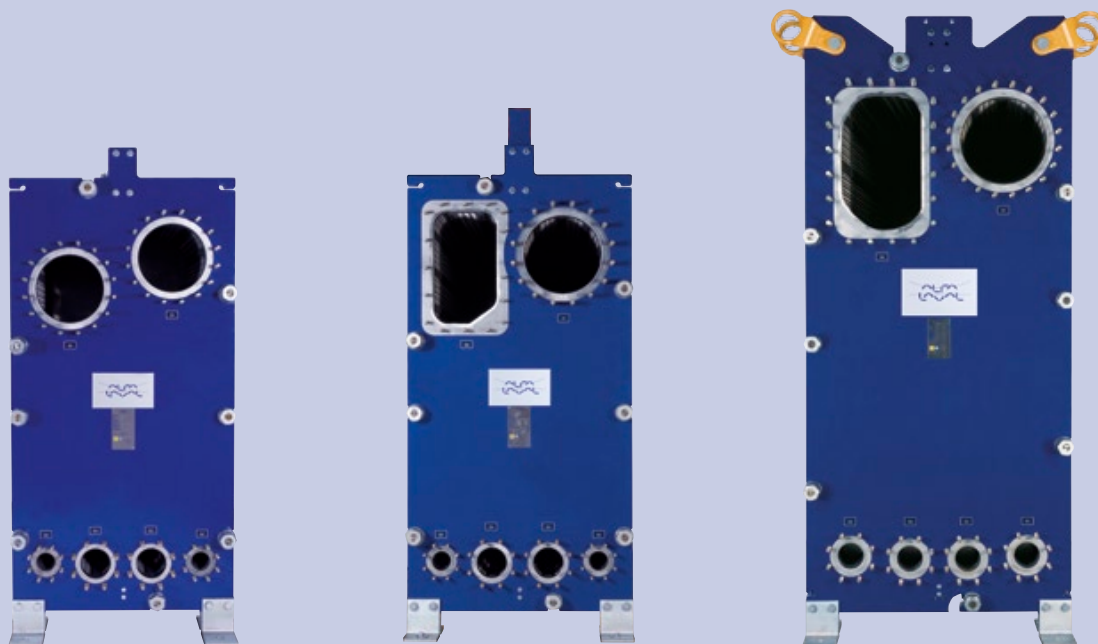




AlfaVap range

Plate evaporators



AlfaVap 350, AlfaVap 500 and AlfaVap 650

Application

- Evaporator for concentrating liquid products such as sugar, sweetener, stillage, corn steep liquor, fruit juice, sodium hydroxide and protein
- Reboiler in distillation and stripping columns

Standard design

The AlfaVap consists of a plate pack with alternating welded channels and traditional gasketed channels. All plate surfaces in the gasketed channels are easily accessible for inspection and manual cleaning.

The frame consists of two covers of painted carbon steel (the frame plate and the pressure plate) between which the plate pack is pressed together by means of tightening bolts.

The frame plate is stationary, while the pressure plate is movable along the carrying bar. The carrying bar is supported by the frame at one end and a support column at the other which are bolted to the foundation.

Operating Performance

- Evaporation capacity up to 80 tons per hour (176000 lb/hr) of evaporated vapour, depending on process fluid and operating conditions.
- Operating pressure from 0.05 bara (0,7 psia) up to 8 barg (116 psig)
- Operating temperature up to 180°C (356°F).

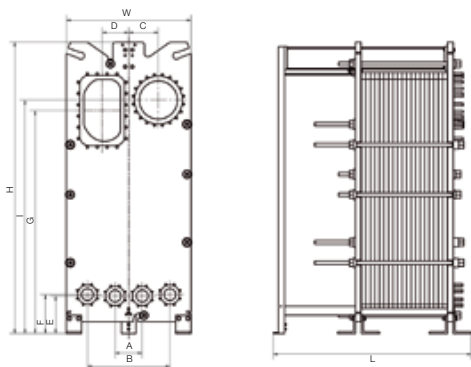
Working principle

AlfaVap is designed for high efficiency rising film evaporation. The liquid product enters through two feed connections which are placed centrally at the bottom of the unit. The placement of these connections and the design of the plate allow even flow distribution across each plate width and through the entire plate pack. The product rises through the plate channels and exits through the large top left connection as a mixture of concentrated liquid and vapour.

The heating media (usually steam) enters the unit through the large circular top right connection and condensate exits through two smaller outlets on each side at the bottom.

AlfaVap uses the cassette concept with the plates welded in pairs. The product is concentrated in the gasketed channel while the steam passes through the welded channel. The plate pattern is specifically designed for optimal evaporation. The special corrugated plate pattern ensures a high degree of turbulence over the whole plate. This turbulence maximizes the heat transfer and minimizes fouling.

Dimensions



| | H | W | A | B | C | D | E | F | G | I | L |
|-------------|------|------|-----|-----|-----|-----|-----|-----|------|------|-----------|
| AlfaVap 350 | 2610 | 1160 | 290 | 806 | 252 | 271 | 385 | 394 | 1815 | 1970 | 1565-3965 |
| AlfaVap 500 | 2610 | 1160 | 290 | 806 | 223 | 278 | 385 | 394 | 1903 | 1970 | 1570-6970 |
| AlfaVap 650 | 3210 | 1380 | 300 | 913 | 329 | 294 | 414 | 430 | 2457 | 2572 | 2216-7580 |

STANDARD MATERIALS

Frame

Mild steel, Epoxy painted

Nozzles

Metal lined with Stainless steel, Nickel or Titanium

TECHNICAL DATA

| Mechanical design pressure* / temperature | | AlfaVap 350 | AlfaVap 500 | AlfaVap 650 |
|---|-----------------|-----------------|-----------------|-----------------|
| PED | Product channel | 4.2 barg/ 180°C | 4.2 barg/ 180°C | 4.2 barg/ 180°C |
| | Steam channel | 6.0 barg/ 180°C | 6.0 barg/ 180°C | 8.0 barg/ 180°C |
| ASME | Product channel | 65 psig/ 350°F | 65 psig/ 350°F | 65 psig/ 350°F |
| | Steam channel | 95 psig/ 350°F | 95 psig/ 350°F | 116 psig/ 350°F |

* All AlfaVaps are designed for full vacuum.

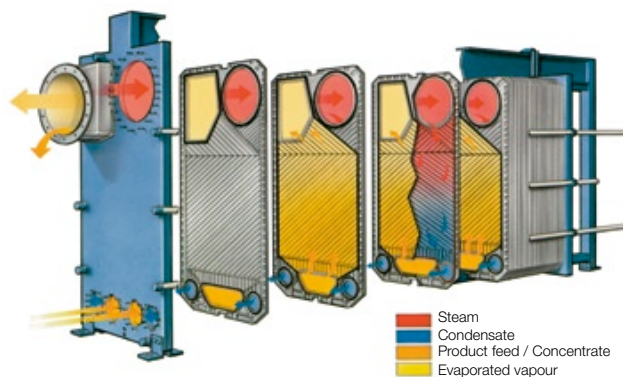
Connections

| | | | |
|-------------------|--------------------|--------------------|--------------------|
| Product inlet | 2 x 150 mm/ 2 x 6" | 2 x 150 mm/ 2 x 6" | 2 x 150mm/ 2 x 6" |
| Product outlet | 350 mm/ 14" | 500 mm/ 20" | 650 mm/ 26" |
| Steam inlet | 350 mm/ 14" | 400 mm/ 16" | 450 mm/ 18" |
| Condensate outlet | 2 x 100 mm/ 2 x 4" | 2 x 100 mm/ 2 x 4" | 2 x 150 mm/ 2 x 6" |

Maximum heat transfer surface

| | | | |
|--|-----------------------------------|-----------------------------------|-------------------------------------|
| | 422 m ² (4550 sq. ft.) | 855 m ² (9200 sq. ft.) | 1500 m ² (16100 sq. ft.) |
|--|-----------------------------------|-----------------------------------|-------------------------------------|

Flow principle for AlfaVap



Plates

Alloy 316, Alloy 304, Alloy 254 SMO, Nickel, Titanium and others on request

Gaskets

Field gasket: NBRP, EPDMP, ALEPDM

Ring gaskets: NBRP, EPDMP, ALEPDM

Particulars required for quotation

- Product flow rate
- Product temperature and concentration at inlet and outlet
- Physical properties and boiling point elevation for inlet and outlet conditions
- Temperature and pressure of heating steam
- Desired design temperature and pressure
- Desired number of effects

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com