



***The CMM Group***

**ENVIDEST<sup>®</sup> EVAPORATORS**  
**DESALT<sup>®</sup> CRYSTALLIZERS**

**For industrial wastewater treatment**

# The CMM Group

The CMM GROUP is an environmental engineering company offering turn-key solutions in any industrial sector for:



**WASTEWATER TREATMENT**



**ZERO LIQUID DISCHARGE**



**RESOURCES RECOVERY**



**DESIGN**



**INSTALLATION**



**START UP**



**MAINTENANCE**

We always ensure that we provide the most efficient process, both in environmental and economical terms. We offer a 360° solution for:

# 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.

# ELECTRICAL Evaporators

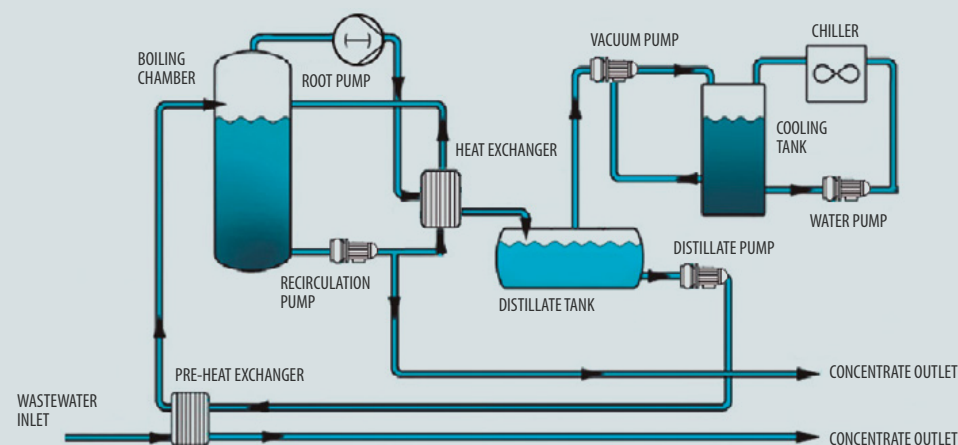


## ENVIDEST MVR FC Forced circulation evaporator

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 °C.

- 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/m<sup>3</sup>):** 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

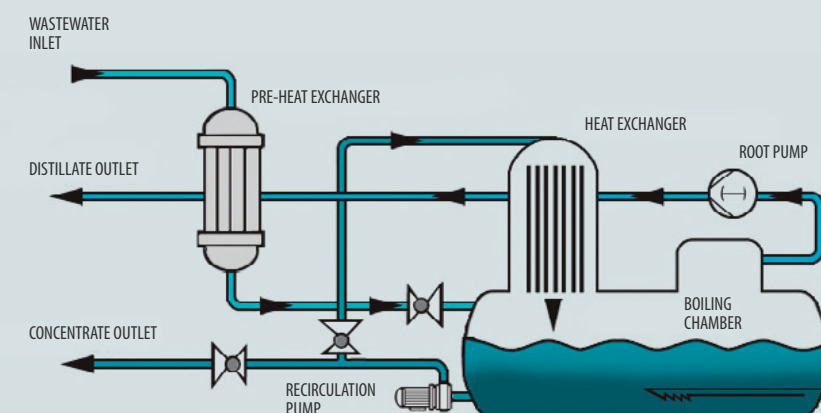


- MODEL:** ENVIDEST MVR FF
- VACUUM PLANT:** Evaporator
- ENERGY SOURCE:** Electricity
- TYPE:** Mechanical vapour compression
- MAIN CHARACTERISTIC:** Falling film
- DAILY PRODUCTION (l/d):** 600 - 80000
- HOURLY PRODUCTION (l/h):** 30 - 4000
- ENERGY CONSUMPTION (kwh/m<sup>3</sup>):** 36 - 100
- MATERIAL:** 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 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 °C.



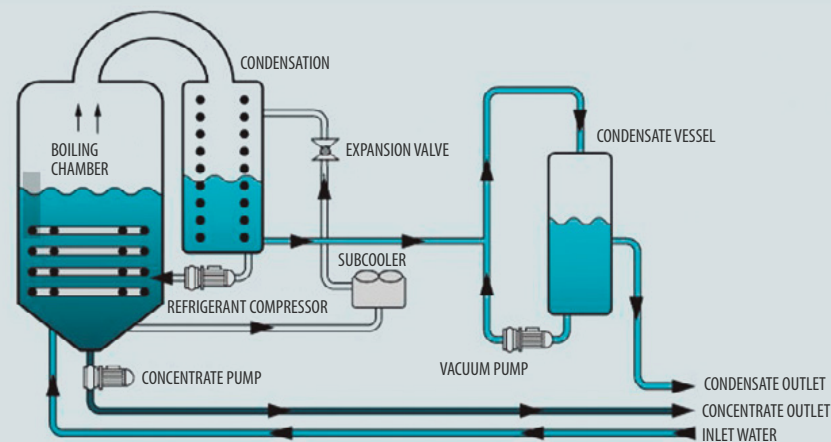
## ENVIDEST LT DPE

### 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/m<sup>3</sup>):** 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



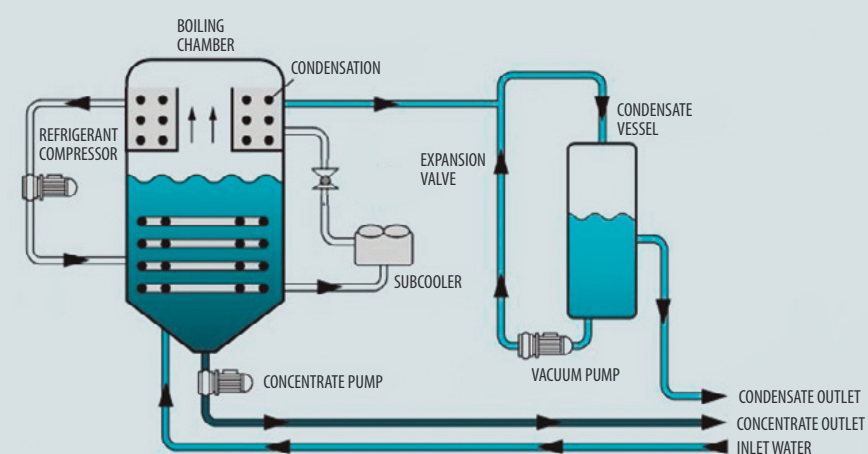
**MODEL:** ENVIDEST LT VS  
**VACUUM PLANT:** Evaporator  
**ENERGY SOURCE:** Electricity  
**TYPE:** Heat pump  
**MAIN CHARACTERISTIC:** Low temperature  
**DAILY PRODUCTION (l/d):** 3000 - 15000  
**HOURLY PRODUCTION (l/h):** 125 - 625  
**ENERGY CONSUMPTION (kwh/m<sup>3</sup>):** 150  
**MATERIAL:** 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.



# ELECTRICAL Crystallizers

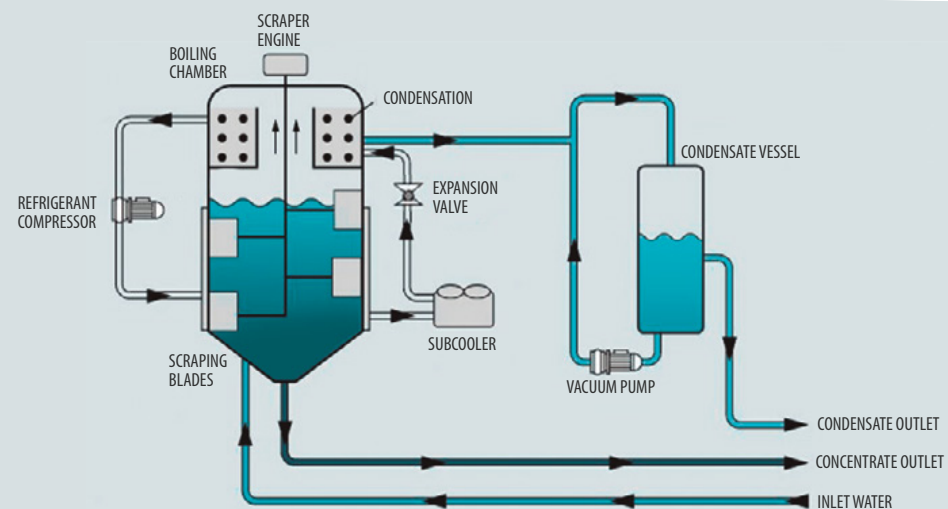


## DESALT LT VR Heat pump crystallizer

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 - 125
- ENERGY CONSUMPTION (kwh/m<sup>3</sup>):** 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

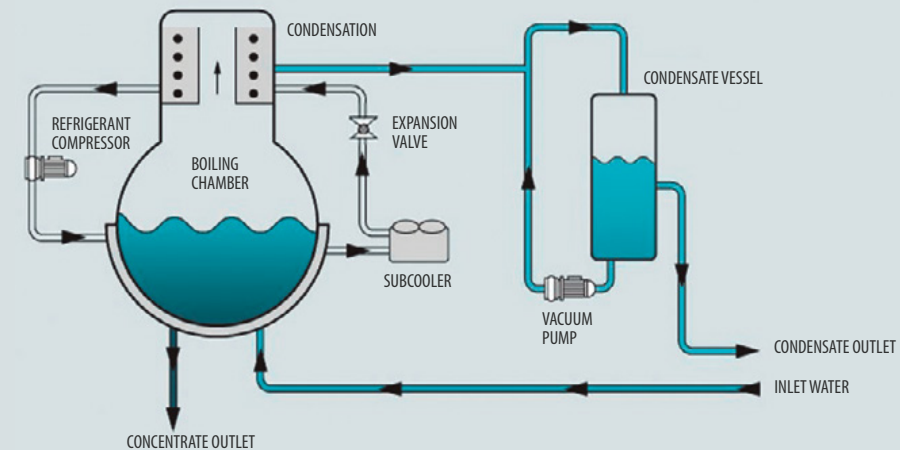


- MODEL:** DESALT LT DRY
- VACUUM PLANT:** Crystallizer
- ENERGY SOURCE:** Electricity
- TYPE:** Heat pump
- MAIN CHARACTERISTIC:** Low temperature
- DAILY PRODUCTION (l/d):** 250 - 1000
- HOURLY PRODUCTION (l/h):** 10 l/h - 40 l/h
- ENERGY CONSUMPTION (kwh/m<sup>3</sup>):** 250
- MATERIAL:** A-316 L
- SPECIAL MATERIAL:** SAF/SANICRO/Ti
- VESSEL:** Horizontal
- HEAT EXCHANGER:** Jacket, external
- VACUUM SYSTEM:** Venturi
- COMPRESSOR:** Freon R407c
- EXTERNAL CONDENSATION:** Not required
- CONTROL:** PLC & HMI
- SALT UNLOADING SCREW:** 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.



# THERMAL

## Evaporators



### 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/m<sup>3</sup>):** 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

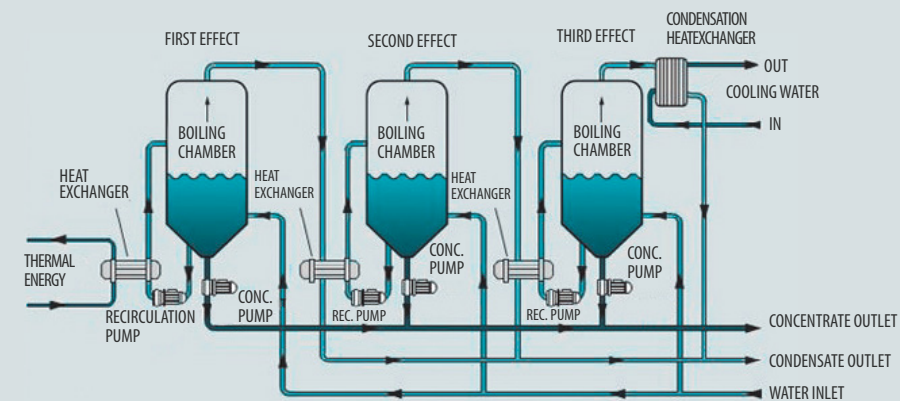
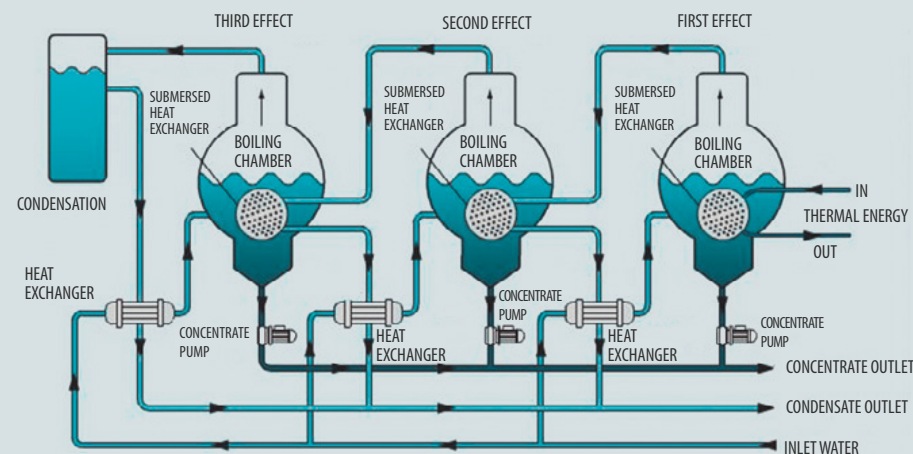
- MODEL:** ENVIDEST MFE
- VACUUM PLANT:** Evaporator
- ENERGY SOURCE:** Hot water / steam
- TYPE:** Thermal
- MAIN CHARACTERISTIC:** Multiple effect (1,2,3)
- DAILY PRODUCTION (l/d):** 15000 - 200000
- HOURLY PRODUCTION (l/h):** 625 - 8500
- ENERGY CONSUMPTION (kwh/m<sup>3</sup>):** Depending on model
- 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

### 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.



# THERMAL Crystallizers



## 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).

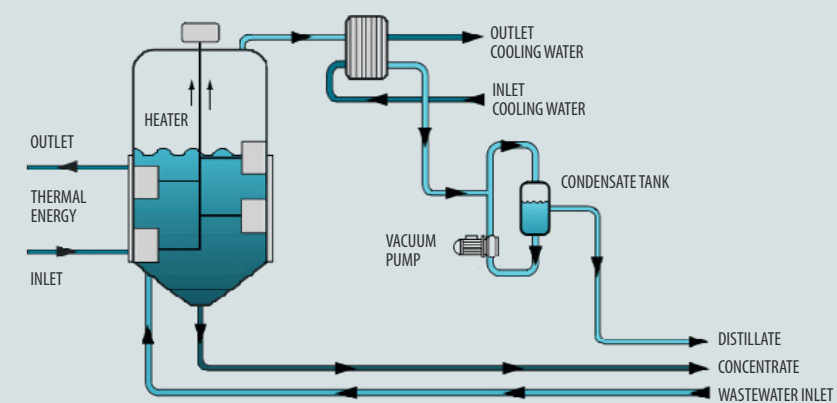
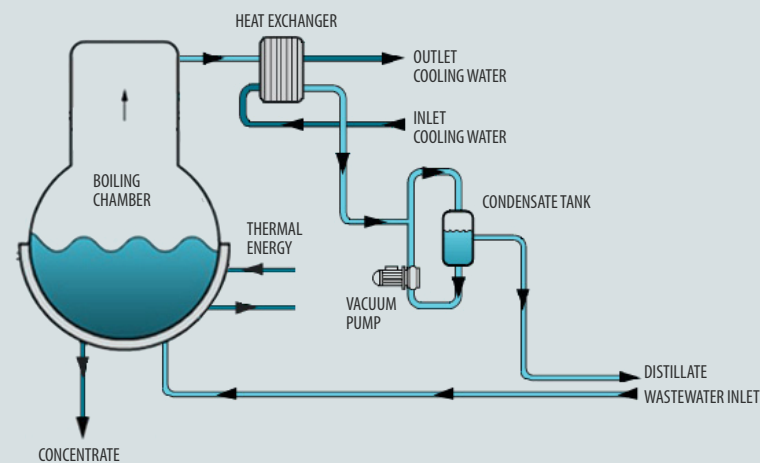
- MODEL:** DESALT DRY
- VACUUM PLANT:** Crystallizer
- ENERGY SOURCE:** Hot water / steam
- TYPE:** Thermal
- MAIN CHARACTERISTIC:** High Temperature
- DAILY PRODUCTION (l/d):** 1000 - 3000
- HOURLY PRODUCTION (l/h):** 40 - 125
- ENERGY CONSUMPTION (kwh/m3):** Depending on model
- MATERIAL:** A-316 L
- 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

- 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
- CONTROL:** PLC & HMI
- CIP:** Optional

## 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).



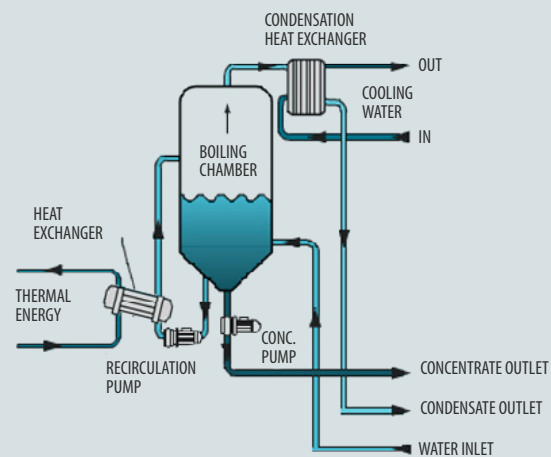


## DESALT MFE

### 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 30 countries, for all kinds of industrial companies, from small plants to huge installations. These are some of our main references:







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