SUMMIT PROCESS COOLING

Frigel

Adiabatic Cooler

Ecodry 3DK

The growing global scarcity of water inspired Frigel to design the ECODRY 3DK: the most efficient Adiabatic Cooler available today. In fact, extremely large amounts of fresh water are consumed everyday caused by “evaporative” heat rejection of Cooling Towers.

The use of this new technology can save up to 95% of water. Water costs are also increasingly becoming an important economic factor when operating a Cooling Tower, but is not the only one.

A large list of advantages makes this new technology an unbeatable alternative to Cooling Towers, achieving:

- better cooling performance with increased heat transfer efficiency.
- outstanding operating costs savings, resulting in a low total cost of ownership.
- new standards in terms of environmental impact, from both water footprint and total emissions.

ECODRY is an Adiabatic Cooler. It is installed outdoors in order to reject to ambient the heat extracted from processes, providing precise cooling conditions even in extreme ambient temperatures (up to 50°C) delivering clean water at the right temperature all year-round with unbeatable efficiency.

Main Features:
The Adiabatic Cooler ECODRY combines:

1. Dry Cooler

- Low pressure loss heat exchangers with high performance copper/aluminium finned coil and stainless-steel headers.
- Axial fans in die-cast aluminium, with individual inverter driven brushless EC (variable speed fan motors) or EZ (brushless variable speed fan motors with exhaust diffusers) motors.
- Self-Draining by gravity coil configuration for glycol-free operation.
- Stainless steel frame and support structure and aluminium access panels.

2. Adiabatic chamber

- Unique Adiabatic Chamber (internationally patented) enclosed with cellulose pads and equipped with high efficiency air humidification spray nozzles, designed for air pre-cooling based on variable flow of a thin water mist.

3. Intelligent Control System

- PLC hardware based on digital control and on-demand managing logics of the entire system.
- Fan speed management: system always delivers the minimum air flow required, according to real load demand and actual ambient temperature.
- Dry – Adiabatic – Booster switch: system automatically commutates from one mode to the other according to real load demand and actual ambient temperature.
- Water consumption management in Adiabatic Mode controls water evaporation according to the real demand.
- Process pump management: system automatically controls the actual pumping capacity according to the real demand of process water flow.
- Complete set of sensors and anti-freeze self-draining software.

4. Structure

- The metal structure is in AISI430 stainless-steel. If there are particular applications in areas where the atmosphere is somewhat corrosive for steel in order to avoid possible presence of rust stains, it is recommended to request a specific surface structure and/or treatment.

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December 2023

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Main Advantages

Lower Water Consumption

- High humidification efficiency of sprayed mist of water in the “adiabatic chamber”.
- Lower approach to WB of precooled air with less water usage.
- Proven performance in extreme weather conditions, up to 50°C.
- Intelligent Management System automatically adjusts the lowest water consumption according to actual conditions.

Lower Energy Consumption

- Unbeatable efficiency with Electronically Commutated (EC) fans as standard.
- Reduced fan consumption through low air pressure drop cellulose pads.
- Easy removal of pads during DRY operation periods.
- Less pumping energy consumption thanks to low coil pressure losses.
- Less pumping losses caused by filtering of process water flow.
- Free Cooling: the same system may have ability to automatically replace, partially or totally, “mechanical refrigeration systems” operating as a dry cooler during wintertime.

Lower Maintenance Costs

- Minimal ongoing water treatment and filtration required (except for high concentrations of limestone).
- No risk of coil corrosion and scaling - coils are always kept completely dry.
- Extended life of humidifying pads thanks to water nebulization instead of being soaked with water.
- Extended legs to avoid dust intake.
- Maintenance-free fan motors.
- Easy access for cleaning of coils and adiabatic chamber.

Glycol-Free Operation

- 100% reliability in extreme weather conditions down to -40°C.
- Better heat transfer efficiency.
- Less environmental impact.
- Less pumping energy consumption.

Clean Water to Processes

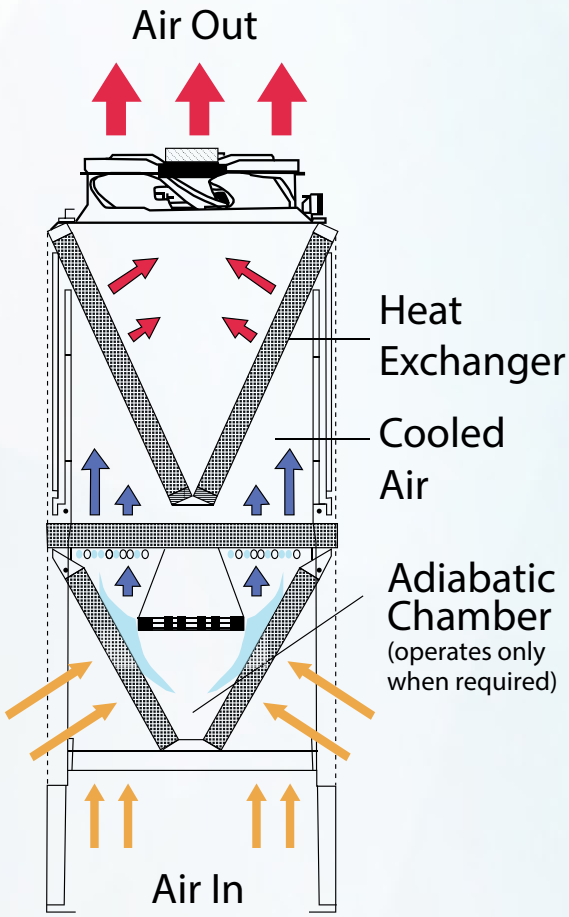
- Close loop circuit - guarantees always uncontaminated clean water to process.
- No surface fouling, constant efficiency of heat transfer with processes.
- Minimal ongoing chemical treatment required.

Compact Design

- Optimised shipping dimensions.
- Air intake from underneath.
- Favourable capacity/footprint ratio with 35% less footprint required between units.
- No air flow recirculation between units.

Total Modularity, High Reliability & 100% Rust-Free

- Easy to expand at any time to meet growing needs.
- Electrical redundancy with individually wired fans.
- Reduced installation costs - preassembled stainless-steel manifolds for interconnection.
- Stainless steel structural frame and aluminium panels.
- Copper coils and aluminium fins with hydrophilic protection.
- Rigid structure, resistant to deflection - high level of static stability.



Intelligent Management System

- Control guarantees an efficient operation and compliance with the predicted consumption values.
- The control continually monitors all the significant parameters and automatically adapts the operating mode to the current system requirements.
- Intelligent control of fan speed and wetting.
- Complete set of sensors and anti-freezing software.
- Siemens PLC hardware to manage the entire system from a single location.
- External communication via Modbus RTU over Ethernet TCP/IP network.
- Preventive maintenance and failure pinpointing.
- Remote web monitoring connection.
- Allows Frigel service technicians to monitor and troubleshoot from locations worldwide.
- Communication with building management systems.
- Easy to install, supplied ready for connection.
- Compact, adaptable, and expandable.

GET IN TOUCH TODAY

We have 30+ years experience controlling temperature for the world's most demandinng industries.

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