



Ecodrygel EDK

Closed loop adiabatic liquid cooler



PROFILE

The Ecodrygel EDK employs an innovative **adiabatic system** that allows the cooler to operate in any kind of environmental condition making it a valid alternative to traditional cooling systems (chillers, evaporative cooling towers, natural sources etc.) **with remarkable savings of electricity and water and the greatest respect for the environment.**

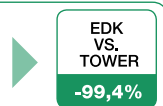
OPERATIONAL ADVANTAGES

“Clean” Closed-Loop function, minimal operating costs, quick and simple maintenance, modular design, parallel (P) and serial (S) configurations, and glycol-free self-draining models.

OPERATIONAL SAVINGS

Water Savings

The EDK Cooler operates, for most of the year, without consuming additional water and only during the hottest days does it automatically activate the adiabatic system

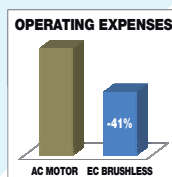
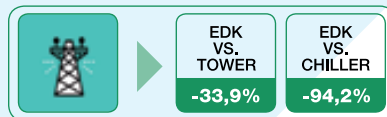


in order to pre-cool the incoming air. This system allows a minimum quantity

of water evaporation without any direct contact with the finned, coil pack thus eliminating any risk of calcium deposits at the cooler. The EDK features Frigel’s worldwide patented, “Adiabatic Chamber”, an innovative geometry of humidifiers guaranteeing high relative humidity of the air crossing the cooling coils, thus **MAXIMIZING THE EFFICIENCY** of the cooler.

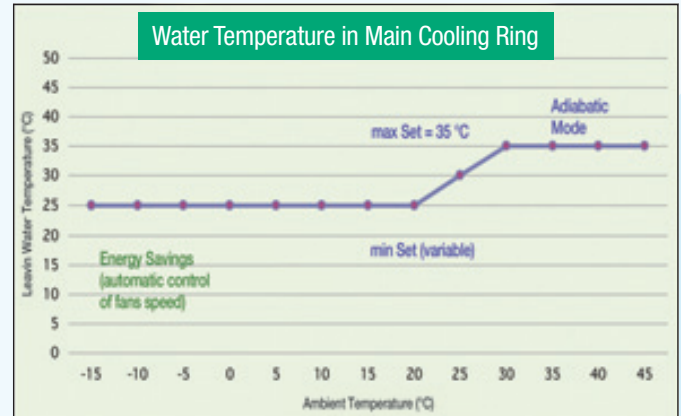
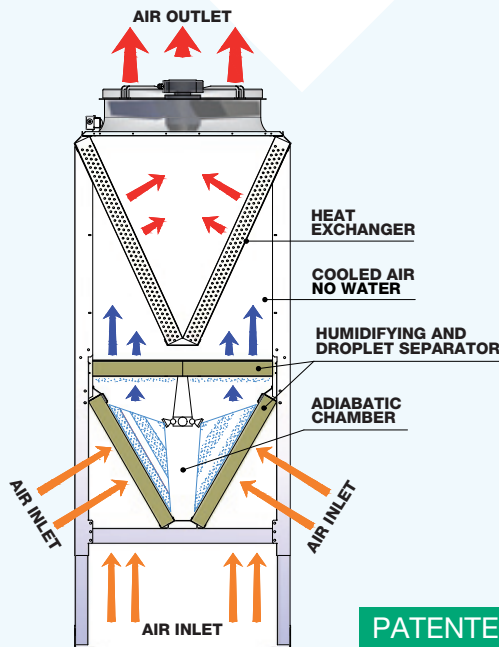
Power savings

The EDK Features brushless fan motors with speed controls that offer outstanding reduction in noise levels, increased reliability and longer life, and **REDUCE energy consumption** by more than a third over traditional step or triac controls.



WORKING PRINCIPLE

Operations in Adiabatic Mode



A **Finned Coil Heat Exchanger** cools the water flowing through the coil by simple ambient airflow across the coils, produced by special brushless fans (23,000 m³/h - 13,600 cfm per fan).

As the ambient air temperature increases, the **Adiabatic Chamber**, Frigel's international patent, activates and cools the air by Evaporation.

The hot, dry air passing through the Adiabatic Chamber is humidified and saturated by misted water sprayed inside the Chamber, reducing its temperature to within the Wet Bulb range.

There are two great advantages of the Adiabatic Chamber:

It is the **most efficient system** to increase the relative humidity of air

It **prevents any water from escaping** the Chamber, thus eliminating any risk of scaling on the coil or creating dangerous water drifts - potentially contaminated by bacteria. In this way, the coil is kept completely dry and free from impurities, thereby maintaining its efficiency.

The quantity of water consumed is controlled by a microprocessor. Water is nebulized at a rate up to 1,5 liters/min - 0,4 gallons/min of water per fan guaranteeing total evaporation within the air flow before reaching the finned coil pack.

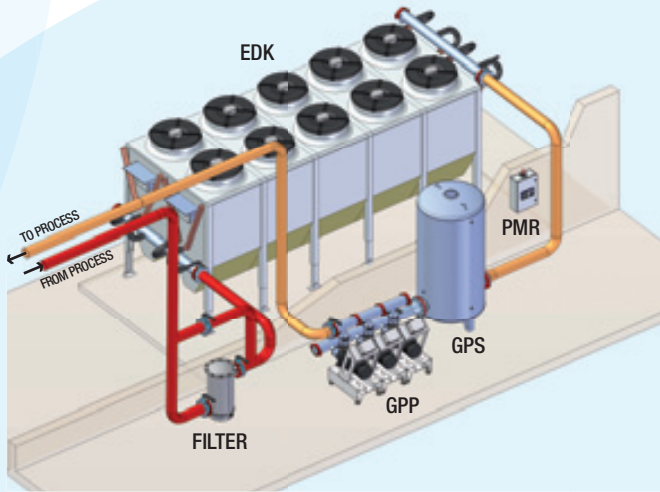
The Adiabatic System cycles on and off automatically, via a microprocessor in the PMR Control Panel. This system guarantees leaving water temperatures between 35°C / 95°F throughout the year in any climate.



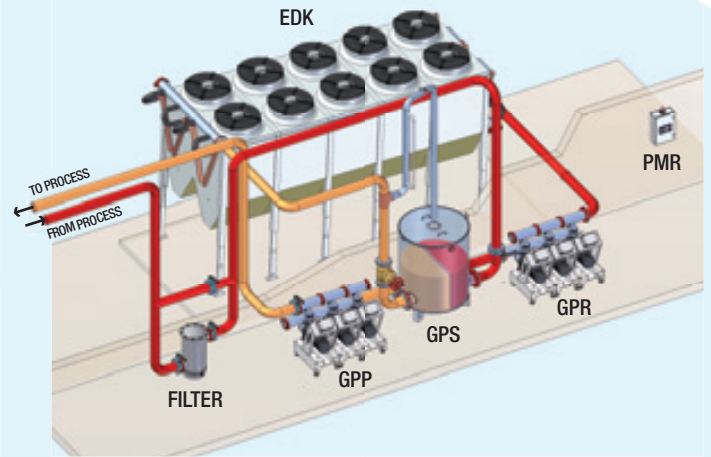
No bacterial contamination of water (i.e. Legionella)

MODELS

WITH GLYCOL



SELF-DRAINING WITHOUT GLYCOL



Standard version with glycol “S” and “P” models:

EDK can be provided in either the S (serial) or P (parallel) version, depending on operating conditions and the ΔT required.



Full-Wet version for hot/desert climate:

allows substantial savings in water, obtained by adding a Kit Full-Wet (KFW) and includes tank and pump that allows the recovery and reuse of not evaporated water.

Dry version:

A Dry version is also available without adiabatic chamber to achieve free-cooling of refrigeration systems with central chiller.

Self-draining version without glycol model “D” and “DS”:

When the unit is off and/or during power black-outs, the entire contents of the coil and pipes empty automatically through simple force of gravity, without valves or servo controls, making this system the most reliable.

The “D” and “DS” models function simply with water, **without requiring glycol**, even when the ambient temperatures reach the freezing point, with the following advantages:

- Respect for the environment;
- Greater cooling capacity, since anti-freeze lowers the thermal exchange coefficient;
- Use where anti-freeze additives are not allowed.

The choice between “D” and “DS” depends upon the weather ambient conditions of the location.



TECHNICAL FEATURES



DIE-CAST ALUMINUM axial fans with brushless motors and speed controls, protected against over or under voltage, overheating, overloading and lack of phase.



ELECTRICAL PANEL with European standard (n°60204/1) and UL listing by request. Each machine is designed to be easily connected to the remote control panel. Standard supply voltages: 400V/3/50 Hz and 460V/3/60Hz.



High-efficiency **ADIABATIC CHAMBER** (Frigel PCT Patent No. WO 2007/015281) is designed to guarantee maximum humidification of inlet air at the coils and minimal water usage with no drifts.



FRAME AND HULL made entirely from stainless materials (stainless steel/aluminum). **DELIVERY AND RETURN STAINLESS STEEL MANIFOLDS** with Victaulic flanged connections, for quick, easy installation and expansion.



ALUMINUM FINS COPPER PIPE COILS with large pitch and straight foils (not corrugated) to insure a free flow of air preventing dust and dirt from accumulating on the coils.

ACCESSORIES AND OPTIONALS



CONTROL PANEL (PMR-G)
The input screen and remote control panel, with highly visible temperature display, wide alphanumeric screen, shows all working parameters and eventual alarm signals and diagnostics (see the "PMR" brochure for more information).

**Converters for 220V 50Hz / 60 Hz
Visual Alarm**

Aquagel Pumping Stations: modular pumping sets and stainless steel tanks available for "turn-key" installations (see the "Aquagel" brochure for more information).

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