

Custodian Data Centre

Case study



The challenge

Custodian Data Centre, winner of the Data Centre Leaders Awards 'Green' category, designed its data centre with the highest environmental efficiencies in mind.

Partnership approach

Working in direct partnership, Airedale designed and built an intelligent, energy efficient data centre cooling solution that significantly reduces the need for mechanical cooling and provides fresh air free cooling up to 80% of the year.

Airedale was selected for its ability to design and integrate control logic across multiple protocols, hardware and systems and for its pioneering free cooling technology and high specification chillers. With a system using direct fresh air in a data centre cooling environment, Airedale software is also critical in ensuring temperature set point and humidity are maintained.

Airedale's solution effectively controls the Air Handling Units (AHUs), Airedale free cooling chillers and legacy Building Management System (BMS).

Airedale solution

- 2 x 30 to 450kW Ultima™ Compact super quiet chillers
- 1 x 75 to 450kW Ultima™ Compact FreeCool chiller
- Design and integration of industry standard SNMP protocol controls and ACIS™ software to systems and proprietary BMS
- Airedale commissioning, critical service and preventative maintenance solution



In more detail

Custodian Data Centre

Bespoke solution

The AHU dampers are controlled by Airedale's bespoke control logic to maximise the effect of free cooling even when the outside temperature is above the supply air set point.

When required, two external Airedale mechanical cooling chillers provide cold water to coils in the AHUs. Chillers are programmed to operate with a dynamic chilled water temperature set point, ensuring water is provided at the optimum temperature required by the system and allowing free cooling whenever the ambient is below the return water temperature.

Airedale's ACIS™ control system manages temperature and humidity in the data centre, with each control panel integrating with Custodian's BMS to provide 24/7 monitoring.

PUE figures below 1.15 are regularly achieved, meaning that for every 1kW of power used by equipment hosted in the data centre, 0.15kW of power is required to operate all related areas of infrastructure.

Scalable by design

The collaborative approach resulted in a scalable solution, with infrastructure and pipework installed at the start allowing further air handling and chiller units to be added with minimum disruption and without incurring unnecessary additional cost as data centre demand grows.

Performance from day one

Airedale's dedicated commissioning and critical service solution ensures the system performed from day one and provides round-the-clock support and quarterly preventative maintenance to ensure optimum system performance.



Authorised User No. 00007



Benefits

- Fresh air free cooling 80% of the year minimises carbon footprint
- Achievable PUE of < 1.15 (ratio of total facility power usage divided by IT equipment power usage)
- Constant temperature, humidity and leak detection monitoring, generating real-time SMS/email/pager updates
- Full N+1 redundancy
- Scalable bespoke solution

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“Airedale provided us with a fast, reliable and most importantly bespoke solution. From initial business to present day they have provided us with continuous support”

Robert Williams, Technical Director

ULTIMA™ COMPACT FREECOOL

