Condorchem Enviro Solutions

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CONDORCHEM ENVIRO SOLUTIONS

Condorchem Enviro Solutions is an environmental engineering company offering comprehensive solutions for:

- **Wastewater treatment**
- **Removal of pollutants in atmospheric emissions**
- **Waste recovery**

Since the foundation of our company, we have been committed to the implementation of the most efficient solutions, both in environmental and financial terms, prioritizing those processes that allow the recovery and reuse of natural resources.

600+
PROJECTS

40+
COUNTRIES

30+
YEARS OF EXPERIENCE

BUSINESS EXCELLENCE

Our integrated management system is designed to manage our company in a more efficient, ethical and environmentally responsible way. We have achieved LLOYD'S certifications ISO 9001 and ISO 14001.

We have also been awarded the Ecovadis gold medal for sustainability.

INDUSTRIAL WASTEWATER TREATMENT

We provide comprehensive and customized solutions for the treatment and reuse of wastewater generated in industrial processes.

Each project is designed and built to meet the client's needs and objectives, whether is to comply with legal discharge limits, or to reuse water and recover other valuable resources.

- Wastewater treatment to meet discharge limits.
- Production of ultrapure water for industrial processes.
- Desalination.
- Zero liquie discharge.
- Waste concentration and minimization.
- Recovery of raw materials.
- Valorization of by-products.
- Containerized treatment plants

OUR SERVICES FOR WASTEWATER TREATMENT

To ensure the success of each project, we have established a series of processes that are meticulously carried out.

- Analysis of wastewater and study of the available technologies for wastewater management and/or water recovery.
- Estimation of investment costs (CAPEX), operating costs (OPEX) and calculation of return on investment (ROI).
- Performance of laboratory tests to verify the design data and ensure the feasibility of the proposed solution.
- Conceptual design of the wastewater treatment system.
- Design and execution of pilot tests on an industrial scale.
- Engineering and Manufacturing:
  - Basic engineering
  - Detailed engineering
  - Manufacturing and purchasing of the equipment
  - Factory Acceptance Test (FAT)
  - Delivery of the equipment
- On-site Assembly or On-site Assembly supervision.
- On-site Commissioning:
  - Start-up
  - Site Acceptance Test (SAT)
  - Personnel Training
- After sales service:
  - Annual Preventive Maintenance Contract
  - Technical Assistance
  - Spare parts supply
  - Chemical products supply

RECOVERY OF RAW MATERIALS AND BY-PRODUCTS

Our extensive experience in the application of concentration and filtration technologies has allowed us to develop customized processes for the recovery of raw materials, by-products and other valuable compounds present in any type of wastewater generated in industrial processes.

Concentration technologies offer a high yield for the recovery of clean water, with percentages that can reach up t o 99%. This water can then be reused as process water, cleaning water, irrigation water, etc.

- FERTILIZERS
- ACIDS
- SALTS
- PRECIOUS METALS
- INKS AND PIGMENTS
- PROTEINS
- SOLVENTS
- BIOGAS TRANSFORMATION

SECTORS

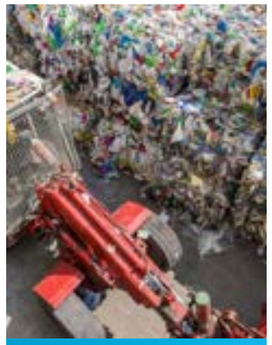
Power generation

Automotive

Food industry

Metal mechanics and electroplating

Chemistry and pharmacy



Waste and battery recycling

Construction materials

Biogas

APPLICATIONS

- ✓ Reverse osmosis rejects
- ✓ Oily effluents
- ✓ Leachates
- ✓ Brines
- ✓ Washing waters with surfactants

OUR EVAPORATION TECHNOLOGIES AT A GLANCE

ELECTRICAL ENERGY
Heat pump

Low temperature evaporation
Allows the evaporation of heat-sensitive and/or corrosive products, reducing the risk of thermal degradation of the product and the deterioration of construction materials.

Capacity range
From 10 to 2200 L/h

Energy consumption
Evaporators: 170 kWh/m^3
Double effect evaporators: 110 kWh/m^3
Evaporators-crystallizers: 220-270 kWh/m^3

ELECTRICAL ENERGY
Mechanical vapor recompression

Maximum energy efficiency
It uses a compressor to increase the pressure and temperature of the steam generated in the system, reusing it as an energy source for the evaporation process.

Capacity range
From 50 to 2500 L/h

Energy consumption
Evaporators: 35-60 kWh/m^3
Evaporators-crystallizers: 64 kWh/m^3

THERMAL ENERGY
Saturated steam hot water

Versatility and modular construction
Offers great flexibility when small adjustments in inlet flow rate and product composition are required. Allows for easy expansion or modification of the system according to production needs.

Capacity range
From 10 to 10000 L/h

Energy consumption
Single-effect evaporators: 700 kWht/m^3
Double-effect evaporators: 350 kWht/m^3
Triple-effect evaporators: 230 kWht/m^3

OUR MODELS

	 ENVIDEST LT VS	 ENVIDEST LT FC-2	 DESALT LT VR	 DESALT LT DRY	 ENVIDEST MVR FF	 ENVIDEST MVR FC	 DESALT MVR FC
Technology	Heat pump (Freon R-407C)	Heat pump (Freon R-134A) Forced circulation (FC)	Heat pump (Freon R-407C)	Heat pump (Freon R-407C)	Mechanical Vapor Recompression (MVR) / Falling Film (FF) Forced Circulation (FC)	Mechanical Vapor Recompression (MVR) / Forced Circulation (FC)	Mechanical Vapor Recompression (MVR) / Forced Circulation (FC)
Single/Multi-Effect	Single-Effect	Multi-Effect	Single-Effect	Single-Effect	Single-Effect	Single-Effect	Single-Effect
Electricity consumption per 1 m^3 of distillate produced	170 kWh/m^3	110 kWh/m^3	220 kWh/m^3	270 kWh/m^3	35-60 kWh/m^3	45 kWh/m^3	64 kWh/m^3
Thermal energy for evaporation	NA	NA	NA	NA	NA	NA	Small amount of saturated steam
Thermal energy for condensation	NA	NA	NA	NA	NA	NA	NA
Vacuum	≈ 60 mbar	≈ 125/70 mbar	≈ 60 mbar	≈ 60 mbar	≈ 700 mbar	≈ 200 mbar	≈ 700 mbar
Evaporation temperature	≈ 35 °C	≈ 50/40	≈ 35 °C	≈ 35 °C	≈ 90 °C	≈ 60 °C	≈ 90 °C
Evaporation Vessel	Vertical	Vertical	Vertical conical bottom with scraper	Horizontal	Horizontal	Vertical	Vertical conical bottom
Droplet separator	Raschig Rings	Raschig Rings	No	Raschig Rings	Cyclone separator Mesh Demister	Raschig Rings	Mesh Demister
Heat exchanger for heating	Submersible Coil	Shell and tube	External Jacket	External Jacket	Shell and tube	Plates	Shell and tube
Vacuum system	Venturi ejector or liquid ring pump	Venturi Ejector	Venturi Ejector	Venturi Ejector	Roots compressor	Liquid ring pump	Roots compressor
Control unit	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen
Protection	IP54	IP54	IP54	IP54	IP54	IP55	IP54
Electricity Supply	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4571 (AISI 316Ti)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)

OUR MODELS

ENVIDEST DPM-1-2-3

ENVIDEST MFE-1-2-3

DESALT MFE-1

DESALT VR

DESALT DRY

	ENVIDEST DPM-1-2-3	ENVIDEST MFE-1-2-3	DESALT MFE-1	DESALT VR	DESALT DRY
Technology	Evaporation with thermal energy	Evaporation with thermal energy Forced Circulation (FC)	Evaporation with thermal energy Forced Circulation (FC)	Evaporation with thermal energy	Evaporation with thermal energy
Single/Multi Effect	Single-Effect Multi-Effect	Single-Effect Multi-Effect	Single-Effect	Single-Effect	Single-Effect
Electricity consumption per 1 m^3 of distillate produced	NA	NA	NA	NA	NA
Thermal energy for evaporation	Saturated steam or hot water	Saturated steam or hot water	Saturated steam or hot water	Saturated steam or hot water	Saturated steam or hot water
Thermal energy for condensation	Cooling water	Cooling water	Cooling water	Cooling water	Cooling water
Vacuum	≈ 310/200/125 mbar	≈ 310/200/125 mbar	≈ 200 mbar	≈ 200 mbar	≈ 200 mbar
Evaporation temperature	≈ 70/60/50 °C	≈ 70/60/50 °C	≈ 60 °C	≈ 60 °C	≈ 60 °C
Evaporation Vessel	Horizontal	Vertical conical bottom	Vertical conical bottom	Vertical conical bottom with scraper	Horizontal
Droplet separator	Mesh Demister	Mesh Demister	Mesh Demister	No	Mesh Demister
Heat exchanger for heating	Submersible u-tube bundle	Shell and tube	Shell and tube	External Jacket	External Jacket
Vacuum system	Venturi Ejector	Liquid ring pump	Liquid ring pump	Venturi ejector or liquid ring pump	Venturi Ejector
Control unit	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen	PLC Siemens with HMI touch screen
Protection	IP54	IP54	IP54	IP54	IP54
Electricity Supply	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)	1.4410 (Superduplex 2507)

ENVIDEST LT VS

Electrical Vacuum Evaporator by Heat Pump

The ENVIDEST LT VS vacuum evaporator is designed to treat aqueous- based products with low contaminant load. The equipment operates with electrical power and its heating and condensation system is based on a heat pump (HP) unit.

This equipment stands out for its superior energy efficiency within the range of single-effect, heat pump evaporators. Thanks to its submersible coil-type heat exchanger, it has a larger exchange surface and requires less installation space.

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

FEATURES

Technology	Heat Pump (Freon R-407C)
Single/Multi-Effect	Single-Effect
Vacuum	≈ 60 mbar
Evaporation Temperature	≈ 35 °C
Evaporation Vessel	Vertical
Droplet Separator	Raschig rings
Heat Exchanger for Heating	Submersible Coil
Refrigeration Circuit	Single heat pump unit, or primary and secondary heat pump unit, depending on the model
Vacuum System	Venturi Ejector or liquid ring pump, depending on the model
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

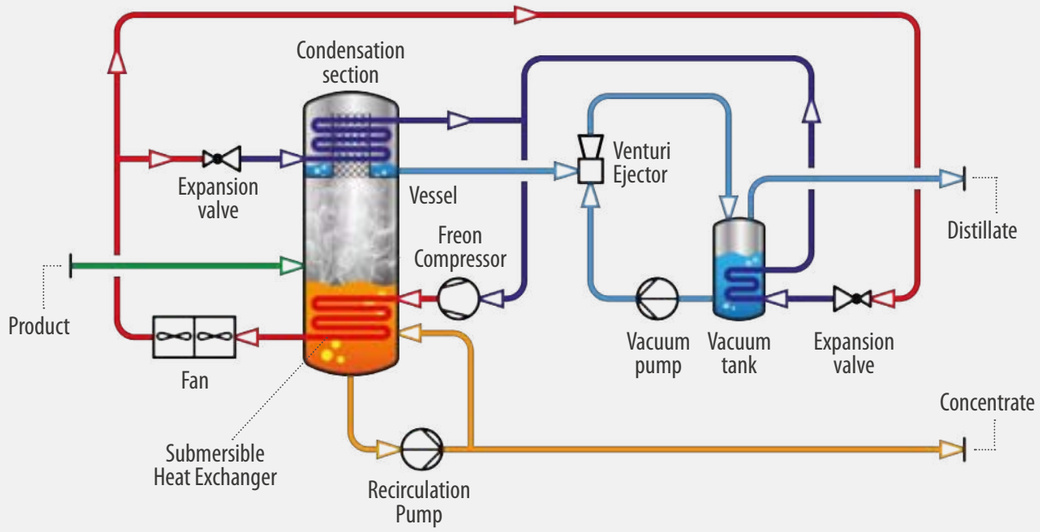
TECHNICAL DATA

Parameter	Unit	250	500	750	1000	1500	2000	2500	3000
Capacity*	L/day	250	500	750	1000	1500	2000	2500	3000
Electricity Consumption**	kWh/m³	170	170	170	170	170	170	170	170
Length	mm	2050	2100	2200	2200	2800	2900	3000	3300
Width	mm	830	870	1000	1000	1300	1250	1350	1350
Height	mm	1900	2250	2200	2400	2400	2420	2700	2750

Parameter	Unit	4000	5500	7000	9000	10000	12000	15000	18000
Capacity*	L/day	4000	5500	7000	9000	10000	12000	15000	18000
Electric Consumption**	kWh/m³	170	170	170	170	170	170	170	170
Length	mm	3500	3600	4000	4500	4500	4500	5600	5600
Width	mm	1350	1500	1500	2000	2000	2000	2250	2400
Height	mm	2840	3020	3250	3250	3310	3300	3900	4155

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



ENVIDEST LT FC-2

Double-Effect Electrical Vacuum Evaporator by Heat Pump

The ENVIDEST LT FC-2 vacuum evaporator is designed to manage aqueous-based products with low pollutant load. The equipment operates with electrical energy, and its heating and condensation system is based on a heat pump (HP) unit.

The forced circulation technology enables the treatment of slightly more scaling effluents than those managed by heat pump evaporators with submerged heat exchangers. It stands out for its energy efficiency: as a double-effect system, it utilizes the latent heat of the steam produced in the first effect to heat the product in the second effect, thereby reducing the energy consumed.

The operation of the equipment is completely automatic, 24 hours a day.

FEATURES

Technology	Heat Pump (Freon R-134A)
	Forced Circulation (FC)
Single/Multi-Effect	Multi-effect
Vacuum	≈ 125/70 mbar
Evaporation Temperature	≈ 50/40 °C
Evaporation Vessel	Vertical
Droplet Separator	Raschig rings
Heat Exchanger for Heating	Shell and tube
Vacuum System	Venturi Ejector
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

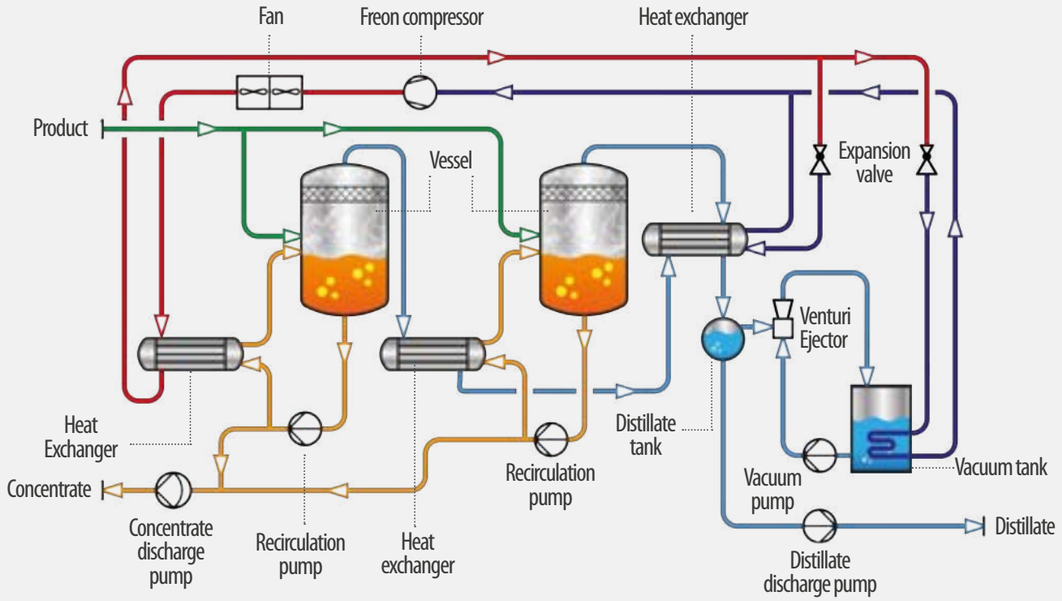
TECHNICAL DATA

Parameter	Unit	6720	8400	12000	16800	20400
Capacity*	L/day	6720	8400	12000	16800	20400
Electricity Consumption**	kWh/m³	110	110	110	110	110
Length	mm	3800	4000	4800	5200	5420
Width	mm	2400	2400	2400	2400	2400
Height	mm	2400	2490	2700	2800	2930

Parameter	Unit	26400	30000	33600	43200	52800
Capacity*	L/day	26400	30000	33600	43200	52800
Electricity Consumption**	kWh/m³	110	110	110	110	110
Length	mm	5500	5500	6000	7000	7500
Width	mm	2200	2200	2500	2800	3200
Height	mm	3465	3500	3500	3700	5000

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



DESALT LT VR

Electrical Vacuum Evaporator-Crystallizer by Heat Pump

The DESALT LT VR vacuum evaporator-crystallizer is designed to manage scaling aqueous-based products, while achieving a high concentration of pollutants and/or valuable products present in the effluent. The equipment operates with electrical power and its heating and condensation system are based on a heat pump (HP) unit.

This evaporator is equipped with an internal motorized scraper to ensure continuous cleaning of the exchange surface in the evaporation vessel, preventing the formation of scale. It enables the precipitation of crystals from dissolved solids by increasing the concentration above the solubility limit.

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

FEATURES

Technology	Heat Pump (Freon R-407C)
Single/Multi-Effect	Single-Effect
Vacuum	≈ 60 mbar
Evaporation Temperature	≈ 35 °C
Evaporation Vessel	Vertical conical bottom with internal scraper
Droplet Separator	None
Heat Exchanger for Heating	External jacket
Refrigeration Circuit	Single heat pump unit or primary and secondary heat pump unit (depending on the model)
Vacuum System	Venturi Ejector
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

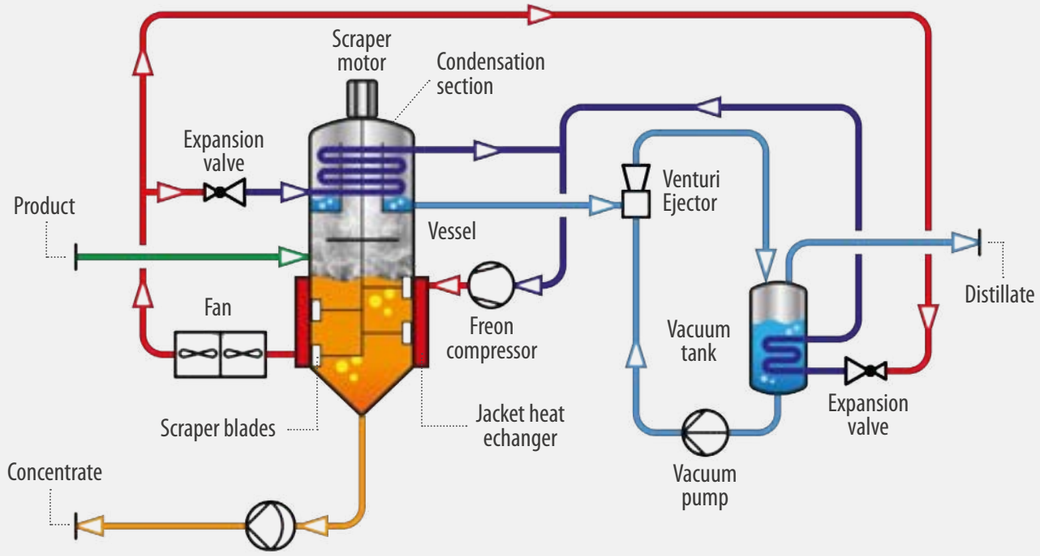
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	250	500	750	1000	1500	2000	2500	3000	3500
Capacity*	L/day	250	500	750	1000	1500	2000	2500	3000	3500
Electricity Consumption**	kWh/m³	220	220	220	220	220	220	220	220	220
Length	mm	2600	2700	2700	2700	3000	3610	3700	3800	4000
Width	mm	1000	1000	1250	1250	1450	1600	1600	1600	1600
Height	mm	2750	2750	3100	3200	2790	3260	3400	3500	3860

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



DESALT LT DRY

Electrical Vacuum Evaporator-Crystallizer by Heat Pump

The DESALT LT DRY vacuum evaporator-crystallizer is designed to produce solid/semi-solid concentrates and to recover valuable raw materials, such as metals and salts. The equipment operates with electrical energy and its heating and condensation system is based on a heat pump (HP) unit.

This evaporator can be manufactured with a screw conveyor inside the evaporation vessel to homogenize the product during the concentration phase, which facilitates the automatic discharge of the final product.

The operation of the equipment is semi-automatic or automatic (depending on the model), 24 hours a day.

FEATURES

Technology	Heat Pump (Freon R-407C)
Single/Multi-Effect	Single-Effect
Vacuum	≈ 60 mbar
Evaporation Temperature	≈ 35 °C
Evaporation Vessel	Horizontal
Droplet Separator	Raschig rings
Heat Exchanger for Heating	External jacket
Refrigeration Circuit	Single heat pump unit or primary and secondary heat pump unit (depending on the model)
Vacuum System	Venturi Ejector
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

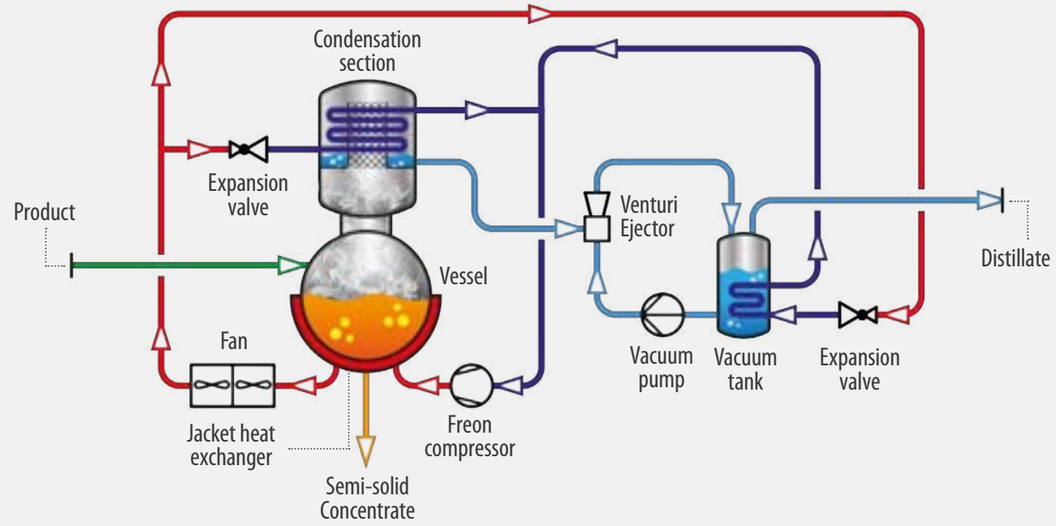
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	250	350	500	750	1000
Capacity*	L/day	250	350	500	750	1000
Electricity Consumption**	kWh/m³	270	270	270	270	270
Length	mm	1420	1640	2550	2900	3200
Width	mm	1480	1520	1570	1600	1600
Height	mm	2220	2220	2250	2300	2450

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



ENVIDEST MVR FF

Electrical Falling Film Vacuum Evaporator with Mechanical Vapor Recompression

The ENVIDES MVR FF vacuum evaporator is designed for treating oily waters and aqueous-based products with low pollutant load. Its distinctive energy efficiency is achieved through Mechanical Vapor Recompression (MVR) technology and Falling Film (FF).

This evaporator stands out for its compact design and its small footprint. The easy access to the different parts of the equipment facilitates its maintenance and enhances the equipment's practicality.

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

FEATURES

Technology	Mechanical Vapor Recompression (MVR) Falling Film (FF) Forced Circulation (FC)
Single/Multi-Effect	Single-Effect
Vacuum	≈ 700 mbar
Evaporation Temperature	≈ 90 °C
Evaporation Vessel	Horizontal
Droplet Separator	Cyclone Separator Mesh Demister
Heat Exchanger for Heating	Shell and tube
Vacuum System	Roots Compressor
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

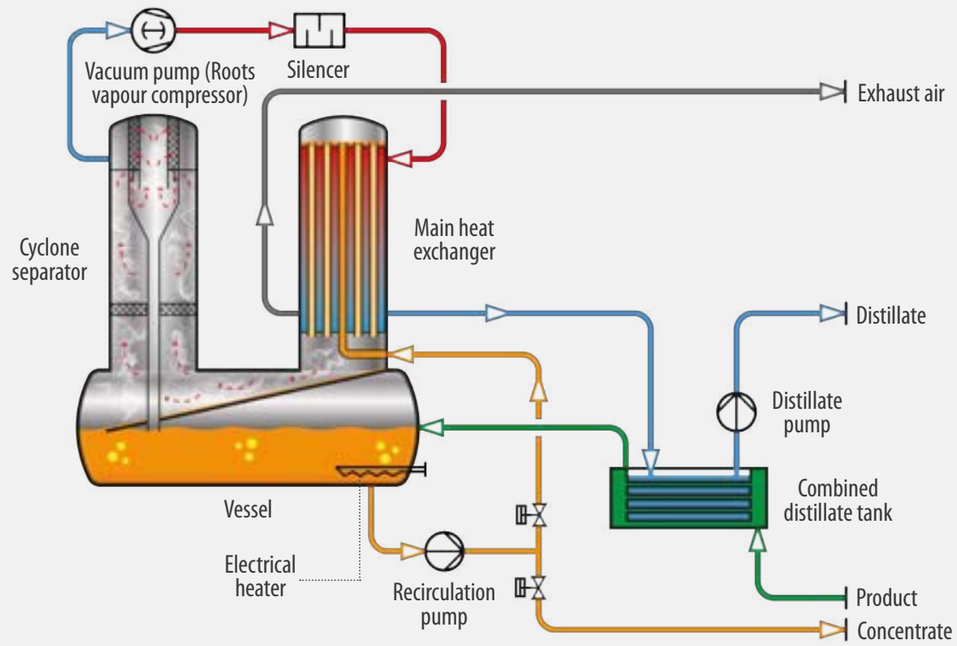
TECHNICAL DATA

Parameter	Unit	100	150	200	250	300	350
Capacity*	L/day	120	180	230	288	345	403
Electricity Consumption**	kWh/m³	60	60	60	50	50	50
Length	mm	2407	2407	2407	2753	2753	2753
Width	mm	1350	1350	1350	1430	1430	1430
Height	mm	2355	2355	2355	2500	2500	2500

Parameter	Unit	400	550	750	1000	1400	1800
Capacity*	L/day	460	633	863	1100	1540	1980
Electricity Consumption**	kWh/m³	50	40	40	35	35	35
Length	mm	2753	3564	3564	4202	4202	4202
Width	mm	1430	1950	1950	2430	2430	2430
Height	mm	2500	3320	3320	3550	3550	3550

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



ENVIDEST MVR FC

Electrical Forced Circulation Vacuum Evaporator by Mechanical Vapor Recompression

The ENVIDES MVR FC vacuum evaporator is designed for treating aqueous-based products with low pollutant load. It stands out for its high energy efficiency thanks to the use of Mechanical Vapor Recompression (MVR) technology.

The evaporator operates at lower temperatures than other evaporators in the MVR range, which offers advantages when working with corrosive or temperature-sensitive products.

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

FEATURES

Technology	Mechanical Vapor Recompression (MVR)
	Forced Circulation (FC)
Single/Multi-Effect	Single-Effect
Vacuum	≈ 200 mbar
Evaporation Temperature	≈ 60 °C
Evaporation Vessel	Vertical
Droplet Separator	Raschig rings
Heat Exchanger for Heating	Plate
Vacuum System	Liquid ring pump
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

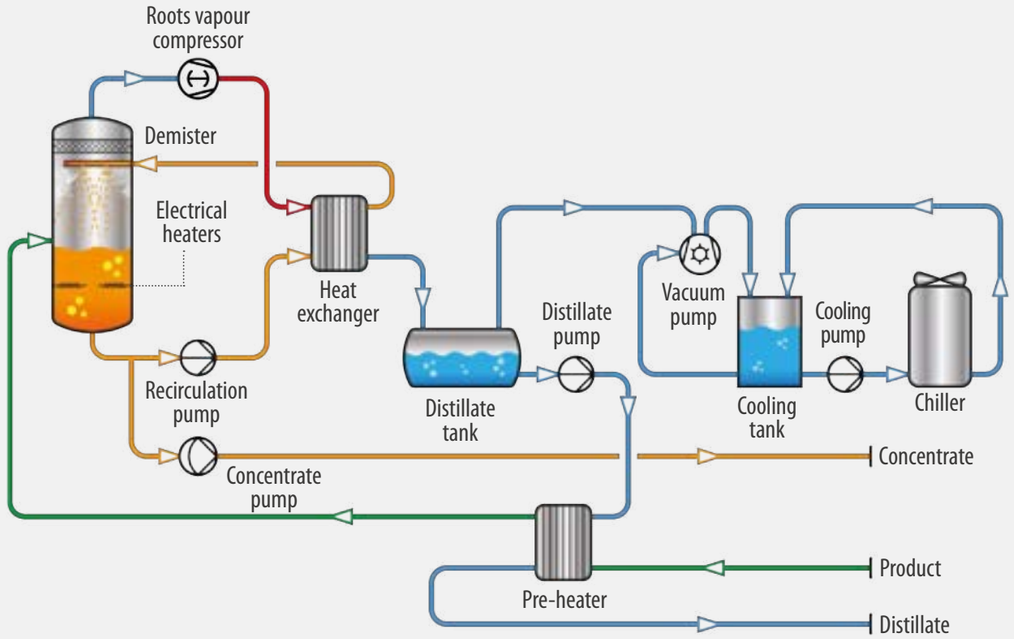
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	350	500	750	1000	1500	2500
Capacity*	L/day	350	500	750	1000	1500	2500
Electricity Consumption**	kWh/m³	45	45	45	45	45	45
Length	mm	3500	3500	4000	4500	4500	5560
Width	mm	2100	2100	2250	2300	2300	2450
Height	mm	3270	3270	3550	3550	3550	5150

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*

DIAGRAM



DESALT MVR FC

Electrical Vacuum Evaporator-Crystallizer by Mechanical Vapor Recompression

The DESALT MVR FC vacuum evaporator-crystallizer is an innovative solution for the treatment of aqueous-based products. It stands out for its supreme energy efficiency due to the use of Mechanical Vapor Recompression (MVR) technology.

This equipment is ideal for the treatment of aqueous-based products with high contaminant load and enables the precipitation of salts from dissolved solids. The high-speed recirculation pump plays a crucial role in preventing scale formation on the main heat exchanger.

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

FEATURES

Technology	Mechanical Vapor Recompression (MVR)
	Forced Circulation (FC)
Single/Multi-Effect	Single-Effect
Thermal Energy for Evaporation	Small amount of saturated steam
Vacuum	≈ 700 mbar
Evaporation Temperature	≈ 90 °C
Evaporation Vessel	Vertical truncated cone
Droplet Separator	Mesh Demister
Heat Exchanger for Heating	Shell and tube
Vacuum System	Roots Compressor
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

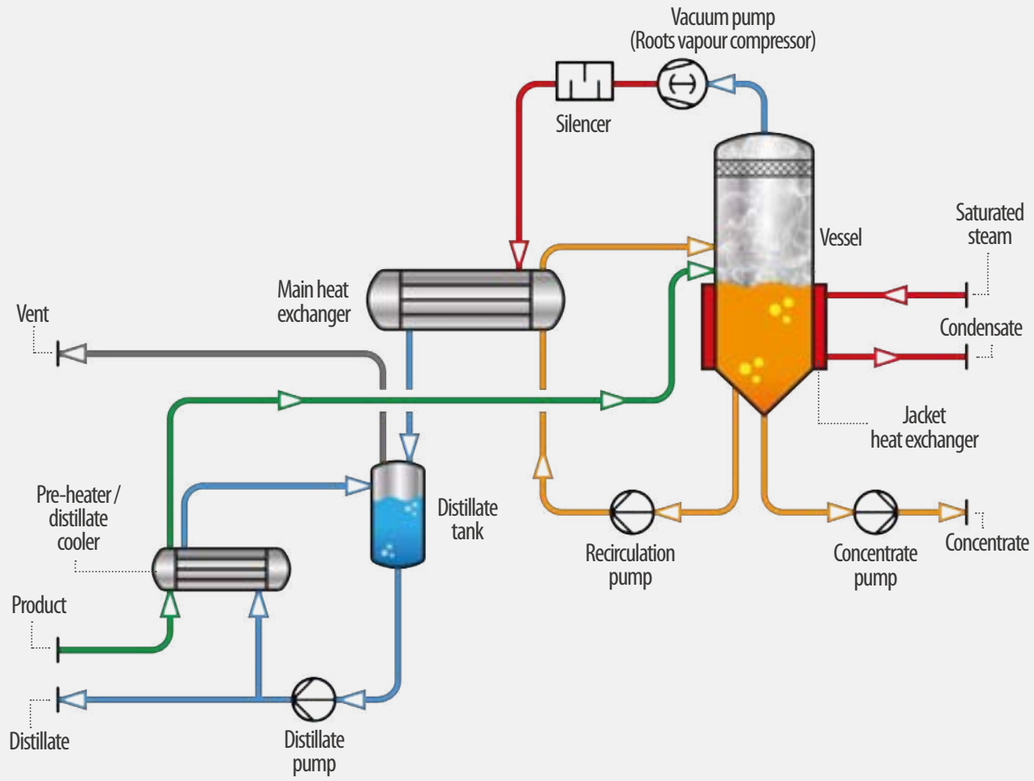
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	600	800	1000	1500	2000	2500
Capacity*	L/day	600	800	1000	1500	2000	2500
Electricity Consumption**	kWh/m³	64	64	64	64	64	64
Thermal Energy for Evaporation***	kWht	36/54	48/72	60/90	90/136	121/181	151/226
Length	mm	6000	6000	7000	7300	7700	8100
Width	mm	1700	2385	2200	2200	2450	2450
Height	mm	5300	5590	6500	6500	7000	7520

* *Data refer to clean water when working continuously in standard conditions (T = 20 °C, P = 1013 mbar).*
** *Electricity consumption expressed in kWh per m3 of distillate produced.*
*** *Thermal energy for evaporation expressed in thermal kWh during operation/heating phase.*

DIAGRAM



ENVIDEST DPM-1-2-3

Multiple Effect Thermal Vacuum Evaporator

The ENVIDEST DPM thermal vacuum evaporator is designed to manage aqueous-based products with low pollutant load. The equipment can be manufactured to operate with saturated steam, or with hot water, as sources to heat the product being concentrated. The condensation of the produced vapour is carried out by suppling 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 use the latent heat of the steam generated in the system, thereby reducing the energy consumed.

Its modular construction allows for increased production capacity without significant increases in energy consumption, and its component configuration (evaporator, heat exchanger, and electrical panel) facilitates the installation in different orientations.

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

FEATURES

Technology	Evaporation with thermal energy
Single/Multi-Effect	Single-Effect Multi-Effect
Thermal Energy for Evaporation	Saturated steam or hot water
Thermal Energy for Condensation	Cooling water
Vacuum 1st/2nd/3rd Effect	≈ 310/200/125 mbar
Evaporation Temperature 1st/2nd/3rd Effect	≈ 70/60/50 °C
Evaporation Vessel	Horizontal
Droplet Separator	Mesh Demister
Heat Exchanger for Heating	Submersible u-tube
Vacuum System	Venturi Ejector
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

ENVIDEST DPM-1

Parameter	Unit	4000	5000	8000	10000
Capacity*	L/day	4000	5000	8000	10000
Electricity Consumption	kWh	4	6,3	6,8	7,5
Thermal Energy for Evaporation	kWht	130	160	250	315
Thermal Energy for Condensation	kWht	130	160	250	315
Evaporator (L x W x H)	mm	3400 x 1200 x 3370	3400 x 1200 x 3875	3400 x 1200 x 3875	3400 x 1200 x 3940
Heat Exchanger (L x W x H)	mm	500 x 450 x 3370	900 x 910 x 3875	900 x 910 x 3875	900 x 910 x 3940
Electrical Panel (L x W x H)	mm	800 x 500 x 2000	800 x 500 x 2000	800 x 500 x 2000	1000 x 500 x 2000

ENVIDEST DPM-2

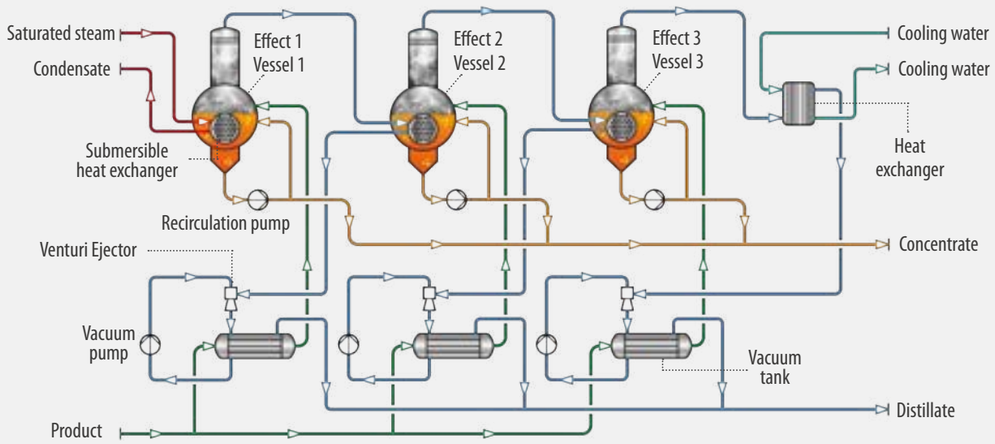
Parameter	Unit	8000	10000	16000	20000
Capacity*	L/day	8000	10000	16000	20000
Electricity Consumption	kWh	8	8	8	8
Thermal Energy for Evaporation	kWht	130	160	250	315
Thermal Energy for Condensation	kWht	130	160	250	315
Evaporator (L x W x H)	mm	3170 x 1850 x 3370	3380 x 2280 x 3874	3500 x 2400 x 3970	3650 x 3000 x 4130
Heat Exchanger (L x W x H)	mm	500 x 500 x 3370	740 x 700 x 3874	740 x 700 x 3970	1140 x 500 x 4130
Electrical Panel (L x W x H)	mm	1000 x 500 x 2000	1000 x 500 x 2000	1000 x 500 x 2000	1000 x 500 x 2250

ENVIDEST DPM-3

Parameter	Unit	12000	20000	24000	30000
Capacity*	L/day	12000	20000	24000	30000
Electricity Consumption	kWh	12	12	12	12
Thermal Energy for Evaporation	kWht	130	210	250	315
Thermal Energy for Condensation	kWht	1130	210	250	315
Evaporator (L x W x H)	mm	3100 x 1820 x 3284	3380 x 3600 x 3980	3400 x 3600 x 3980	3800 x 3600 x 3980
Heat Exchanger (L x W x H)	mm	740 x 700 x 3284	740 x 700 x 3980	740 x 700 x 3980	740 x 700 x 3980
Electrical Panel (L x W x H)	mm	1000 x 500 x 2000	1000 x 500 x 2000	1000 x 500 x 2000	1000 x 500 x 2000

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

DIAGRAM



ENVIDEST MFE-1-2-3

Multiple Effect Thermal Vacuum Evaporator with Forced Circulation

The ENVIDEST MFE thermal vacuum evaporator is designed for the treatment of large volumes of aqueous-based solutions with low contaminant load. The equipment can be manufactured to operate with saturated steam, or hot water, to heat the product to be concentrated. The condensation of the produced vapour is carried out by suppling cooling water.

It is available in single-effect and multi-effect (double and triple) versions. The multi-effect versions are notable for their high energy efficiency, as they utilize the latent heat of the produced vapor, thus reducing the energy consumed. Additionally, each effect is equipped with a recirculation pump to ensure forced circulation of the product, helping to prevent the formation of scale on the main heat exchanger.

Its modular construction allows for increased production capacity without significant increases in energy consumption. The operation of the equipment is fully automatic, 24 hours a day.

FEATURES

Technology	Evaporation with thermal energy Forced Circulation (FC)
Single/Multi-Effect	Single-Effect Multi-Effect
Thermal Energy for Evaporation	Saturated steam or hot water
Thermal Energy for Condensation	Cooling water
Vacuum 1st/2nd/3rd Effect	≈ 310/200/125 mbar
Evaporation Temperature 1st/2nd/3rd Effect	≈ 70/60/50 °C
Evaporation Vessel	Vertical conical bottom
Droplet Separator	Mesh Demister
Heat Exchanger for Heating	Shell and tube
Vacuum System	Liquid ring pump
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	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

Parameter	Unit	20000	40000	60000	80000	100000	130000
Capacity*	L/day	20000	40000	60000	80000	100000	130000
Electricity Consumption	kWh	20	23	38	47	59	72
Thermal Energy for Evaporation	kWht	630	1260	1885	2515	3140	4085
Thermal Energy for Condensation	kWht	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

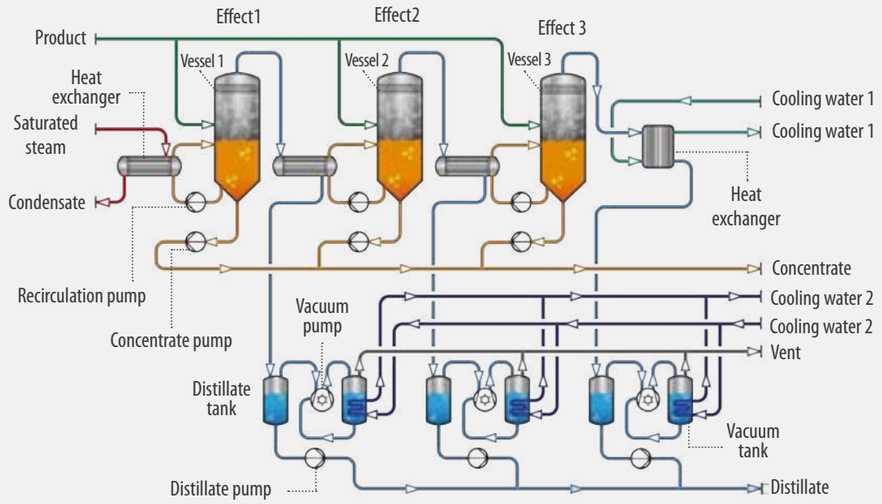
Parameter	Unit	30000	40000	60000	80000	100000	120000
Capacity*	L/day	30000	40000	60000	80000	100000	120000
Electricity Consumption	kWh	27	29	36	44	50	54
Thermal Energy for Evaporation	kWht	470	630	945	1260	1570	1885
Thermal Energy for Condensation	kWht	470	630	945	1260	1570	1885
Length	mm	7000	6650	8410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

ENVIDEST MFE- 3

Parameter	Unit	30000	50000	100000	150000	180000	200000
Capacity*	L/day	30000	50000	100000	150000	180000	200000
Electricity Consumption	kWh	41	50	72	82	102	110
Thermal Energy for Evaporation	kWht	315	525	1050	1570	1885	2100
Thermal Energy for Condensation	kWht	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



Thermal vacuum evaporators

DESALT MFE-1

Thermal Vacuum Evaporator-Crystallizer with Forced Circulation

The DESALT MFE-1 thermal vacuum evaporator-crystallizer is designed for the treatment of large volumes of aqueous solutions. This model can be manufactured to operate with saturated steam, or hot water, to heat the product to be concentrated. The condensation of the produced vapour is carried out by suppling cooling water.

It is an ideal system to manage effluents with a high contaminant load and it facilitates the precipitation of salts from dissolved solids. The high-speed recirculation pump plays a crucial role in preventing scale formation in the main heat exchanger. Additionally, this heat exchanger is sufficiently inclined to facilitate its draining to the boiler in case of shutdown.

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

FEATURES

Technology	Evaporation with thermal energy
Single/Multi-Effect	Forced Circulation (FC)
Thermal Energy for Evaporation	Single-Effect
Thermal Energy for Condensation	Saturated steam or hot water
Vacuum 1st/2nd/3rd Effect	Cooling water
Evaporation Temperature 1st/2nd/3rd Effect	≈ 200 mbar
Evaporation Vessel	≈ 60 °C
Droplet Separator	Vertical conical bottom
Heat Exchanger for Heating	Mesh Demister
Vacuum System	Shell and tube
Control Unit*	Liquid ring pump
Protection:	PLC Siemens with HMI touch screen
Electricity Supply**	IP54
Standard Manufacturing Material	400 V III + PE 50 Hz
Special Anti-corrosion Manufacturing Material***	1.4401/1.4404 (AISI 316/AISI 316L)
	1.4410 (Superduplex 2507)

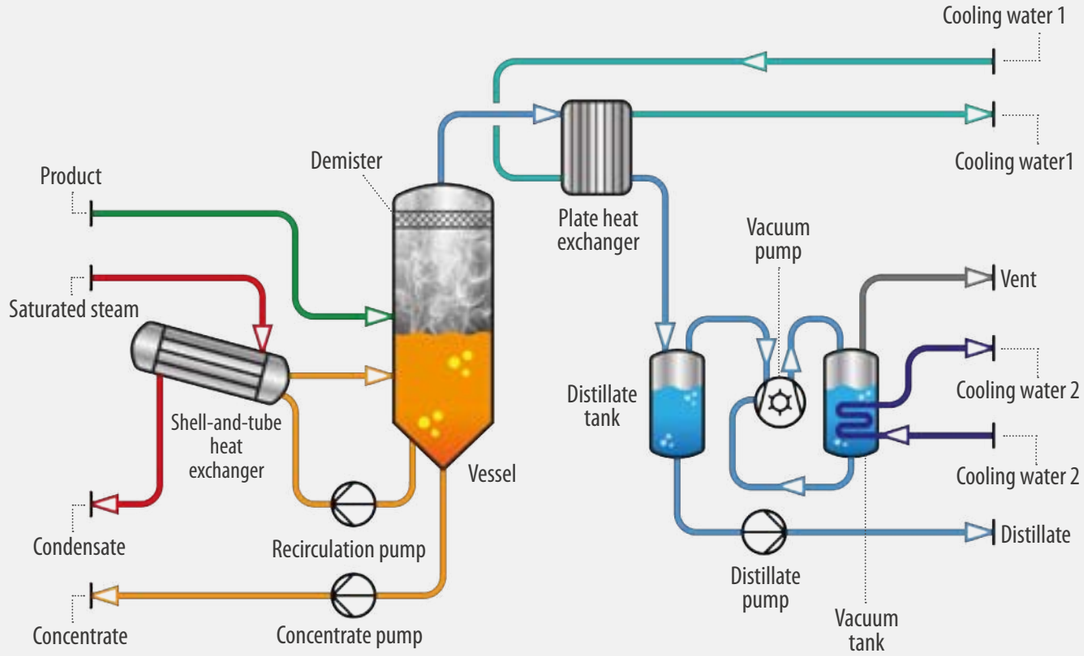
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	20000	40000	60000	80000	100000
Capacity*	L/day	20000	40000	60000	80000	100000
Electricity Consumption	kWh	26	32	35	46	48
Thermal Energy for Evaporation	kWht	630	1260	1885	2515	3140
Thermal Energy for Condensation	kWht	630	1260	1885	2515	3140
Length	mm	6500	7000	7000	7500	8100
Width	mm	2600	3600	4000	4000	4000
Height	mm	5100	6000	6600	6600	7395

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

DIAGRAM



Thermal vacuum evaporators

DESALT VR

Thermal Vacuum Evaporator-Crystallizer

The DESALT VR vacuum evaporator-crystallizer is designed for the treatment of scaling aqueous-based products and for the concentration of the pollutants present in the effluent. This model can be manufactured to operate with saturated steam or hot water to heat the product being concentrated.

The condensation of the produced vapour is carried out by suppling cooling water. This system is equipped with an internal motorized scraper to ensure continuous cleaning of the exchange surface in the evaporation vessel, preventing the formation of scale. It allows for the precipitation of crystals from dissolved solids by increasing the concentration above the solubility limit.

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

FEATURES

Technology	Evaporation with thermal energy
Single/Multi-Effect	Single-Effect
Thermal Energy for Evaporation	Saturated steam or hot water
Thermal Energy for Condensation	Cooling water
Vacuum 1st/2nd/3rd Effect	≈ 200 mbar
Evaporation Temperature 1st/2nd/3rd Effect	≈ 60 °C
Evaporation Vessel	Vertical conical bottom with scraper
Droplet Separator	None
Heat Exchanger for Heating	Shell and tube
Vacuum System	Venturi Ejector or liquid ring pump (depending on the model)
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

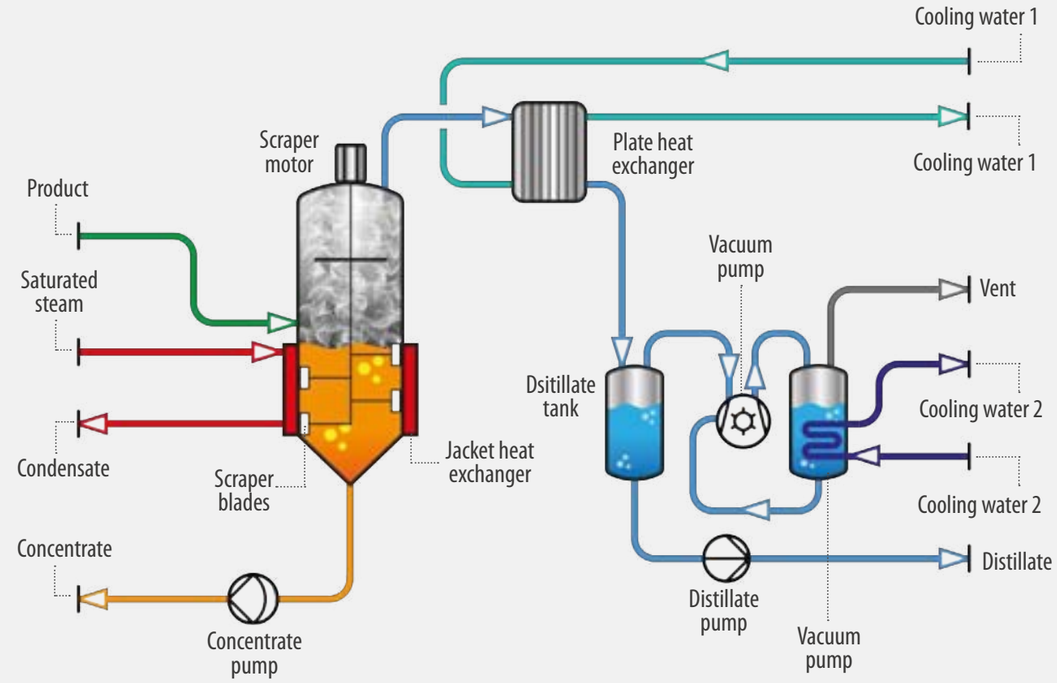
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	2000	3000	5000	6000	10000	20000
Capacity*	L/day	2000	3000	5000	6000	10000	20000
Electricity Consumption	kWh	4,2	4,2	4,6	4,6	4,8	5,0
Thermal Energy for Evaporation	kWht	65	95	160	190	315	630
Thermal Energy for Condensation	kWht	65	95	160	190	315	630
Length	mm	3000	3100	3300	4000	4100	4100
Width	mm	1600	1600	2000	2000	2000	2000
Height	mm	3260	3760	3945	4250	5000	5510

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

DIAGRAM



DESALT DRY

Thermal Vacuum Evaporator-Crystallizer

The DESALT DRY vacuum evaporator-crystallizer is designed to obtain solid/semi-solid concentrates and to recover valuable raw materials, such as metals and salts. This model can be manufactured to operate with saturated steam ,or hot water, to heat the product being concentrated. The condensation of the produced vapour is carried out by suppling cooling water.

The DESALT DRY can include a screw conveyor inside the evaporation vessel to homogenize the product during the concentration phase, facilitating the automatic discharge of the final product.

The operation of the equipment is semi-automatic or automatic (depending on the model), 24 hours a day.

FEATURES

Technology	Evaporation with thermal energy
Single/Multi-Effect	Single-Effect
Thermal Energy for Evaporation	Saturated steam or hot water
Thermal Energy for Condensation	Cooling water
Vacuum 1st/2nd/3rd Effect	≈ 200 mbar
Evaporation Temperature 1st/2nd/3rd Effect	≈ 60 °C
Evaporation Vessel	Horizontal
Droplet Separator	Mesh Demister
Heat Exchanger for Heating	Shell and tube
Vacuum System	Venturi Ejector
Control Unit*	PLC Siemens with HMI touch screen
Protection:	IP54
Electricity Supply**	400 V III + PE 50 Hz
Standard Manufacturing Material	1.4401/1.4404 (AISI 316/AISI 316L)
Special Anti-corrosion Manufacturing Material***	1.4410 (Superduplex 2507)

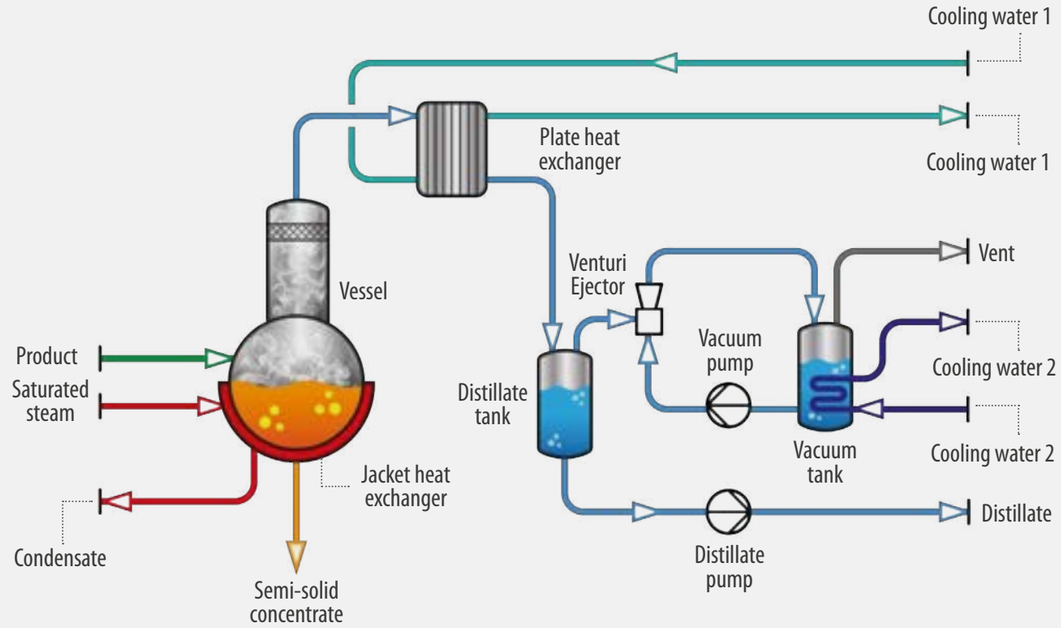
* *Different PLC manufacturer available on request*
** *Different voltage supply available on request*
*** *Consult other available material options*

TECHNICAL DATA

Parameter	Unit	500	750	1000	1500	3000
Capacity*	L/day	500	750	1000	1500	3000
Electricity Consumption	kWh	2,7	2,7	2,7	4,1	7,4
Thermal Energy for Evaporation	kWht	16	24	31	47	94
Thermal Energy for Condensation	kWht	16	24	31	47	94
Length	mm	2400	2810	3070	4230	4880
Width	mm	1670	1760	1970	1990	2450
Height	mm	2600	2680	2715	2965	3546

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

DIAGRAM



INDUSTRIAL AIR POLLUTION CONTROL

We design and install air pollution control systems for the removal of pollutants present in atmospheric emissions generated in industrial processes.

We provide high-performance solutions for all types of industrial processes, helping companies of all sizes to comply with strict environmental regulations and improve their ecological footprint.

- ✓ Removal or reduction of volatile organic compounds.
- ✓ Treatment of emissions with dust and/or particles.
- ✓ Odors removal.
- ✓ NOx reduction.
- ✓ Reduction of inorganic compounds

Our customized approach ensures that each customer receives the best technology and support for their specific needs, guaranteeing at all times that our installations are not only efficient, but also cost-effective and durable.

OUR SOLUTIONS FOR POLLUTANTS REMOVAL IN INDUSTRIAL ATMOSPHERIC EMISSIONS

The integration of proven technologies and continuous support allow us to guarantee maximum efficiency in the reduction of pollutants, compliance with environmental regulations and improvement of air quality.

1 Consulting and Environmental Diagnosis

- Initial assessment of emissions and pollution sources in industrial facilities.
- Regulatory compliance analysis with respect to local and international emissions regulations.
- Identification of opportunities for improvement and reduction of the carbon footprint.

2 Design of Pollution Control Systems

- Development of customized solutions based on the specific needs of the customer and the characteristics of their industrial processes.
- Selection of appropriate technologies and their integration.
- Implementation of advanced control systems to optimize plant efficiency and performance.

3 Manufacturing and installation

- Manufacturing of customized equipment and components.
- Assembly and installation of air pollution control systems at the customer's facilities, ensuring minimum disruption to customer's operations.

4 Commissioning and Optimization

- Initial configuration of the installed technologies to ensure optimal operation.
- Performance tests to verify the effectiveness of the systems in reducing specific pollutants.

5 Maintenance and Technical Support

- Preventive and corrective maintenance to extend the useful life of the technologies and ensure their continued efficiency.
- Technical assistance and troubleshooting.

6 Training

- Training on the operation and maintenance of the planto to the client's staff.

OUR AIR POLLUTION CONTROL TECHNOLOGIES

We have an extensive knowledge and experience in the implementation and integration of all types of technologies for the treatment of emissions.

However , in recent years we have specialized in the application of scrubbers, activated carbon filters and bag filters, as these technologies offer the highest environmental and economic efficiency.

Scrubbers

Scrubbers are air pollution control systems designed to remove gaseous contaminants, particulates and acid gases from industrial emission streams. Scrubbers can be dry or wet, the latter being the most effective for controlling acid gas emissions.

By injecting a liquid, usually water or an alkaline solution, this technology captures and neutralizes pollutants present in the gas stream prior to their release into the atmosphere.

Among their advantages, we can highlight the ability to handle high temperatures and contaminant loads, as well as to adapt to variations in the volume an composition of gases, which makes them ideal for industrial applications.

Activated carbon filters

Activated carbon filters are ideal for the removal of volatile organic contaminants, odors and toxic gases in industrial processes. This technology is especially efficient for capturing solvents and chemicals.

Using the adsorption process, activated carbon traps these molecules in its highly developed pores, providing an effective and efficient solution to improve air quality.

Their ability to be regenerated and reused reduces the operating costs and the environmental impact, making activated carbon filters a sustainable and economical option for atmospheric emissions treatment.

Bag filters for dedusting

Baghouse filters are filtration devices used to capture fine solid particles, such as dust and ash, from industrial gas streams prior to their emission into the atmosphere. They consist of numerous bag filters, made of fabric or synthetic material, through which the gases pass, leaving behind the particles trapped on the surface of the filter.

Its modular design allows for easy expansion and adaptation to different gas volumes, while the automatic bag cleaning process reduces the need for maintenance and maximizes operational efficiency.

WASTEWATER REFERENCES

REFERENCES ATMOSPHERIC EMISSIONS

A complete list of references is available on our website:

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