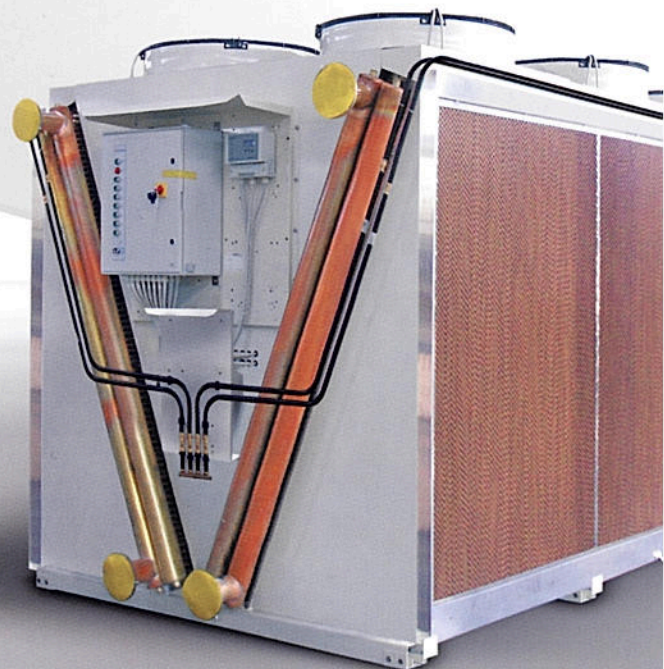


REFRION
a better innovation

new industrial adiabatic system



New industrial adiabatic system

Refrion's brand new adiabatic system provides a more efficient alternative to traditional vaporizing air cooling systems. Special cardboard pads are located at the air inlets and connected to the hydraulic system, whereby the air is cooled by evaporation when crossing the pad and virtually complete humidity saturation is achieved. Thanks to this highly effective and reliable method, the thermodynamic temperature of inlet air is reduced by over 8° Celsius. Furthermore, energy consumption is optimised by using EC-type fans and particularly by reducing the amount of water needed for the process through the Intelliboard's PLC mounted on the side of the device. To achieve its air cooling function, the system exploits the maximum air flow. Only if the cooling in dry mode is not sufficient does the Intelliboard's PLC let the water flow, thus humidifying the honeycomb cardboard pads. As soon as the temperature is lowered, the fans slow down and subsequently the water flow stops. The fans' revolution rate therefore starts to increase again and the cycle is repeated whenever needed to maintain the desired temperature.

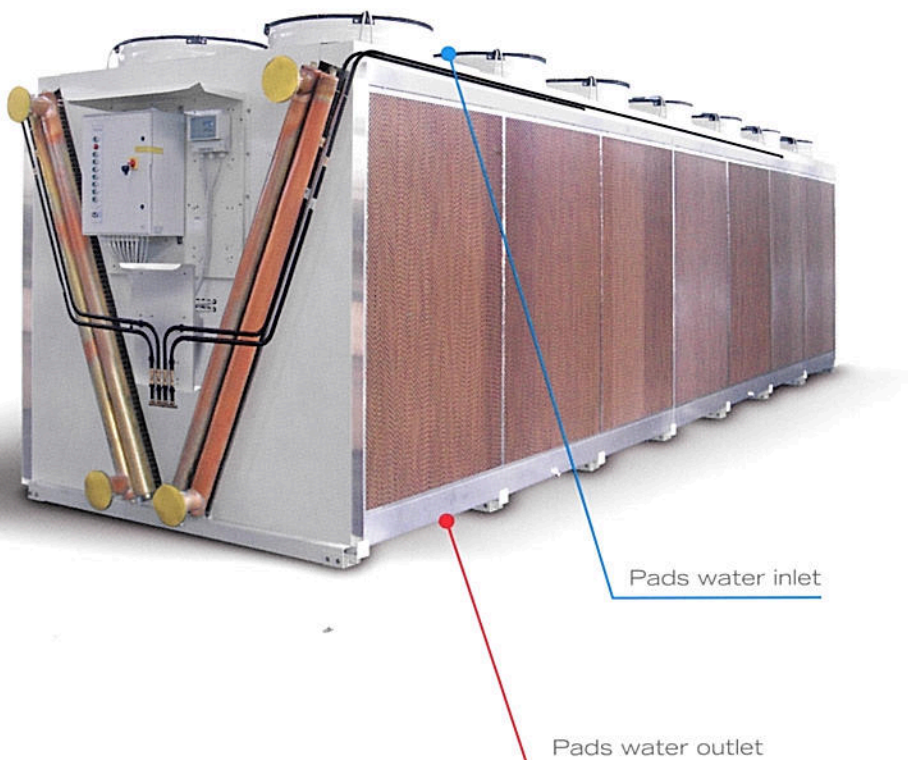
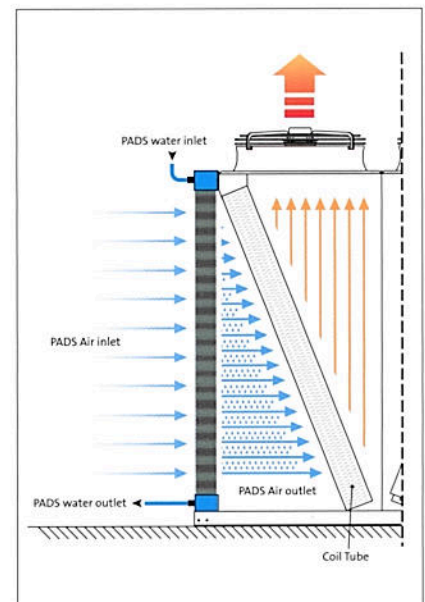
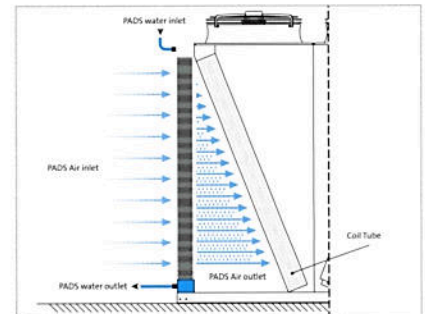
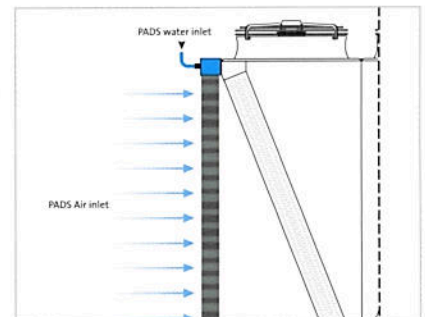
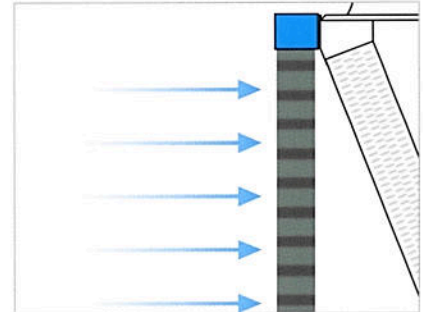
Concept

To achieve adiabatic saturation, the air is forced through the wet pad, unlike the process occurring with standard vaporizing systems (STD Adiabatic System).



The panel

The panel is manufactured using special pure cellulose kraft paper impregnated with resins and treated to ensure high absorbing capacity and mechanical resistance. Furthermore, it is fully protected against shrinking and deterioration caused by UV rays, fungi, bacteria and algae thanks to the use of special biocides and antibacterial agents on the cellulose fiber.



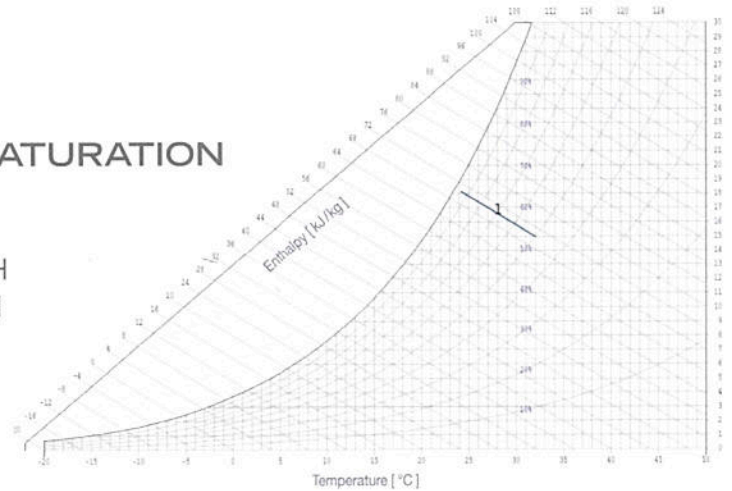
Pads benefits

- ▲ Relative humidity increased up to 95%.
- ▲ Sound pressure level reduced by up to 3 dB(A).
- ▲ Lower design temperature of inlet air results in reduced size and a smaller heat exchanger unit.
- ▲ The unit may be used to bring water temperatures lower than ambient air temperature.
- ▲ No risk of legionella proliferation.

CALCULATION OF ADIABATIC SATURATION WITH PADS – AN EXAMPLE

T amb. (Ambient Air Temp.): 32° C / 50% RH

T des. (Design Air Temp.): 24,2° C / 95% RH



Optimum operation thanks to the Intelliboard

Refrion's Intelliboard monitors cooling medium temperatures and ambient conditions and controls the amount of moistening water to optimise energy and water consumption.

Optimised for free cooling

The high switching point from dry to moist cooling enables long free-cooling operation and keeps water consumption low.

Health risk prevention

The system prevents legionella proliferation, avoiding the concentration of aerosols and water recirculation. The once-through water application requires lower-quality moistening water, thus reducing additional water treatment costs.

Maintenance-friendly construction

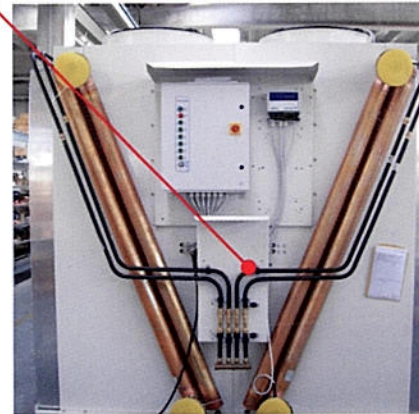
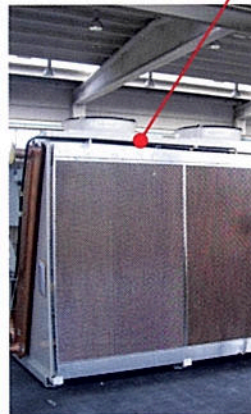
Removing pads is a simple procedure and the pads' air cleaning effect keeps the required cleaning to a minimum.

Assembly on site

Pad modules assembly



Hydraulic circuit assembly



The Refrion range of products

dry coolers

Modular - H/V Air Flow - Tower - Combo - Superjumbo - Centrifugal

condensers

Modular - H/V Air Flow - Tower - Combo - Centrifugal



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