



EVAPORATIVE COOLING AND ESD PROTECTION

Air humidification for data centres

High temperatures and excessively dry air put the service life of servers and storage systems at risk. To cool and protect against static electricity, high-pressure air humidifiers can significantly increase energy efficiency in the data centre. The use of high-pressure air humidifiers offers new energy-efficient options for air conditioning: with pressure of up to 85 bar, high-performance nozzles spray cold water in micro-fine aerosols which are immediately and completely absorbed into the ambient air. The evaporative cooling created in this way reduces the room temperature, while also ensuring optimal humidity.



High-pressure nozzle air humidification cools and protects against static electricity

Air humidification **practice**

 **condair**
systems

EVAPORATIVE COOLING AND ESD PROTECTION

AIR HUMIDIFICATION FOR DATA CENTRES

Humidification in the server room

High-pressure air humidifiers can be used in different ways in data centres, depending on the structural conditions. For instance, small DRAABE NanoFog Evolution-type direct room air humidifiers are well-suited for use directly in the server room. The water used for humidification is demineralised and sterilised using a reverse osmosis system. Digital hygrometers control the desired humidity and protect against excessive moisture.

Free cooling with external air

Outside the server rooms, combination with direct free cooling (external air) is the most efficient way of cooling. In order to achieve a maximum cooling effect, the external air is led into "air collection rooms", where it is then humidified and cooled using high-pressure nozzles. From here, the cold air flows directly into the cold aisles of the server racks. The ML Flex system is

especially suited to this solution thanks to its flexible design and, for instance, is used in the Facebook computer centre in Sweden.

Advantages of optimal humidity:

- protects against electrostatics
- boosts the service life of IT equipment
- increases server reliability
- additional dust binding
- healthy indoor climate

Advantages of high-pressure air humidification:

- additional evaporative cooling (0.68 kW / l)
- very low electricity consumption
- reduces PUE value
- flexible application options
- easy retrofitting

Facebook, Luleå (Sweden)

In a facility measuring 28,000 m² in the Northern Swedish city of Luleå, Facebook operates its first European data centre, which is set to have a total of three server halls. It is one of the most energy efficient and environmentally friendly data centres in the world. To cool the server halls and ensure optimal humidity, Facebook uses the high-pressure nozzle system ML Flex. Cooling is achieved by combining direct free cooling via a controlled external air inlet with the evaporative cooling of the ML Flex air humidification system.

Facts and figures

Humidification quantity*:	13.000 l/h
Electricity consumption:	63 kW/h
Evaporative cooling:	8.840 kW
Power Usage Effectiveness (PUE):	1,05 PUE

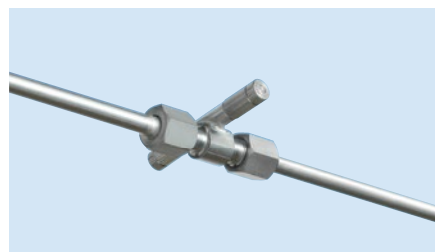
* First construction section (server hall 1)



DRAABE NanoFog Evolution suits every server room



The micro-fine aerosol mist is immediately absorbed into the ambient air



The system ML Flex

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