



# Data Centre Humidification & Cooling

95%  
reduction in  
humidifier energy bills

By maintaining the correct level of humidity in a data centre environment static electrical discharge is reduced. The air itself becomes more electrically conductive and sparks that can damage IT equipment are prevented.

In addition to this, by employing cold water humidifiers, “free” evaporative cooling can help to reduce mechanical cooling requirements and the HVAC system’s overall energy consumption.

Correct humidity control will:

- Reduce server downtime
- Reduce cooling requirements
- Reduce energy consumption
- Reduce carbon footprint
- Prolong the operational lifetime of servers
- Reduce PUE

Our clients include:

Fujitsu ● Intel ● Microsoft ● Capital One ● HSBC ● Lloyds TSB  
Level 3 ● Ericsson ● Vodafone ● Citadel 100 ● Global Switch  
Natwest Bank ● Halifax Building Society ● UBS ● Global Voice

## Why Humidify Data Centres?

If the humidity drops below 40% relative humidity (%rH) in a data centre, static electrical charges can build-up causing damage to servers and IT equipment. This can cause downtime and expensive bills for replacing equipment.

A purpose built data centre will have a ducted air conditioning system that introduces fresh air, extracts return air and controls temperature and humidity. Specific humidity guidelines for computing equipment are supplied by most equipment manufacturers but the most widely accepted general guidelines are set by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).



### Steam humidifiers

In central air conditioning systems, steam humidifiers are often used in the AHU (air handling unit) after the cooling coil to reintroduce the moisture lost through condensation during cooling. This type of humidification offers close control and rapid response to a humidity requirement. However, due to the significant capacities required in large data centres and continual 24x7 operation, energy consumption can be high. In hard water areas there can also be a high cost associated with humidifier maintenance and spare parts.

### Low energy

A low energy alternative is to use cold water evaporative or spray humidifiers. In order to evaporate the moisture into the airstream the air needs to be above a certain temperature. This often requires the need for pre-heating, which negates some of the energy savings of cold water humidifiers. However, by using a heat recovery system on heat generated in the data hall, this required pre-heating can be achieved. This results in a humidification system with 150 times less energy consumption of



steam humidifiers and massive energy savings for the overall HVAC system.

### Evaporative cooling

As well as economic humidification, cold water humidifiers can also provide up to 12°C of evaporative cooling to the air being humidified. This adiabatic cooling can be applied directly to the incoming fresh air or alternatively to the outgoing extract air. Outgoing air can have its humidity increased up to 100%rH with the resulting drop in temperature. This chilled thermal energy is then transferred to the incoming supply air with a heat recovery system. Combining these two techniques can reduce the reliance on mechanical cooling by up to 95%.

## Why JS Humidifiers?

JS Humidifiers offers a comprehensive service of humidifier system design, installation and maintenance. Our range includes spray, steam and evaporative humidifiers and with over 30 years of experience in data centre humidification, we are ideally placed to advise on which type will be most suitable for your application.

Our nationwide in-house service team offers rapid response to maintenance requirements and carries extensive spares in stock at all times. This positions JS Humidifiers as the chosen humidification supplier for many blue-chip data centre clients throughout the UK.



[www.jshumidifiers.com](http://www.jshumidifiers.com)

*JS has a policy of continually improving products and performance. Actual specifications might vary from those shown.*

### JS Humidifiers plc

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