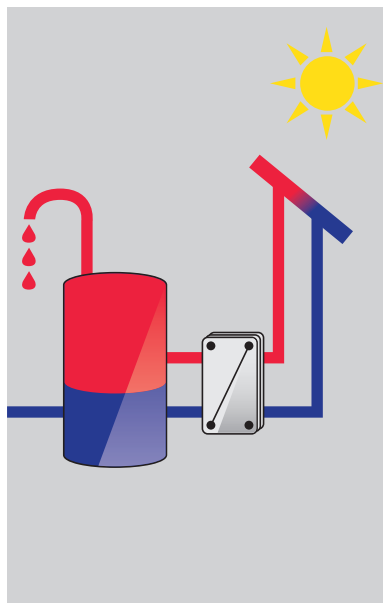
Solar Unit Glycol 35%: Swimming Pool

maximum thermal efficiency BTU/h:				27400	69000	103000	137000	205000	274000	342000
primary		secondary		Type of heat exchanger						
input	output	input	output							
158 °F	122 °F	68 °F	86 °F	VM 25-10	VM 25-20	VM 25-30	VM 25-40	VM 30-50	VM 30-60	VM 30-80
158 °F	77 °F	59 °F	77 °F							
149 °F	104 °F	50 °F	68 °F							

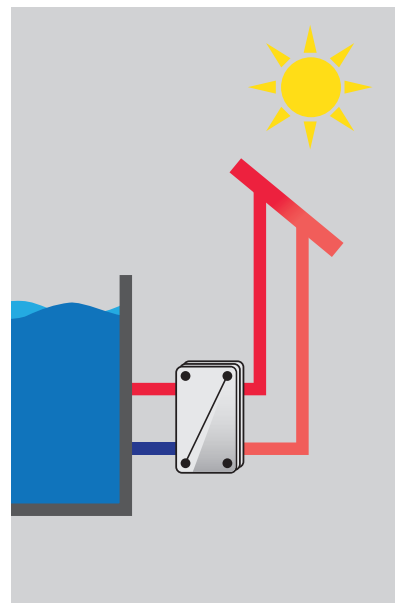
*) all details at max. 20kPa pressure loss



System Isolation:
boiler / underfloor heating



Solar Unit Glycol 35%:
fresh water heating



Solar Unit Glycol 35%:
Swimming Pool

Quickfinder

Pass-through fresh water heating

maximum thermal efficiency BTU/h:				52000	103000	171000	240000	308000	410000	520000
primary		secondary		Type of heat exchanger						
input	output	input	output							
158°F	131°F	50°F	140°F	VM 25-10	VM 25-20	VM 25-30	VM 25-40	VM 30-50	VM 30-60	VM 30-80
194°F	158°F	50°F	140°F	VM 25-10	VM 25-10	VM 25-20	VM 25-20	VM 25-30	VM 30-50	VM 30-60
140°F	122°F	50°F	122°F	VM 25-10	VM 25-20	VM 25-30	VM 30-50	VM 30-80	VM 85-30	VM 85-40

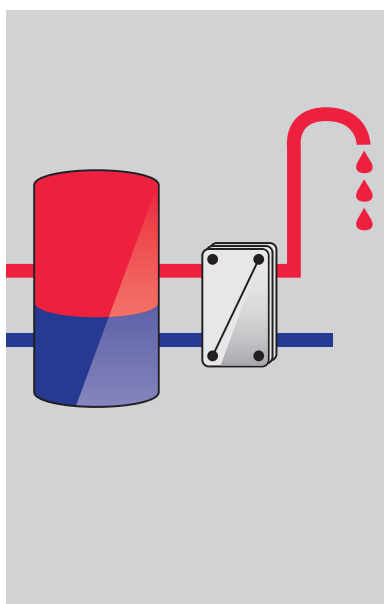
Heating buffer

maximum thermal efficiency BTU/h:				52000	103000	171000	240000	308000	410000	520000
primary		secondary		Type of heat exchanger						
input	output	input	output							
158°F	131°F	122°F	149°F	VM 30-30	VM 30-50	VM 60-30	VM 60-40	VM 60-50	VM 60-80	VM 85-30
194°F	158°F	122°F	158°F	VM 25-10	VM 25-20	VM 25-30	VM 25-40	VM 30-40	VM 30-50	VM 30-60
194°F	131°F	122°F	158°F	VM 30-10	VM 30-20	VM 30-30	VM 30-40	VM 30-50	VM 30-60	VM 30-80

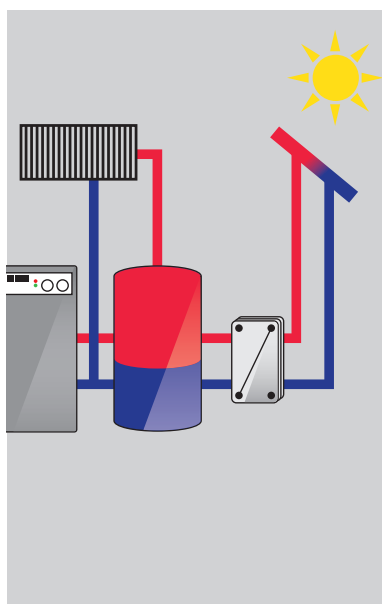
District Heating

maximum thermal efficiency BTU/h:				52000	103000	171000	240000	308000	410000	520000
primary		secondary		Type of heat exchanger						
input	output	input	output							
266°F	131°F	122°F	194°F	VM 30-10	VM 30-20	VM 30-30	VM 30-40	VM 30-50	VM 30-60	VM 30-80
266°F	131°F	122°F	158°F	VM 25-20	VM 25-30	VM 25-40	VM 30-30	VM 30-40	VM 30-50	VM 30-60
230°F	131°F	122°F	194°F	VM 30-20	VM 30-40	VM 60-20	VM 60-24	VM 60-30	VM 60-40	VM 60-50
230°F	140°F	131°F	176°F	VM 25-30	VM 30-20	VM 30-30	VM 30-40	VM 30-50	VM 30-60	VM 30-80

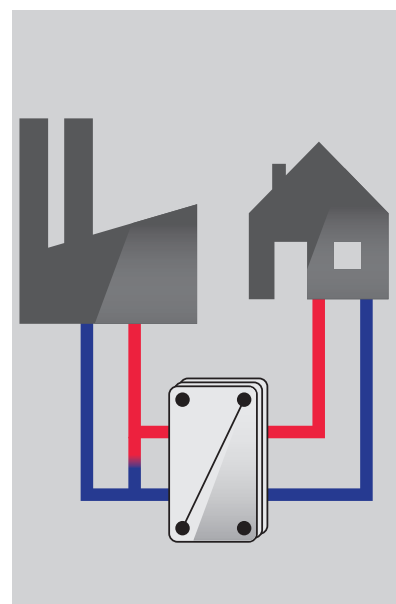
*) all details at max. 20kPa pressure loss



Pass-through fresh water heating



Heating buffer



District Heating



VM 60/50

VM 60/60

VM 60/80

Our complete product range



Brazed Plate Heat Exchangers

- District heating
- Heat pumps
- HVAC
- solar energy stations
- fresh water stations
- refrigeration



Gasketed Plate Heat Exchangers

- Food industry
- Chemical industry
- Petrochemical industry
- Processing industry



Fully welded Hybrid-Plate Heat Exchanger

- Power stations
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- Sugar evaporators
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- Petrochemical industry
- Chemical industry
- Pharmaceutical industry
- Beverage and food industry

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