

# ENVIDEST MFE

Vacuum Evaporators powered by hot water or steam



**condorchem  
envitech**

## HIGHLIGHTS

Single or multiple effect Evaporator fit to concentrate saline solutions and high capacities of liquid. Vertical boiling vessel with external heat exchanger with high-speed circulation.

Powered by Steam. Full automatic operation system by PLC; display of main parameters by LCD TOUCH screen. Standard manufacturing AISI316 – special alloys on demand.

Standard range from 60 to 180 Tons/day of evaporated water.

## VERTICAL TYPE EVAPORATORS WITH FORCED CIRCULATION HEAT-EXCHANGER

### ○ STRUCTURE

- Modular skid made of austenitic steel, single or multiple effect, with possible extension from 1 up to 3 evaporation modules.
- Boiling vessels, fitted with external tube-nest heat-exchangers. The process liquid flows inside the tube-nest at high speed, thanks to the centrifugal rotor pumps, getting the calories necessary for the evaporation thus avoiding the stratification on the exchange surface.
- The multi-stage version allows the recovery of the latent heat of vaporization, in “cascading” effect, from 1st to stage to next ones, reducing of 1/3 the otherwise required energy.
- Digital and analogue control instrument for the automatic monitoring of the system.

### ○ VACUUM CIRCUIT

- Automatic circuit for condensate discharge and vacuum generation, composed of liquid ring pumps, cooling tanks, manual and pneumatic check valves, digital and analogue control.

### ○ STEAM CONDENSED CIRCUIT AND DISTILLATE RAISE

- The condensation of the evaporated wastewater happens in closed circuit with the steam passage through a water cooled plate heat exchanger from the cooling tower. density control device or by a timer for a complete customization of the process.
- The condensate is stored in tanks separated from the vacuum circuit and raised by means of pumps controlled by level feelers.

## MAIN CHARACTERISTICS

- Power supply by hot water or steam.
- Outside heat-exchanger forced type.
- Heat exploiting at multiple effect.
- Wastewater inlet, distillate and condensate outlet automatically operated.
- Check by PLC Siemens S7-200/300 with Siemens Touch Panel.
- Pull-out heat exchangers.

## MAIN APPLICATIONS

**ENVIDEST MFE series is particularly suitable for:**

- Oily emulsions, wastewater from vibratory finishing, exhausted baths.
- Wastewater from pressure die-casting (release agents, glycols, lubricants, oils).
- wastewater from galvanization (chromium, nickel, copper), exhausted baths, eluates.
- recycling of exhausted baths.
- washing of reactors, process wastewater for chemical/pharmaceutical industry.
- treatment of water-based solutions.

## ○ CONCENTRATE DISCHARGE AND RECIRCULATION SYSTEM

- Automatic circuit for the recirculation and discharge of the concentrate, complete with extraction pumps, pneumatic and manual valves, on-off valves for taking product samples during processing.
- The automatic discharge function is programmable through an adjustable density control device or by a timer for a complete customization of the process.

## ○ CLEANING SYSTEM

- The automatic system is complete with pneumatic valve and rotating nozzle. The circuit allows the release of cleaning agents inside the evaporator: the wash cycle time can be adjusted from the control panel according to the actual needs.

## ○ FOAM CONTROL BATCHING SYSTEM

- Automatic system complete with foam formation sensor and variable setting control. The circuit allows the automatic injection of antifoam products inside the evaporator: the quantity of injected antifoam is adjustable by the control panel according to the actual needs.

## ○ CONTROL UNIT

- Siemens PLC control unit and touch screen control panel.
- Electrical panel in painted sheet, protection IP 54.
- Automatic overload cutout for all motors.
- 24 volts auxiliary circuit.
- Wiring made in flame proofs cables.
- Level control regulators for tanks and outside reservoirs level.

## ○ OPTIONALS

“Teleservice” Control System for remote assistance”

## EXAMPLES OF INSTALLATIONS



## TECHNICAL DATA

	Units	15000	30000	50000	60000
Feed Inlet	l/d	15.000	30.000	50.000	60.000
Nominal Capacity	l/h	625	1.250	2.100	2.500
Energy Consumption	KCal	375.000	750.000	1.250.000	1.500.000
Dimensions (LxPxH)	cm	360x300x600	400x300x600	400x320x650	400x320x700

## PROCESS DIAGRAM

