



EVALED™ AC

Vacuum evaporators powered by hot/cold water



Solutions & Technologies



EVALED™ AC evaporators

EVALED™ AC Solution represents the range of hot/cold water evaporators utilizing low cost energy sources, such as the ones from cogeneration plants.

The battle against the climate change is a priority for everyone. VWS Italia has a real commitment to reduce CO₂ emissions: we are working to make sure that our technological offering is ever more environmentally sustainable.



CO₂

EVALED™ AC evaporators comprehends both EW and RW series. The difference between the two series is the thermal exchange technique. EW works with external tube heat exchanger and forced circulation, RW with scraped jacket.



Materials



VWS Italia, in co-operation with respected materials research centres, selects the most suitable materials for the safe management of aggressive liquids. The resistance to corrosion is the main features of every EVALED™ evaporators, essential when dealing with extremely concentrated liquids.

Austenitic stainless steel AISI 316L

(Number: 1.4435 - X2 CrNiMo 18-14-3)

Austenitic weakly bound structure, non-hardening, non-magnetic. The low percentage of Carbon in this alloy reduces the risk of intergranular corrosion at high temperatures.

Uses: alkaline liquids, acid liquids (pH>4) with a low percentage of chlorides, oil emulsions, liquids from flexographic printing.

Superduplex stainless steel

(Number: 1.4410 - X2 CrNiMo 25-7-4)

Austenitic-ferritic structure, magnetic. The high percentage of Chrome gives excellent resistance to localised corrosion.

Uses: acid liquids (pH>3) with high chloride and metals content, galvanic waste waters, landfill leachate.

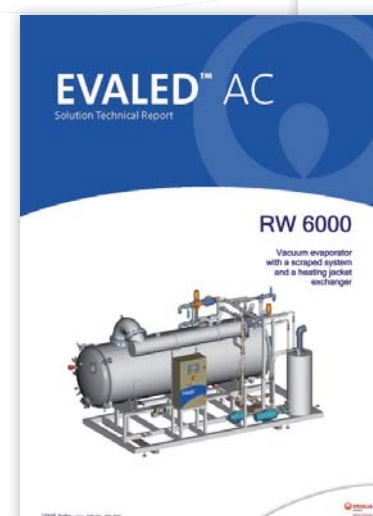
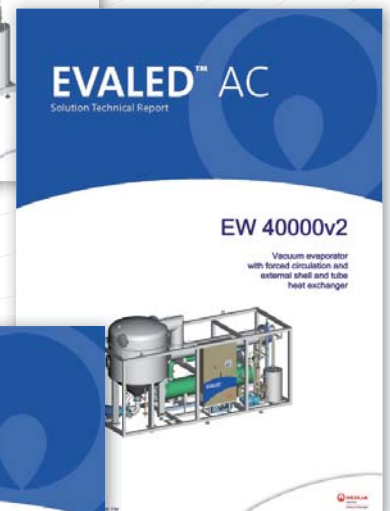
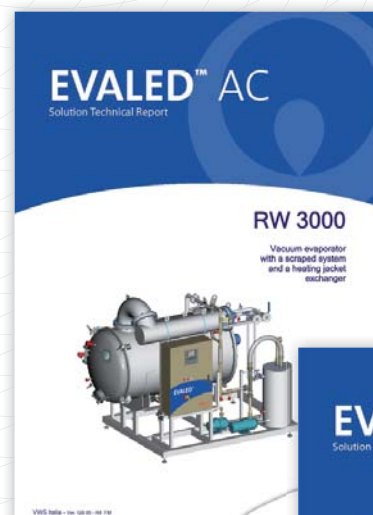
Nickel alloy

(Number: 2.4819 - NiMo 16 Cr15 W)

High flexibility Cr-Ni.Mo steel. The low Carbon content ensures resistance to the formation of carbides at zones exposed to thermal variation. It has excellent resistance to localised corrosion, both in oxidising and reducing environments, even at high temperatures.

Uses: very acid liquids (pH>2) with high content of chlorides, fluorides and metals, anodising waste waters, special applications.

EVALED™ AC Technical Reports



EVALED™ EW Series

EW is the hot/cold water evaporator with forced circulation and external shell&tube heat exchanger. The heat necessary to boil the waste water is supplied by hot water running into heat exchanger; the cooling necessary to condensate the steam is supplied by cold water running into the heat exchanger at the top of the boiling chamber.

EW is particularly suitable for:

- *landfills and waste disposal*
- *food industry*
- *mechanical industry*
- *biogas plants digester*
- *steel and aluminium industry*
- *chemical industry*
- *power*



SPECIFICATIONS

The capacity of EW evaporators varies from 20.000 l (5.300 gal) to 60.000 l (15.800 gal) of distillate per day. Water boils at 40°C (104°F) and at a vacuum of approximately 5kPa. The distillate can be recycled and the concentrate is a pumpable fluid. The evaporation process is controlled by a PLC so that the evaporator requires a minimum of supervision and automatically manages the functions of waste water feed and discharge of concentrate and distillate.

Single Effect

EW 20000

Capacity: 20.000 l - 5.300 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 17 m³
Cooling water flow-rate (25°C/77°F): 73 m³
Construction: pre-assembled single module on a stainless steel frame

EW 40000

Capacity: 40.000 l - 10.600 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 34 m³
Cooling water flow-rate (25°C/77°F): 146 m³
Construction: pre-assembled single module on a stainless steel frame

Double Effect

EW 30000

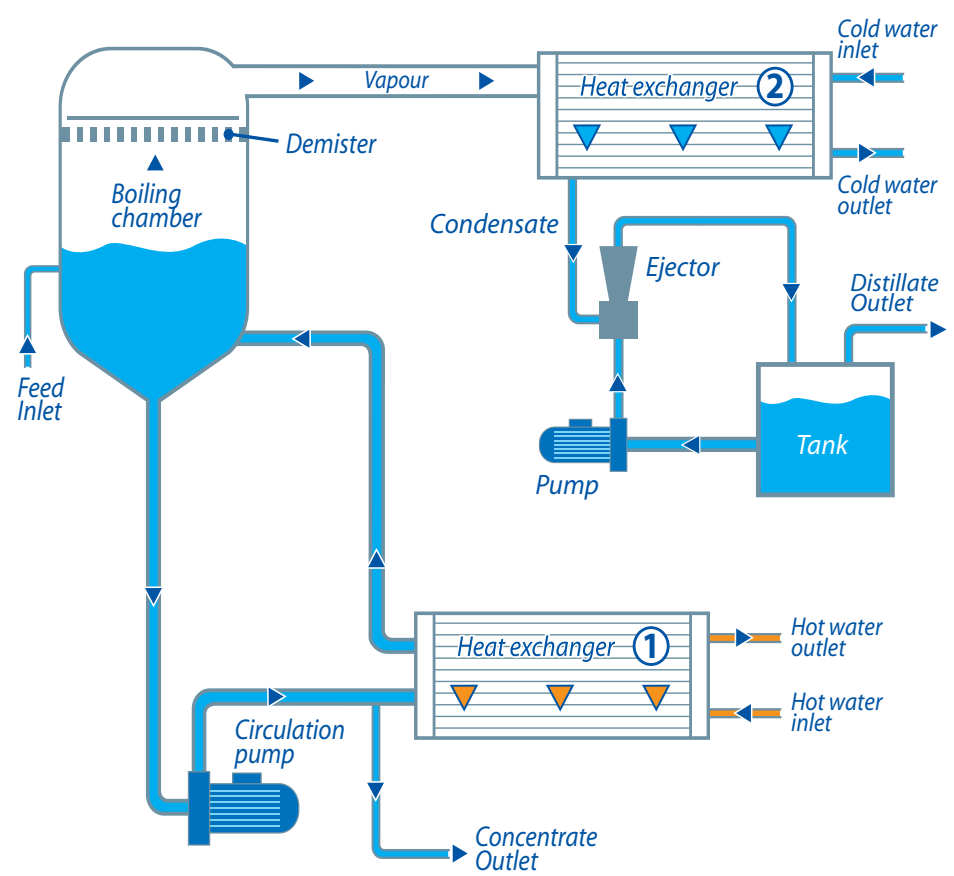
Capacity: 30.000 l - 7.900 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 14 m³
Cooling water flow-rate (25°C/77°F): 60 m³
Construction: pre-assembled double module on a stainless steel frame

EW 60000

Capacity: 60.000 l - 15.800 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 27 m³
Cooling water flow-rate (25°C/77°F): 120 m³
Construction: pre-assembled double module on a stainless steel frame



Process diagram



EVALED™ RW Series

RW is the hot/cold water evaporator with stirred and scraped heat exchanger surface that transfers heat by heating jacket containing circulating hot water.

This series is designed to treat waste water containing a high concentration of suspended and dissolved solids. That is the reason why within the boiling chamber waste water is stirred continuously by an Archimedes screw type scraper, preventing any fouling of the heat exchange surface.

The evaporator produces a distillate recyclable since free of dissolved salts and a solid or semi-solid concentrate with a water content less than 15%.

The RW evaporators are designed to work both continuously and by batch, by using a pump to discharge the concentrate or by stopping the evaporation process by opening the front door and leaving the screw working.

With the addition of an optional intermediate heat exchanger RW evaporators can also utilize steam as a heat source.

RW series is particularly suitable where:

- ✦ *it is necessary to minimize the concentrate to dispose of*
- ✦ *the waste water has a high content of dissolved or suspended solids*

RW series is the best solution for:

- ✦ *landfills and waste disposal*
- ✦ *galvanic industry*
- ✦ *food industry*
- ✦ *mechanical industry*
- ✦ *chemical industry*
- ✦ *printing*
- ✦ *power*



SPECIFICATIONS

The capacity of RW evaporators varies from 3.000 l - 790 gal to 12.000 l - 3.200 gal of distillate per day. Water boils at 40°C (104°F) and at a vacuum of approximately 5kPa.

The evaporation process is controlled by a PLC so that the evaporator requires a minimum of supervision and automatically manages the functions of waste water feed and discharge of concentrate and distillate.

RW 3000

Capacity: 3.000 l - 790 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 2.9 m³
Cooling water flow-rate (25°C/77°F): 8.6 m³
Construction: pre-assembled single module on a stainless steel frame

RW 6000

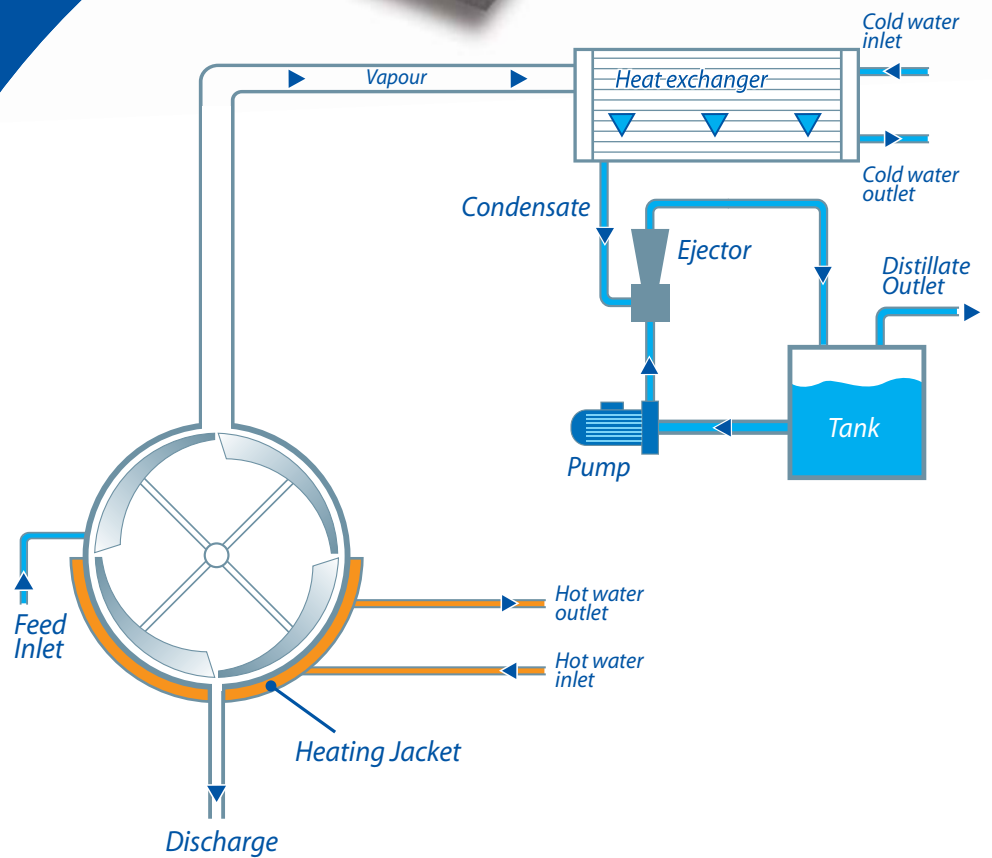
Capacity: 6.000 l - 1.600 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 6 m³
Cooling water flow-rate (25°C/77°F): 18 m³
Construction: pre-assembled single module on a stainless steel frame

RW 12000

Capacity: 12.000 l - 3.200 gal distillate / 24h
Heating water flow-rate (90°C/194°F): 12 m³
Cooling water flow-rate (25°C/77°F): 36 m³
Construction: pre-assembled single module on a stainless steel frame



Process diagram





Veolia Water Solutions & Technologies Italia S.r.l.

Solutions Division and Service Division

Via Pra' di Risi 3, 33080 Zoppola (PN), Italy
Tel. +39 0434 516311 • Fax +39 0434 516310
solutions@veoliawaterst.it
service@veoliawaterst.it

Industrial Design & Build Division

Largo A. Cacciari, 1/B • 1/D, 43100 Parma (PR), Italy
Tel. +39 0521 247672 • Fax +39 0521 463992
dbindustriale@veoliawaterst.it

www.veoliawaterst.it



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