Airedale
APPLIED THERMAL INNOVATION

Sector Data Centre

Total Modular Data Centre Solutions

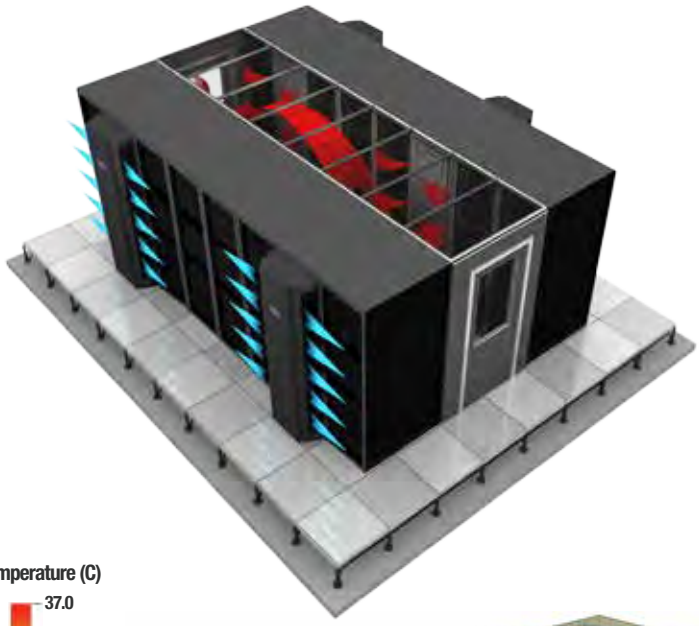
www.airedale.com

BRITISH MANUFACTURER
ENERGY EFFICIENCY
CONTROLS
SERVICE
TRAINING

Standardised Modular Designs to fit your needs

Our modular system architecture provides fully integrated power, cooling, racks, security and management plus services for a complete data centre solution which can be tailored to your needs and deployed on demand.

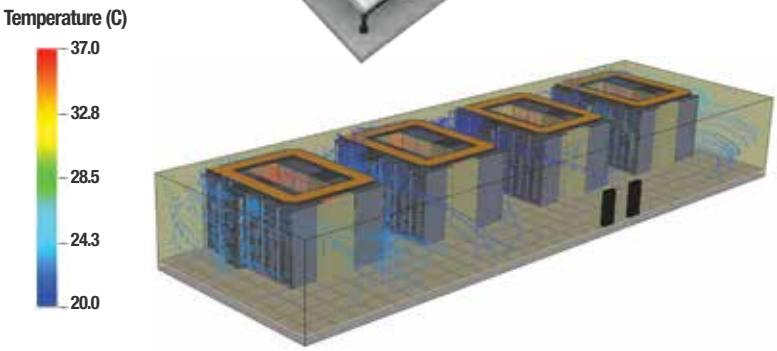
Utilising proven and established designs you can ensure maximum efficiency, optimal performance and reduced energy costs.



Our design process

We will design your system from start to finish working with you to tailor it to your specific infrastructure, cooling and power performance requirements.

Following a detailed survey to assess your requirements we can produce 3D model drawings, CFD analysis, along with a full performance report outlining the PUE and on-going running costs of the system.



Why Choose Our Modular Systems?

Flexibility

Our industry leading data centre modular solutions can be easily deployed with existing infrastructure right through to new and purpose built facilities. Increase or reduce capacity, footprint and resilience to meet changing requirements.

Scalability

Our solutions give you the confidence to match capacity with demand as you populate and grow your data centre enabling future expansion.

High Performance & Energy Efficiency

Achieve the highest levels of performance and efficiency available in the industry with our proven and tested systems.

Fully integrated approach

Developing our own in-house BMS (ACIS™) and controls systems ensures that our solutions are fully integrated ensuring the highest standards of availability and efficiency.

Reliability

All of our designs are proven and tested providing quality, reliability and maximising data centre efficiency.

Speed of deployment

Available in multiple power and cooling capacities our systems are fast and easy to configure, deploy and operate without compromising on quality.

Infrastructure Modules

Roof Systems, Server Racks & Enclosures

Roof system modules

Our fully customisable roof systems attach to the top of the racks and form a ceiling that prevents hot and cold air from mixing providing a unique, economical and energy efficient solution.

Benefits:

- Prevent warm air from recirculating into the IT equipment intake
- Low profile design operates under cable tray obstructions
- Designed to work under fire suppression systems
- Modular design attaches to door and wall systems
- Clear panels designed to illuminate aisle
- Easily removable allowing for above containment maintenance

Server Racks & Enclosure modules

Our market leading range of server racks and enclosure models are optimised to effectively support airflow management needs. Open areas in our door systems (81% open perforation) ensure that supply air can only pass through the IT load and exhaust airflow is prevented from re-circulating.

Benefits:

- Push to open doors
- Available in white to reflect light and maximise energy usage
- Permit quick and easy installation of new equipment
- Enable the mounting of a mix of different equipment
- Simple integration into containment solutions
- Flexible design
- Wide range of divider and side panels available including cable pass-through options
- Promote efficient cable management
- Support high-capacity cable management

Cooling Modules

Adequate and reliable cooling is essential to the operation of your data centre. After the load, it is the biggest user of energy. For this reason, efficient air conditioning is a key element in creating an energy-efficient data centre.

We have a wide range of solutions to match the power density, aisle architecture requirements and availability of space for your cooling module.

Supported by intelligent controls, our flexible, high efficiency data centre cooling solutions, work smarter not harder to give you more cooling for less power and ensure a stable environment and availability 24/7.

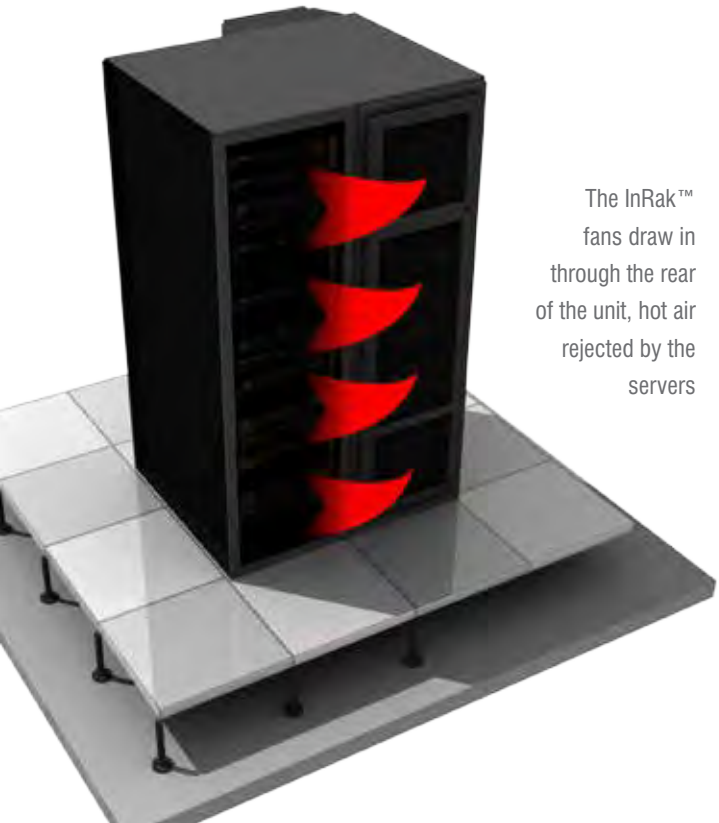
Indoor Units

In-row cooling

InRak™ (10-67kW)

The InRak™ is a high performance in-row cooling solution which precisely cools and conditions air in close proximity to the servers and provides industry-leading cooling for its footprint, available in 300mm and 600mm widths.

Advanced air flow management within the InRak™ innovatively transmits cooled air horizontally across the front of the server racks. This acts as a curtain, providing even cooling over the full height of the server rack whilst managing the aisle static pressure. Single circuit models of the InRak™ are available in DX or chilled water (CW) units and dual circuit in CW.



The InRak™ fans draw in through the rear of the unit, hot air rejected by the servers

Rear door cooling

OnRak™ (3-35kW)

The OnRak™ IT cooling solution is a resilient rear door heat exchanger, designed to manage high discharge temperatures directly from the server into the aisle space.

In dealing with the heat load closer to the source, the OnRak™ is highly efficient in both power usage and floor space and is ideal for targeting hot spots in medium to high density IT environments.

The OnRak™ has a slim configuration which adds only 200mm to the depth of the rack, reducing the cooling space claim whilst providing up to 35kW of cooling. The OnRak™ offers an expandable, adaptable chilled water cooling system that is extremely flexible. In any open aisle architecture it can easily be applied directly to a 42 – 48U rack or supplied with a mating frame to fit any manufacturer's rack.

Direct-to-chip cooling

Our direct-to-chip-cooling solution is a two-phase liquid cooling system capable of absorbing heat at source by circulating an equipment safe fluid, at low pressure to a rack-level manifold that supplies module loops installed in individual servers.

Server heat is absorbed into the fluid through vaporisation and returns to the fluid distribution system. An integral heat exchanger rejects heat to a facility cooling circuit. The fluid distribution system installs; in-rack, can be located adjacent to server racks, or placed remotely up to 30 metres away, and requires only facility water and power connections.

Outdoor Units

Chillers

We offer a wide range of chillers covering cooling capacities from 20kW – 2MW all of which boast minimal footprint and are extremely energy efficient.

Utilising the latest compressor technology for variable speed control, tighter setpoint management and substantial energy saving at part load; our chillers have been developed and optimised for use with a variety of cooling mediums including the low Global Warming Potential (GWP) refrigerant R1234ze.

Concurrent free-cooling models

Our concurrent free-cooling models enable free-cooling to be captured whenever the ambient is below the return water temperature. The system controls constantly monitor the temperature differences and will only switch on the mechanically-driven compressor when extra cooling is needed, introducing concurrent free-cooling – a mixture of free-cooling and mechanical cooling.

Free-cooling models

All of the chilled water models of our indoor cooling units deliver even greater efficiency when integrated with one or more Airedale free-cooling chillers. Free-cooling saves vast amounts of energy, particularly when room temperatures are high.

For example, when an Airedale free-cooling chiller is linked with either the OnRak™ or InRak ™ in a 24/7 data centre with a typical room temperature of 24 ˚C, free-cooling will be active for more than 95% of the year (London, UK).

Indirect adiabatic cooling

AireFlow™ (100-440kW)

The AireFlow™ is an innovative indirect adiabatic air handling unit, designed for use in data centre environments for optimal efficiency. Available in multiple footprints between 100 and 440kW, the AireFlow™ is designed for roof and wall connections and requires minimal mechanical cooling, delivering huge free-cooling potential to significantly reduce operational costs. No air mixing within the system prevents contaminants entering your data centre and eliminates the need for 100% DX back up cooling, which can be required in direct units if ambient air is contaminated and cannot be used.

50% energy savings

when the InRak™ is integrated with a concurrent free-cooling chiller*

*compared with a conventional chiller

Power Modules

Smart Power Management

We understand that creating and maintaining a consistent and balanced power infrastructure is fundamental to your data centre, which is why exceptional power management capability throughout your power system is essential.

Our high performance, resilient power solutions maximise the uptime of your data centre by delivering safe and reliable power to your IT equipment, ensuring it remains in operation 24/7, keeping your business running. Our scalable and bespoke power solutions can be tailored to meet the needs of your business and are expandable, enabling future growth as your data centre requirements change.

UPS Power Systems

Secure, uninterrupted, dependable

There are a wide range of UPS systems to choose from. Whether it is a standalone unit, parallel N+1 or N+N, Airedale's experienced engineers work with a range of class-leading UPS suppliers. This ensures you receive the right sized UPS; optimised for efficiency and delivering the lowest operating costs.

By using the latest in UPS technology, Airedale supply single-phase and three-phase power protection. This guarantees full availability, fuss free operation and total piece of mind for your critical IT services.

UPS features:

- Low cost of ownership via best-in-class efficiency
- Parallel capability for capacity and redundancy
- Space saving, compact footprints
- Centralised power source, whilst allowing individual control of servers
- Remote monitoring
- Scalable power and runtime as demand grows
- Predictive failure notification
- Intelligent battery management for enhanced battery life, reliability and predictability

Electrical switchgear

Switchgear systems provide resilient and effective solutions to support your critical power requirements. These systems can be used to control, protect and isolate your IT equipment to allow work or upgrades to be safely and securely undertaken, whilst maintaining service to unaffected circuits ensuring consistent and continuous uptime.

E-PDU's

Intelligent E-PDU's offer excellent functionality, with an emphasis placed on environment and power metering, monitoring and management. Enabling you to manage your data center's power distribution more effectively, the E-PDU will help you to make informed capacity planning decisions, make efficient use of power resources, increase uptime and reduce operating costs, allowing you to optimise your power infrastructure.

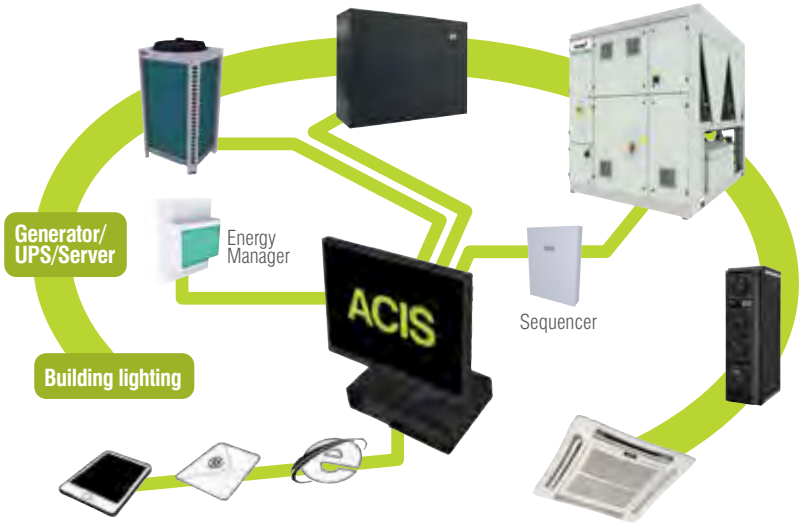
Intelligent controls

Seamlessly managing your system

The control centre of each of our cooling systems is a sophisticated electronic microprocessor specially developed by Airedale. The intelligent microprocessor uses sensors which allow active components to interact. By integrating and sequencing components, the controller manages and optimises the system's performance, availability and power draw, giving the operator complete system control.

Fully-programmable via the control panel's user-friendly display, the microprocessor can be linked with all standard BMS protocols to:

- **Trigger alarm messages**
- **Send alarm/service messages via email or SMS using an interface**
- **Operate time scheduling**
- **Allow adjustment of temperature setpoints**

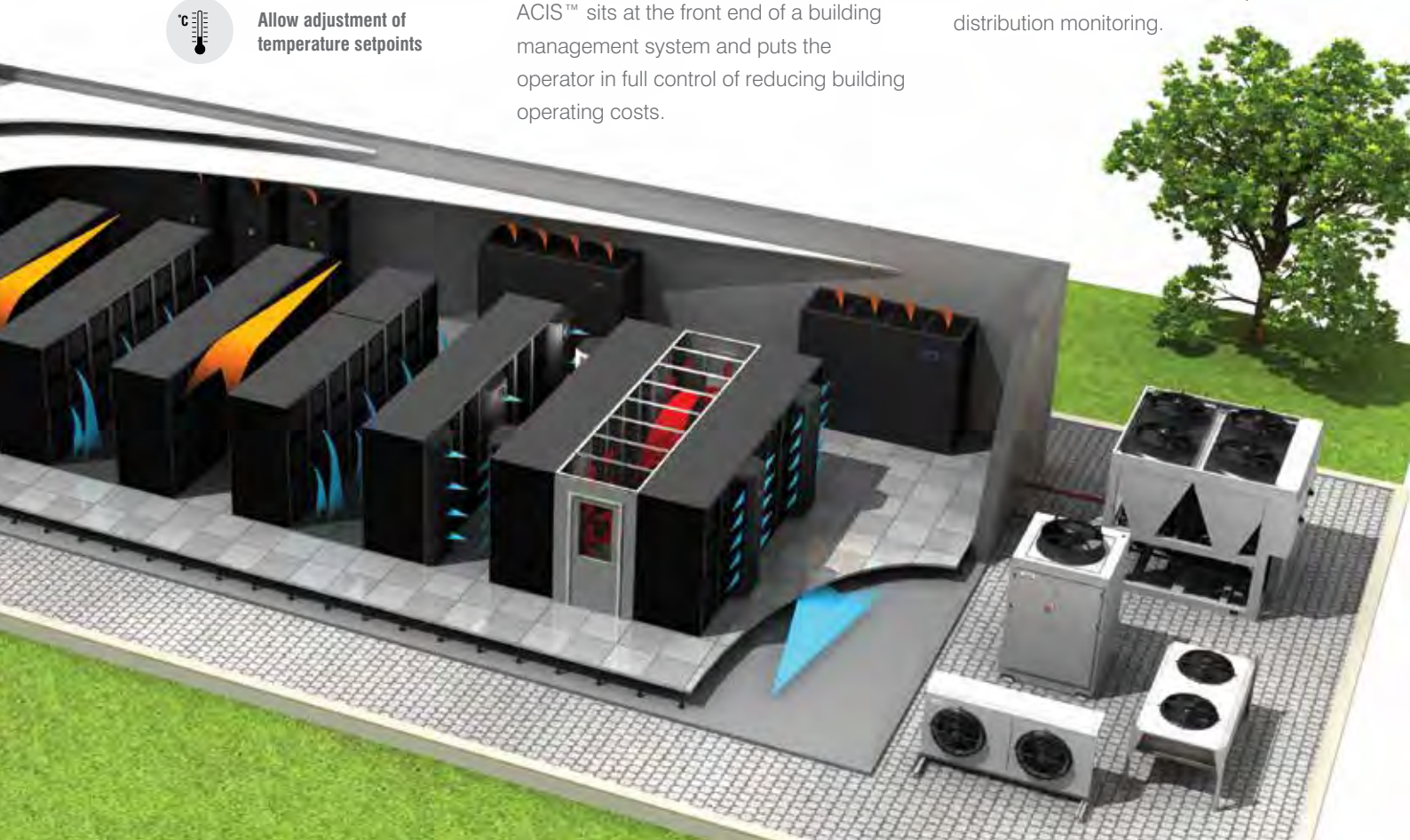


ACIS™

ACIS™ is a building management system developed by Airedale, which enables smart cooling and other building services, from any manufacturer, to be managed through a single, integrated solution across multiple sites and communication protocols.

ACIS™ sits at the front end of a building management system and puts the operator in full control of reducing building operating costs.

Through the click of a button on a PC, tablet or phone, intelligent information can be retrieved automatically allowing informed, data driven decisions to be made. With 24/7 access, ACIS™ provides an ideal solution for remote monitoring and maintenance, including live PUE, EER and COP calculations and power distribution monitoring.



Distributed by:


Airedale
APPLIED THERMAL INNOVATION

www.airedale.com

Airedale International Air Conditioning Limited | Leeds Road, Rawdon, Leeds LS19 6JY, England
Tel: +44 (0) 113 239 1000 **Fax:** +44 (0) 113 250 7219 **E-Mail:** enquiries@airedale.com

A MODINE Company