IT Cooling Solutions

CyberSonic

Humidifying system for data centres

STULZ

Controlled humidity for data centres – more than 90 % energy saving

For servers in data centres to work safely and reliably, the room air must meet precisely defined requirements. Besides temperature, humidity is a key factor. Too much humidity can lead to condensation and corrosion; too little can result in static, loss of data and damage to hardware.

In contrast to comfort air-conditioning units, which use as much as 50 % of their energy to dehumidify air, the precision air-conditioning units usually used in data centres operate in circulating air mode with a dehumidification rate of about 5 %. To keep the specified room air conditions constant, the air which is becoming ever drier due to continuous dehumidification must be humidified in just the same continuous manner. There is much greater need for humidification when fresh air is fed into the room air. In winter especially, there is very little water in the ambient air. If that dry fresh air is mixed with the air in the data centre, the relative humidity in the data centre will automatically fall. Additional humidification must be provided to counter this effect.

Method of operation of the ultrasonic humidifiers

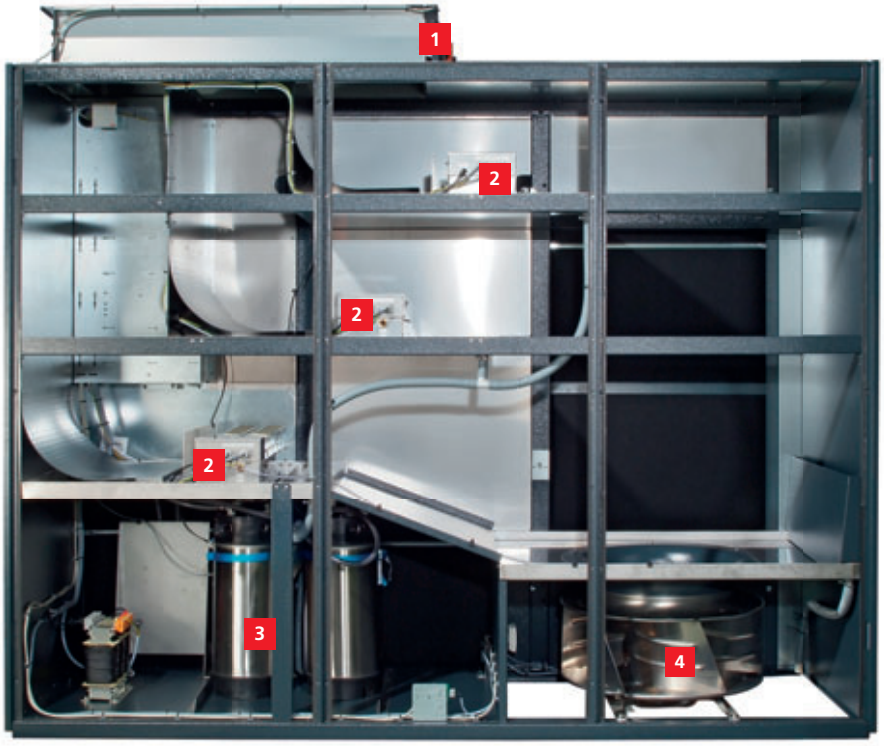
In ultrasonic humidification, the electrically generated ultrasound frequency is converted into mechanical energy by a vibration transducer. This energy sets the water in motion. Microscopic water droplets detach and form a water vapour which is distributed around the data centre by way of the raised floor

- More than 90 % energy saving, with the same performance, compared to conventional electrode/resistance steam humidifiers
- Outstanding control characteristics – the full humidifier capacity is available without delay on power-up
- Distribution by infinitely adjustable EC fan
- Adiabatic cooling: The water droplets are nebulised so finely in the ultrasonic humidifier that they automatically pass from the liquid to the gas phase (they evaporate). The heat necessary for evaporation is drawn out of the room air, so aiding cooling.

Lowering energy costs

The STULZ CyberSonic humidifier cabinet evaporates up to 42 kg of water an hour with minimal energy consumption, producing a cooling effect of up to 29 kW. In a data centre with a heat load of 500 kW in which DX A/C units are used, the use of ultrasonic humidification enables compressor running times to be reduced by 5 %. Together with the savings made compared with conventional steam humidifiers, the overall running costs of the air conditioning can be slashed by around 20 %.

Humidification at a glance



1 Adjustable opening

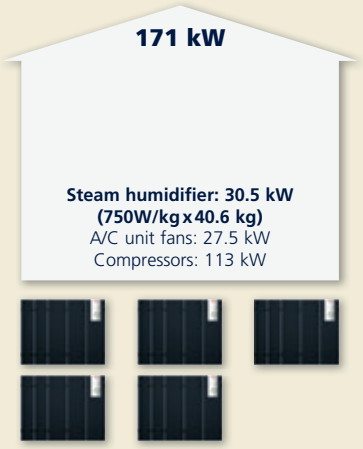
2 3 ultrasonic humidifiers

3 Reverse osmosis and interchangeable cartridges for Ion Exchanger

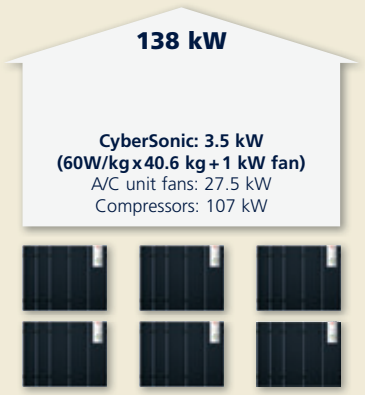
4 EC fan

The STULZ humidifier cabinet is an autonomous-running all-in-one solution. It can be installed as a unit in a data centre and put into immediate use. The cabinet is clad internally with non-rusting panels, making it virtually hermetically sealed. The water mist is drawn in by an EC fan and introduced through an opening in the raised floor of the data centre. The built-in C7000 microprocessor is connected to the precision air-conditioning units, and controls the humidifying system precisely according to demand.

Without CyberSonic



With CyberSonic



Through the use of CyberSonic, under the mentioned conditions the energy costs of the air conditioning can be lowered by 37,011 € (194,735 € – 157,724 €). This constitutes a reduction in energy costs of 19 %, against an additional space requirement of 20 %.

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IT Cooling Solutions

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... With specialist, competent partners in our subsidiaries and exclusive sales and service partners around the world. Our five production sites are in Europe, North America and Asia.

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