



ENVIDEST MFE-1-2-3

Multiple-Effect Thermal Vacuum Evaporator with Forced Circulation

The ENVIDEST MFE series thermal vacuum evaporator is designed to treat large volumes of aqueous-based streams with a low contaminant load. The equipment can be manufactured to operate using saturated steam or hot water to heat the product to be concentrated. The condensation of the generated vapour is carried out by supplying cooling water.

It is available in single-effect or multi-effect (double and triple) versions. The multi-effect versions are notable for their high energy efficiency, as they utilize the latent heat of generated vapour, thereby reducing the energy consumed.

Additionally, each effect is equipped with a recirculation pump to ensure forced circulation of the liquid, helping to prevent the formation of scale on the main heat exchanger. Its modular construction allows for an increase in production capacity without a significant rise in energy consumption.

The operation of the equipment is fully automatic - 24 hours a day.

FEATURES

Technology

Single/Multi-Effect

Thermal Energy for Evaporation

Thermal Energy for Condensation

Vacuum 1st/2nd/3rd Effect

Evaporation Temperature 1st/2nd/3rd Effect

Evaporation Vessel

Droplet Separator

Heat Exchanger for Heating

Vacuum System

Control Unit*

Protection:

Electricity Supply**

Standard Manufacturing Material

Special Anti-corrosion Manufacturing Material***

Evaporation with thermal energy

Forced Circulation (FC)

Single-Effect

Multi-Effect

Saturated steam or hot water

Cooling water

≈ 310/200/125 mbar

≈ 70/60/50 °C

Vertical conical bottom

Mesh Demister

Shell and tube

Liquid ring pump

PLC Siemens with HMI touch screen

IP54

400 V III + PE 50 Hz

1.4401/1.4404 (AISI 316/AISI 316L)

1.4410 (Superduplex 2507)

* Different PLC manufacturer available on request

** Different voltage supply available on request

*** Consult other available material options

TECHNICAL DATA

ENVIDEST MFE-1		20000	40000	60000	80000	100000	130000
Parameter	Unit						
Capacity*	L/day	20000	40000	60000	80000	100000	130000
Electricity Consumption	kWh	20	23	38	47	59	72
Thermal Energy for Evaporation	kWh	630	1260	1885	2515	3140	4085
Thermal Energy for Condensation	kWh	630	1260	1885	2515	3140	4085
Length	mm	6500	7300	8200	9300	10400	11900
Width	mm	2600	3600	4000	4000	4000	4000
Height	mm	5100	5970	6100	6100	7200	7700

ENVIDEST MFE-2		30000	40000	60000	80000	100000	120000
Parameter	Unit						
Capacity*	L/day	30000	40000	60000	80000	100000	120000
Electricity Consumption	kWh	27	29	36	44	50	54
Thermal Energy for Evaporation	kWh	470	630	945	1260	1570	1885
Thermal Energy for Condensation	kWh	470	630	945	1260	1570	1885
Length	mm	7000	6650	8410	9000	10400	12000
Width	mm	3900	3900	3900	6310	6500	6800
Height	mm	5100	5530	5530	5540	5800	6100

ENVIDEST MFE-3		30000	50000	100000	150000	180000	200000
Parameter	Unit						
Capacity*	L/day	30000	50000	100000	150000	180000	200000
Electricity Consumption	kWh	41	50	72	82	102	110
Thermal Energy for Evaporation	kWh	315	525	1050	1570	1885	2100
Thermal Energy for Condensation	kWh	315	525	1050	1570	1885	2100
Length	mm	8900	8900	10500	11100	11100	11100
Width	mm	4000	4000	4450	5950	6250	6250
Height	mm	5100	5750	5900	6150	6250	6350

Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).

DIAGRAM

