

VAHTERUS

Fully Welded Heat Exchangers for Refrigeration

Vahterus Plate & Shell Heat Exchangers have many benefits for advanced refrigeration applications such as evaporators, condensers, cascades, desuperheaters and oil coolers. Plate & Shell Heat Exchangers are effective, durable & versatile due to their unique shell construction together with fully welded plates. This also makes them ideal for contractors who need compact size and low refrigerant charge. Vahterus Heat Exchangers are suitable for all refrigerants, especially for natural media such as ammonia and carbon dioxide.

Evaporators

Evaporators are the barrier between the medium that must be cooled down, condensed or partially condensed, and the refrigerant. The primary modes of operation of an evaporator are: direct expansion of the refrigerant, flooded (or gravity) and pumped re-circulation.

Cascades

In a cascade condenser, one medium is evaporating and the other is condensing, on opposite sides of the heat exchanger. These media can be the same e.g. $\text{NH}_3 / \text{NH}_3$ which is often the case in heat pumps, or different e.g. NH_3 evaporating / CO_2 condensing in cooling or freezing systems.

Desuperheaters

In refrigeration systems it is more and more attractive to recover the energy from the refrigerant's superheat and to use this in other processes. Examples can be floor heating and/ or room heating. Only the sensible heat or mixture of sensible / latent heat can be recovered.

Condensers

Vahterus heat exchangers are often installed on the high pressure side of a refrigeration system or heat pump. The main reason is to reject the condensation heat to waste, to use the available energy or to recover the rejected heat (heat recovery systems).

Key features of Vahterus PSHE's

- Application with liquids and gases
- Can be used with ammonia and all other natural refrigerants
- Small size, easy to install
- Easy to insulate due to cylindrical shape
- Low pressure drop
- Oil can flow easily from the plates
- Liquid drains easily from the plates
- Non-condensables can easily be removed
- High design pressures for heat pump applications and cascade condensers
- Customized solutions

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Technical specifications

Design pressures:

6, 10, 16, 25, 40, 60 / up to 150 bar
(150, 300, 600, 900 psi / up to 2000 psi)

Plate thickness:

0.7 mm, 0.8 mm, 1.0 mm, 1.2 mm, 1.5 mm

Main executions:

Fully welded
Openable
Combined

Design temperatures:

from -196°C to 400°C (-320°F to 750°F)

Approvals:

PED
ASME U-stamp & R-stamp
EAC certification
SELO, China
Germanischer Lloyd
Bureau Veritas
R.I.N.A
DNV GL

Plate materials

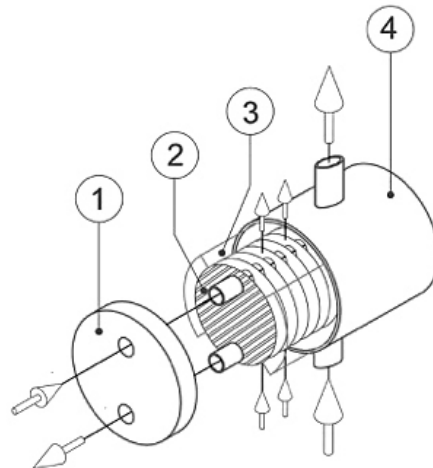
- AISI 316L
- AISI 304L
- 254 SMO
- EN 1.4547
- EN 1.4462
- Titanium Gr. 1
- Duplex

Shell materials

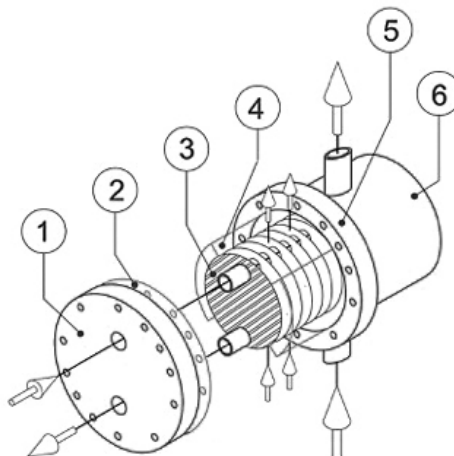
- AISI 316L
- St 35.8 / P235GH
- Others available upon request

Dimensions

PSHE model name	Plate Ø mm / in	Nozzles Plate, DN / in	Nozzles Shell, DN
PSHE 2	190 / 7.5	25 / 1	25 - 80 / 1 - 3
PSHE 3	300 / 11.8	50 / 2	25 - 250 / 1 - 10
PSHE 4	440 / 17.3	80 / 3	25 - 300 / 1 - 12
PSHE 5	556 / 21.9	100 / 4	25 - 350 / 1 - 14
PSHE 6	650 / 25.6	125 / 5	25 - 500 / 1 - 20
PSHE 7	740 / 29.1	150 / 6	25 - 500 / 1 - 20
PSHE 9	998 / 39.3	200 / 8	25 - 700 / 1 - 28
PSHE 12	1214 / 47.8	250 / 10	25 - 1000 / 1 - 40
PSHE 14	1358 / 53.5	300 / 12	25 - 1000 / 1 - 40



1. End plate
2. Plate pack
3. flow directors
4. Shell



1. End plate flange
2. Gasket
3. Plate pack
4. Flow directors
5. Shell flange
6. Shell