



# SmartCool™ CW

11 - 233kW

- + Dedicated Chilled Water range (SN,SR and SD)
- + EER up to 51.3
- + Up to 30% more cooling kW/m<sup>2</sup>\*  
\* compared to similar leading competitor units



Image shown: SmartCool™ SD22D



# Precision air conditioning

Increasing efficiency with cutting-edge technology

The SmartCool™ dedicated chilled water (CW) range (SN, SR and SD units) is a selection of next generation, ultra-efficient precision air conditioning units, which provide extremely quiet and accurate climate control for the reliable and consistent operation of data centre systems and other critical applications.

Designed for increased efficiency, the new chilled water SmartCool™ range assists in reducing operational costs and energy consumption, whilst maximising space usage and cooling capacity.

## Extensive Choice

The range offers increased flexibility and choice with forty two models available, eleven different case sizes to choose from and three power supplies as standard, to ensure unit selection is fully optimised for specific sites and applications.

## Increased cooling for footprint

The new unit design maximises cooling capacity by taking advantage of fewer space constraints. Using a new heat exchanger layout, the SmartCool™ CW range, offers up to 30% more cooling for its footprint and outperforms rival products on the market.

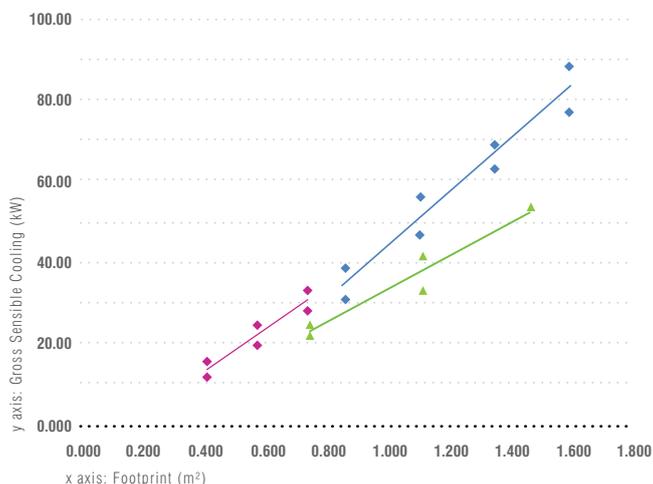
## Up to 95% free-cooling

In a 24/7 data centre with a typical room temperature of 24°C, total life cycle costs can be significantly reduced when SmartCool™ CW units are integrated with an Airedale free-cooling chiller, which enables free-cooling whenever the ambient temperature is below the return water temperature.



Image shown: SmartCool™ SR15D

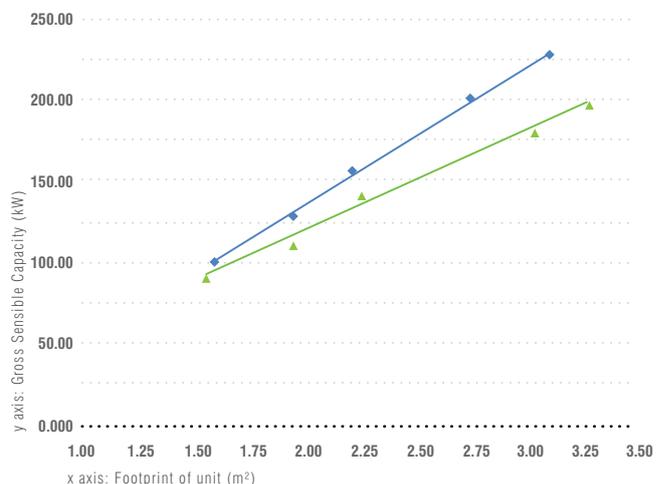
## SN/SR cooling capacity comparison



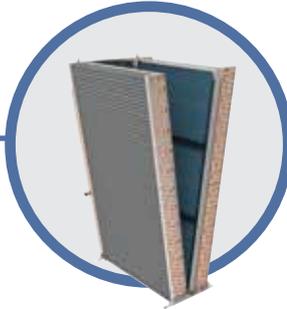
◆ SR C000 ◆ SN C000 ▲ Leading Competitor

Capacities based on: Air On Condition – 24°C / 50% and Water Temperatures – 7 / 12°C

## SD cooling capacity comparison



◆ SmartCool SD ▲ Leading Competitor



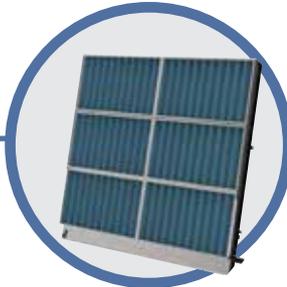
### Large coil areas

Offer increased cooling capacity, reduce fan power and improve air flow through the unit.



### New heat exchanger layouts

The new design of the SmartCool™ CW range creates additional space inside the units, enabling larger heat exchangers to be used, therefore providing increased cooling capacity for a smaller footprint.



### G4 filtration

Pleated panel air filters on the face of the coil increase coil surface area and lower air-side pressure drop, resulting in improved efficiency and increased dust retention capacity. (excludes UL certified products)



### Variable humidification

Immersed electrode humidifier and efficient de-humidification provide precise humidification control.



### EC backward curved fans

Electronically commutated axial fans give increased performance for reduced power input.

## Key Features

- EER up to 51.3 (SN06D010-C000-0)
- 42 models
- 11 case sizes

- Large coil areas
- Improved air path
- Three power supplies as standard\*

- 30% more cooling than previous generation CW units\*

\*SN/SR units

\*400V/50Hz, 380V/60Hz  
\*460V / 60Hz, 208V / 60Hz, 480V / 60Hz  
(UL1995 compliant products)

# SmartCool™ SN/SR units

(11 - 90kW)

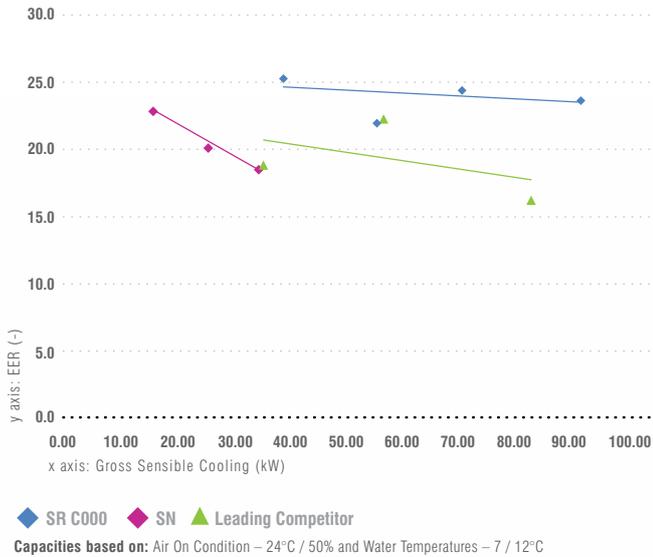


The SmartCool™ SN/SR chilled water units are a compact range of precision air conditioning products which provide a neat cooling solution

for data centres where capacity per footprint is important. In particular, the SmartCool™ SN/SR range lends itself well to smaller or retrofit data centres.



**SN/SR performance comparison - EER**



**EER up to 52.4**

The SmartCool™ CW range offers exceptional Energy Efficiency Ratios (EER) of up to 51.3 (SN06D010-C000-0), a 13% increase in EER when compared with other similar leading competitor units. EERs are significantly increased when the SmartCool™ CW range is utilised in a modern data centre where elevated air temperatures can be used.

**Lightweight, modular case design**

The SN/SR range utilises a painted aluminium extrusion frame with painted sheet metal panels in line with the SmartCool™ DX range (SC16-60kW) which incorporates the same range of case sizes.

**Patent pending 'V' frame heat exchanger**

SN/SR models allow for a greater heat exchange area to ensure maximum cooling capacity is achieved. The SN/SR units use an innovative V-frame heat exchanger layout, which is positioned across the width, rather than the depth of the unit. This configuration delivers high coil face area and accessible filters which can be placed on the face of the coil, improving air flow through the unit, whilst helping to significantly reduce air-side pressure drop and fan power consumption.

**Cutting-edge EC fan technology**

The SmartCool™ CW range incorporates the latest range of backward curved EC fans to further increase energy efficiency by up to 50% and reduce noise. EC fans provide even greater control, can be matched to load requirements and offer increased cooling for significantly reduced fan power input. SN and SR units feature fans within the case, which not only opens up the range to more applications, but also offers a kW/m² ratio greater than any CRAC unit of its size and type within the marketplace.



**30% more cooling**

The SmartCool™ SN/SR range offers over 30% more cooling for its footprint, than previous generation CW product ranges without compromising efficiency.

# SmartCool™ SD units

(60 - 233kW)



The larger, high-capacity SmartCool™ SD chilled water units are perfect for large scale, purpose built, high-end data centres. The SD units have been designed to cater for data centres where energy efficiency and high capacity are imperative.

## Intelligent valve balancing system

Using an intelligent, two-way valve system, the SmartCool™ SD units, measure and record the cooling and bypass pressure drop values. The units automatically adjust and balance the valves, effectively replacing the manual measuring and balancing previously completed by a commissioning engineer.

## Slab coil arrangement

With the fans located in the floor void of the SmartCool™ SD range, even more space is created within the units, enabling a slab coil arrangement to be applied. This provides a 15% increase in coil surface area for improved air flow and efficiency. This layout also enables filters to be placed on the face of the coils, which further increases surface area and reduces air-side pressure drop, resulting in reduced fan power and increased efficiency.



Image shown: SmartCool™ SD22



### High and low flow coil options

The SmartCool™ SD further increases flexibility with the option of either high capacity or low water-side pressure drop/pump power for every SD case size and variant.

### Welded sheet metal case for added strength

The larger SmartCool™ SD unit cases have been designed with welded sheet metal frames to increase strength and rigidity for safe manoeuvre. The welded sheet metal design maximises free space inside the unit by reducing the depth of the frame and panels. The additional case width allows for a larger heat exchanger to be used for increased cooling capacity and efficiency per footprint. The robust metal frame also reduces the requirement for additional structural support inside the units, which helps to keep weight and cost to a minimum.

### Fans in floor void

The SmartCool™ SD range has been designed with backward curved centrifugal EC fans located below floor level for premium efficiency. The fans are housed in a fan module to make full use of the height of the unit. This design offers exceptional performance, enhances the air path, increases air flow and reduces noise. Each module can also be individually configured based on customer requirements.

# PICV Option

Two functions in one device

## What is a PICV?

A PICV (Pressure Independent Control Valve) is a two way valve which integrates two functions into one single device: control valve and balancing valve.

Improved efficiency and reduced running costs

- A PICV guarantees flow rate at full or part load operation and is unaffected by pressure variations. The result is precise temperature maintenance leading to higher efficiencies and reduced running costs.

Significant maintenance savings

- As a PICV incorporates both the control and balancing valve in one, this saves 50% of maintenance costs.



## Benefits for all

### A building designer/ consultant

- The flow rate specified is exactly matched

### An M&E contractor

- Reduction in installation time and accelerated speed of commissioning as the PICV ensures proper function and control

### A controls contractor

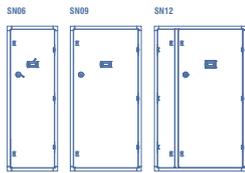
- The PICV absorbs all pressure changes within the system ensuring the control loop is stable and design room temperatures are achieved

### An end user

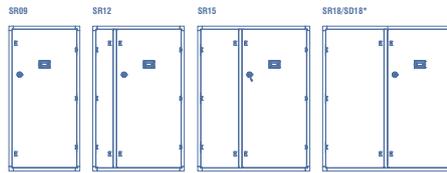
- PICVs offer better comfort and less maintenance costs. The system saves energy costs by reducing power consumption

# Specifications at a glance

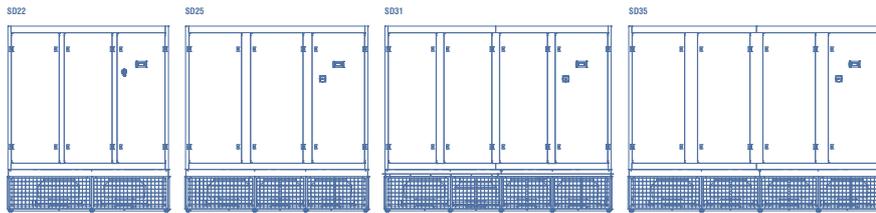
## SN



## SR



## SD\*\*



\* SR18/SD18 shown above with same case size. Please note the SD18 will also include fan module.

\*\* Please note that the minimum floor void depth to accommodate the fan module on the SD range must be at least 600mm.

Case size	SN/SR/SD	Height (mm)	Width (mm)	Depth (mm)
1	SN06	1980	684	600
2	SN09	1980	963	600
3	SN12	1980	1242	600
4	SR09	1980	963	890
5	SR12	1980	1242	890
6	SR15	1980	1521	890
7	SR18/SD18	1980	1800	890
8	SD22	1980	2200	890
9	SD25	1980	2500	890
10	SD31	1980	3100	890
11	SD35	1980	3500	890



## Electrical & Controls

- Advanced controls technology to manage and optimise performance

### Optional

- Vu™ – touchscreen user interface
- Dual power supply capability provides enhanced backup to reduce unit downtime (excludes UL1995 compliant products)
- Constant pressure control
- Constant air volume
- ACIS™ building energy management system integrates cooling and other building services, delivers improved data and reduces operating costs
- Two power supplies as standard (400V/50Hz, 380V/60Hz) (460V / 60Hz, 208V / 60Hz, 480V / 60Hz - UL1995 compliant products)

## Energy-saving

- EER up to 51.3
- EC fans used as standard increase efficiency by up to 50% for reduced power input

## Environment

- Low sound levels

- Up to 30% more cooling per m<sup>2</sup>
- Up to 95% free-cooling with an Airedale free-cooling chiller

## Mechanical

- SN/SR units (11-90kW)
- SD units (60 – 233kW)
- 11 case sizes
- SN SmartCool™ Narrow CW
- SR SmartCool™ Regular CW
- SD SmartCool™ Dedicated CW
- SN/SR offers two case depths to cater for compact locations (600mm & 890mm)
- 24 single circuit CW units C000 (SN/SR/SD)
- 18 dual circuit CW units C0C0 (SR/SD)
- Downflow air configuration
- SN/SR fans within unit case for minimum space claim
- SN/SR features unique, patent pending heat exchanger layout
- SD fans in floor-void for maximum efficiency
- SD features high-capacity slab coil arrangement
- Filters positioned on face of coil to minimise fan power input
- SD welded case design ensures structural rigidity
- Premium high airflow G4 (EU4) filtration (excludes UL1995 compliant products)

### Optional

- Two or three way actuator valve for efficient chilled water flow control (SN/SR)
- Bypass balancing valve
- Pressure independent control valve (PICV)
- High grade F7 filtration
- Flood detection
- Grooved copper connections facilitate easy maintenance and reduce leak risk (SD)
- Drip tray high level detection
- High and low flow coil options (SD)



# Performance tested

And proven

**Quality is assured by our on-site, world-class testing facilities that set the standard as one of the most advanced testing centres of its kind within the global air conditioning industry. This facility is integral to our development process and ensures our team of designers and engineers conduct a rigorous test program to produce and improve each of our manufactured units.**

Airedale's dedicated test facility is the only purpose-built. Designed and built to exceed stringent international standards, our test centre is capable of testing a complete range of air conditioning equipment including precision air conditioning to 250kW and chillers up to 2MW.

We apply a consistent design philosophy which combines innovative sustainability with premium performance and efficiency across each range. Our state-of-the-art, on-site R&D laboratory is BS EN 14511, BS EN 13053 and SASO compliant and allows us to test units for every application.

Our air conditioning units consistently offer some of the industry's leading proven environmental and cost performance figures, combined with the highest quality, reliability and service.



**“ We have a positive, responsible partnership with Airedale in which we share knowledge**

It is only through Airedale's continued site involvement that we can fine tune the system to such an extent. We don't mind spending capital expenditure to recoup such significant energy savings as these.

**Paul Lovegrove - General Affairs Assistant  
Manager, Epson**

**“ Energy efficiency was the crucial factor**

Airedale proved that its free-cooling chiller can save energy and is the right system for us. Anything that improves payback is of interest to the Society. We have also had good service from other Airedale products.

**Steven Ward - Premises Engineer, Yorkshire  
Building Society**

**“ EDF Energy is already seeing a PUE of 1.2**

I believe we are the first company in the world to install Airedale's advanced technology, the TurboChill™ FreeCool chiller. When the data centre is operating in free-cooling mode, the PUE has been measured at 1.2 and we expect that to reduce further as we install more equipment.

**Bob Finn - Programme Manager, EDF Energy**

# ACIS™ BMS

One source, complete visibility

**ACIS™ BMS, Airedale's exclusive Building Management System is an innovative, scalable and future-proof solution which has been specifically designed to enhance system performance, drive down operational costs and aid decision making for a wide range of building services.**

Offering a more pre-emptive BMS solution, ACIS™ is able to make decisions, delivering a higher level of building intelligence. With its simplistic and intuitive interface, ACIS™ BMS allows you to gain access anytime, anywhere to your building's systems, enabling you to manage building services from any manufacturer across multiple sites through a single integrated system.

A wide range of features enable total system efficiency to be evaluated, puts the user in full control, provides complete visibility of all building services and offers total facility integration.



Complete Visibility of Building Infrastructure



Secure Remote 24/7 Access



Extensive Analysis, Monitoring and Diagnostic Tools



Fully Compatible



Immediate Notifications



Live Capture and Historical Energy Usage



Visualisation and Graphical Representation



Optional 24/7 Support



# Intelligent controls

## Seamlessly managing your system



The control centre of each of our cooling systems is a sophisticated electronic microprocessor with control logic specially developed by Airedale.

The microprocessor uses sensors to send and receive messages to and from active components such as compressors, fans and pumps so they interact with each other, balancing cooling duty, temperature, air flow and pressure to exactly match the application.

By integrating intelligent components, the controller manages and optimises the system's performance and reduces power draw.

### Smart networking solutions:

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**

### Future-proof, flexible, 24/7

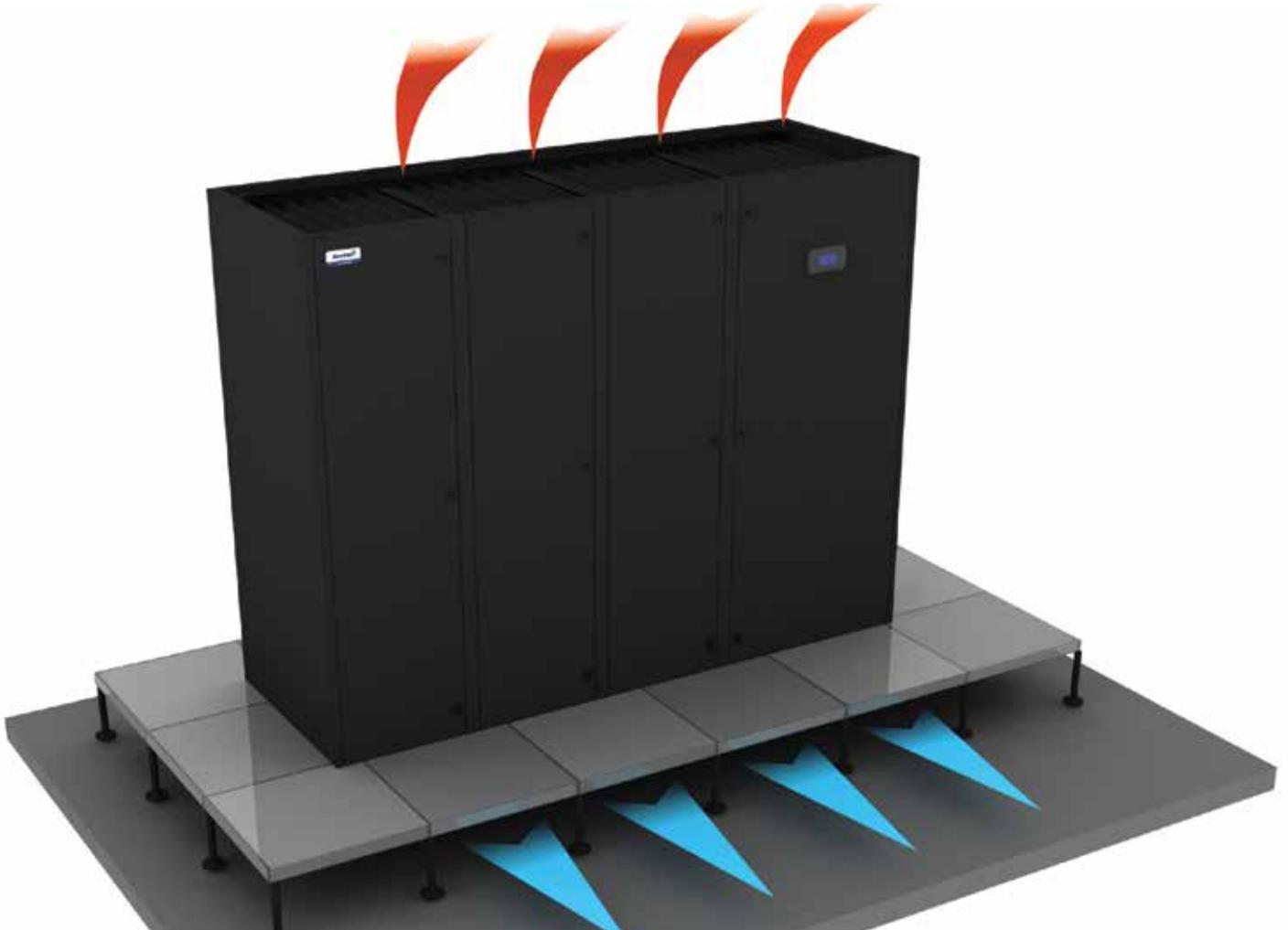
As an intelligent stand-alone unit or when networked with up to eight units, the SmartCool™ adapts to your data centre's particular requirements. Its compact, modular design makes it easy for multiple units of different size and capacity to be added as load increases or to eliminate hot spots. Smartly networked standby units ensure 24/7 availability.

### Integration protocols

Modbus®



SNMP



# Vu™

## Touchscreen user interface

SmartCool™ units can be integrated with a colour touchscreen user interface, Vu™, which further enhances your interaction with SmartCool's control system.

## Vu™ boasts a range of new and enhanced features



### Easy to use interface for enhanced usability

The new intuitive 4.3" touchscreen interface is tuned to the needs of end users with familiar iconography which is clear, modern and bright - providing an experience more akin to a mobile app.

Vu™ includes gesture control. This allows page navigation with a swipe, setpoint adjustments via a rotating control wheel and scrollable data tables are used to display large amounts of system information efficiently.

### Trend visualisation

Visualisation of system information, both dynamic and historical, enables long term trends to be analysed and managed allowing for easy system optimisation.

A user can overlay up to four trends using any combination of pre-set system variables to understand the systems response.

The entire trend and alarm log can also easily be exported to USB media for archiving purposes.

### At a glance unit status

The operating status of the unit can easily be determined "at a glance" with a colour coded LED bar.

### Built in service terminal

Vu™ contains a built in service terminal which emulates the traditional LCD display found on other Airedale products. This provides a clean separation between the user and engineer environments, providing a responsive and aesthetic user interface for day-to-day use.

# Total support

Whenever you need it

At Airedale, we don't just manufacture and supply cooling and refrigeration products; we also provide a broad range of supporting services to ensure our customers receive the best possible aftersales care.

With more than 40 years' experience in business critical cooling, investing in an Airedale cooling or refrigeration solution means that you can benefit from our advice, expertise and technical support too. From design and selection, through to commissioning and beyond, we make sure your system reduces your total cost of ownership, whilst providing maximum availability and longevity.

## Service plans Maximising your system's effectiveness 24/7



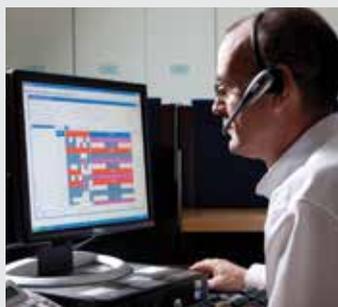
An Airedale service plan provides a planned, preventative maintenance package to sustain the optimum efficiency of your system, enabling the user to see real savings in energy costs and reduced carbon emissions.

With Airedale, you can rest assured that help is never far away. Our 24/7 emergency helpline and call out service is available 365 days of the year, ensuring that we are always on hand to provide expert advice and immediate help, day or night.

A guaranteed emergency response time means that a qualified Airedale engineer will be with you in no time, therefore maximising your system's uptime. Service plans also ensure F Gas compliance and incorporate a full parts and labour warranty for the first 12 months.

For more information visit [www.airedale.com](http://www.airedale.com)

\* For customers outside the UK, our international distributors trained by Airedale would be pleased to offer service on Airedale units



### Talk directly with an experienced engineer

Find out how we design our systems to reduce your whole life costs. Our highly experienced engineers are adept at tailoring our systems to suit your requirements.

**+44 (0)113 239 1000**



### Have complete control of your site

Customers with critical sites can benefit from our remote monitoring facility. Aftersales services include chiller sequencing, network setup and integration as well as a live demonstration and training centre at our head office.



### 24/7 support; maintenance and spares

Immediate help on hand to keep your critical cooling system operational. Realise the full potential of your system; improve its longevity and efficiency and be F Gas compliant. Avoid downtime with our fast, efficient spares service.



### Develop your skills

Learn more about your cooling system by attending an air conditioning and refrigeration course in our purpose-built training school. Train on high-tech cooling systems and fully operational rigs in our dedicated workshops. Industry recognised courses also available. Email [training@airedale.com](mailto:training@airedale.com) for further details.

---

Distributed by:

