



# SpiraChill

**R32 Scroll Chiller and Heat Pump**

215–1260kW



# SpiraChill

## Connect with comfort

**With an increased focus on health and wellness in society, more attention is being given to thermal comfort and its relationship to productivity, general wellbeing, and staff and customer retention.**

From the workplace to leisure venues such as gyms, cinemas, and retail outlets, end-user expectations are much more sophisticated and competition is high, meaning factors such as air quality, air temperature and low background noise are no longer seen a benefit, they are a must-have.

In urban areas where demand for space is tight and plant equipment can be cumbersome, consultants and contractors are tasked to provide energy-efficient thermal comfort solutions that meet the brief of the end-user, whilst adhering to legislation like Ecodesign and Part L building regulations.

Meeting the needs of end-users whilst complying with regulations and budgets can be a headache for the supply chain. Airedale understands these market dynamics and has developed a range of flexible solutions for comfort applications.



**In industries where cooling is critical, you need a critical cooling specialist. Airedale is a world leader in the delivery of innovative thermal management solutions in mission critical environments like data centres, healthcare and telecoms. As part of the US-based Modine group, our global organisation aims to engineer a cleaner, healthier world.**



At Airedale, we believe that air conditioning has a critical role to play in an ever-changing world. We also passionately believe that air conditioning manufacturers must play a responsible role in an era where sustainability is key to the preservation of our planet.

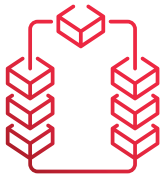
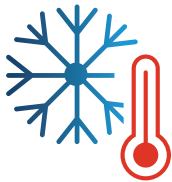
Airedale's success is testament to its long standing history of providing flexible, innovative, and efficient cooling solutions.

Our systems approach and ability to combine hardware and software ensure that HVAC systems work smarter, not harder, to deliver more cooling for less power and ensure a stable environment with 24/7 availability.

Airedale's product pedigree is backed up with significant software capabilities, providing complete visibility, harmony and autonomy of our installations.

# SpiraChill

SpiraChill™ is Airedale's scroll compressor chiller and heat pump solution and is part of our more sustainable range of cooling solutions, offering partial and full heat recovery on all models.



SpiraChill uses the latest in scroll compressor technology, optimised for lower GWP refrigerant R32 (GWP 675), to offer excellent efficiency and versatility across a wide range of applications.

Suitable for both comfort and process applications, SpiraChill operates with an in-built sequencer that allows for up to 7 units to be grouped together (1 master and 6 slaves) delivering flexibility and scalability to our customers.

With scroll compressors that operate in up to 12 stages, SpiraChill offers excellent part-load efficiencies and highly accurate set-point control.

Optimised for R32, SpiraChill delivers SEERs of up to 4.9 (cooling only) and 4.8 (heat pump), making this a sensible, sustainable option.



Cooling capacity:  
215–1260kW  
Heating capacity:  
225–1310kW



Heat recovery:  
Partial – 20%  
Full – 100%



Cooling only:  
SEER up to 4.96  
Heat pump:  
SEER up to 4.89



In built sequencer  
up to 7 units



R32 scroll  
compressors:  
GWP of 675



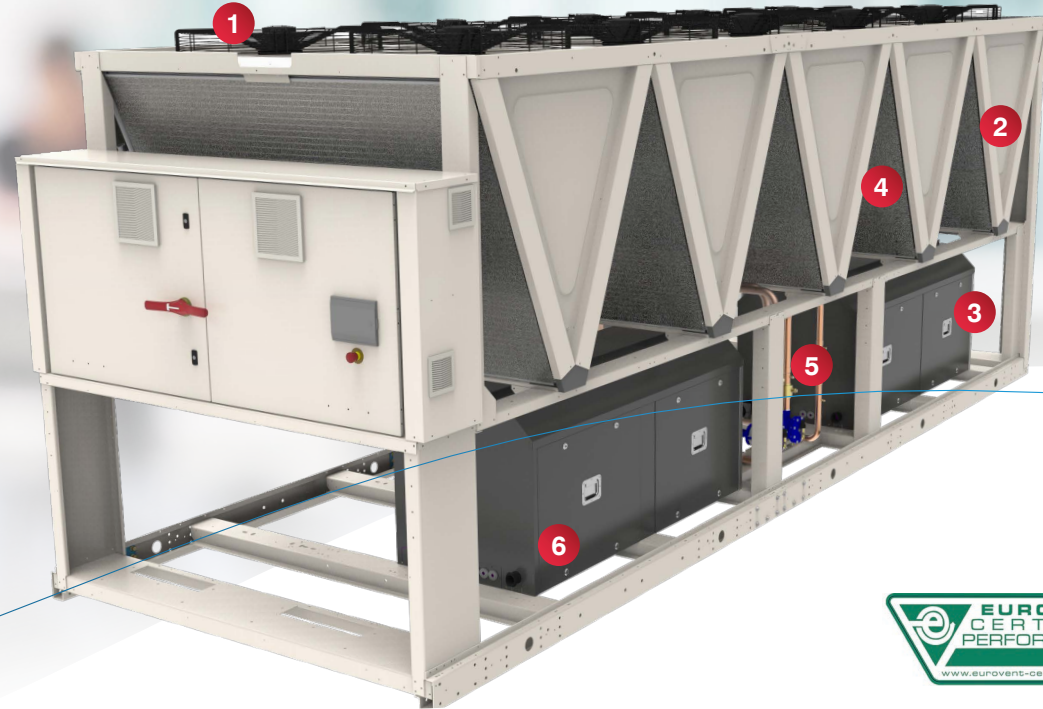
Water  
production:  
–12°C to 55°C

# SpiraChill

## Intelligent Controls

The inbuilt, pre-programmed controller offers:

- Automatic compressor capacity adjustment to match heat load.
- Optimised compressor and fan power to minimise overall power consumption across the whole ambient year.
- Constant superheat via EEV control.
- Variable supply water temperature control. In comfort applications, the design setpoint increases at lower ambient temperatures to offset additional building heat loss.
- Variable flow - pump speed is managed to maintain Delta T and provide energy savings.
- In-built sequencer – all SpiraChill models come with an in-built sequencer, allowing for up to 7 SpiraChills to be connected without the need for additional equipment, delivering a scalable and cost effective controls solution.
- Compressor rotation for equal run hours.



### Enhanced features

- Plate heat exchangers or shell and tube
- Three acoustic configurations
- Refrigerant leak detection
- Integrated hydronic assembly, system tank, partial or full heat recovery
- Power factor correction
- Compressor soft start

- 1** EC Fans – up to 80% more efficient than AC fan equivalent. Electronically commutated axial fans give increased performance for reduced power input.
- 2** Optional inverter-controlled pump(s). Smart water flow control, automatically adjusts its speed to maintain the design flow rate and offer low flow rate protection.

- 3** Domestic hot water up to 55°C and low water temperature down to –12°C.

- 4** Various condenser coils solutions available:
- Microchannel (cooling only)
  - Round tube plate fin (heat pump, not shown)
  - Epoxy coatings for coastal or aggressive environments
  - Finned protection grills

- 5** Electronic expansion valves\* (EEVs) are included on all units as standard to provide significant energy savings. This can result in an Energy Efficiency Ratio (EER) increase of up to 30%.
- 6** R32 scroll compressor with up to 12 capacity steps for increased efficiency at part load. Operating with either 2 of 4 refrigeration circuits.

\*\*EEV is unseen

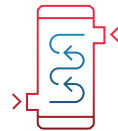
# Sustainable as standard

At Airedale, we believe that energy efficiency should be driven, not only by legislation, but by a genuine will to reduce air conditioning's cost to our customers and the environment. As part of this commitment, the SpiraChill range includes the following energy saving technologies as standard:



## R32 Refrigerant:

SpiraChill has been specifically developed for use with next generation R32 refrigerant. With both a lower GWP and zero ODP, R32 has a lower impact on the environment. It uses 16% less refrigerant volume per kW when compared to R410A and has a GWP of 675, compared to R410A at 2088. R32 is in line with F-Gas phase-down regulations and is A2L rated, meaning it has low toxicity and lower flammability. R32 offers a lower carbon footprint, making it eligible for 2 BREEAM points.



## Heat Exchanger:

SpiraChill comes with a plate heat exchanger as standard, with higher efficiency shell and tube arrangement available as an option. Whilst plate heat exchangers are extremely effective, shell and tube offers increased efficiency, reduced water pressure drop and ease of maintenance in the event of a fault.



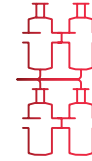
## Superior Temperature Control:

Our high efficiency models offer the most energy efficient selection and are offered as standard. We also offer a range for those where efficiency targets are not required to be as high; this is known as our premium range. Temperatures and maximum EER\* ratings are listed in the technical tables on pages 7–9.



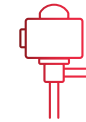
## Multiple compressor for exact capacity matching:

Multiple scroll compressors provide staged capacity control, enabling system water volumes to be reduced and part load efficiencies to be optimised.



## Pump Options:

Selection is available for SpiraChill to operate with either a single, or multiple running pumps. Multiple running pump mode offers limited redundancy protection in the event of a breakdown. The pumps selected are available as inverter pumps for increased efficiency and reduced energy use.



## Electronic Expansion Valve:

EEVs are included on all units as standard. An EEV's ability to maintain control of the suction superheat at reduced head pressures provides significant energy savings. This can result in an EER\* increase of up to 30%.



## Heat Recovery:

SpiraChill chiller and heat pump models offer partial and total heat recovery as an option when in cooling mode, delivering free hot water production for:

- Domestic hot water
- Re-heating the hot water coil
- Industrial purposes

With partial heat recovery, the system recovers around 20% of the available heat rejection using a user-activated control system. With total heat recovery, the unit can recover up to 100% of the available heat rejection using an integrated pump control system.

\*Energy Efficiency Ratio

# SpiraChill

## Heat Pump Technical and Performance Data

1

### High Efficiency Range (EXC) with soundproofing

The table opposite details the model selections available, with data for a soundproofed selection of a high-efficiency model.

This is based on chilled water at 7/12°C in a 35°C ambient and hot water at 40/45°C in a 7°C ambient.



Unit reference	Number of circuits	Nominal cooling capacity (kW)	EER	Nominal heating capacity (kW)	Sound pressure @ 10m dB(A)	Dimensions (mm) (H x W x L)	SEER (gross)	SSCEE compliance	SEPR
80.3	2	215	2.97	225	55.4	2520 x 2250 x 3118	4.45	175	5.30
90.4	2	240	3.17	255	55.9	2520 x 2250 x 4114	4.79	188	5.81
100.4	2	265	3.16	280	56.9	2520 x 2250 x 4114	4.74	187	5.63
110.4	2	290	3.08	310	56.9	2520 x 2250 x 3118	4.81	189	5.79
120.4	2	320	3.05	335	56.9	2520 x 2250 x 3118	4.84	190	6.04
130.4	2	355	3.14	375	58.3	2520 x 2250 x 3118	4.86	191	6.22
145.4	2	390	3.07	415	58.3	2520 x 2250 x 4114	4.78	188	5.96
160.4	2	430	3.03	455	58.3	2520 x 2250 x 4114	4.72	186	6.10
185.5	2	500	3.09	530	59.7	2520 x 2250 x 4114	4.88	192	5.94
210.6	2	556	2.99	584	59.7	2520 x 2250 x 5091	4.84	191	6.20
225.6	2	611	3.12	639	61.0	2520 x 2250 x 5091	4.89	193	6.01
240.6	2	656	3.04	684	61.0	2520 x 2250 x 5091	4.86	192	5.92
260.8	4	710	3.14	750	60.7	2520 x 2250 x 8200	4.56	190	5.63
290.8	4	780	3.07	830	60.7	2520 x 2250 x 8200	4.56	187	5.34
315.9	4	860	3.03	910	60.7	2520 x 2250 x 9172	4.59	185	5.64
345.9	4	930	3.06	985	61.7	2520 x 2250 x 9172	4.56	190	5.62
370.1	4	1000	3.09	1060	61.9	2520 x 2250 x 10150	4.62	192	5.56
420.12	4	1110	2.98	1170	62.0	2520 x 2250 x 10150	4.60	190	5.62
450.12	4	1210	3.01	1270	62.0	2520 x 2250 x 12094	4.64	190	5.67

Alternative data for other selections is available on request.

# SpiraChill

## Heat Pump Technical and Performance Data



### 2 Premium Range (PRM) with soundproofing

The table opposite details the model selections available, with data for a soundproofed selection of a Premium model.

This is based on chilled water at 7/12°C in a 35°C ambient and hot water at 40/45°C in a 7°C ambient.

Unit reference	Number of circuits	Nominal cooling capacity (kW)	EER	Nominal heating capacity (kW)	Sound pressure @ 10m dB(A)	Dimensions (mm) (H x W x L)	SEER (gross)	SSCEE compliance	SEPR
90.3	2	235	2.83	240	55.4	2520 x 2250 x 3118	4.26	167	5.27
100.3	2	255	2.73	265	56.4	2520 x 2250 x 3118	4.24	167	5.30
110.4	2	275	2.72	285	56.4	2520 x 2250 x 3118	4.35	171	5.07
120.4	2	300	2.61	315	55.4	2520 x 2250 x 3118	4.37	172	5.19
130.4	2	335	2.84	350	57.9	2520 x 2250 x 3118	4.55	179	5.63
145.4	2	370	2.74	385	57.9	2520 x 2250 x 4114	4.57	180	5.34
160.4	2	405	2.63	420	57.9	2520 x 2250 x 4114	4.33	170	5.50
185.5	2	480	2.82	500	59.3	2520 x 2250 x 4114	4.64	183	5.56
210.6	2	530	2.68	555	59.3	2520 x 2250 x 5091	4.62	182	5.62
225.6	2	585	2.86	610	60.7	2520 x 2250 x 5091	4.66	183	5.67
240.6	2	630	2.80	655	60.7	2520 x 2250 x 5091	4.64	182	5.64
260.8	4	670	2.84	700	60.7	2520 x 2250 x 8200	4.56	179	5.63
290.8	4	740	2.74	770	60.7	2520 x 2250 x 8200	4.56	179	5.34
315.9	4	815	2.83	850	60.7	2520 x 2250 x 9172	4.59	180	5.64
345.9	4	885	2.73	920	61.7	2520 x 2250 x 9172	4.56	179	5.62
370.1	4	960	2.82	1000	61.9	2520 x 2250 x 10150	4.62	182	5.56
420.12	4	1060	2.68	1110	62.0	2520 x 2250 x 10150	4.60	181	5.62
450.12	4	1172	2.86	1220	62.0	2520 x 2250 x 12094	4.64	183	5.67
480.12	4	1260	2.80	1310	63.2	2520 x 2250 x 12094	4.63	182	5.65

Alternative data for other selections is available on request.



# SpiraChill

## Chiller Technical and Performance Data

### 3 High Efficiency Range (EXC) Cooling Only with soundproofing

Opposite we have detailed out the model selections available, with data for a soundproofed selection of a high-efficiency model.

This is based on chilled water at 7/12°C in a 35°C ambient and hot water at 40/45°C in a 7°C ambient.



Unit reference	Number of circuits	Nominal cooling capacity (kW)	EER	Nominal heating capacity (kW)	Sound pressure @ 10m dB(A)	Dimensions (H x W x L)	SEER (gross)	SSCEE compliance	SEPR
80.3	2	222	3.23	N/A	55.3	2535 x 2228 x 2925	4.70	185	6.38
100.4	2	267	3.15	N/A	56.3	2535 x 2228 x 2925	4.67	184	6.33
115.4	2	315	3.18	N/A	56.9	2535 x 2228 x 4175	4.78	188	6.48
130.4	2	364	3.20	N/A	57.9	2535 x 2228 x 4175	4.75	187	6.44
155.5	2	424	3.18	N/A	58.5	2535 x 2228 x 5417	4.92	194	6.48
170.5	2	472	3.19	N/A	59.5	2535 x 2228 x 5417	5.00	197	6.57
185.5	2	520	3.15	N/A	59.5	2535 x 2228 x 5417	4.96	196	6.53
210.6	2	574	3.16	N/A	59.9	2535 x 2228 x 5417	4.94	195	6.50
225.6	2	624	3.16	N/A	59.9	2535 x 2228 x 5417	4.96	195	6.53
240.6	2	676	3.14	N/A	60.9	2535 x 2228 x 5417	4.90	193	6.46

Alternative data for other selections is available on request.

# SpiraChill

## Optional Accessories

### Acoustic Performance

We offer selections on acoustic performance, using compressor casings and air flow reduction techniques to deliver a near silent and super-silent offer.

Standard sound levels	No casing on the compressors
-3dB(A)	Casing used for compressor sound proofing
-7dB(A)	Casing used for compressor sound proofing and air flow reduction is applied

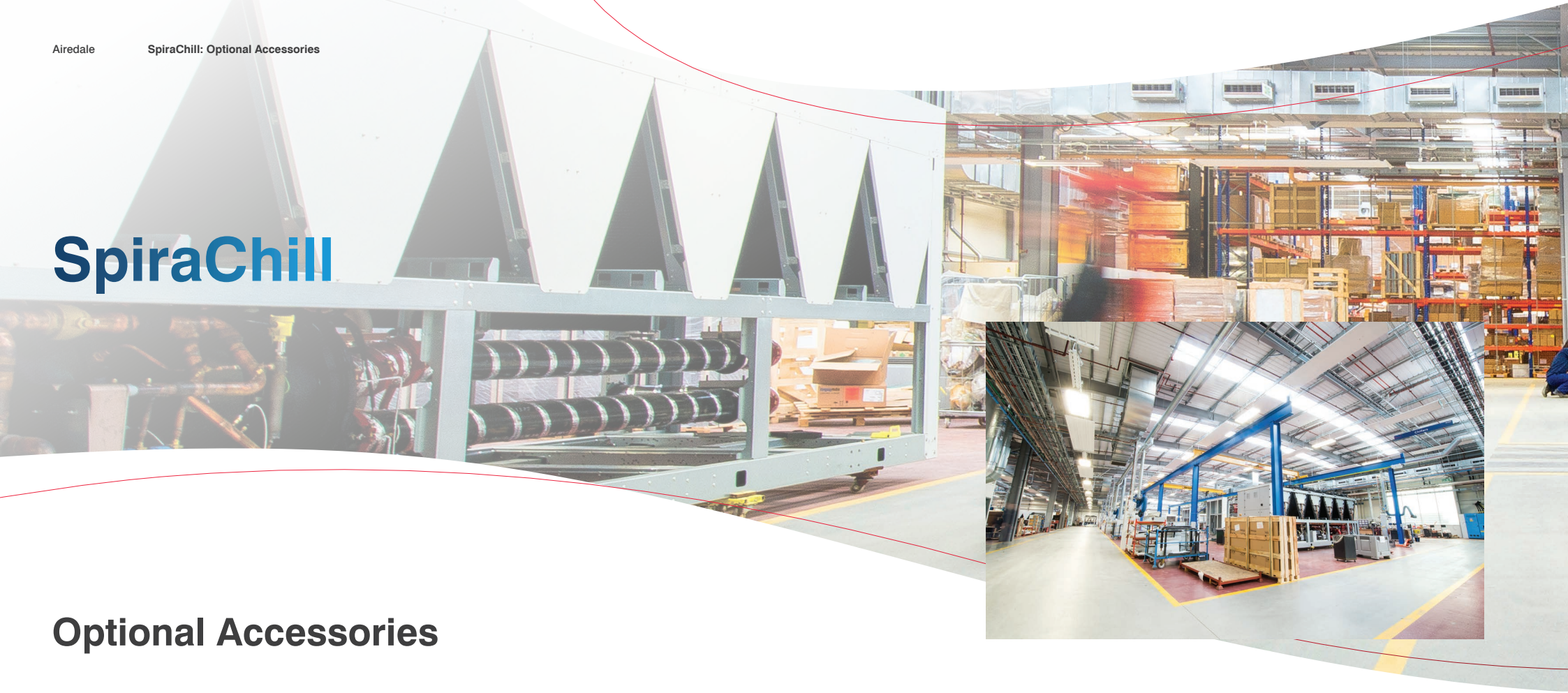
### In Built Sequencer

All SpiraChill models come with an in-built system that operates in the style of an in-built sequencer, allowing for up to an additional 6 SpiraChill units to be connected to the same controller circuit without the need for additional equipment, delivering a scalable solution using a master/ slave control panel arrangement.

These can be arranged as cascade, where the unit is activated if the previous one is at full load, or balance load configuration, where units are activated following the group maximum efficiency.

For both distribution technologies, it is possible to have either the pumping group always activated or activated only when at least one compressor of the unit is in operation.

- Protection grills for coils and compressor compartments
- Serial communication module for Modbus supervisor
- Serial communication module for LonWorks supervisor
- Serial communication module for BACnet-IP supervisor
- Inverter driven variable flow-rate user side control depending on the temperature differential
- Refrigerant leak detector assembled on the casing (available only with SC and EN configuration)
- Remote control via microprocessor control (separately supplied accessories)
- Electrical panel antifreeze protection for min. outdoor temperature down to  $-25^{\circ}\text{C}$
- Spring antivibration mounts (separately supplied accessories)
- Two manually operated shut-off valves (separately supplied accessories)
- Steel mesh strainer on the water side (separately supplied accessories)
- Mains power supply (separately supplied accessories)
- Energy meter
- Microchannel coils protection panels
- Ecoshare function for the automatic management of a group of units
- Power factor correction capacitors
- Disposal for inrush current reduction
- Storage tank
- Cut off valve on compressor supply and return



# We are there when you need us



## Life cycle support for critical cooling

Our UK based 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. Guaranteed emergency response times mean that a qualified Airedale engineer will be with you in an agreed timeframe, therefore maximising your system's uptime.

For non-UK clients, we offer a service partner network across Europe and the Middle East.

## Choose the right service and maintenance contract for you

Our air conditioning service plans offer a preventative air conditioning maintenance service solution to improve system resilience and increase the longevity of your cooling system.

Planned maintenance not only assists in preventing unit breakdowns in business-critical environments, but also helps to improve energy efficiency and enhance system optimisation for improved performance. Over the life cycle of the product this can lead to reduced running costs, improved carbon footprint and quicker returns on investment.

## Unrivalled spares service

With over £1.5 million worth of stock on site at its Leeds headquarters, Airedale is the UK's largest stockist for air conditioning parts and specialist HVAC spares and can deliver worldwide.



Vodafone data  
centre update

*“Reliability and the level of service that Airedale offers are key issues for a business critical location such as this. The project ran very smoothly.”*

# Cloud Diagnostics

Airedale Cloud Diagnostics™ is a cloud-based monitoring and diagnostics platform developed for mission critical HVAC plant.

Airedale's extensive field experience has been leveraged, along with leading-edge data science, to develop powerful diagnostic tools, including a ground-breaking refrigerant leak detection algorithm.

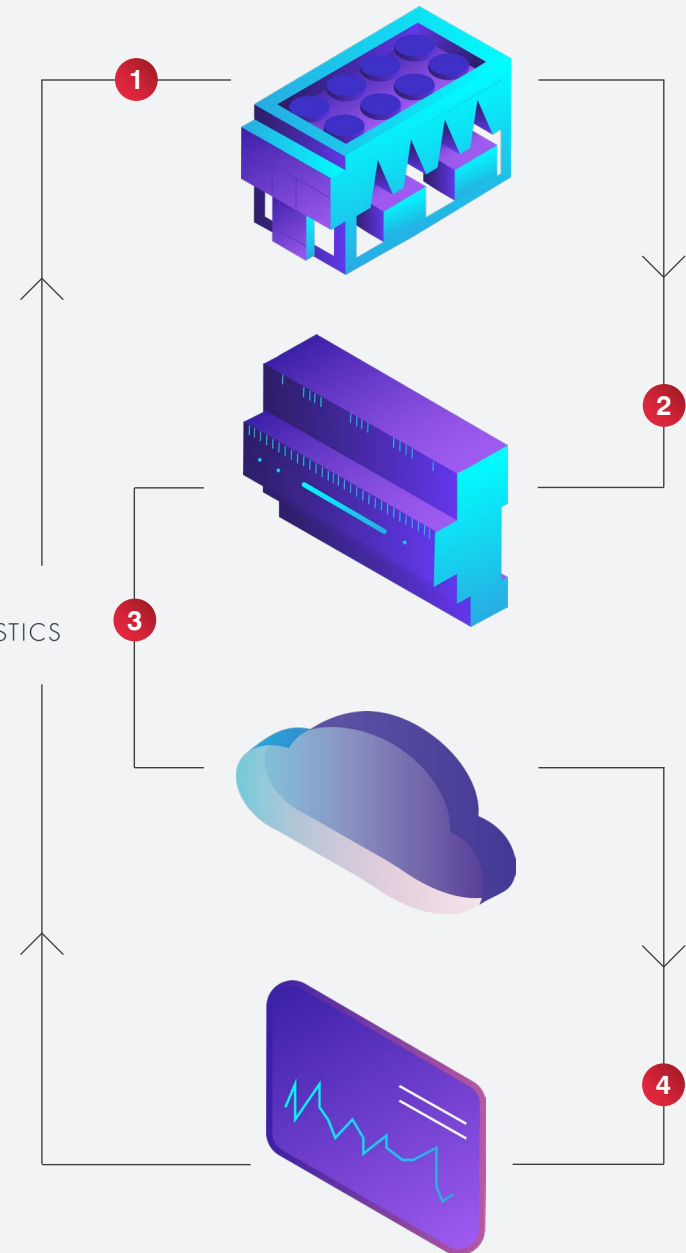
Access is via a web-based platform and intuitive dashboard, with data collection from the equipment via a gateway in the control panel and a local internet connection.

Cloud Diagnostics, once connected to chiller plant, has the ability to analyse performance of the unit over time using machine learning techniques.

A comprehensive pattern of data gathering and analysis allows the tool to recognise "failure patterns" and warn the user of a potential failure before it happens. If a drop in performance against operating conditions is detected, this will act as an early warning system for the customer/maintenance team to investigate further.

Cloud Diagnostics can be specified at order stage or retrofitted to existing equipment on site.

Airedale   
CLOUD DIAGNOSTICS





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