CANOVATE®

ENERJİ SİSTEMLERİ

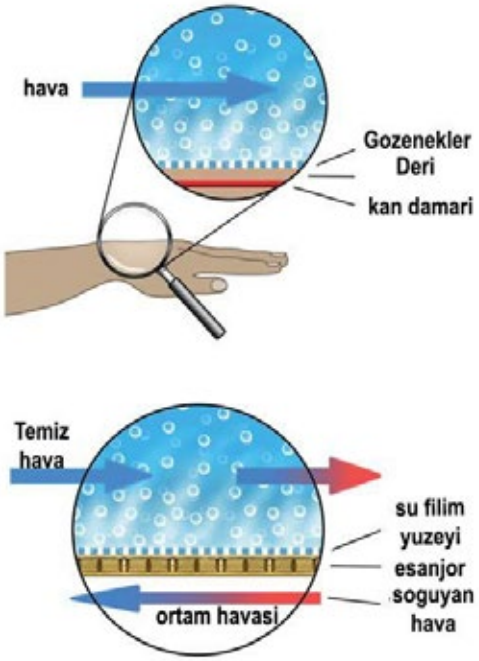
Canovate® Indirect Adiabatic Cooler Systems

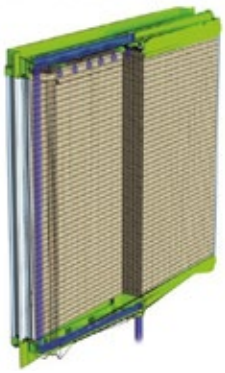
Technological endpoint from cooling Systems
Soğutma Mühendisliğinin geldiği son nokta

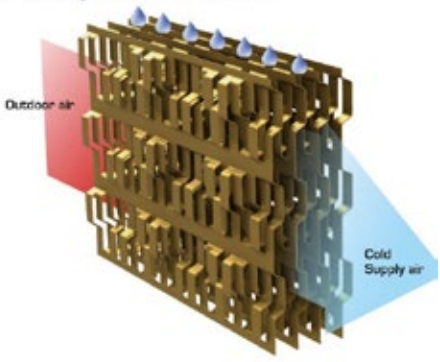
The Most efficient way to Cooling IT Rooms and OFFICE
Bilgi işlem Odalarının ve OFİS lerin En Verimli Şekilde Soğutulması

CAN-IAC® SERIES

www.canovate.com







Overview

- Netherlands-Germany and Turkey were designed with the collaboration of the company
- Intelligent technology permanently low operating costs = Efficient cooling using of renewable energies and natural resources
- Energy-saving EC fans
- Tuned very high power density with the highest energy efficiency (EER) and ESEER values
- Hybritsystem.Indirect two-stage adiabatic cooling (efficiency % 115) , compression refrigeration system (as Redudans) and free cooling optimally to the respective application
- All kinds of after-sale support,negligible CO2-footprint
- IT and where the cooling load, such as high fidelity the SHOPPING MALL and OFİCE
- 50, 100, 200 kw capacities
- Optional internal or external media device as manufacturing.
- Very compact design integrated control and regulation
- Intensive testing before delivery is delivered ready for connection
- Intelligente bypass airflow
- Compressor cooler to cover peak load or full redundancy

Genel Bakış

- Hollanda- Almanya ve Türkiye fırmalarının ortak çalışması ile dizayn edildi
- En Yüksek enerji verimliliğine (EER) sahip,
- Enerji gideri az EC-Fanlar
- Doğal ve yenilenebilir enerji kullanıarak Minimum işletme gideri sağlar,
- Yok denecek kadar az CO 2- Ayak izi
- IT ve AVM gibi soğutma yükü yüksek olan yerlerde uygunluk
- İndirekt adyabatik soğutma, doğal soğutma ve (Redudans olarak) klasik soğutma kombinasyonu
- İntensiv testlerde uygunluk sağlandıktan sonra teslimat
- İki kademeli adiabatik soğutma ile verim %115
- 50, 100, 200 kw kapasitelerde
- İç veya dış ortam cihazı olarak opsiyonlu imalat,
- Estetik ve standartlar üstü bir konstrüksiyon

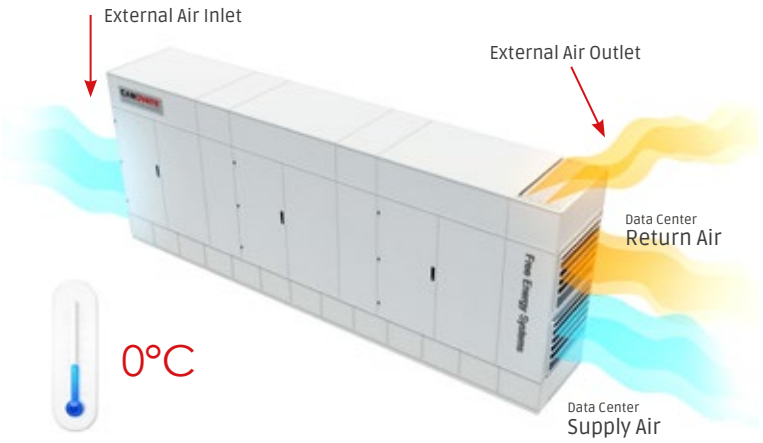
This Next Generation CAN - IAC® Unit has three operating modes, all designed to reduce operating costs year-round:

Free Cooling

Winter operation (Air economizer)

The outside temperature is less than space temprature, the outside air load free cooling.

The high efficiency heat exchanger device covers 100% of the cooling load in the data center. Maximizing the operating hours in the Economizer mode also contributes to the water saving advantages of the unit.



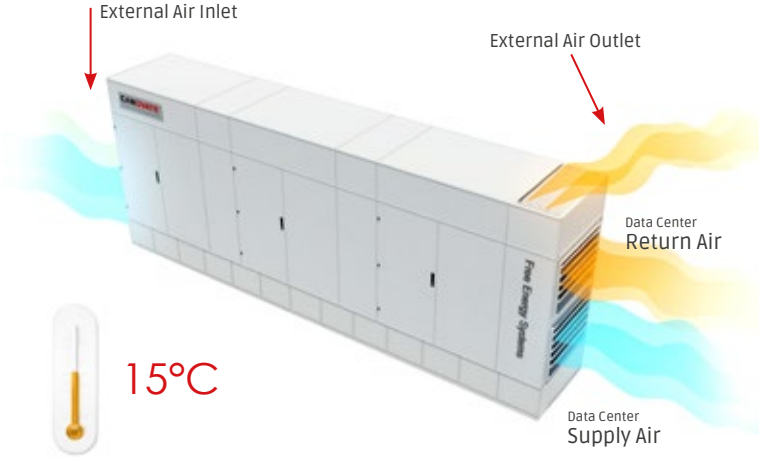
Adiabatic Cooling (Reduce Energy Cost by up to %80)

Summer operation (Evaporative Cooling)

As the ambient temperature begins to increase, the heat exchanger requires more airflow to deliver the required cooling, the ambient fans ramp up accordingly.

Moisture is added to the hot outdoor air which has the effect of lowering the dry bulb temperature. The IAC is operating, providing free cooling due to water evaporation in the IAC. This mode provides the most operating cost savings in locations where outdoor conditions allow.

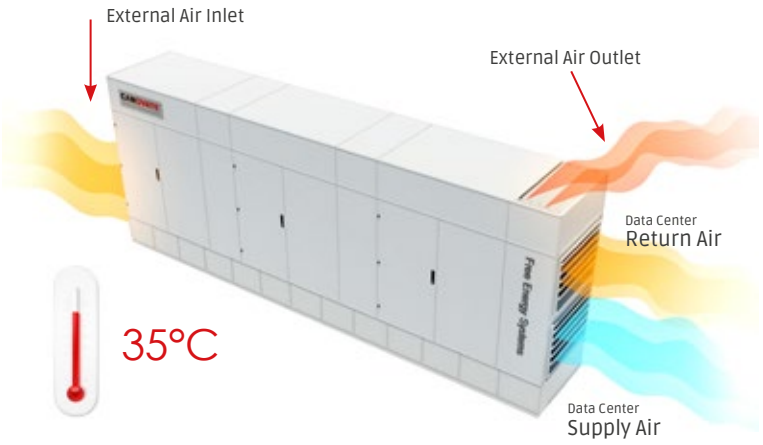
This is done by use of natural free cooling in combination with the indirect adiabatic humidification, depending on the climate zone without the use of compression refrigeration.



Adiabatic Cooling + Mechanical Cooling

Extreme conditions (Evaporative Cooling + DX)

During extreme hot and humidity hours of the year, it may be necessarily to top up the cooling capacity with a partial DX supplimentary cooling section. The unit provides trim mechanical cooling to meet the data center's supply air temperature requirement. Due to its high wet-bulb efficiency, the CANIAC® unit minimizes the mechanical cooling hours required to cool a data center in many locations and minimizes the size of the DX equipment required for extreme conditions, thereby saving even more operating costs. The ultra-efficient water system of the unit optimizes water consumption—a growing concern of data centers located in areas where water is restricted or expensive to use.



The high sensible effectiveness of the heat exchanger used in this CANIAC® unit results in less hours of water evaporation and a substantial reduction in overall water consumption. As a result of less water usage, operating cost savings come from extended wetted media life and reduced water system maintenance requirements.

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Canovate® Indirect Adiabatic Cooler Systems

CAN IAC® Series Data Center Air Handling Solutions

Canovate IAC® series Indirect Adiabatic Cooling Systems has reduced energy consumption, eliminates high ambient problems and serve as an energy efficient cooling solution for Data Centers.

- **Reduced Running Cost**
- **Reduced Maintenance**
- **Improved Reliability**
- **Increased Capacity**
- **Self Cleaning Filter**
- **Longer Compressor Life**

Controls

- **BMS compatibility**
- **Supply air temperature control**
- **Air flow and pressure monitoring**
- **Dual power supply (ATS)**

Data Center Cooling Technologies Comparison

The electrical cost for cooling 1 MW @ 0,08 € kWh/h

System	EER (Energy Efficiency Ratio)	Needed Electrical power for cooling 1 MW [kW]	Energy costs (Year) [€]
DX (CRAC)	3	333	€ 233.600
CW (CHILLER +CRAC)	5	200	€ 140.160
CW+FREE COOLING	10	100	€ 70.080
INDIRECT ADIABATIC	30	33	€ 23.360