AIREDALE
air conditioning for every environment

IT Cooling Solutions

- Reducing cost of ownership
- Efficient cooling
- Integrated, scalable
- Complete confidence
- Smart, controllable
- Total support

Efficiencythroughdesign

www.airedale.com

Reducing cost of ownership

Keeping a data centre operating 24/7 is difficult when you are faced with constant pressure to do more with less, but without risking uptime. Airedale has been delivering high efficiency, intelligent cooling solutions to the IT sector for over 35 years. Our expertise will help you make the necessary changes to your data centre that will significantly reduce your cooling energy costs and enable more power to be delivered to the IT infrastructure.

One kilowatt of power saved every hour 24/7, represents a saving of £876* a year, equivalent to over 4 tonnes of CO_2.

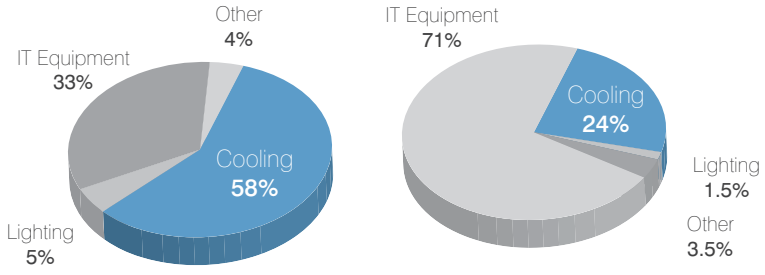
* £0.10/kWh

Every kW of power consumed by the servers produces up to 1kW of heat

Your IT needs

Data centres are relentlessly hungry for power, fuelling constant demands for computing capacity 24/7. IT equipment converts almost all the power supplied to it into heat; yet to work reliably it needs stable temperatures and humidity so this heat needs cooling, using yet more power.

Examples of data centre PUE



Non-optimised legacy design: PUE = 3

Airedale free-cooling application: PUE = 1.4*

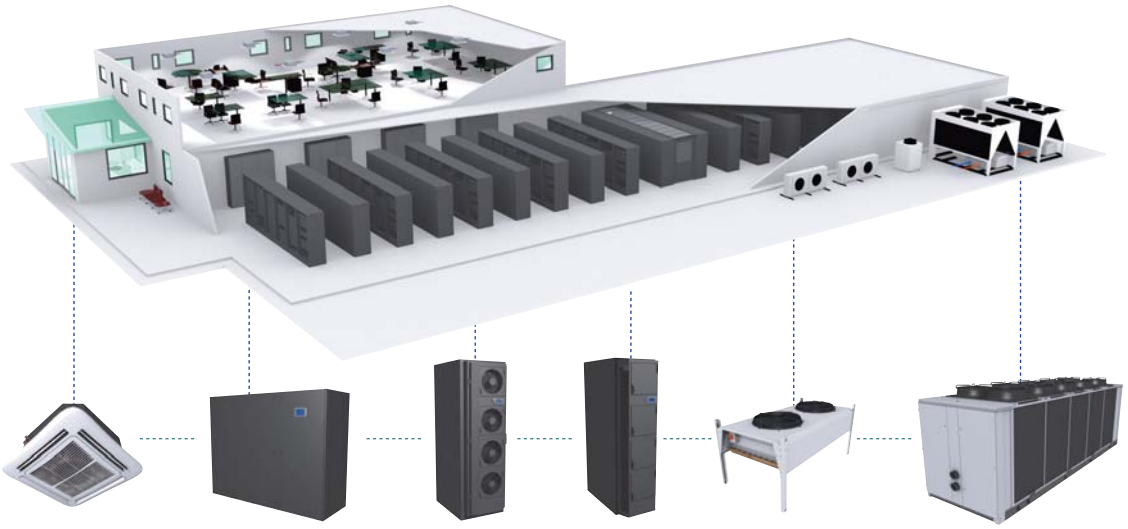
* live site – details on request

Lower your PUE

Cooling can account for about half of the total power consumed by a typical legacy data centre so by cooling more efficiently, you can substantially drive down your PUE. Our holistic cooling approach has a direct and positive impact on PUE figures and puts you in control of reducing energy costs.

"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 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**

Efficient cooling



Comfort
Maintains comfortable working and leisure environments

Precision Air Conditioning
Precisely controls temperature and humidity in the computer room

IT cooling
Cools closer to the server heat source and removes hot spots

Condensers
Provides cooling to indoor DX units

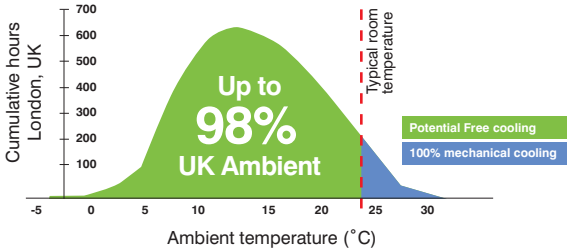
Chillers
Supplies chilled water to indoor units

AIREDALE EFFICIENT COOLING SOLUTIONS

Typically a 50% drop in air volume will result in an 83% reduction in fan power input.

* Compared with standard air cooled DX system

Airedale free-cooling
for more free-cooling, more of the year



Intuitive cooling

Thermal loads in data centres are continually fluctuating and many servers are under-utilised, so it makes sense to invest in Airedale's versatile, intelligent, control-driven cooling systems that can react to changes in temperature and heat density by sensitively varying the amount of cooling.

Rather than wasting power by working flat out all the time, our IT cooling systems work at part load, using highly efficient EC fans and variable speed compressors thus saving considerable amounts of unnecessary power usage. Variable performance EC fans respond seamlessly to changes in load, providing exactly the right amount of air flow with minimum power consumption.

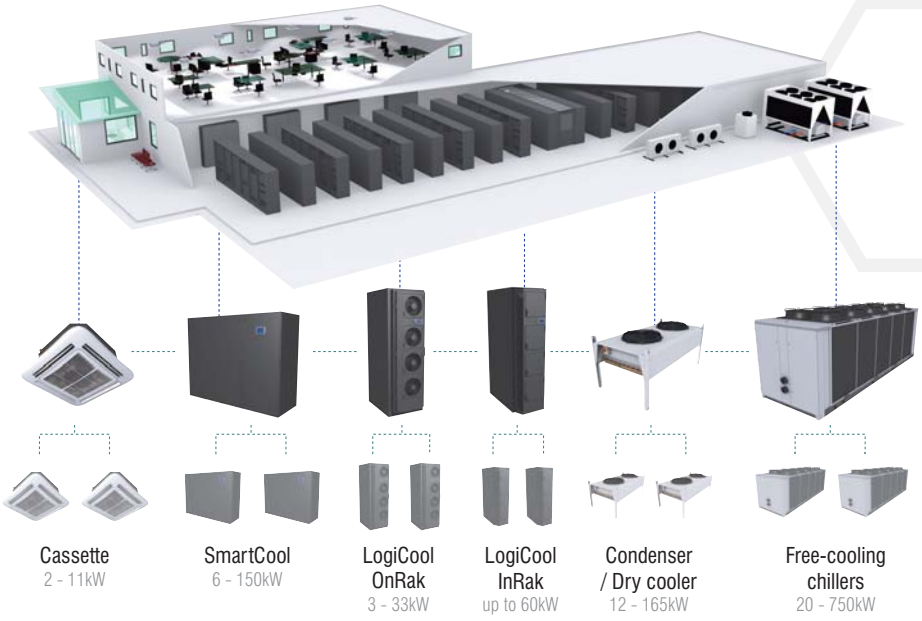
Free-cooling, continually saving energy

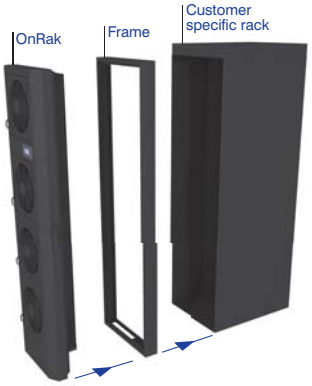
Using colder ambient air to cool the data centre space, saves vast amounts of energy. For free-cooling to operate, the temperature difference between the ambient air and hot return air from the server room can be as little as 1°C. In a 24/7 data centre with a typical room temperature of 24°C, up to 98% of the year can be spent with free-cooling active (cumulative hours, London, UK).

The system controls constantly monitor the temperature differences and will only switch on the mechanically-driven compressor when extra cooling is needed, introducing a mixture of free-cooling and/or mechanical cooling.

Integrated, scalable

Besides being market leaders in precision air conditioning, we are also the number one UK manufacturer of chillers and an established controls systems provider, so we are ideally placed to design bespoke, scalable, integrated solutions for data centres of any size, specifically to your needs. Our cooling products are designed to integrate with one another, share intelligence and reduce energy through combined efficiencies.





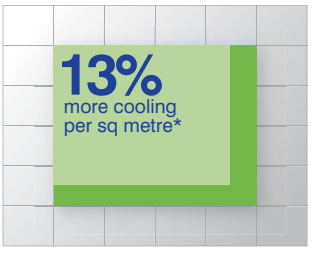
Flexible, adaptable

We have the expertise to mix and match free-cooling chillers with precision air conditioning systems and IT cooling products. Additional products can be simply designed in and added on as heat load increases, providing the perfect scalable solution. The modular design allows close, side-by-side positioning to optimise available floor space whether in the congested confines of the data centre or plant room.

Minimal footprint frees computer space

Space is at a premium cost in computer rooms and data centres, with increasing pressure to deploy more equipment within the existing infrastructure. Airedale cooling systems are designed and engineered so that the unit footprint is fully minimised. Due to its slim profile, the OnRak for example, shown in the diagram above left, has a very low impact on floor space. The OnRak adds only 200mm to the depth of the rack, significantly reducing the cooling space claim yet providing up to 33kW of cooling.

SmartCool:
Compact footprint



* for a given case size and compared with our previous generation precision air conditioning systems

Complete confidence

24/7 security

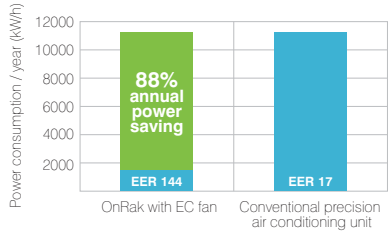
Airedale cooling systems are designed and engineered to offer maximum reliability, giving you total confidence that your critical data is never put at risk. For the added reassurance of immediate help on hand, day or night, we can also provide a 24/7 emergency helpline, professional support and call-out service throughout the year, with guaranteed response times by a qualified, industry-trained Airedale engineer.

AIREDALE service

Resilience, redundancy

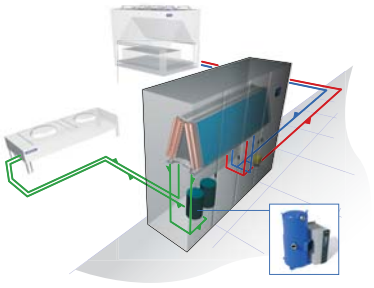
The SmartCool precision air conditioning unit and the InRak in row cooling module support 2N redundancy. Both products have optional dual cool functionality featuring two different cooling mediums such as refrigerant and chilled water, within the same case and with automatic changeover. The secondary medium provides essential backup or additional cooling load.

OnRak: Power consumption saving
compared with a conventional precision air conditioning unit*



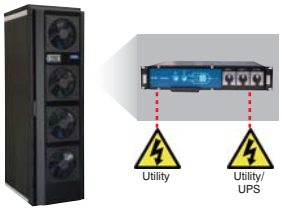
* Both units running in same application, delivering same amount of cooling performance

To increase uptime whilst providing excellent part load efficiencies, the OnRak rear door heat exchanger has optional run and standby fan configuration. Its four fans are designed to run at 75% capacity, whilst still delivering the unit's cooling capacity of 28kW. If one fan fails, the other three fans speed up to provide the same total amount of cooling



The SmartCool X2C0 system is managed by intelligent controls that select which medium acts as the primary source of cooling or which acts as back-up if the primary source fails or is unable to cope with the heat load.

With its enhanced fan technology, the OnRak has an energy draw of 161 watts i.e. less than three 60 watt light bulbs.



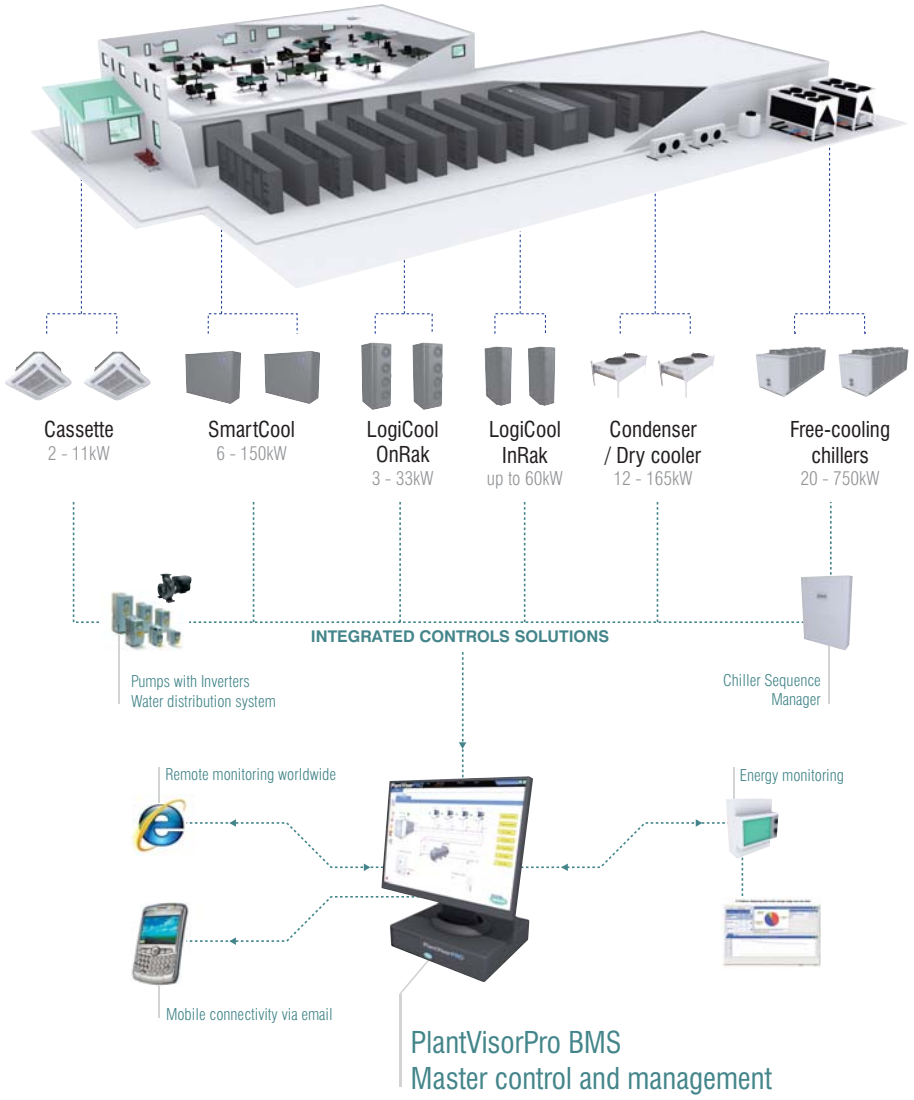
Uninterrupted power supply

With optional built-in dual power supply, the SmartCool, OnRak and InRak support redundancy power supply specifications. The OnRak features an optional electronic static transfer switch (STS) which offers a seamless transfer of power ensuring cooling continues despite a dip in power supply.

Smart, controllable

Putting you in the driving seat

Our sophisticated control systems can integrate a web of multiple cooling products so that they interact, communicate and are optimised via a single building management system (BMS) specifically designed for data centres. The BMS is fail safe, with two-way communication, alarm handling and an IP address that can sit on an intranet or the web. It enables you to measure, chart and log your PUE over time, giving you a true PUE and putting you in control of reducing energy costs across the data centre.



A 1°C increase in fluid temperature can give an 8.5% increase in chiller energy efficiency.

Using heat to cool

The controls system will monitor the room load via sensors and automatically adjust cooling setpoints to match this load. By raising these setpoints, plant energy efficiency and the free-cooling threshold can be significantly increased.

Total support

By investing in an Airedale high efficiency cooling solution, you can benefit from our advice, application expertise and support all along the way. Talk to us and find out how we can help you realise the full efficiency of your cooling system and see it pay for itself in only a short time.

Enhanced Capital Allowance (ECA)

Due to their superior energy efficiency, many of our products are included on the Energy Technology List. Under the ECA scheme, businesses investing in energy saving products published in the approved list can claim 100% first-year capital allowance on their spending. Details on www.eca.gov.uk.

Qualified for **Energy Technology List** www.eca.gov.uk ™

Authorised User No. 00007

Other Airedale products -

that can be integrated into our IT cooling solutions

PRECISION AIR CONDITIONING

EasiCool
6 - 60kW

AlphaCool
8 - 101kW

CONDENSING UNITS

Ultima Compact Condensing Unit
30 - 450kW

CHILLERS

TurboChill / FreeCool
200 - 1100kW

Ultima Compact FreeCool Chiller
75 - 450kW

Logicool Free-cooling Chiller
20kW or 40kW

Project planning - we will be happy to visit your data centre, discuss your requirements and advise on the optimum cooling solution

Sharing our expertise - our highly qualified product engineers, from young graduates to experienced engineers, are adept at modifying our systems to suit your solution

Quality and reliability is assured - by our world-class testing and production facilities and the application of the latest CI manufacturing techniques

Training - learn more about how your cooling systems work in our modern, state-of-the-art training centre; we are a leading provider of first class practical and theoretical training

Realise the full efficiency of your system - our planned maintenance packages improve the longevity and efficiency of your cooling system and help you meet energy regulations and ensure F Gas compliance

Your investment payback – we design our systems to reduce your whole life costs so the savings in energy you recoup every hour, 24/7, enable you to quickly recoup your investment

For the latest information on our products please visit:
www.airedale.com

Or contact us via:
Tel: +44 (0) 113 239 1000
Email: enquiries@airedale.com

British manufacturer

ISO 14001
EMS52086

ISO 9001
FM00542

AIREDALE
air conditioning for every environment

Airedale International Air Conditioning Limited

Leeds Road, Rawdon
Leeds, LS19 6JY, England

T : +44 (0) 113 239 1000
F : + 44 (0) 113 250 7219
E : enquiries@airedale.com
W : www.airedale.com

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