



## ENERGY-EFFICIENT COOLING AND HUMIDIFICATION FOR DATA CENTRES

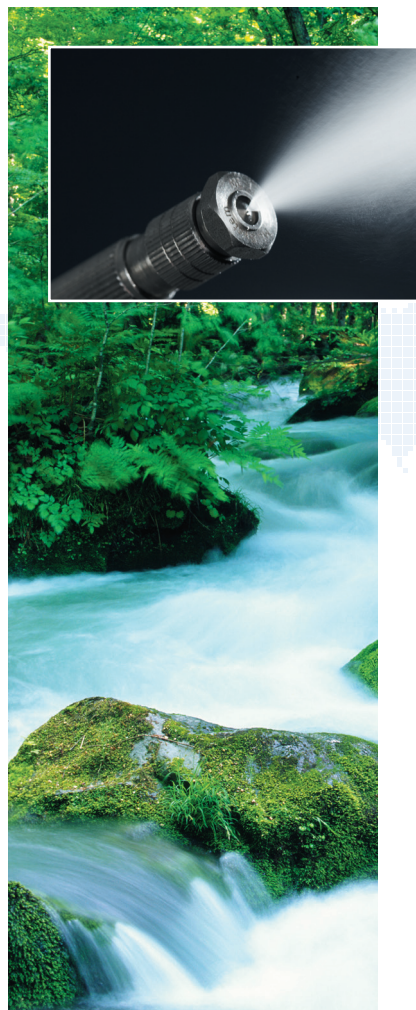
Condair ensures cooling and air humidity at Facebook's data centre in Luleaa, Sweden. The centre is one of the world's most high-tech and energy-efficient of its kind.

### Facebook data centre

Condair supplied an ML System® for humidification and evaporative cooling system in-plenum for Facebook's data centre for a building of 28,000 m<sup>2</sup>. The system is capable of distributing 13,000 litres of water per hour with a cooling effect of 8,8 MWh. Evaporative cooling and high pressure humidification can be used with a minimal electricity consumption of just 63 kWh. Energy consumption for evaporative cooling may be as little as 0.005 kWh per kW of cooling. By combining the use of this cooling technique with other energy saving measures, such as intelligent lighting, PUEs of 1.05 have been achieved. This transfers into savings of almost 50% in comparison to traditional cooling methods.

### Benefits

- Save energy and reduce costs
- Reliable and environmentally efficient cooling
- Reduce ESD potential



Condair A/S ensures the ideal indoor climate for a wide range of companies and institutions. A select few are shown below:

Facebook  
Danfoss  
Grundfos  
Novo Nordisk  
Siemens  
Ericsson  
Swedwood  
Arla  
The National Museum  
Copenhagen Airport  
Arken

### Facts about Condair:

Condair was established in 1948 and is the world leading company in commercial and industrial humidification, with a market share of over 20%. Condair is represented with distribution in more than 70 countries and production in Switzerland, Denmark, Great Britain, Germany, Canada and China.

Condair is owned by the Walter Meier Group, which includes a number of globally leading companies in humidification, climate and production technology.

For more information  
[www.condair.com](http://www.condair.com)  
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## Condair's highly efficient solutions for reliable cooling and humidity management help save energy for a range of data centre applications.

### Efficient cooling with purified water

Data centres are now using evaporative cooling as a reliable, energy-efficient and cost saving method. The temperature drops when liquid water evaporates into a water vapour cooling the air prior to usage. Evaporative cooling uses less energy and reduces cooling costs. Minimal water consumption makes this method an environmentally conscious solution.

High pressure humidification uses a high pressure pump system and specially engineered nozzle array systems. The cooling process can be accomplished via in-duct humidification or in plenum by air intake. Evaporation of the water particles into the air requires energy (0.68 kWh per litre of atomized water) which is taken from the air, therefore using less energy than traditional methods. Relative humidity and temperature sensors are located throughout the zones so the relative humidity (RH) is maintained at the desired level at all times.

In addition, evaporative cooling is used in conjunction with so-called free air cooling. A fan draws outside cold air into the data centre. Depending on the climate and season, smaller or larger quantities

of fresh air are mixed with evaporative cooling to reach the maximum cooling effect. Achievable temperature reduction depends on the data centre location and the design parameters.

### ESD reduction

An added benefit of evaporative cooling and humidification is ESD (electrostatic discharge) reduction. Low levels of humidity increase the risk of static discharge, which can have a negative impact on electronic devices causing components to fail resulting in data loss. Consistent humidity control is maintained with the relative humidity and temperature sensors through evaporative cooling and humidification. This adds ESD protection to the equipment.



**From ML System to Condair:**  
Since 2011, ML System has been a part of Condair – the world leader in commercial and industrial humidification and evaporative cooling products and systems. This means that we have access to Condair's world-leading expertise and product range and that Condair's product range includes our renowned ML System products.

### ML System product line

Even though the name Condair A/S now appears on the front of the building, the brand name ML System will still be used on the renowned high-quality products that are developed and manufactured in Ry. The aim is to continue developing and supplying the highest quality for energy-efficient humidification and evaporative cooling. This will ensure that Condair A/S continues to provide the best conditions for production and storage, e.g. in cold stores, printing industry, data centres, electronic manufacturers and fresh fruit and vegetable departments in the retail sector.