Airedale
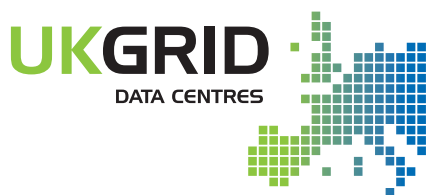APPLIED THERMAL INNOVATION

Case Study

UKGRID
DATA CENTRES

> **UK Grid**

Leading colocation provider UK Grid has an extensive UK-wide, IP based network and supplies a range of connectivity solutions for its worldwide customers. Airedale is working closely with UK Grid to provide a customised, scalable and fully redundant cooling solution across a premium data centre space at UK Grid's own new 'carrier-neutral' data centre in Manchester.

www.airedale.com

UK Grid cooling requirements

UK Grid provides a reliable and cost effective range of connectivity, network and bandwidth services both in Manchester, London and Europe, teaming up with some of the biggest tier 1 network providers to offer the best solution to its customers.

Synergy House is UK Grid's owned and operated 'carrier-neutral' data centre in Manchester. It offers two floors of tier II data centre space with fully redundant power, cooling and connectivity.

Maintaining the correct environment for the 24/7 operation of the data centre is crucial. IT equipment converts almost all the power supplied to it into heat, yet requires a stable environment for reliable performance. Precise, efficient control of temperature and humidity within the data centre space is therefore essential.

Tailored solution

Airedale has worked with UK Grid to develop a split system precision air conditioning solution, tailored to UK Grid's requirements and featuring a specially-designed controls scheme that significantly reduces energy usage.

Specification:

> 8 EasiCool 45kW DX downflow units
> 8 C50 3-fan condensers
> Intelligent controls technology and strategy including PCOWeb Ethernet solution
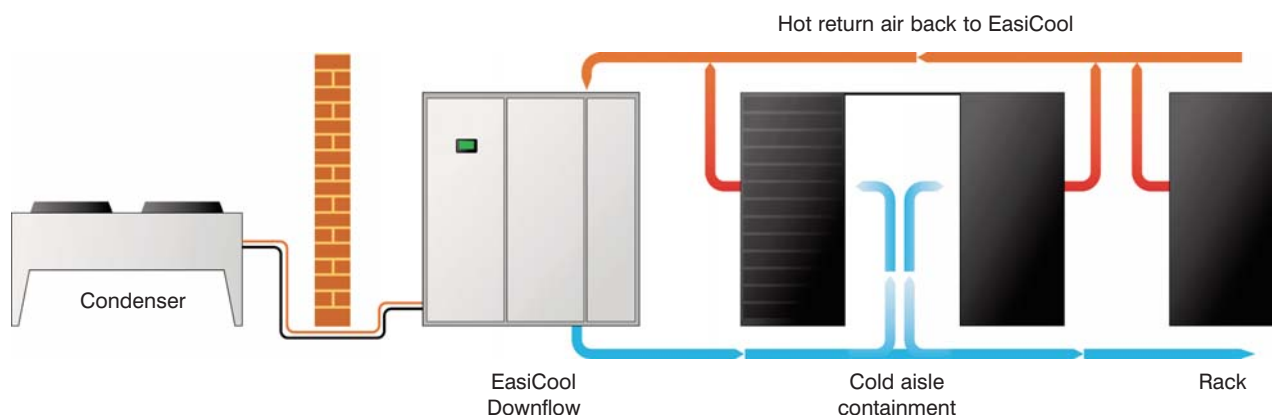
EasiCool Downflow

"It has been a team effort between UK Grid and Airedale. Our approach has been to seek an environmentally-friendly solution. Success has been down to the cooling solution and the tweaking by Airedale to push energy usage down. The benefit of working with Airedale is that they are flexible; they take comments away and find a solution enabling us to react to the market." Rob Garbutt, managing director, UK Grid

Precision air conditioning

The EasiCool units provide redundant under-floor cooling at a constant cold aisle temperature of 22°C and 50% humidity. Hot and cold aisles provide maximum efficiency, deliverin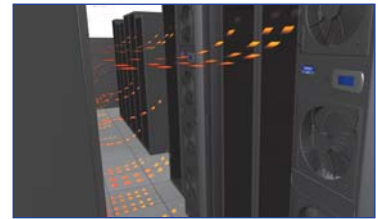g conditioned air through the floor-mounted grilles, to the front of the racks within the contained cold aisles. Hot air is discharged from the back of the servers, to be returned via the hot aisles, to the EasiCool where it is cooled back down to 22°C.

Hot return air back to EasiCool

Condenser

EasiCool
Downflow

Cold aisle
containment

Rack

Resilience

Intelligent controls facilitate an N+1 precision air conditioning system enabling the EasiCool units to operate on run and stand-by, providing critical redundancy.

"Without doubt we have been working with the best supplier. Airedale has a market history of delivering reliable under floor cooling solutions for data centres and thus was a natural choice for Synergy House." UK Grid

Saving energy costs

Inverters installed on the EasiCool's evaporator fans by Airedale allow the fans to speed up or modulate back in response to changes in temperature. Previously the fans were operating at 100% irrespective of cooling load and wasting power.

An electronic expansion valve fitted to the EasiCool reduces the need for artificially high head pressure and typically provides an increase in the system energy efficiency ratio of up to 30%.

"Initially we just had straightforward units with fixed air volume fans giving us a PUE of 1.7. By working with Airedale and introducing the cold aisle and the fan inverter drives, we have reduced the PUE to 1.4. The next stage is to introduce Airedale free-cooling equipment which should see this PUE reduce to 1.2." UK Grid
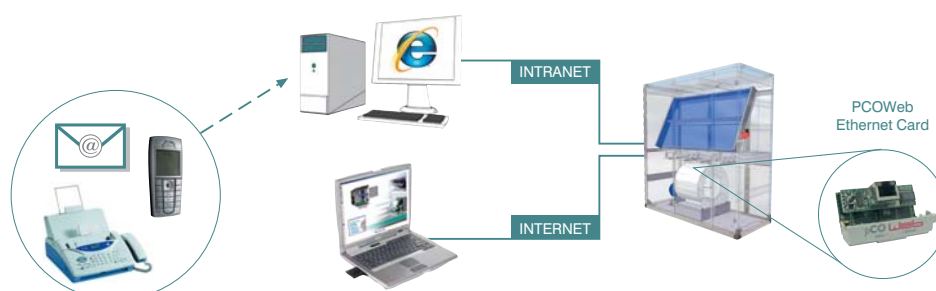
Scalable solution

The compact footprint and modular design of the EasiCool allows optimum positioning. Additional units have been designed in and added on as cooling load has increased and UK Grid has grown the facility.

Remote BMS integration

AireTronix controllers within the EasiCool units are integrated into the UK Grid SNMP server via pCOWeb supervisory plug-in cards for remote monitoring. Based on Ethernet TCP/IP secure technology and SNMP features, pCOWeb requires no proprietary cabling or monitoring software, little or no set-up on site and is pre-programmed with an IP address.

"By simply plugging in Airedale's pCOWeb cards into the UK Grid SNMP server, it gives us remote monitoring of parameters specific to the EasiCool units including room temperatures, humidity, status alarms and setpoints, which can be displayed and modified on or off site." UK Grid

INTRANET

INTERNET

PCOWeb
Ethernet Card

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