

# Optimise your cooling systems



## Tackle your energy expenditure issues with a 24/7, remotely monitored solution from Birdsall

Energy expenditure and efficiency is a big issue today and unlikely to recede anytime soon. For data centres, by their very nature big consumers of power, the issue is even greater. Of course, there's no shortage of product improvements with more efficient models readily available.

Some are an easy win, especially if the capital cost is low but some require a significant investment to be able to enjoy the benefit of greater efficiency of the latest product.

In the case of data centres, cooling is one of its largest consumers of power, and while each year more efficient technology becomes available, it rarely makes commercial sense to replace existing cooling systems until their effective working life is run, for the payback just seems too long.

Birdsall's compelling solution is to optimise your cooling technology, constantly, 24/7, 365 days

a year. The company goes beyond the norm of monitoring flow and return temperatures as highlighted by a BMS. Instead they suggest fully interrogating the cooling system constantly for any drop in performance or efficiency using a Swedish technology called ClimaCheck.

### Here's how it works

A ClimaCheck is connected and fixed to the cooling unit with a modem installed to send data to the cloud-based software. The ClimaCheck technology is based on the fundamental energy laws and thermo-physical data of refrigerant cycle cooling systems. Multiple temperature sensors, pressure transducers, current transformers and voltage tapings are used to diagnose the performance in the refrigeration process. These measured results identify opportunities to optimise cooling performance and system efficiency.

The data recorded second by second, includes

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power consumption, cooling performance, thermal load of the system, as well as chilled water temperatures and flow rates along with refrigerant conditions such as sub-cooling at the expansion valve inlet and superheat at the compressor inlet. ClimaCheck is unique in providing this data based on the power consumption of the compressor as well as the refrigerant thermodynamic cycle as measured on site, without the need for refrigerant or water flow meters.

### What is optimised?

With the data provided, Birdsall engineers can optimise the refrigerant charge, the expansion valve superheat, the control parameters of electronic expansion valves, adjust head pressure-low ambient control settings, control dead bands and much more.

Typically when optimising the cooling plant in this manner, efficiency can be improved by between 10-40%. For a data centre operating 24/7, that's a lot of energy and cost. Equally important is the increase in reliability. By seeing any slight alteration in performance alerts Birdsall to a change that can be investigated before it becomes a fault, thus avoiding downtime and repair costs.

### Remote monitoring

Birdsall operates a 24/7 Energy Bureau. They set thresholds on the ClimaCheck so that when a set limit is reached Birdsall would receive a message, enabling them to log-on remotely to investigate and if required despatch an engineer.

### The financial benefits

The financial savings to be achieved in power consumption alone make this an attractive proposition; saving between 10-40% of energy each year is a significant cost saving. Birdsall provides both ownership and rental options to enable all budgets to use this technology with an Energy Bureau providing 24/7 service. The company can also provide comprehensive and semi-comprehensive maintenance package options that results in the data centre reducing its overall cooling costs by cutting energy, maintenance and running costs. Visit Birdsall at DataCentre World 2016 on stand D42 at ExCel in April for a demonstration. ▀

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## Stay Ahead of the competition



## Optimise your cooling and improve your bottom line

Visit Birdsall on stand D42 at DataCentre World 2016



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