Professionals in water!

Standard systems and customer specific installations within the drinking water, waste water and proces water market.

RWB has all the necessary disciplines in-house. From process technology, mechanical engineering, automation, project management, realization to commissioning.

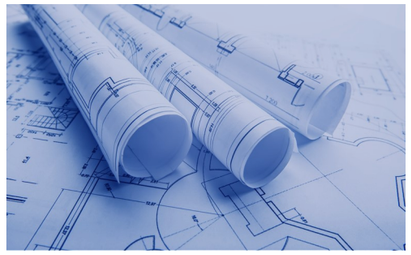
In addition, RWB has a national 24/7 service department. With this, RWB offers a complete and multidisciplinary package in water treatment. That is our added value!

PROCESS TECHNOLOGY

ENGINEERING

SYSTEM REALIZATION

24/7 SERVICE



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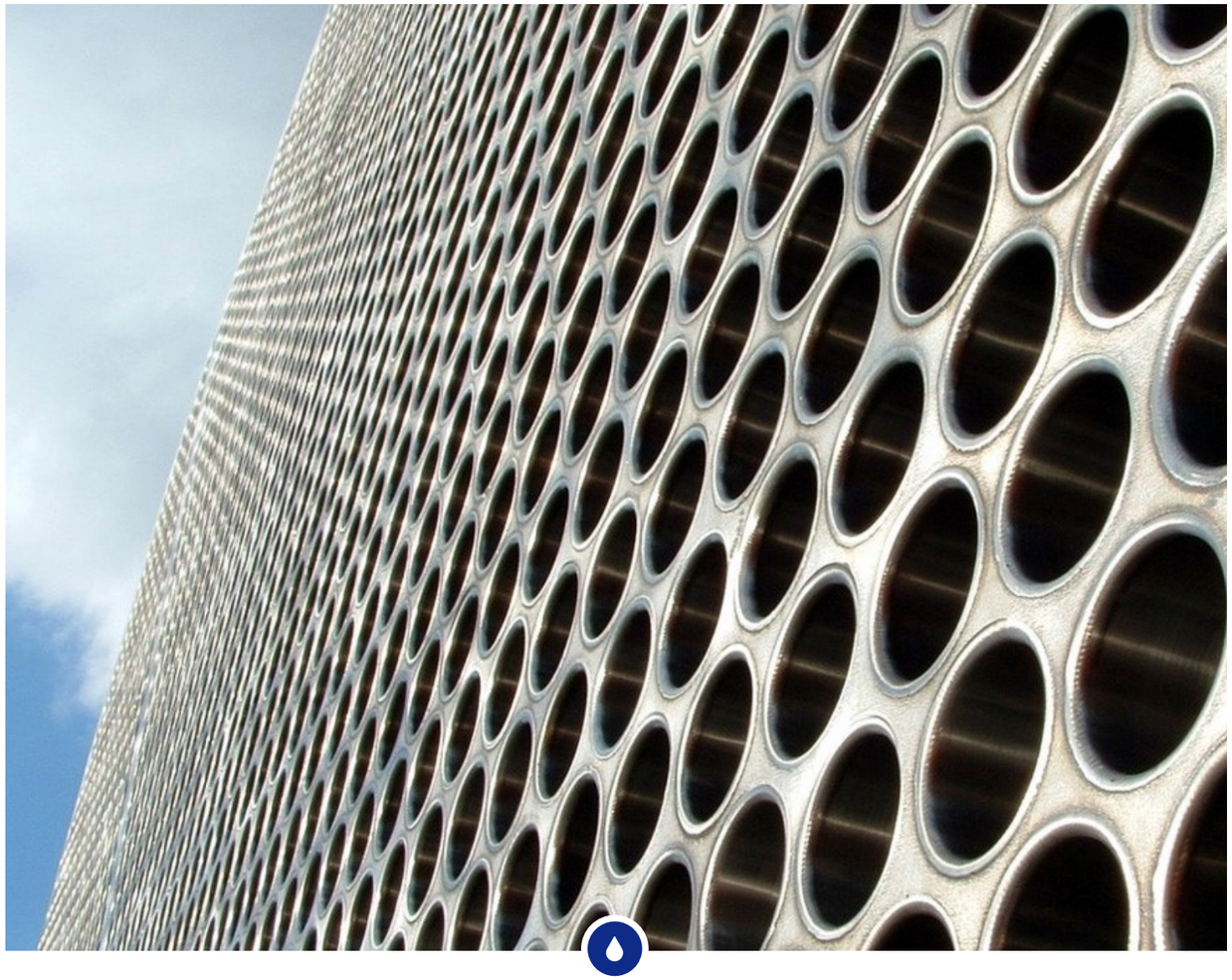
Professionals in water.

EVAPORATORS & CRYSTALLIZERS

Evaporation for concentration or separation of liquids



Evaporators & Crystallizers

Energy efficient evaporation

RWB has extensive knowledge about evaporation technology. This technology can be used to concentrate certain waste streams.

Evaporation of water costs a lot of energy (about 2200 kJ/kg). This energy can be added as thermal energy to the system, after which the produced vapors need to be condensed. The added energy is lost as heat in the cooling water.

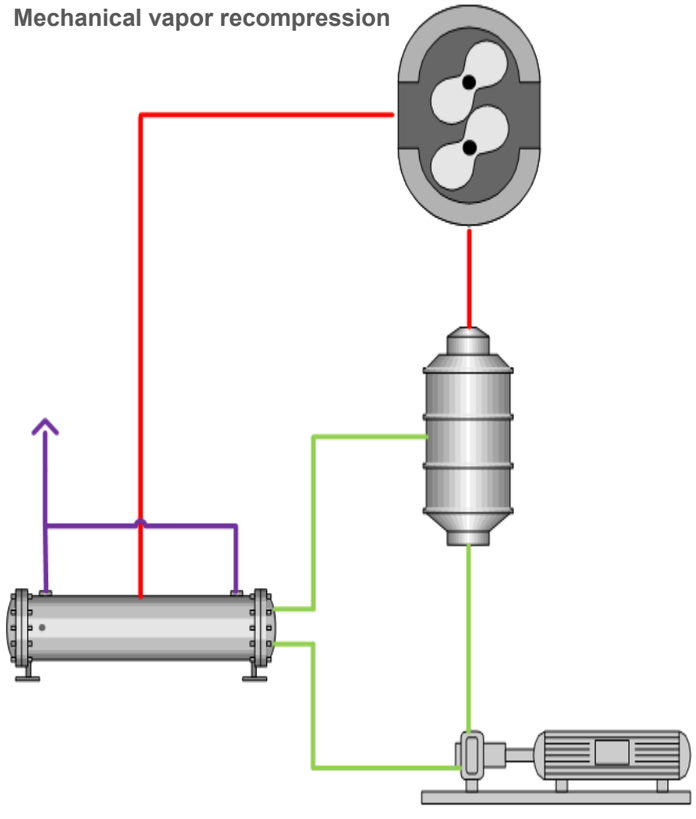
An energetically better concept is applying mechanical vapor recompression (see schematic overview below). The mother liquor is recirculated with a pump over a heat exchanger and the vapor body. In the heat exchanger the liquor takes the heat from condensating vapors on the other side of the heat exchanger wall. The temperature of the liquor rises above boiling point. The liquor will boil and flash. The location of flashing depend on the type of evaporator.

In a falling film heat exchanger the liquor flashes in the heat exchanger. In a forced circulation type evaporator the flashing in the heat exchanger is suppressed by additional liquor pressure and the liquor flashes only after entering a separate vapor body. After flashing, the cooled liquor is returned to the heat exchanger.

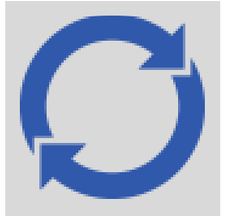
The vapor that is produced due to flashing in the vapor body or heat exchanger is led to a vapor compressor. The compressor raises the pressure and temperature of the vapor. Due to the increased pressure the condensation temperature of the vapor is increased as well.

The increased condensation temperature allow condensation of the vapor in the aforementioned heat exchanger. The heat released by condensation is returned to the liquor in the tubes of the heat exchanger. The heat necessary for boiling of the water is completely recovered this way. The only energy needed is electrical energy for the vapor compressor and the recirculation pump.

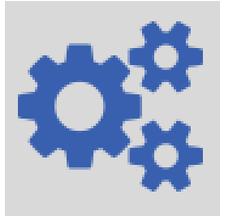
Mechanical vapor recompression



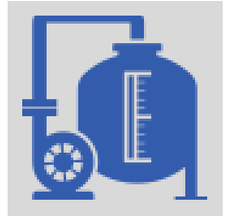
Evaporation for concentration or separation of liquids



PROCESS TECHNOLOGY



ENGINEERING & DESIGN



SYSTEM REALIZATION

24/7 SERVICE & CONTROL

All disciplines in-house

RWB is a strong project and service organization with a lot of in-dept knowledge. With our team, consisting of more than 70 dedicated and experienced employees (average 30+ years of experience in water treatment), we are able to transform complex issues into concrete and sustainable water treatment plants.

RWB has all the necessary disciplines in house to design and build complete evaporation and crystallization plants. From process technology, mechanical engineering, automation, system realization, commissioning to service and management (remote monitoring & control). This means one partner who is responsible for the entire process; from development to the turn-key realization of the full-scale installation.

RWB's scope of supply

RWB can deliver two type of evaporators:

⇒ Falling film evaporator. The liquor flow down the tubes of the vertical heat exchanger as a falling film. The evaporation takes place in the heat exchanger. Advantage of this type is its very high energy efficiency.

⇒ Forced recirculation evaporator. The liquor flows through the tubes or between the plates of the heat exchanger. Boiling in the heat exchanger is suppressed and only occurs in the vapor body. Due to the high recirculation velocity this type of evaporator is very will suited for media, which is prone to fouling.

RWB uses the following types of heat exchanger:

⇒ Shell & tube heat exchanger for media with coarse solids, for falling film evaporator and for crystallizers.

⇒ Plate & frame heat exchanger for forced circulation evaporators in absence of coarse solids.

Key features

- **Optimized energy consumption**
- **Corrosion resistant**
- **Fouling resistant**
- **High recovery, low purge**
- **High condensate quality**
- **Custom made**
- **Fully automated**