Airedale
APPLIED THERMAL INNOVATION

SmartCool™ CW

11 - 233kW

+ Dedicated Chilled Water range (SN,SR and SD)
+ EER up to 52.4
+ Up to 30% more cooling kW/m²*

* compared to similar leading competitor units

CW CHILLED WATER · DOWNFLOW · EC EC FAN

Image shown: SmartCool™ SD22D

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BRITISH MANUFACTURER · ENERGY EFFICIENCY · CONTROLS · SERVICE · TRAINING

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

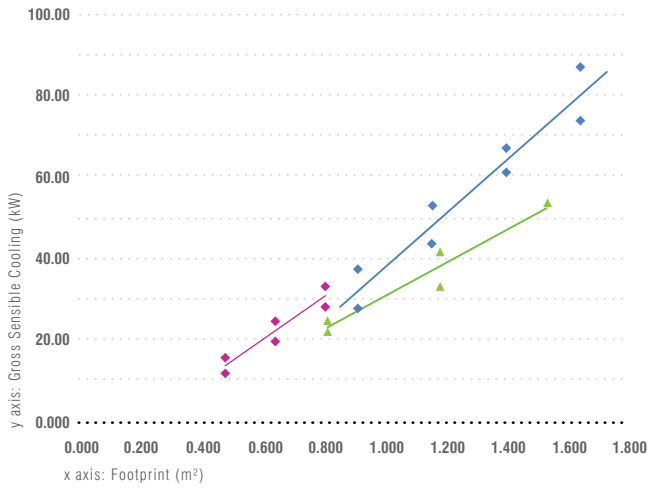
The new unit design maximises cooling capacity by taking advantage of fewer space constraints. Using a new heat exchanger layout, the SmartCool™ CW range, offers up to 30% more cooling for its footprint and outperforms rival products on the market.

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.

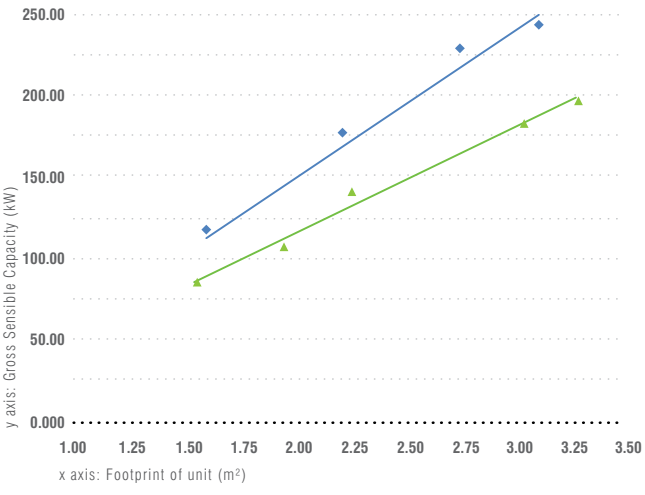
Image shown: SmartCool™ SR15D

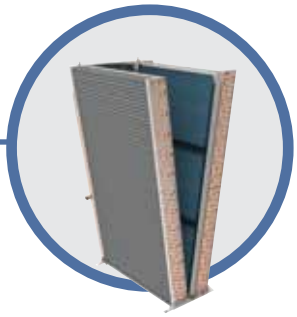
SN/SR cooling capacity comparison



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

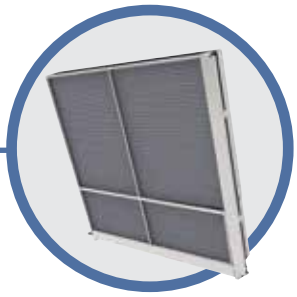
SD cooling capacity comparison





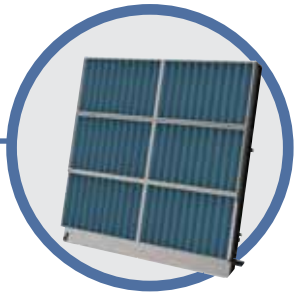
Large coil areas

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.

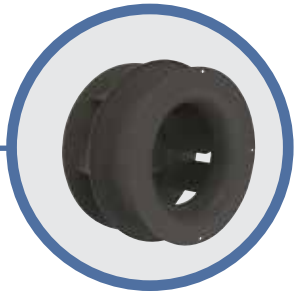


G4 filtration

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

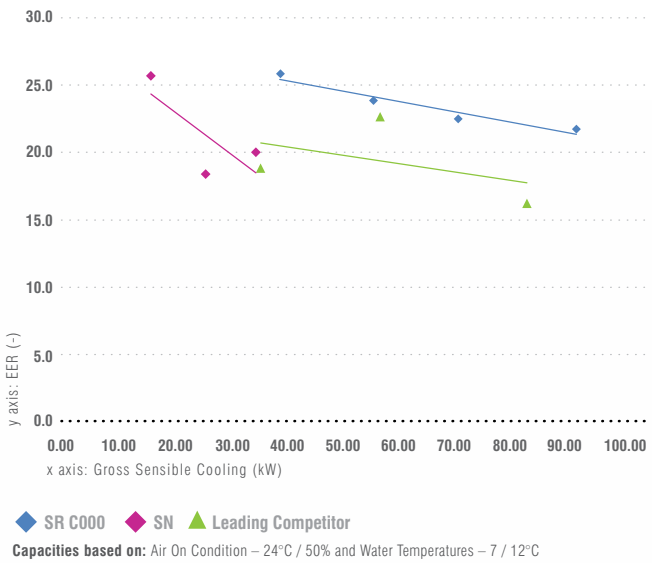
- **EER up to 52.4**
  (SN06D010-C000-0)
- **42 models**
- **11 case sizes**
- **Large coil areas**
- **Improved air path**
- **Three power supplies as standard***
  ***400V/50Hz, 380V/60Hz, 220V/60Hz**
  ***460V / 60Hz, 208V / 60Hz, 480V / 60Hz**
  (UL1995 compliant products)
- **30% more cooling than previous generation CW units***
  ***SN/SR units**

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



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

EER up to 52.4

The SmartCool™ CW range offers exceptional Energy Efficiency Ratios (EER) of up to 52.4 (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

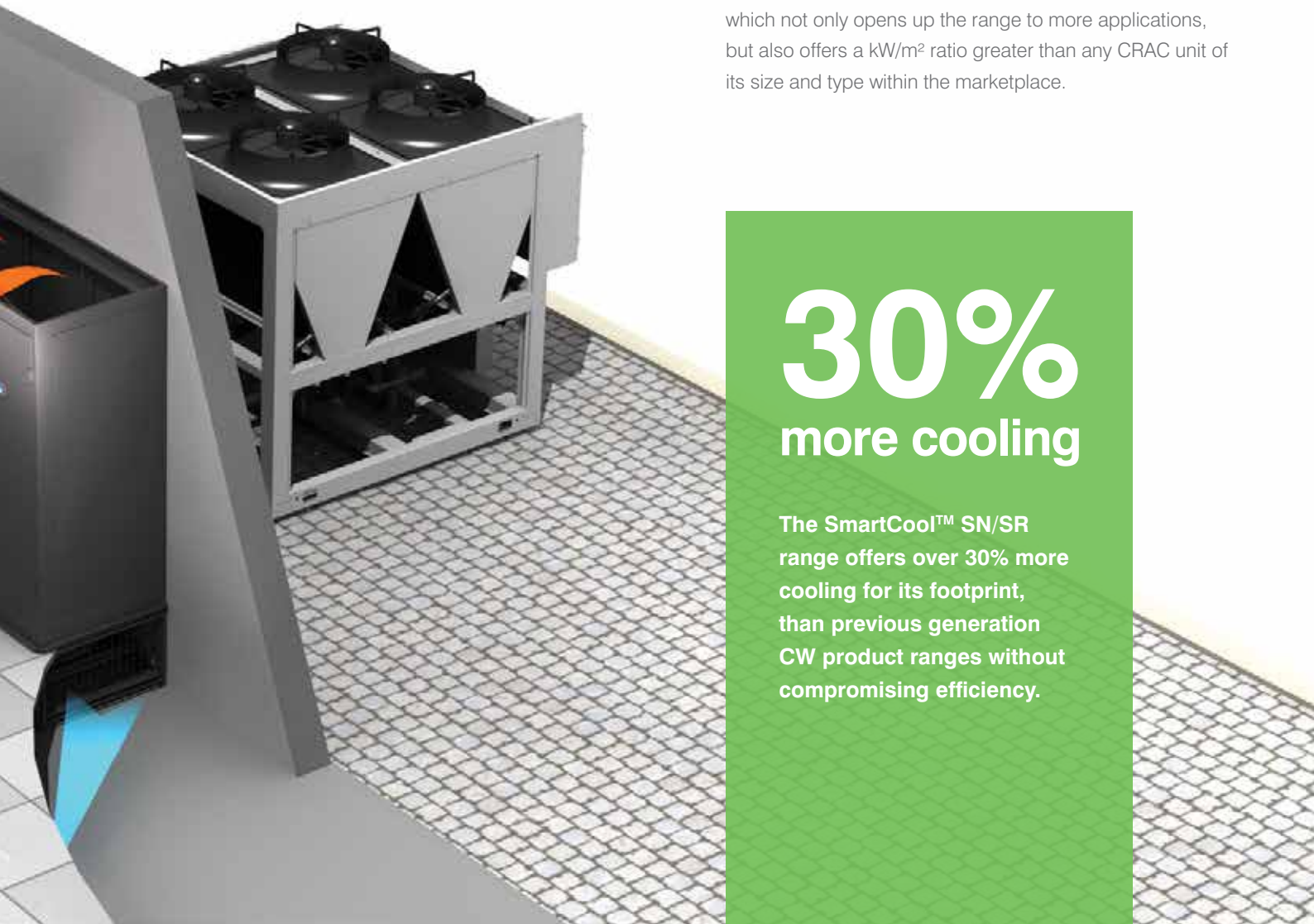
The SN/SR range utilises a painted aluminium extrusion frame with painted sheet metal panels in line with the SmartCool™ DX range (SC16-60kW) which incorporates the same range of case sizes.

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.

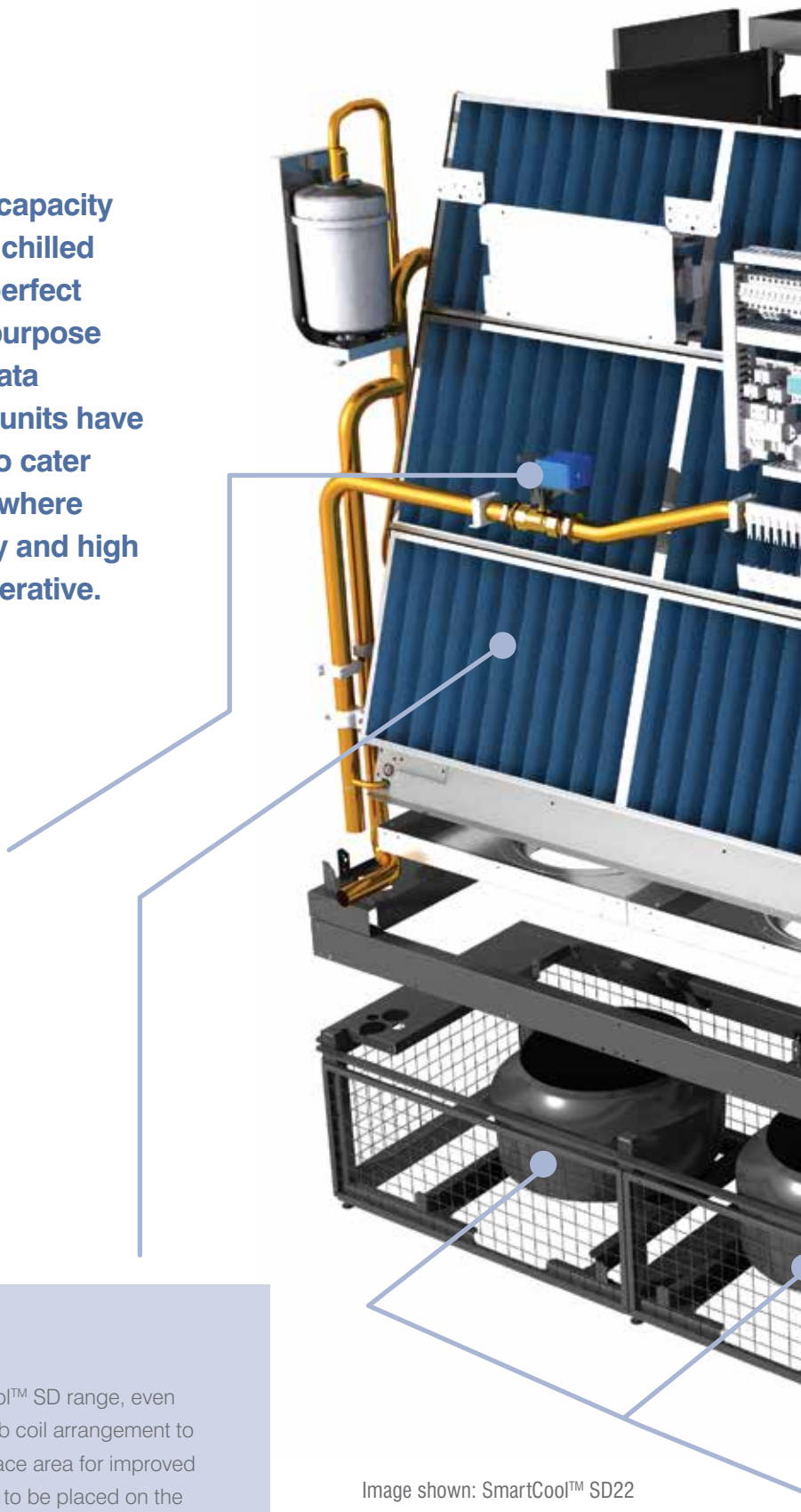


Image shown: SmartCool™ SD22

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

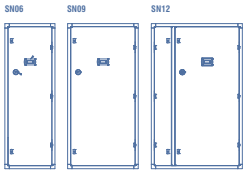
The larger SmartCool™ SD unit cases have been designed with welded sheet metal frames to increase strength and rigidity for safe manoeuvre. The welded sheet metal design maximises free space inside the unit by reducing the depth of the frame and panels. The additional case width allows for a larger heat 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

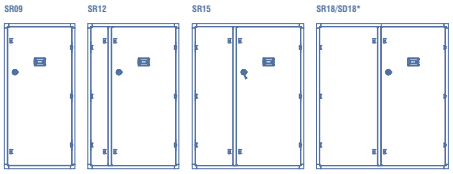
The SmartCool™ SD range has been designed with backward curved centrifugal EC fans located below floor level for premium efficiency. The fans are housed in a fan module to make full use of the height of the unit. This design offers exceptional performance, enhances the air path, increases air flow and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

Specifications at a glance

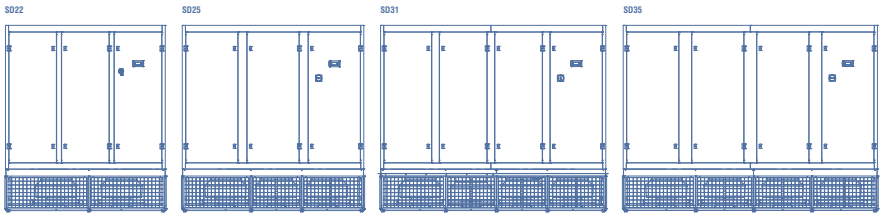
SN



SR



SD**



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

* 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 accomodate the fan module on the SD range must be at least 600mm.

Electrical & Controls

- Advanced controls technology to manage and optimise performance

Optional

- 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
- Three power supplies as standard (400V/50Hz, 380V/60Hz, 220V/60Hz) (460V / 60Hz, 208V / 60Hz, 480V / 60Hz - UL1995 compliant products)

Energy-saving

- EER up to 52.4
- 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^2
- 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
- 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)

Technical specifications

Case size (mm)		Model no.	Model no.	Nominal Total Cooling (kW) TC	Nominal Sensible Cooling (kW) SC	EER	EER	No. of fans	Air volume m³/s	Sound pressure @ 3m (dBA)	Sound pressure @ 3m (dBA)
		Single circuit									
	H x W x D	**C000 - chilled water**									
1	1980 x 684 x 600	SN06D010-C000-0	SN06D010-C000-3	13.1	11.6	52.41	45.10	1	0.7	56	56
		SN06D015-C000-0	SN06D015-C000-3	17.1	15.6	27.61	28.48	1	0.95	67	66
2	1980 x 963 x 600	SN09D020-C000-0	SN09D020-C000-3	22.1	19.9	34.05	38.86	1	1.2	56	56
		SN09D025-C000-0	SN09D025-C000-3	27.4	25.3	20.71	22.64	1	1.55	63	62
3	1980 x 1242 x 600	SN12D030-C000-0	SN12D030-C000-3	31.9	28.9	32.14	32.24	1	1.75	56	55
		SN12D035-C000-0	SN12D035-C000-3	37.0	34.2	21.07	21.12	1	2.1	60	59
4	1980 x 963 x 890	SR09D030-C000-0	SR09D030-C000-3	32.7	28.4	50.59	41.64	1	1.7	60	60
		SR09D040-C000-0	SR09D040-C000-3	43.1	38.5	29.74	27.83	1	2.3	66	65
5	1980 x 1242 x 890	SR12D045-C000-0	SR12D045-C000-3	51.3	45.2	41.15	29.49	1	2.7	63	62
		SR12D055-C000-0	SR12D055-C000-3	61.3	55.0	26.21	24.86	1	3.3	68	68
6	1980 x 1521 x 890	SR15D065-C000-0	SR15D065-C000-3	71.4	63.6	33.67	32.73	2	3.8	66	65
		SR15D075-C000-0	SR15D075-C000-3	77.8	70.0	27.91	26.91	2	4.2	68	68
7	1980 x 1800 x 890	SR18D080-C000-0	SR18D080-C000-3	86.3	77.0	38.88	26.54	2	4.6	64	64
		SR18D095-C000-0	SR18D095-C000-3	100.2	91.0	26.33	21.87	2	5.5	69	68
		SD18D110-CH00-0	SD18D110-CH00-3	107.2	96.4	41.59	30.31	2	5.7	50	50
		SD18D115-CL00-0	SD18D115-CL00-3	114.8	98.9	44.54	32.46	2	5.7	50	50
8	1980 x 2200 x 890	SD22D140-CH00-0	SD22D140-CH00-3	134.8	116.4	38.23	30.60	2	6.7	53	53
		SD22D145-CL00-0	SD22D145-CL00-3	141.3	118.7	40.06	32.07	2	6.7	53	53
9	1980 x 2500 x 890	SD25D175-CH00-0	SD25D175-CH00-3	178.0	153.0	37.92	28.78	3	8.8	53	53
		SD25D180-CL00-0	SD25D180-CL00-3	185.2	155.5	39.45	29.94	3	8.8	53	53
10	1980 x 3100 x 890	SD31D215-CH00-0	SD31D215-CH00-3	220.6	195.4	37.34	27.73	4	11.3	54	53
		SD31D235-CL00-0	SD31D235-CL00-3	238.2	201.4	40.33	29.96	4	11.3	54	53
11	1980 x 3500 x 890	SD35D255-CH00-0	SD35D255-CH00-3	259.9	226.6	33.15	27.47	4	13.0	57	56
		SD35D270-CL00-0	SD35D270-CL00-3	277.1	232.5	35.34	29.29	4	13.0	57	56
		Dual circuit									
		C0C0 - chilled water									
4	1980 x 963 x 890	SR09D020-C0C0-0	SR09D020-C0C0-3	24.2	24.2	37.07	30.35	1	1.7	61	60
		SR09D025-C0C0-0	SR09D025-C0C0-3	31.1	31.1	21.22	19.81	1	2.3	66	66
5	1980 x 1242 x 890	SR12D030-C0C0-0	SR12D030-C0C0-3	37.2	37.2	29.56	21.29	1	2.7	63	62
		SR12D035-C0C0-0	SR12D035-C0C0-3	44.0	44.0	18.63	17.81	1	3.3	68	68
6	1980 x 1521 x 890	SR15D040-C0C0-0	SR15D040-C0C0-3	51.5	51.5	23.99	23.40	2	3.8	66	65
		SR15D045-C0C0-0	SR15D045-C0C0-3	55.8	55.8	19.77	19.10	2	4.2	68	68
7	1980 x 1800 x 890	SR18D050-C0C0-0	SR18D050-C0C0-3	62.2	62.2	27.63	18.91	2	4.6	64	64
		SR18D060-C0C0-0	SR18D060-C0C0-3	71.5	71.5	18.52	15.50	2	5.5	69	68
		SD18D085-CHCH-0	SD18D085-CHCH-3	76.6	76.6	33.15	23.58	2	5.3	49	49
		SD18D090-CLCL-0	SD18D090-CLCL-3	83.5	79.1	36.16	25.73	2	5.3	49	49
8	1980 x 2200 x 890	SD22D105-CHCH-0	SD22D105-CHCH-3	100.1	100.1	28.64	22.78	2	6.5	53	53
		SD22D120-CLCL-0	SD22D120-CLCL-3	114.8	104.9	32.82	26.10	2	6.5	53	53
9	1980 x 2500 x 890	SD25D135-CHCH-0	SD25D135-CHCH-3	128.5	120.6	31.02	22.99	3	8.2	52	52
		SD25D140-CLCL-0	SD25D140-CLCL-3	130.7	123.3	31.54	22.99	3	8.2	52	52
10	1980 x 3100 x 890	SD31D165-CHCH-0	SD31D165-CHCH-3	157.9	157.9	29.09	21.07	4	10.7	53	53
		SD31D190-CLCL-0	SD31D190-CLCL-3	187.2	172.9	34.49	24.98	4	10.7	53	53
11	1980 x 3500 x 890	SD35D195-CHCH-0	SD35D195-CHCH-3	187.0	187.0	25.96	20.78	4	12.4	56	55
		SD35D225-CLCL-0	SD35D225-CLCL-3	222.3	201.5	30.86	24.70	4	12.4	56	55

Chilled water data is based on nominal cooling at 24°C/45% return air condition and 7/12°C water temperatures (0% glycol).
TC = Total Cooling
SC = Sensible Cooling
EER = Energy Efficiency Ratio based on total input power of fans
Performance data calculated in accordance with BSEN 14511-2011 and Eurovent 6/6

Nomenclature explained

S	D	31	D	215	-	C	H	0	0	-	0

	S	SmartCool™
	N/R/D	Narrow / Regular / Dedicated Chilled Water
	06 - 35	Case Size
	D	Downflow
	16 - 233	Nominal Capacity (kW)
	C	Chilled Water
	H / L / 0	High Flow / Low Flow / No Chilled Water Circuit
2nd Circuit	C / 0	Chilled Water Circuit / No Chilled Water Circuit
2nd Circuit	H / L / 0	High Flow / Low Flow / No Chilled Water Circuit
	0 / 1 / 2	400V/ 3~/50Hz / 380V/ 3~/60Hz / 220V 3~/60Hz (460V / 60Hz, 208V / 60Hz, 480V / 60Hz - UL1995 compliant products)

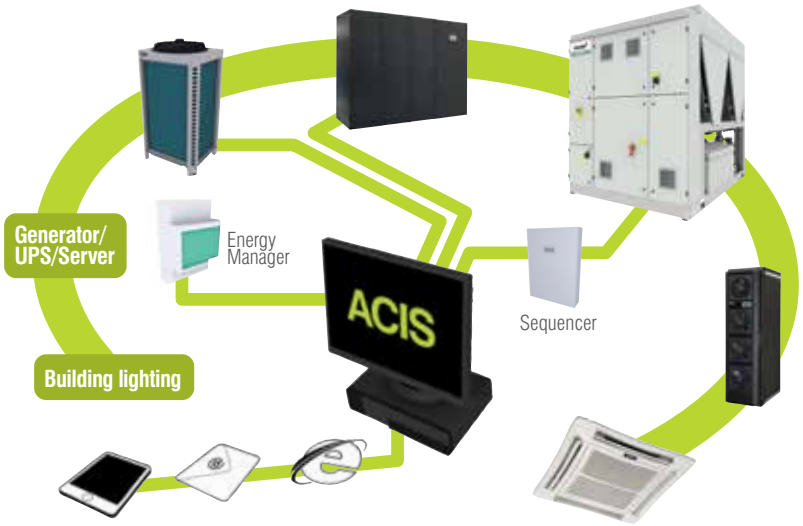
Intelligent controls

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**

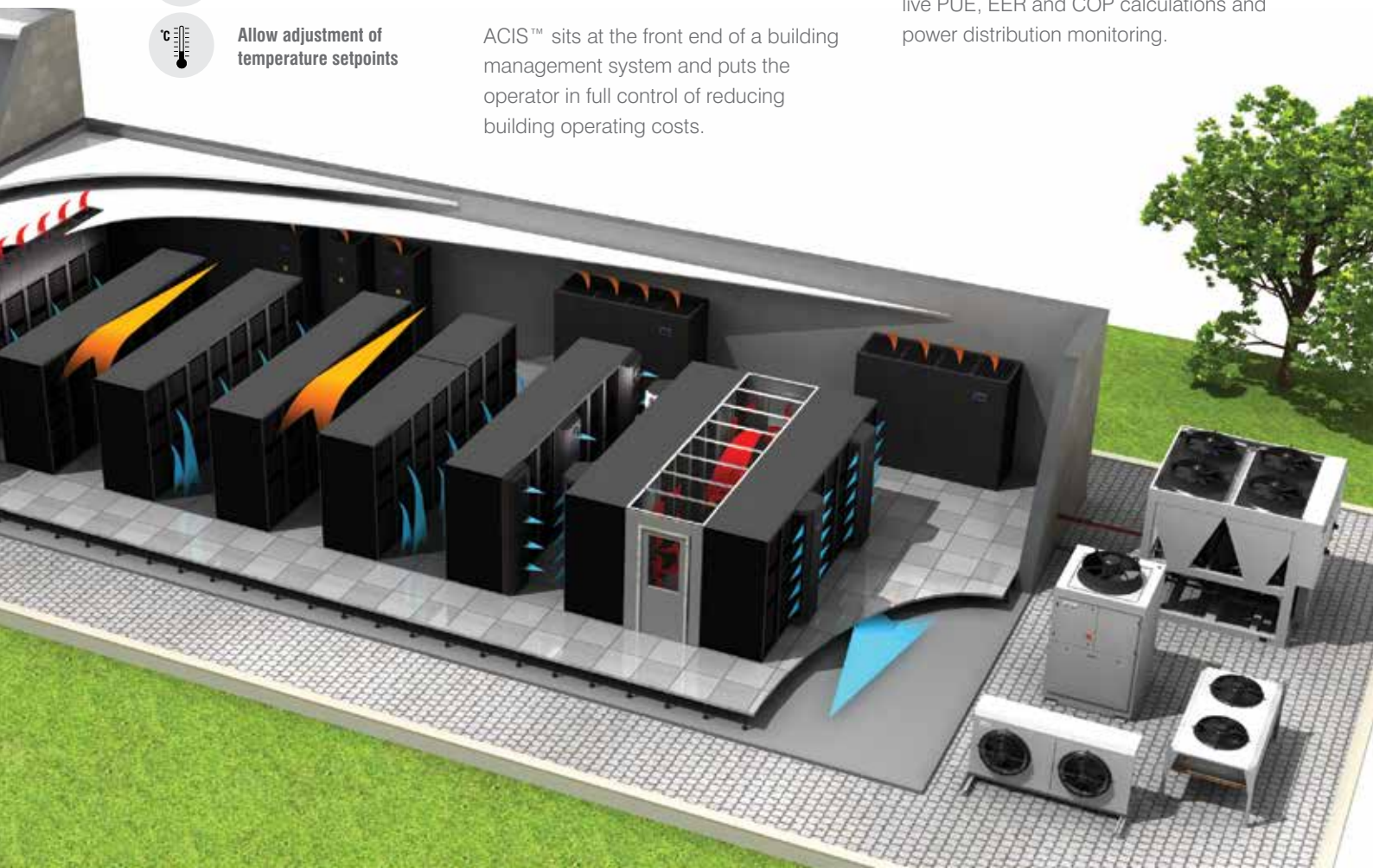


ACIS™

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.



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**

* 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** for further details.

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"Commercial building services product of the year 2014"

2014 WINNER DCS awards

"Data centre energy efficiency product of the year 2014"

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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

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