

Falling film and forced circulation evaporator

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EnvoVap F-MVR



The Envovap F-MVR evaporator offers a broad and unique tailored programme that can be delivered both as a system for indoors installation and as a version built into a container for use outdoors, with an evaporation capacity of 2 m³/h to >200 m³/h.

The F-MVR technology is based on forced circulation combined with vapour recompression. F-MVR or mechanical vapour compression (MVC) is a technology in which the vapour is compressed in a blower to a higher temperature and pressure. This compressed vapour is then reused as a source of energy instead of adding external vapour.

Water treated with Envovap F-MVR is very pure and completely free from salts, metals, solid substances and particles. The Envovap F-MVR evaporator is suitable for a number of areas and industrial applications, including mining, leachate, the foodstuffs industry, mechanical engineering, etc., which use large amounts of water which becomes contaminated in the process. F-MVR evaporation technology facilitates so-called no-discharge (closed loop) recirculation and recovery of water in your industry/application, without accumulation of contaminants.

Envovap F-MVR evaporator uses only 7-40 kWh/m³ treated water, a reduction of up to 99% compared with e.g. vapour-driven evaporators. The optimal design of the F-MVR system produces a unique combination of very high quality distillate, very low running costs and highly efficient, safe and accessible treatment of water flows.

To check whether this system is right for your flows, the first step is to carry out a laboratory evaporation test. This test will confirm the most important characteristics and the suitability of evaporation using F-MVR technology. Normally, 2 litres of liquid is sufficient for testing.

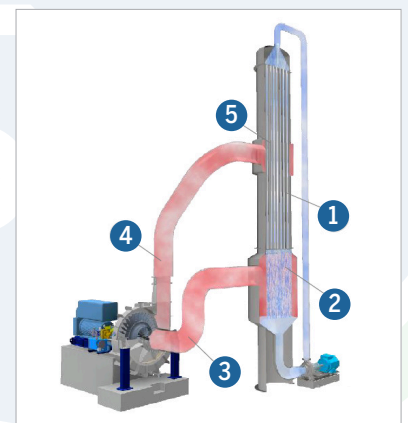
Advantages

- Very low energy consumption
- Can be located both indoors and outdoors
- Can be offered in various forms of multi-phase evaporation
- Fully automated 24 hour operation via integrated PLC control system
- Fully automated system for washing function
- Newly developed mode of operation for very high quality distillate
- The design offers a very high degree of concentration minimisation and dewatering
- High degree of reliability and minor need for operator input

Process flow diagram

- 1 The water evaporates.
- 2 The liquid is separated from the vapour to create pure condensate.
- 3 The vapour enters the MVR blower at 100 °C.
- 4 The MVR blower compresses the vapour to a higher pressure and temperature (105 °C, saturated).
- 5 When the vapour is at 105 °C and goes through a heat exchange process with the liquid, it is condensed into pure condensate.

The temperatures given here are only example temperatures. We always choose an optimal evaporation temperature and temperature increase in the MVR blower. This choice is based on the properties of the wastewater.



Envovap F-MVR is suitable for a wide range of applications within water purification and dewatering



Areas of use include:

- Industrial contaminated process water
- Concentration and dewatering of raw material
- Leachate
- Mine drainage water
- Cooling and rinsing water
- Pharmaceuticals industry
- Biomarine industry
- Biogas
- Foodstuffs industry
- Fishing industry
- Automotive industry
- And much more