

Precision Air Conditioning

datAdiab

10 to 330 kW

ADIABATIC COOLING AIR/AIR
SOLUTIONS FOR DATA CENTRES



INDIRECT FREE-COOLING

- No mixture between Inside and Outside air;
- Dust and pollutants won't contaminate the server room, therefore no additional filtration is required;
- No impact on latent load;
- Energy consumption reduction.

CHILLED WATER OR DIRECT EXPANSION INTEGRATION

- Two available options, to attend building limitations or constraints;
- Chilled Water coil connected to an external chiller;
- Direct Expansion system operated with R410A, with electronic expansion valve and finned evaporator with hydrophilic treatment.

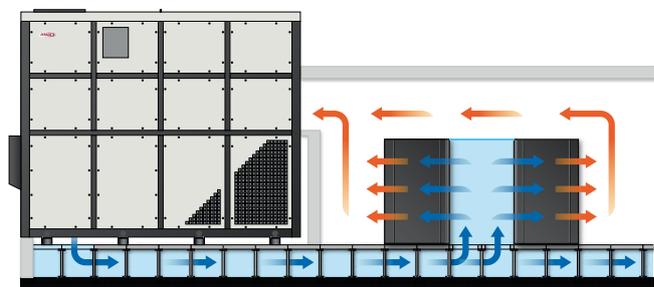
EC PLUG FANS

The EC plug fans on both air flows allows:

- High efficiency rates at partial loads;
- Low noise emissions;
- Fan speed modulation to support thermal load variations;
- Real time consumption available on the onboard display.

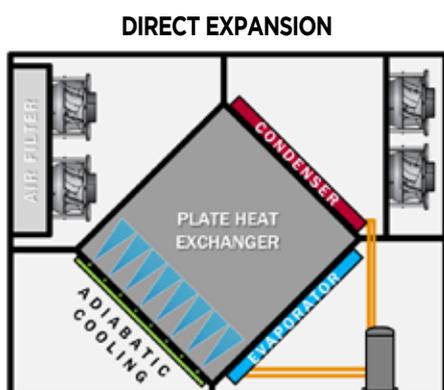
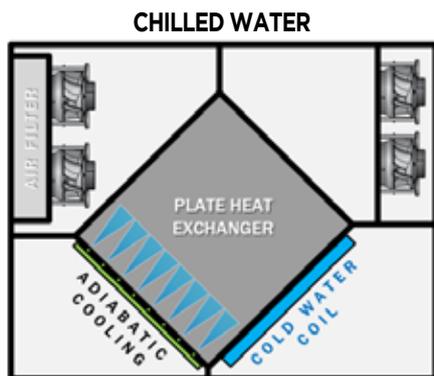
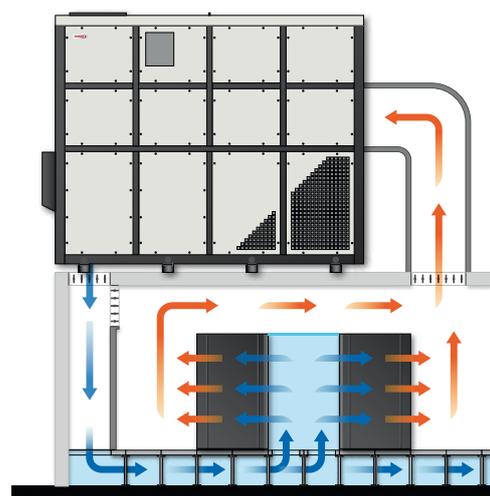
INSTALLATION

ON THE SIDE OF DATA CENTRE



OR

ON THE ROOF OF DATA CENTRE



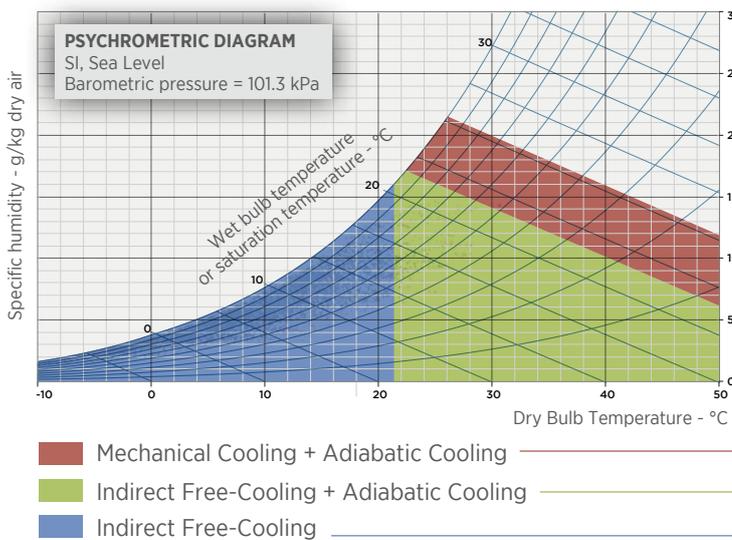
EVAPORATIVE COOLING ON THE INTAKE AIR STREAM

datAdiab units are equipped with nozzles which atomize water on the outdoor air stream. The adiabatic effect evaporates the water and cools down the air intake, before it reached the cross-flow heat exchanger. This cooled air stream flows through the heat exchanger and a temperature close to the wet bulb temperature, improving the free-cooling effect. The adiabatic system adjusts the water spray rate to optimize the saturation efficiency on the air flow.

OPERATING PRINCIPLE WATER SAVING FUNCTION AND LEGIONELLA-FREE SYSTEM

The electronic pump control modulates the water spray and allows the optimization of the air saturation and the reduction of the Water Usage Effectiveness (WUE) level and energy consumption. The hydraulic system configuration and the control algorithms ensure the adequate water replenish in the system to avoid high concentration of salts and prevents stagnant water in the drain pan, reducing the proliferation risk of legionella.

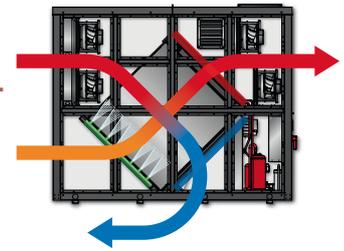
$$WUE = \frac{\text{Annual Water Usage}}{\text{IT Equipment Energy}} \quad [\text{l} / \text{kWh}]$$



(*) Wet bulb conditions for a 1 MW Data Center (N + 1 redundancy) in Amsterdam @ 36°C - 25%; outlet air T 24°C; Max outlet air T 26°C.

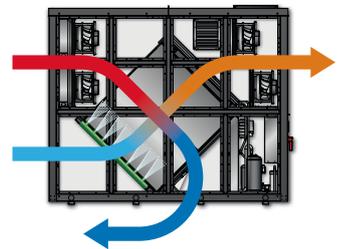
COMBINATION WITH MECHANICAL COOLING

EXT. AIR TEMP. > 23°C (*)



ADIABATIC COOLING

EXT. AIR TEMP. > 21°C



FREE-COOLING

EXT. AIR TEMP. < 21°C

