

# AireWall ONE™

Parametric Data Center Fan Array

200 – 650 kW



# The Global Critical Cooling Specialist



## Global Locations:

- **Leeds, UK**  
Global Headquarters  
Chillers, CRAHs,  
Telecoms, R&D, Test  
Labs, Training Center
- **Consett, UK**  
AHUs, CRAHs,  
Fan Walls
- **Guadalajara, ES**  
CRAHs, Fan Walls,  
Test Labs
- **India**  
CRAHs
- **Rockbridge, VA, US**  
Chillers, Test Lab
- **Grenada, MS, US**  
CRAHs, Fan Walls,  
Test Lab
- **Dubai, UAE**  
Sales Office

**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 centers, 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 ensures that cooling systems work smarter, not harder, to deliver more cooling for less power with 24/7 availability.

Airedale's product pedigree is further enhanced via significant software and service capabilities; providing complete visibility, harmony, support and autonomy of our installations.



# AireWall ONE™

## Designed by YOU

**Solid floor applications in large data centers are becoming more popular, as they are quicker and more cost effective to deploy. The size of facilities overall continues to increase as the demand for data services continues to rise. Sustainability is also becoming a major focus for the industry. We must look for opportunities to reduce power input, simplify air paths and maximize free cooling.**

AireWall ONE was designed by you. We started the development of this range not in our meeting rooms, not in our R&D labs, but in your offices all over the world.

We decided that the new AireWall was going to be a customer led development. We engaged with consultants and end users across the world to answer the key questions our development team

had around size, capacity, install, configuration, maintenance and efficiency. The consensus was clear: You wanted a fan wall range to be flexible, configured to the space and IT workload, and not to be constrained by a limited number of models.

The result is AireWall ONE. We think it is the most flexible, complete fan wall available anywhere in the world.

### You Wanted

A global range for a global industry

Designed for a modern, evolving industry focussed on sustainability

Flexibility to suit the project

Quick installation

Maximized white space

Reduced engineering time

### We Delivered

A standard range designed with global input, manufactured in the UK, US and Spain

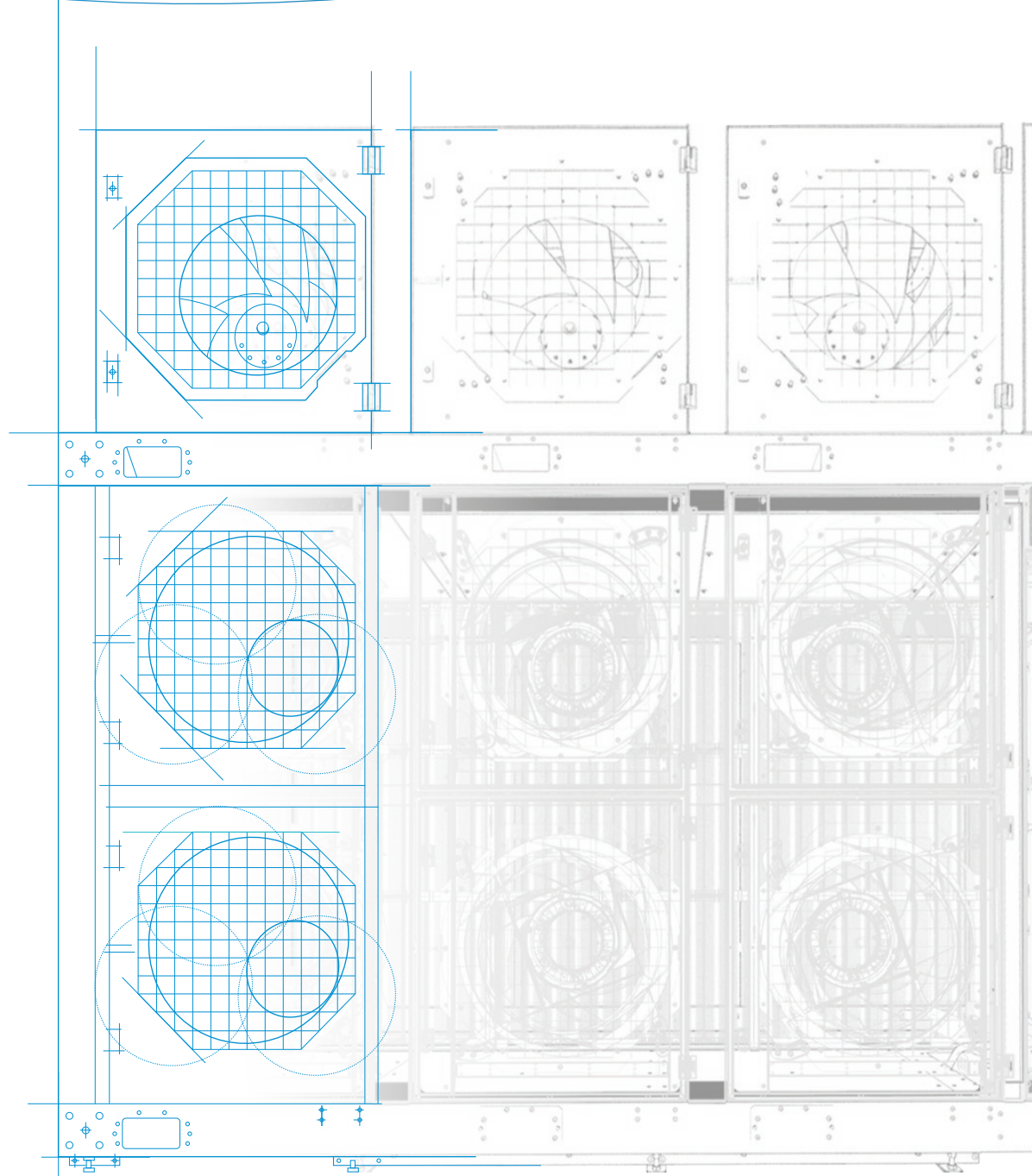
Tailored for applications with higher return air and water temperatures

A true parametric design. AireWall ONE is configured to your site, not selected from a list

Designed with installing contractors in mind. Stackable and portable design

Reduced overall depth

Standard modules and easily configurable models/drawings





2012

We began developing bespoke fan wall solutions for data center clients, based on air handling unit designs/ manufacturing techniques.

2018

We began developing a dedicated range of data center fan walls. We created a range with the simplicity of an AHU and the precise control and build quality of a data center precision cooling unit, including deep row chilled water coils and the latest fan technology.

2019

We officially launched the AireWall™ range at Data Center World 2019 in London, with capacities up to 400kW. This was a blow through design with filters, fans, coil and dampers, installable in sections and with the control panel accessible from the plant corridor.

2022

With three years of experience of fan wall projects in data centers across Europe, we realized that the rapidly evolving market needed something different. We found ourselves designing a lot of bespoke units based on the AireWall platform. We decided we needed to evolve the range.

2022

Airedale began fan wall production in the US and Spain. It was important that the new AireWall range be designed for global manufacture, delivery and application.

2023

**AireWall ONE**  
Launched

# Data Center Fan Wall

## Airedale Development Timeline



# Highlights



200–650kW



2–12 fans



Parametric design



6, 8, 10 row coil options



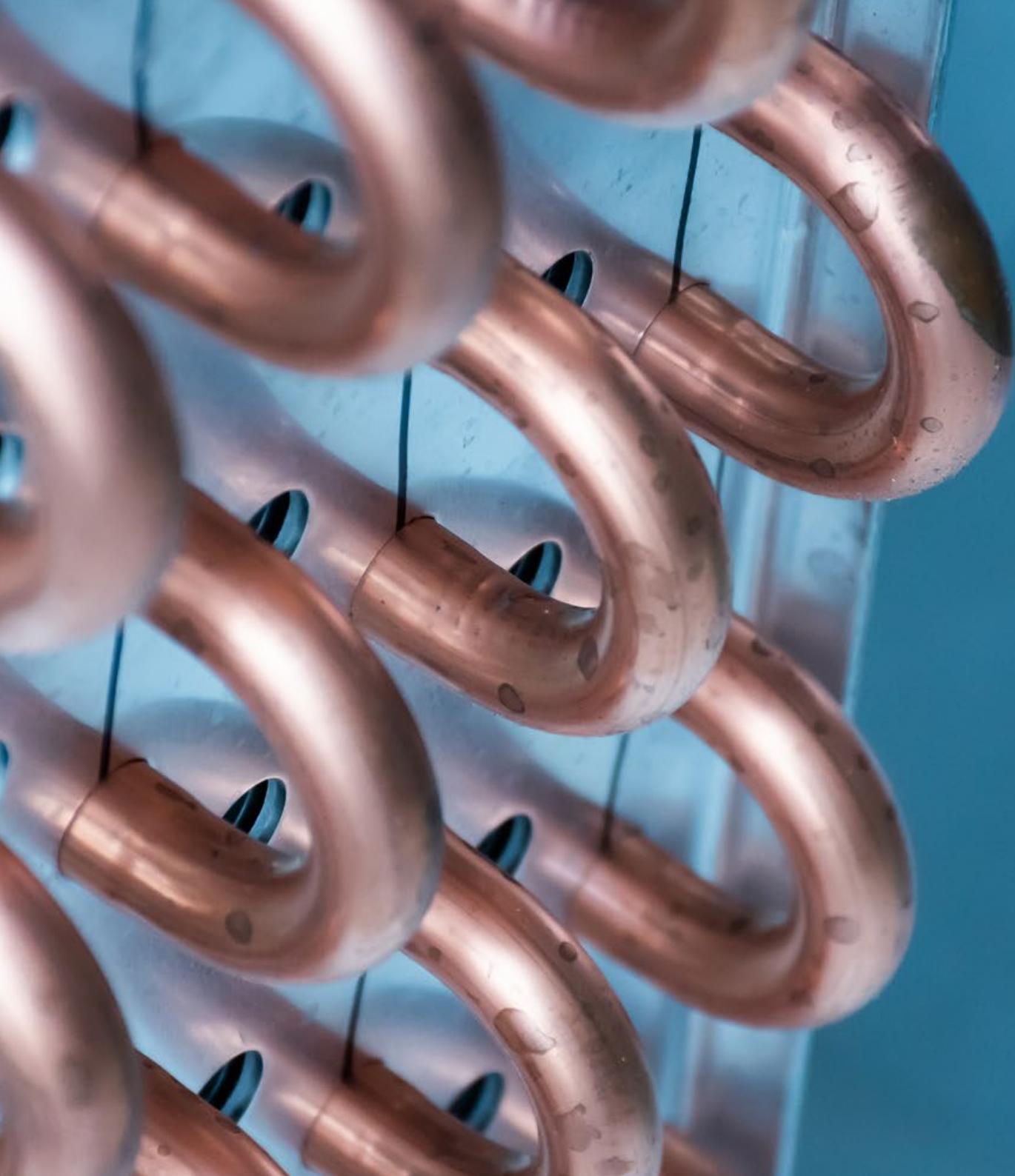
Intelligent design for ease of install



Simplicity of a fan wall, quality of an Airedale precision cooling unit

Metric	Minimum	Maximum	Design
Supply Air Temperature	18°C/65°F	27°C/80°F	24°C/75°F
Return Air Temperature	28°C/82°F	45°C/113°F	36°C/97°F
Entering Water Temperature	14°C/57°F	26°C/79°F	20°C/68°F
Leaving Water Temperature	20°C/68°F	38°C/100°F	30°C/86°F
Waterside $\Delta T$ Range	6K/11°R	17K/31°R	10K/18°R
Approach			4K/7°R





# Designed for Data Centers

**Often the clue is in the name, but with a data center fan wall it is the chilled water coil that is the key component, driving footprint, performance and energy efficiency.**

Airedale is part of the Modine group, one of the largest manufacturers of heat exchangers in the world. Having access to this expertise and manufacturing capability means we are able to truly optimize coil selections for every client project. AireWall ONE coils are designed with the number of streams & header size optimized for waterside pressure drop at the input conditions. AireWall ONE coils are also designed with a larger fin pitch to reduce air-side pressure drop.

The coil is at the heart of our parametric design for AireWall ONE, delivering flexibility and individuality to every project.



# Designed for Data Centers



630mm centrifugal EC fans, offering maximized efficiency and air volume.

Arranged in blowthrough configuration, with fans accessible from the plant corridor, followed by optional filters, coil and optional damper.

PIC valve as standard. Optional energy valve. Control valves located on the coil outlet external to the unit.

6, 8 or 10 row deep chilled water coils, optimized for each order.

Global product – ISO & MERV filters offered as well as “no filtration” option – provided with a low-grade filter media on coil face to offer some filtration during initial operation.

Actuated dampers to close the unit air path when not in use. Dampers are optional. We also offer fan blanking plates as a manual air bypass mitigation.

Control panel easily accessible from the plant corridor.

One of the key design requirements was to reduce the depth of the unit, allowing more white space.



# Designed for Contractors

**Often the installation of cooling equipment is an afterthought, but you told us that to build quickly, you need your cooling plant to be designed to be installed easily.**

AireWall ONE has been designed to take the heat out of installation, with several features that make transportation and positioning as easy as possible.

Forklift grooves are included in the base of the unit, with cover plates fitted for when in transit/operation. We know that space in plant corridors can be at a premium, so we have also designed the unit with slots at either end to enable Skoots/moving trolleys to be used for maneuvering.

Larger units are supplied in stackable sections to reduce single piece size. When the unit is stacked, internal pipework can be connected on site without hot works.



# Designed for Contractors



Hinged fans allow for maintenance and access to filters. Filters removed via the front of the unit.

Provision for ease of lifting and installing – forklift in the base, lifting lugs for cranes and allowances for manual handling equipment.

Single unit height or stacked unit arrangement to aid with transportation and installation.

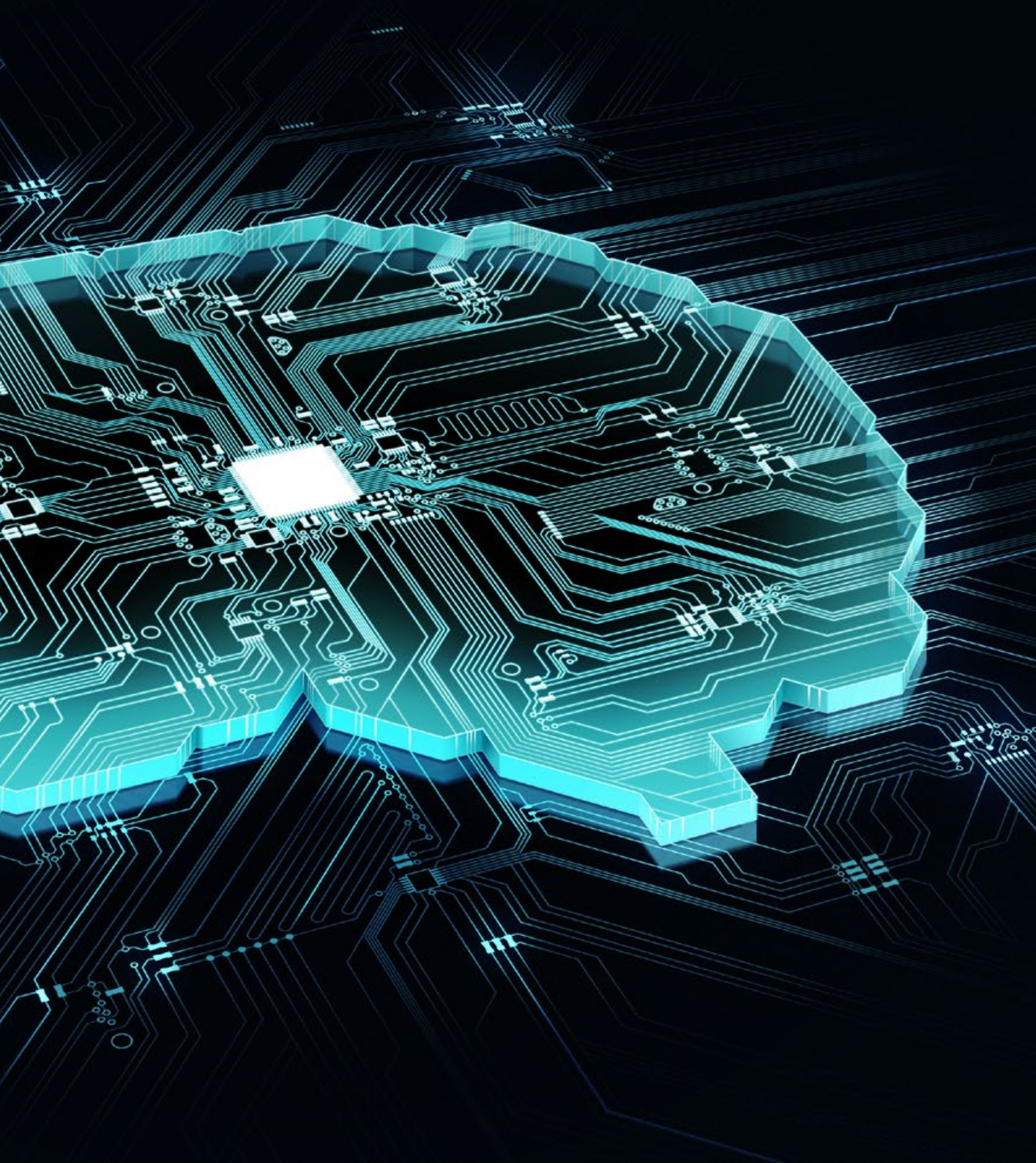
Flanged pipework connections at top of unit allow stacked units to be easily connected together to a common supply and return water feed.

Actuated shut off valve on the coil inlet, for isolating the coil for maintenance or leak detection.

Skoot/skate sets can also be used for maneuvering, using slots located at either end.

Low profile plinth with adjustable levelling feet – set the level of the units on site before lowering the units on top.





# Designed for Intelligence

**Helix™ is a controls platform developed in-house at Airedale by a team of dedicated controls engineers. It represents the bonding of hardware, software and innovation provided as standard within every Airedale product.**

Every Airedale product has a helix “brain”, combining the most appropriate hardware and software to provide efficient and effective control and automation.

The control system present in all our precision cooling products is designed for critical applications where exact control of temperature and humidity is vital. Integral intelligent controls are ideal for resilient low, medium and high density data center cooling to maximize uptime and optimize efficiency.



# Designed for Intelligence

helix



## Intelligent Unit Controls

- Average coil temperature sensors – chilled water valve controlled by supply air temperature sensor, via probe on the air-off side of the coil.
- Control valve options (PIC valve or energy valve) supplied external to the unit.
- Cold aisle temperature sensors sent loose.
- UltraCAP UPS.
- LCD graphical display.
- Water temperature sensors on the inlet and outlet.

## Flexible Supply Fan Control Options

- Cold aisle temperature sensors – fan speeds can be automatically adjusted based on average or min/max of the room sensors.
- Constant pressure control – an optional method of measuring pressure in the white space and modulating the supply fan speed based on this.
- Remote fan control – an option allowing external control of the fans, by making a fan speed percentage setpoint visible to the BMS.
- Return air temperature – an optional method of controlling to the AireWall ONE air-on temperature.

## Options

- Smoke detector
- Flood detection rope
- Coil drip tray level sensor
- Return temperature sensor or temperature/humidity sensor
- ATS (dual power supply)
- Power meters
- Upgraded SCCR



# Designed for Flexibility

**In our discovery process prior to designing AireWall ONE, our clients told us that flexibility is key. Every client is different and therefore a fixed range of fan walls with defined duties and sizes is restrictive. A global data center fan wall range must be suitable for a multitude of construction and cooling designs.**

This delivers spatial benefits in terms of AireWall ONE being configurable to the physical space of the data center, but also duty benefits in terms of coil size. As one of the world's largest manufacturers of heat exchangers, we can configure the coil to the size of the unit and the required cooling output.



# AireWall ONE™

## One Range – Over 33,000 Possibilities

### Flexible by Design

AireWall ONE is built around 15 configurations, based on the number of fans. However, unit height and width is completely changeable within 0.5 inch increments. Maximum height and width limits apply and unit depth is standardized, within these limits we are totally flexible.

Configuration	Fans Tall	Fans Wide	Total Fans
Single Unit	1	2	2
	1	3	3
	1	4	4
	2	2	4
	2	3	6
	2	4	8
	3	2	6
	3	3	9
	3	4	12
Stacked Unit	2	2	4
	2	3	6
	2	4	8
	4	2	8
	4	3	12



# Example Technical Data



50 Hz	Notes	Units	AWO-BSC013*-0	AWO-BSC033*-0	AWO-BBC023*-0 / AWO-BTC023*-0
<b>Capacity</b>					
Nominal Cooling (Gross)	(1)	kW	161.6	258.4	423.3
Nominal EER			35.1	39.3	39.1
Cooling (Gross) at Max. Airflow	(2)	kW	225.8	510.0	756.3
EER at Max. Airflow			21.8	14.2	16.3
<b>Dimensions</b>					
Depth	D	mm	1530	1530	1530
Height	H	mm	1800	2720	4500
Width	W	mm	4180	4180	4180
Mass – Machine/Operating		kg	1310/1450	1895/2130	3265/3700
<b>Unit</b>					
Water Volume		l	140	235	435
Water Flow Rate		l/s	3.86	6.17	10.12
Nominal Airflow	(1)	m <sup>3</sup> /s	11.20	18.00	29.50
Max. Airflow	(2)	m <sup>3</sup> /s	15.29	36.93	53.71

(1) Entering air 36°C / 22.6% RH. Airside dT 12K. Entering water 20°C. Leaving water 30°C.

(2) Entering air 36°C / 22.6% RH. Entering water 20°C. Leaving water 30°C. Max fan speed. Deepest chilled water coil.

60 Hz	Notes	Units	AWO-BSC013*-3	AWO-BSC033*-3	AWO-BBC023*-3 / AWO-BTC023*-3
<b>Capacity</b>					
Nominal Cooling (Gross)	(1)	kW	201.1	318.3	517.2
		MBH	686	1086	1765
Nominal EER			25.4	30.3	29.6
Cooling (Gross) at Max. Airflow	(2)	kW	230.7	522.1	769.4
		MBH	787	1782	2625
EER at Max. Airflow			21.6	14.3	16.2
<b>Dimensions</b>					
Depth	D	in	60.2	60.2	60.2
Height	H	in	70.9	107.1	177.2
Width	W	in	164.6	164.6	164.6
<b>Unit</b>					
Water Flow Rate		l/s	4.80	7.61	12.36
		gpm	76.1	120.6	195.9
Nominal Airflow	(1)	m <sup>3</sup> /s	13.80	22.00	35.75
		cfm	29241	46615	75750
Max Airflow	(2)	m <sup>3</sup> /s	15.00	32.00	51.79
		cfm	31783	67804	109737

(1) Entering air 36°C (96.8°F) / 22.6% RH. Entering water 20°C (68°F). Leaving water 30°C (86°F).

(2) Entering air 36°C (96.8°F) / 22.6% RH. Entering water 20°C (68°F). Leaving water 30°C (86°F). Max fan speed. Deepest chilled water coil.

No filters or dampers. Height excludes plinth. Nominal AV is to target 24°C supply air temperature. Nominal performance is with 8 row deep coil 35kPa waterside pd. Max performance is with 10 row deep coil. 3/8" coil geometry used as most comparable with -3 units.



# IQity™ Software Framework



Airedale's software tech stack dedicated to the intelligent control and monitoring of data centers.

S I T E

**ACIS™**

Facility Management System

S Y S T E M


**Cooling System Optimizer™**

Intelligent cooling management

P R O D U C T

**helix™**

Intelligent controls in all Airedale products



# We are there when you need us

## Life cycle support for critical cooling

Our specialist data center service support includes commissioning, planned maintenance, repair, tech support and spares.

In order to deliver support and maintenance services globally, Airedale utilize directly employed engineering staff in-country and have also developed an extensive network of accredited Service Partners.

All Service Partners are certified by Airedale and have full access to our resources to ensure the quality and governance of their delivery.

## 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 optimization 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

Airedale hold stocks of critical HVAC spares globally in strategic locations close to our significant data center client operations.

We are UK's largest stockist for air conditioning parts and specialist HVAC spares and can deliver worldwide via our global logistics partners.



Vodafone data  
center 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.”*



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