ENVIDEST ® EVAPORATORS
DESALT ® CRYSTALLIZERS

For industrial wastewater treatment
ENVIDEST® & DESALT® SERIES

The Envidest and Desalt series are one of the most innovative and efficient technologies for industrial wastewater minimization and treatment.

Our evaporators and crystallizers are a clean, safe and very versatile technology with low power and management costs that allow the recovery of high-quality water and other raw materials from industrial effluents.

In most cases they also serve as a zero liquid discharge treatment system.

The scope of its application is virtually unlimited. The following are some of the usual.

APPLICATIONS:

- Oil emulsions, drilling oils, mould release agents.
- Compressor blow downs, flow washing water.
- Tank and reactor washing water: Chemical, Pharmaceutical, Cosmetics and Perfume Industries.
- Work-baths and washing waters in galvanic processes and surface treatments.
- Penetrating liquids.
- Graphic arts waste (cleaning water, inks, etc.).
- Wastewater treatment plants reject (reverse osmosis, demineralization, etc.).
- Leachates.
- Digestate in biogas plants.
ENVIDEST MVR FC
Forced circulation evaporator

ENVIDEST MVR FC evaporators are a new concept of mechanical vapour recompression forced circulation evaporators. A fast cool start system for preheating the water using electrical resistors, or using steam available.

Vacuum is maintained around 200 mbar and evaporator temperature rises up to 60 ºC.

MODEL: ENVIDEST MVR FC
VACUUM PLANT: Evaporator
ENERGY SOURCE: Electricity
TYPE: Mechanical vapour compression
MAIN CHARACTERISTIC: Forced circulation
DAILY PRODUCTION (l/d): 6000 - 48000
HOURLY PRODUCTION (l/h): 250 - 2000
ENERGY CONSUMPTION (kwh/m3): 50
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Vertical
HEAT EXCHANGER: Plate, external
VACUUM SYSTEM: Liquid ring pump
COMPRESSOR: Root pump
EXTERNAL CONDENSATION: Not required
CONTROL: PLC & HMI
CIP: Optional

ENVIDEST MVR FF
Falling film evaporator

The ENVIDEST MVR FF is falling film vacuum evaporator with forced circulation by means of mechanical vapour compression. The application of the falling film optimises heat exchange and achieves lower energy consumption.

Vacuum is maintained around 700 mbar and evaporator temperature rises up to 90 ºC.

MODEL: ENVIDEST MVR FF
VACUUM PLANT: Evaporator
ENERGY SOURCE: Electricity
TYPE: Mechanical vapour compression
MAIN CHARACTERISTIC: Falling film
DAILY PRODUCTION (l/d): 600 - 80000
HOURLY PRODUCTION (l/h): 30 - 4000
ENERGY CONSUMPTION (kwh/m3): 36 - 100
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Horizontal
HEAT EXCHANGER: Falling film
VACUUM SYSTEM: Root pump
COMPRESSOR: Root pump
EXTERNAL CONDENSATION: Not required
CONTROL: PLC & HMI
CIP: Optional
ENVIDEST LT DPE
Heat pump evaporator

The ENVIDEST LT DPE is a heat pump-based vacuum evaporator that is electrically operated. Specially recommended for the treatment of small volumes of effluents.

Vacuum is maintained around 45 mbar and evaporator temperature rises up to 37 °C.

MODEL: ENVIDEST LT DPE
VACUUM PLANT: Evaporator
ENERGY SOURCE: Electricity
TYPE: Heat pump
MAIN CHARACTERISTIC: Low temperature
DAILY PRODUCTION (l/d): 250 - 2500
HOURLY PRODUCTION (l/h): 10 - 100
ENERGY CONSUMPTION (kwh/m³): 150
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Vertical
HEAT EXCHANGER: Toroidal, immersed
VACUUM SYSTEM: Venturi or liquid ring pump
COMPRESSOR: Freon R407c
EXTERNAL CONDENSATION: Not required
CONTROL: PLC & HMI
CIP: Optional

ENVIDEST LT VS
Heat pump evaporator

The ENVIDEST LT VS is a vacuum evaporator with a heat pump and it operates on electrical power. Designed for the treatment of industrial effluents.

Vacuum is maintained around 45 mbar and evaporator temperature rises up to 37 °C.

MODEL: ENVIDEST LT VS
VACUUM PLANT: Evaporator
ENERGY SOURCE: Electricity
TYPE: Heat pump
MAIN CHARACTERISTIC: Low temperature
DAILY PRODUCTION (l/d): 3000 - 15000
HOURLY PRODUCTION (l/h): 125 - 625
ENERGY CONSUMPTION (kwh/m³): 150
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Vertical
HEAT EXCHANGER: Toroidal, immersed
VACUUM SYSTEM: Venturi or liquid ring pump
COMPRESSOR: Freon R407c
EXTERNAL CONDENSATION: Not required
CONTROL: PLC & HMI
CIP: Optional
**DESALT LT DRY**

Heat pump crystallizer

The DESALT LT DRY is a vacuum low-temperature crystallizer driven by a heat pump and it operates on electrical power. It is designed to obtain solid concentrates, as well as to recover raw materials in the solution of the feed stream.

Vacuum is maintained around 45 mbar and evaporator temperature rises up to 37 °C.

**MODEL:** DESALT LT DRY
**VACUUM PLANT:** Crystallizer
**ENERGY SOURCE:** Electricity
**TYPE:** Heat pump
**MAIN CHARACTERISTIC:** Low temperature
**DAILY PRODUCTION (l/d):** 250 - 1000
**HOURLY PRODUCTION (l/h):** 10 l/h - 40 l/h
**ENERGY CONSUMPTION (kwh/m3):** 250
**MATERIAL:** A-316 L
**SPECIAL MATERIAL:** SAF/SANICRO/Ti
**VESSEL:** Horizontal
**HEAT EXCHANGER:** Jacket, external
**VACUUM SYSTEM:** Venturi or liquid ring pump
**COMPRESSOR:** Freon R407c
**EXTERNAL CONDENSATION:** Not required
**CONTROL:** PLC & HMI
**CIP:** Optional

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**DESALT LT VR**

Heat pump crystallizer

The DESALT LT VR low temperature crystallizer is electrically operated and equipped with an internal scraper. Specially recommended for treating scale-producing wastewater and high density aqueous solutions.

Vacuum is maintained around 45 mbar and evaporator temperature rises up to 37 °C.

**MODEL:** DESALT LT VR
**VACUUM PLANT:** Crystallizer
**ENERGY SOURCE:** Electricity
**TYPE:** Heat pump
**MAIN CHARACTERISTIC:** Internal scraper
**DAILY PRODUCTION (l/d):** 250 - 3000
**HOURLY PRODUCTION (l/h):** 10 l/h - 125
**ENERGY CONSUMPTION (kwh/m3):** 250
**MATERIAL:** A-316 L
**SPECIAL MATERIAL:** SAF/SANICRO/Ti
**VESSEL:** Vertical
**HEAT EXCHANGER:** Jacket, external
**VACUUM SYSTEM:** Venturi or liquid ring pump
**COMPRESSOR:** Freon R407c
**EXTERNAL CONDENSATION:** Not required
**CONTROL:** PLC & HMI
**CIP:** Optional
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ENVIDEST DPM

Multiple effect evaporator

The ENVIDEST DPM is a vacuum evaporator operating with immersed tube bundle heat exchangers and a superheated water (W) or steam (V) supply. Two condensation alternatives: by wet bulb Adiabatic cooling tower (C) or by plate heat exchanger with a cooling water circuit (W).

The advantage of this system consists on recovering the latent heat in all effects. Fully automatic operation of the equipment.

MODEL: ENVIDEST DPM
VACUUM PLANT: Evaporator
ENERGY SOURCE: Hot water / steam
TYPE: Thermal
MAIN CHARACTERISTIC: Multiple effect (1,2,3)
DAILY PRODUCTION (l/d): 4000 - 30000
HOURLY PRODUCTION (l/h): 165 - 1250
ENERGY CONSUMPTION (kwh/m3): Depending on model
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Horizontal
HEAT EXCHANGER: Bundle
VACUUM SYSTEM: Venturi
COMPRESSOR: No
EXTERNAL CONDENSATION: Cooling tower or air condenser
CONTROL: PLC & HMI
CIP: Optional

ENVIDEST MFE

Forced circulation multiple effect evaporator

The ENVIDEST MFE is a vacuum evaporator operating with an external heat exchanger and forced circulation. This equipment operates using superheated water (W) or steam (V) supply. Condensing system using plate heat exchanger with a cooling water circuit (W).

The advantage of this system consists on recovering the latent heat in all effects. Fully automatic operation of the equipment. Equipment designed to concentrate large amounts of liquid effluents and brines.

MODEL: ENVIDEST MFE
VACUUM PLANT: Evaporator
ENERGY SOURCE: Hot water / steam
TYPE: Thermal
MAIN CHARACTERISTIC: Multiple effect (1,2,3)
DAILY PRODUCTION (l/d): 15000 - 200000
HOURLY PRODUCTION (l/h): 625 - 8500
ENERGY CONSUMPTION (kwh/m3): Depending on model
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Vertical
HEAT EXCHANGER: Shell-tube, external
VACUUM SYSTEM: Liquid ring pump
COMPRESSOR: No
EXTERNAL CONDENSATION: Cooling tower or air condenser
CONTROL: PLC & HMI
CIP: Optional

THIRD EFFECT SECOND EFFECT FIRST EFFECT

BOILING CHAMBER
HEAT EXCHANGER
CONDENSATION
CONCENTRATE PUMP

FIRST EFFECT SECOND EFFECT THIRD EFFECT

BOILING CHAMBER
HEAT EXCHANGER
CONDENSATION
CONCENTRATE PUMP

THERMAL ENERGY INLET WATER CONDENSATE OUTLET CONCENTRATE OUTLET

COOLING WATER HEAT EXCHANGER
CONDENSATION CONCENTRATE PUMP

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MADE IN THE EU

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**DESALT DRY**  
**Thermal crystallizer**

The DESALT DRY crystallizer is specifically designed to obtain solids with a certain degree of humidity, as well as to concentrate and crystallize salts.

The operation of the equipment is fully automatic. The main boiler is built horizontally and it has a worm screw for the extraction of the final solid.

The equipment operates with steam (V) or a hot water circuit (W). The condensation of the vapour takes place in an air condenser (AC) that is integrated into the equipment, or within a cooling water circuit (AC).

**MODEL:** DESALT DRY  
**VACUUM PLANT:** Crystallizer  
**ENERGY SOURCE:** Hot water / steam  
**TYPE:** Thermal  
**MAIN CHARACTERISTIC:** High Temperature  
**DAILY PRODUCTION (l/d):** 1000 - 3000  
**HOURLY PRODUCTION (l/h):** 40 - 125  
**ENERGY CONSUMPTION (kwh/m3):** Depending on model  
**MATERIAL:** A-316 L  
**SPECIAL MATERIAL:** SAF/SANICRO/Ti  
**VESSEL:** Horizontal  
**HEAT EXCHANGER:** Jacket, external  
**VACUUM SYSTEM:** Venturi  
**COMPRESSOR:** No  
**EXTERNAL CONDENSATION:** Cooling tower or air condenser  
**CONTROL:** PLC & HMI  
**SALT UNLOADING SCREW:** Optional

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**DESALT VR**  
**Thermal Crystallizer**

The DESALT VR is a vacuum crystallizer that operates with hot water (W) or steam (V), and condensation through a cooling water circuit (W) or an air condenser (AC). The VR equipment is designed with a vertical boiler with an external jacket that works as a heating system and an internal scraper to avoid scaling. The compact construction mounted on a skid ensure ease of transportation.

This equipment has been designed to concentrate liquid brines (congenital waters, salt water, process water, among others).

**MODEL:** DESALT VR  
**VACUUM PLANT:** Crystallizer  
**ENERGY SOURCE:** Hot water / steam  
**TYPE:** Thermal  
**MAIN CHARACTERISTIC:** Internal scraper  
**DAILY PRODUCTION (l/d):** 6000 - 12000  
**HOURLY PRODUCTION (l/h):** 250 - 500  
**ENERGY CONSUMPTION (kwh/m3):** Depending on model  
**MATERIAL:** A-316 L  
**SPECIAL MATERIAL:** SAF/SANICRO/Ti  
**VESSEL:** Vertical  
**HEAT EXCHANGER:** Shell-tube, external  
**VACUUM SYSTEM:** Liquid ring pump  
**COMPRESSOR:** No  
**EXTERNAL CONDENSATION:** Cooling tower or air condenser  
**CIP:** Optional
DESALT MFE

Thermal crystallizer

The DESALT MFE-1 is a vacuum crystallizer designed to treat high flows of brines. The equipment has an external heat exchanger and a recirculation pump.

The Desalt MFE operates with steam (V) or a hot water circuit (W). The condensation of the vapour takes place in an air condenser (AC) that is integrated into the equipment, or within a cooling water circuit (W).

MODEL: DESALT MFE
VACUUM PLANT: Crystallizer
ENERGY SOURCE: Hot water / steam
TYPE: Thermal
MAIN CHARACTERISTIC: Multiple effect (1,2,3)
DAILY PRODUCTION (l/d): 15000 - 100000
HOURLY PRODUCTION (l/h): 165 - 4160
ENERGY CONSUMPTION (kwh/m3): Depending on model
MATERIAL: A-316 L
SPECIAL MATERIAL: SAF/SANICRO/Ti
VESSEL: Vertical
HEAT EXCHANGER: Shell-tube, external
VACUUM SYSTEM: Liquid ring pump
COMPRESSOR: No
EXTERNAL CONDENSATION: Cooling tower or air condenser
CONTROL: PLC & HMI
CIP: Optional

MAIN REFERENCES

We have completed more than 500 projects in over 20 countries, for all kinds of industrial companies, from small plants to huge installations. These are some of our main references:
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