fisair
air humidity control

Adiabatic cooling with wet media systems in data centers

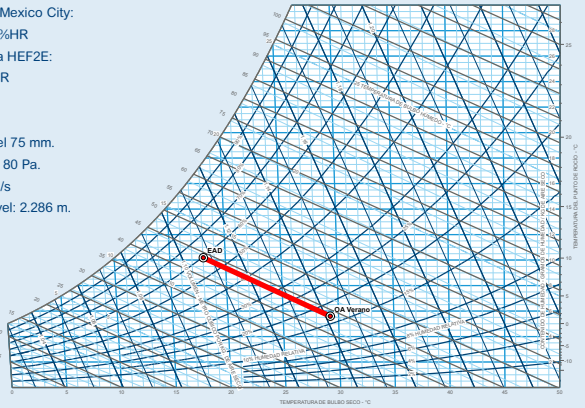
Almost all internal loads in data processing centers (DC's) are sensible loads. It is a high thermal load produced by the large amount of internal heat given off by machines operating 24/7. The increase in the number of these facilities has come as a surprise to all current industrial sectors and economies, while at the same time leading to the development of alternatives to traditional cooling systems, to reduce the large amount of energy used for cooling by these centers worldwide .

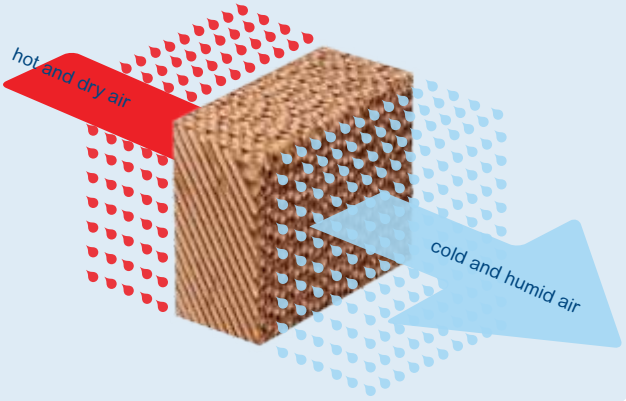
According to current ASHRAE DC design recommendations, suitable values are 18-27°C dry bulb temperature and 5.5°C dew point to 60% RH and 15°C dew point. Under these conditions, free air cooling may be sufficient in many cold places. In addition, in places with hot and dry summers, direct adiabatic cooling systems are a great help in reducing energy use through low water consumption.

The following graph shows free cooling by outside air via a direct adiabatic cooler of average performance 85% in a city like Mexico City during the summer.

Exterior air summer, Mexico City:
28,2° dry bulb - 12,8%HR
Adiabatic cooling via HEF2E:
18° dry bulb – 60%HR

Design conditions:
Fisair inorganic panel 75 mm.
Pressure drop in air: 80 Pa.
Ahu air speed: 2,5 m/s
Height above sea level: 2.286 m.





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There are several adiabatic cooling solutions on the market. FISAIR is committed to being the most appropriate option by using evaporative systems with an HEF contact panel.

HEF2E maximum efficiency hygienic systems for air handling units (AHU)

- For large DC's, where water consumption, low pressure drop and hygienic facilities are essential, the VDI6022 certified HEF2E has been shown to be the best option for many latest technology air handling unit manufacturers.

Adiabatic cooling systems for inline installation for small DC's with additional external air cooling capacity needs: HEF3CAD series

- The simple high-efficiency incombustible hygienic panel systems work with direct water without recirculation. They are therefore very simple to control, quick and economical to install and suitable for limited floor heights.

Adiabatic cooling systems to increase air-liquid condensation performance: HEF7series

- In large facilities, where summer peaks can lead to damage and excessive energy consumption. The simple installation of the coolers next to the condensing unit coils have been shown to greatly reduce energy consumption and problems. They are designed with a special very low pressure drop panel.

Fisair has worked with the most demanding manufacturers of solutions and end customers in this field. For example, it is currently working for the Telefónica DC at Alcalá de Henares, near Madrid in Spain, where it provided an HEF2E for the air conditioning systems. Its use reduces water consumption in the cooling plants over long periods of time.