



Barkell™ Modular AHU Range

Up to 6.5m³/s air volume

Barkell™ Modular AHU Range

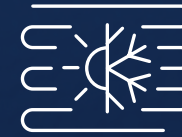
The Barkell™ Modular air handling unit (AHU) from Airedale by Modine is our scalable, pre-configured AHU solution, manufactured in the UK to pre-selected sizes and capacities of up to 6.5m³/s. Suitable for a vast range of commercial and industrial applications, the Barkell Modular AHU affords faster quotations, a flexible, cost effective design process and reduced manufacturing lead times.

Available in 9 case sizes, with a wide variety of coil, filter and heat recovery permutations available, the Barkell Modular AHU is a flexible solution that scales up as your project grows.



Carbon Reduction

TM65 calculations available
ERP compliant
Made in the UK



Coil Options

Low Pressure Hot Water (LPHW)
Chilled Water (CW)
Direct Expansion (DX)
Electric Heat (EH)



Faster Turnaround

Faster from concept to commissioning
Preconfigured selection tool to enable shorter lead times from quotation to deployment



Capacity

Air volume up to 6.5m³/s
over 9 compact case sizes



Heat Recovery to 90%

High efficiency thermal wheel
Plate heat exchanger



Pre-wired Controls

Reducing installation time
and commissioning

Sustainable, high efficiency solutions as standard

At Airedale by Modine, we believe that energy efficiency should be driven not only by legislation, but by a genuine will to reduce the cost of air conditioning and ventilation to the environment. As part of this commitment, the Barkell Modular AHU includes the following energy saving technologies as standard:



Heat Recovery – up to 90%

High heat exchange efficiency is achieved with the option of a high efficiency thermal wheel or plate heat exchanger. Up to 90% of the heat generated within the AHU can be recovered and re-used within the system, reducing the load on the heating coil whilst conserving energy.

Plate heat exchangers (PHE) are designed to separate warm and cold air streams, reducing the opportunities for counter-cross flows, maximising efficiency. PHE are available in plain aluminium, or gold epoxy plates for additional corrosion resistance.

Thermal wheels generate flowthrough channels of varying size, dependent on the application and pressure drop. At maximum efficiency the rotor will rotate at a speed of 10 times per minute.



ERP Compliant

Demonstrating our commitment to reducing the impact of our energy related products on the environment, meeting legislation and our own efficiency standards.



TM65 Calculations

CIBSE TM65 calculations available on Barkell AHUs for the assessment of embodied carbon. We use this information to improve our processes as we strive to lessen our impact on the environment.



Filtration

All filters meet standard ISO ED 16890, offering protection against low particulate matter, for improved indoor air quality. The main filter will be either F7 or F9, with panel filters to standard G4 or M5, offering different intensities of filtration to suit the demands of the application. A full set of spare filters can be delivered with the unit.



EC Fans

EC fans offer maximum air flow performance whilst keeping sound levels to a minimum. They deliver significant power reduction in comparison with an equivalent AC fan at modulated fan speeds, with low specific fan power (SFP) as standard.



Low Noise Design

Units are designed to help clients achieve their project specific acoustic requirements.



Testing Validation

All our units undergo rigorous factory testing to ensure compliance and minimise the risk of issues upon delivery to clients.

Leakage, acoustic and volumetric witness tests are available to clients on request.

Construction and Casing Specifications

Single Piece Case Construction

Cases are constructed in a single piece, incorporating a rigid base, improving efficiencies by reducing opportunities for thermal transmission.

It also makes it easier at the point of delivery and installation, as it is suitable for mechanical lifting.

Easy Maintenance and Component Accessibility

Easy access to components reduces the time and costs involved in routine service inspections and maintenance requirements.

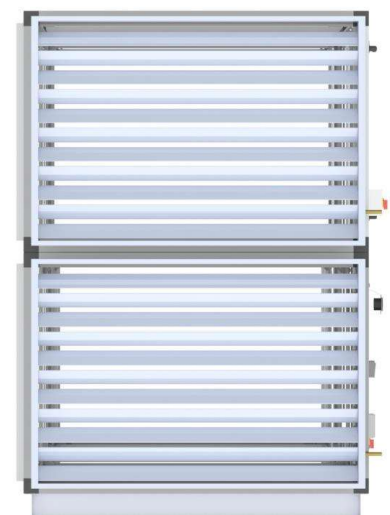
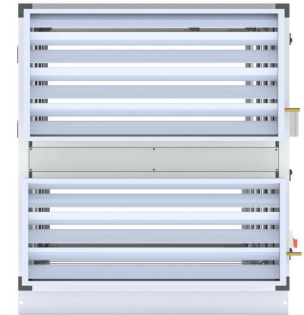
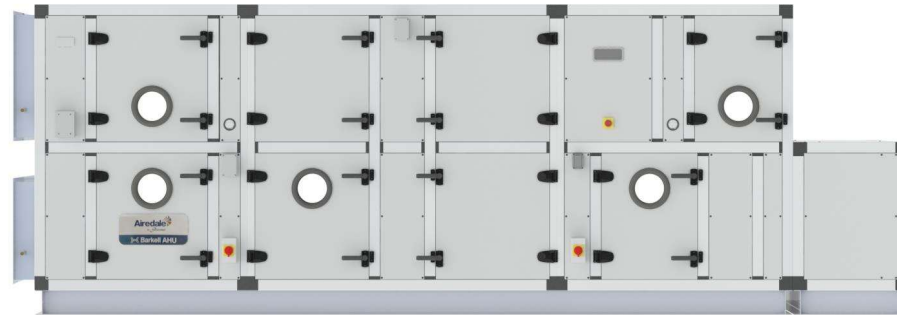
Thermal Transmission

Barkell Modular AHUs are constructed to a minimum T3/TB3 standard, offering a high level of mechanical and thermal performance, suitable for the majority of indoor applications.

Weatherproofed solutions are available for outdoor applications.

T2/TB2 construction is available for applications that demand higher levels of thermal bridging protection.

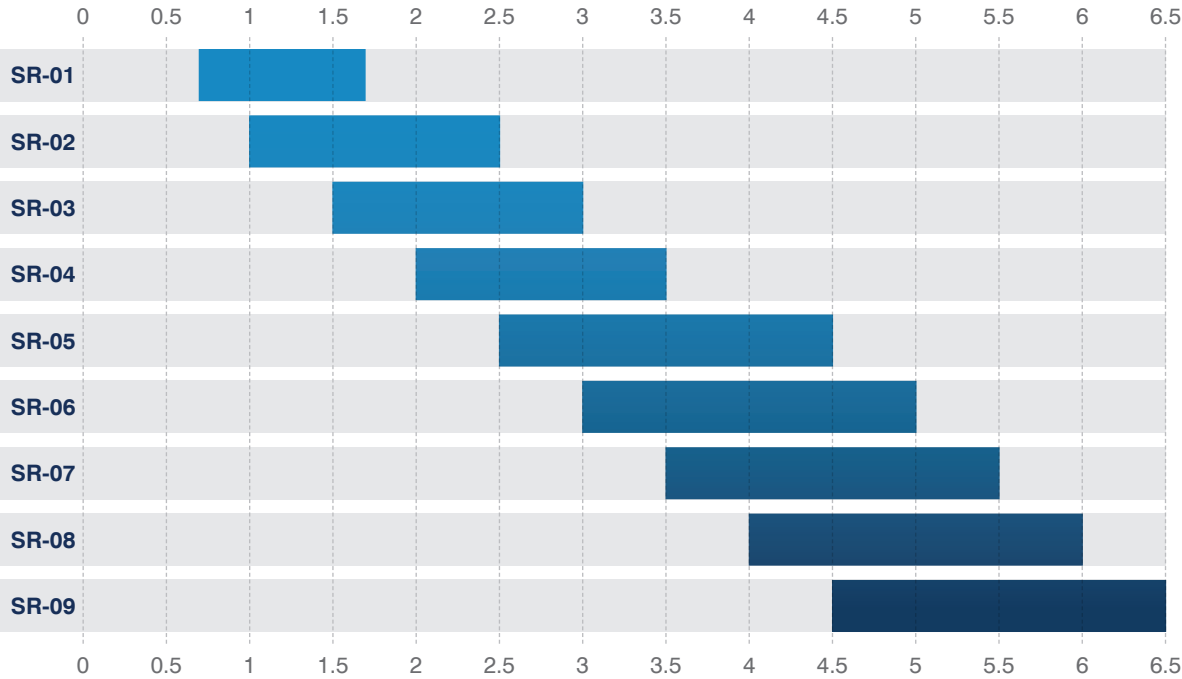
Coastal corrosion protection to ISO 12944-2 category C3 available on request.



Capacities and Coil Options

Capacities

The Barkell Modular AHU is available at a range of air volumes, up to 6.5m³/s, across the 9 case sizes, as demonstrated in the graph below.



Coil Options

The Barkell Modular AHU offers a choice of coil options designed for side installation on slide rails. Cooling coils are offered with drain trays built into the coil frame, and manufactured to eliminate water pooling.

Coil options include: Low Pressure Hot Water (LPHW), Chilled Water (CW), Direct Expansion (DX) and Electric Heat (EH).

LPHW Coil

Using water as a heat transferring medium, the metal on the coil is used to conduct the heat into the air-stream. Frost coils available as an option, operational in temperatures from -15°C.

DX Coil

A refrigerant coil that works on an evaporation cycle using lower GWP R32 refrigerant (GWP: 675) in cooling and heat cycles. Can be coupled with DX inverter condensing unit to deliver improved part load efficiency and reduce inrush current.

CW Coil

Running cool water through the system, the chilled water coil transfers the warm air through the fins to decrease the air temperature. Can be combined with a heating coil module to provide dehumidification.

EH Coil

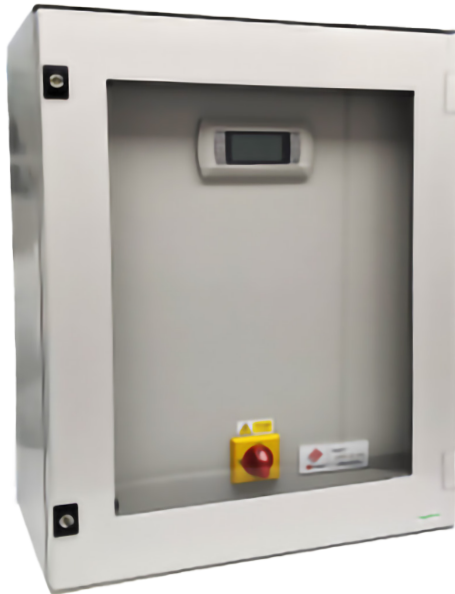
Designed to convert electrical energy into thermal energy; electrical resistance in the metal coil generates heat, which is then transferred directly into the surrounding atmosphere. Fog coils available as an option, operational in temperatures from -5°C.

Barkell Modular AHU Controls

All Barkell Modular AHUs can be supplied in one piece, with pre-wired controls to reduce complexity and cost at the point of installation.

The software is pre-configured for the chosen application, reducing site installation and commissioning time.

Algorithms built into the software automatically ensure a high level of energy efficiency is achieved and components are utilised optimally, allowing their full lifespan to be reached.



Standard Features

- Control panel with local keypad and isolator
- Alarm management and setpoint adjustment
- Enable via internal time clock, external input or BMS
- Various operating modes with individual setpoints
- Actuators to drive dampers open and close
- Supply or return air temperature control
- Fixed fan speed – adjustable at keypad or BMS
- Filter dirty monitoring via differential pressure switches
- Fan airflow monitoring via differential pressure switches
- Frost protection thermostat where water coils are used
- 0–10V output signal for water coil valve actuators
- Thyristors where electric coils are employed
- Fan run on timer to dissipate heat on electric coils
- Enable, demand and fault contacts for remote DX units
- Regulation of heat recovery equipment
- Fire alarm input – AHU shuts down upon receipt
- BMS integration – Modbus over IP and RS485

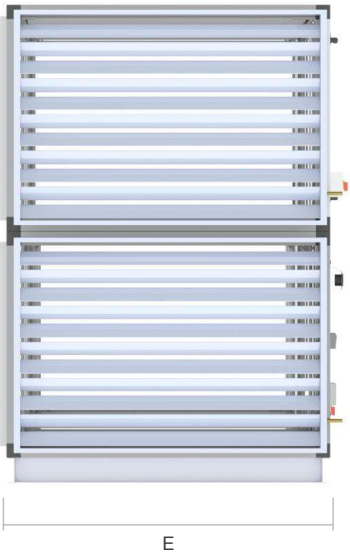
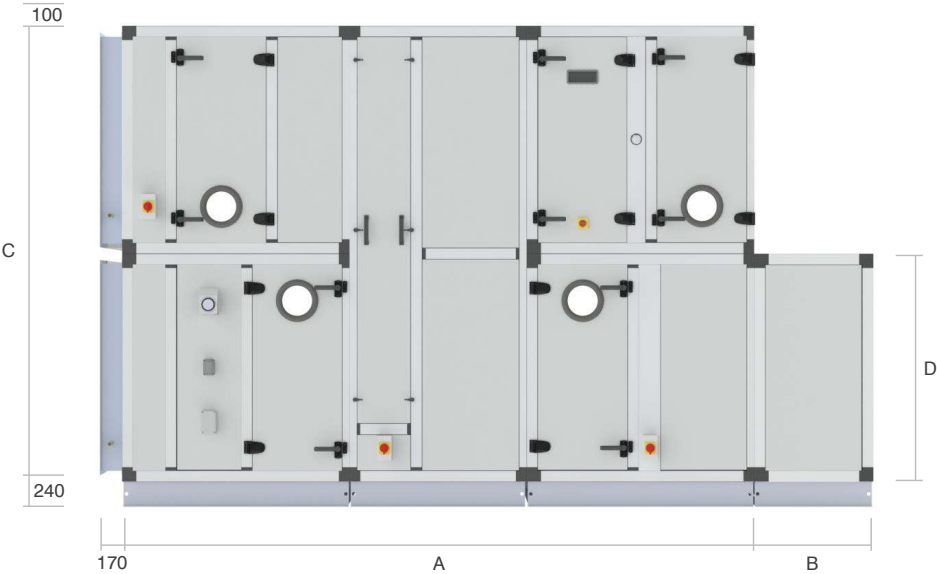


Optional

- Variable fan speed – pressure, volume or air quality
- Filter monitoring via pressure sensors in place of switches
- Room sensors
- Fire service override input – extract fan only operation
- Remote monitoring
- Supply of 2/3 port CCV or 2 port PICV for water coils
- BMS interface protocols such as BACnet IP and MSTP
- Site commissioning by an AHU controls expert
- Witnessing and/or demonstration of the AHU controls

Barkell Modular AHU

Thermal Wheel Case Sizes



Thermal Wheel Units – Aluminium Construction

Range name	Main AHU length (A)	Coil module length (B)	Main AHU height* (C)	Coil module height* (D)	Main AHU & coil module width (E)	Connection sizes (W × H)				Main AHU weight (kg)	Coil module weight (kg)
						FA inlet	Supply outlet	Extract inlet	Exhaust outlet		
SR-01	3280	620	1620	810	1530	1410 × 690	1410 × 690	1410 × 640	1410 × 690	1422	183
SR-02	3330	620	1760	880	1750	1630 × 760	1630 × 760	1630 × 660	1630 × 760	1642	216
SR-03	3380	620	2060	1030	2030	1910 × 910	1910 × 910	1910 × 810	1910 × 910	1966	262
SR-04	3670	710	2260	1130	2330	2210 × 1010	2210 × 1010	2210 × 910	2210 × 1010	2748	335
SR-05	3670	710	2360	1180	2530	2410 × 1060	2410 × 1060	2410 × 960	2410 × 1060	2875	350
SR-06	3790	830	2440	1220	2730	2400 × 1100	2610 × 1100	2610 × 1000	2400 × 1100	2941	430
SR-07	3820	860	2440	1220	2900	2600 × 1100	2800 × 1100	2800 × 1000	2600 × 1100	3333	446
SR-08	3850	890	2760	1380	2900	2600 × 1260	2780 × 1260	2780 × 1160	2600 × 1260	3535	481
SR-09	4000	890	3000	1500	3000	2600 × 1380	2900 × 1380	2900 × 1280	2600 × 1380	3986	500

Thermal Wheel Units – Galvanised Construction

Range name	Main AHU length (A)	Coil module length (B)	Main AHU height* (C)	Coil module height* (D)	Main AHU & coil module width (E)	Connection sizes (W × H)				Main AHU weight (kg)	Coil module weight (kg)
						FA inlet	Supply outlet	Extract inlet	Exhaust outlet		
SR-01	3280	600	1620	810	1530	1430 × 710	1430 × 710	1430 × 610	1430 × 710	1463	189
SR-02	3330	600	1760	880	1750	1650 × 780	1650 × 780	1650 × 680	1650 × 780	1666	222
SR-03	3380	600	2060	1030	2030	1930 × 930	1930 × 930	1930 × 830	1930 × 930	1998	268
SR-04	3670	690	2260	1130	2330	2230 × 1030	2230 × 1030	2230 × 930	2230 × 1030	2806	340
SR-05	3670	690	2360	1180	2530	2430 × 1080	2430 × 1080	2430 × 980	2430 × 1080	2940	355
SR-06	3790	810	2440	1220	2730	2400 × 1120	2630 × 1120	2630 × 1020	2400 × 1120	3217	436
SR-07	3820	840	2440	1220	2900	2600 × 1120	2800 × 1120	2800 × 1020	2600 × 1120	3404	450
SR-08	3850	870	2760	1380	2900	2600 × 1280	2800 × 1280	2800 × 1180	2600 × 1280	3656	488
SR-09	4000	870	3000	1500	3000	2600 × 1400	2900 × 1400	2900 × 1300	2600 × 1400	4059	505

*Measurements are shown excluding the 240mm base and 100mm roof dimensions.
All dimensions shown in mm. Weights may vary between T2/TB2 and T3/TB3 construction options. Unit specific general arrangement drawings are available upon order placement. Please contact Airedale by Modine for more information.

Barkell Modular AHU

Plate Heat Exchanger Case Sizes

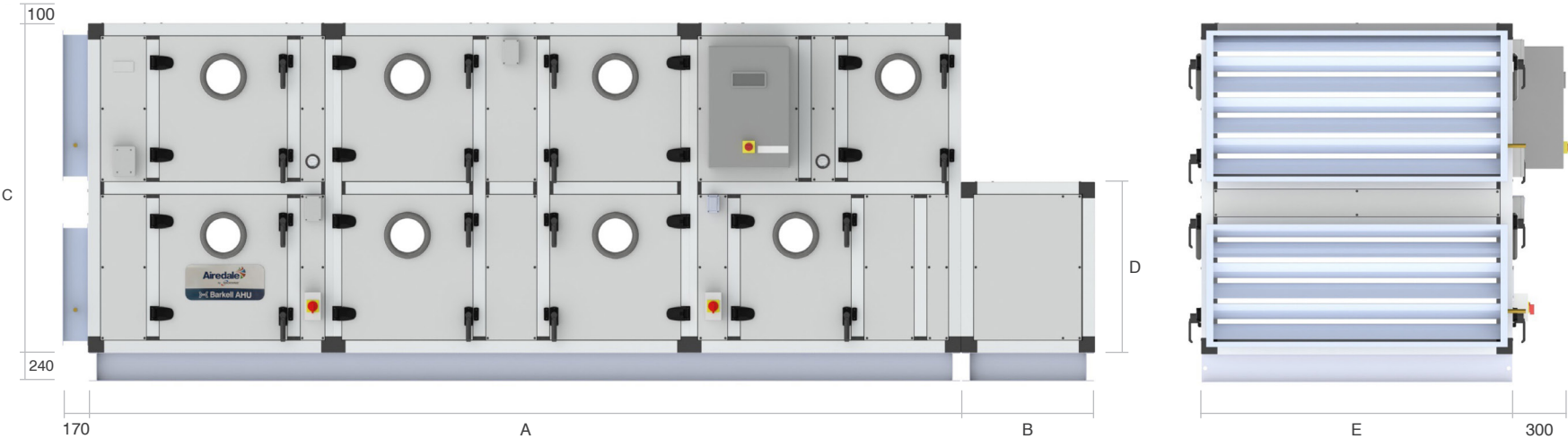


Plate Heat Exchanger – Aluminium Construction

Range name	Main AHU length (A)	Coil module length (B)	Main AHU height* (C)	Coil module height* (D)	Main AHU & coil module width (E)	Connection sizes (W × H)				Main AHU weight (kg)	Coil module weight (kg)
						FA inlet	Supply outlet	Extract inlet	Exhaust outlet		
SR-01	4325	620	1620	810	1530 + 300 cont. panel	1410 × 690	1410 × 690	1410 × 640	1410 × 690	1560	183
SR-02	4375	620	1760	880	1750 + 300 cont. panel	1630 × 760	1630 × 760	1630 × 660	1630 × 760	1778	216
SR-03	4660	620	2060	1030	2030 + 300 cont. panel	1910 × 910	1910 × 910	1910 × 810	1910 × 910	2284	262
SR-04	4750	710	2260	1130	2330 + 300 cont. panel	2210 × 1010	2210 × 1010	2210 × 910	2210 × 1010	2915	335
SR-05	5035	710	2360	1180	2530 + 300 cont. panel	2410 × 1060	2410 × 1060	2410 × 960	2410 × 1060	3390	350
SR-06	5325	830	2440	1220	2730 + 300 cont. panel	2400 × 1100	2610 × 1100	2610 × 1000	2400 × 1100	3629	430
SR-07	5465	860	2440	1220	2900 + 300 cont. panel	2600 × 1100	2800 × 1100	2800 × 1000	2600 × 1100	4139	446
SR-08	5495	890	2760	1380	2900 + 300 cont. panel	2600 × 1260	2780 × 1260	2780 × 1160	2600 × 1260	4318	481
SR-09	5495	890	3000	1500	3000 + 300 cont. panel	2600 × 1380	2900 × 1380	2900 × 1280	2600 × 1380	4362	500

Plate Heat Exchanger – Galvanised Construction

Range name	Main AHU length (A)	Coil module length (B)	Main AHU height* (C)	Coil module height* (D)	Main AHU & coil module width (E)	Connection sizes (W × H)				Main AHU weight (kg)	Coil module weight (kg)
						FA inlet	Supply outlet	Extract inlet	Exhaust outlet		
SR-01	4325	600	1620	810	1530 + 300 cont. panel	1430 × 710	1430 × 710	1430 × 610	1430 × 710	1608	189
SR-02	4375	600	1760	880	1750 + 300 cont. panel	1650 × 780	1650 × 780	1650 × 680	1650 × 780	1808	222
SR-03	4660	600	2060	1030	2030 + 300 cont. panel	1930 × 930	1930 × 930	1930 × 830	1930 × 930	2310	268
SR-04	4750	690	2260	1130	2330 + 300 cont. panel	2230 × 1030	2230 × 1030	2230 × 930	2230 × 1030	2967	340
SR-05	5035	690	2360	1180	2530 + 300 cont. panel	2430 × 1080	2430 × 1080	2430 × 980	2430 × 1080	3453	355
SR-06	5325	810	2440	1220	2730 + 300 cont. panel	2400 × 1120	2630 × 1120	2630 × 1020	2400 × 1120	3691	436
SR-07	5465	840	2440	1220	2900 + 300 cont. panel	2600 × 1120	2800 × 1120	2800 × 1020	2600 × 1120	4046	450
SR-08	5495	870	2760	1380	2900 + 300 cont. panel	2600 × 1280	2800 × 1280	2800 × 1180	2600 × 1280	4349	488
SR-09	5495	870	3000	1500	3000 + 300 cont. panel	2600 × 1400	2900 × 1400	2900 × 1300	2600 × 1400	4416	505

*Measurements are shown excluding the 240mm base and 100mm roof dimensions.
All dimensions shown in mm. Weights may vary between T2/TB2 and T3/TB3 construction options. Unit specific general arrangement drawings are available upon order placement. Please contact Airedale by Modine for more information.

Technical and Performance Data

Volume Range and Airflow

- All performance figures are based on balanced airflows at a winter ambient of -5°C/100%RH with a return air temperature 21°C/50%RH and summer ambient of 30°C/50%RH with a return air temperature of 24°C/50%RH
- Hot water coil performance based on 50°C flow and 40°C return temperatures
- Cold water coil performance based on 8°C flow and 14°C return temperatures
- DX coil based on 6°C evaporating and 40°C condensing temperatures

Figures based on maximum capability at the given air volume.
Heat recovery efficiencies based on external static pressures of 250Pa on both supply and extract.



Model Size and Optimum Volume Range

Model size	Volume (m³/s)	SFP at clean filters PHX/ thermal wheel (w/l/s)	PHX efficiency at ERP conditions (%)	Thermal wheel efficiency at ERP conditions (%)	Weight of main AHU with PHX (kg) galv/ alu construction	Weight of main AHU with thermal wheel (kg) galv/alu construction	Weight of coil module (kg)
SR-01	1.70	1.85 / 1.79	79.32	77.55	1688 / 1635	1463 / 1422	195
SR-02	2.50	1.61 / 1.53	78.61	79.07	1950 / 1874	1666 / 1642	229
SR-03	3.00	1.65 / 1.59	77.57	80.34	2366 / 2346	1998 / 1966	277
SR-04	3.50	1.47 / 1.36	77.38	80.56	3014 / 2973	2806 / 2748	352
SR-05	4.50	1.41 / 1.41	77.49	80.07	3412 / 3367	2940 / 2875	368
SR-06	5.00	1.44 / 1.44	77.31	79.50	3717 / 3691	3217 / 2941	454
SR-07	5.50	1.48 / 1.56	78.70	78.27	4151 / 4112	3404 / 3333	482
SR-08	6.00	1.45 / 1.45	78.20	79.73	4371 / 4268	3656 / 3535	509
SR-09	6.50	1.50 / 1.50	77.91	80.00	4530 / 4487	4059 / 3986	526

Design External Static Pressure 250Pa.

Coil Capacities at Maximum Airflow

Model size	Volume (m³/s)	Water frost coil duty (kW)	Water heating coil duty (kW)	Water cooling coil duty (kW)	R32 DX reverse coil (cooling) duty (kW)	R32 DX reverse coil (heating) duty (kW)	Electric fog and heat coil duty (kW)
SR-01	1.70	36.75	37.30	23.89	26.40	23.89	13.50
SR-02	2.50	49.00	50.72	33.31	39.70	31.85	17.00
SR-03	3.00	61.25	65.23	44.10	54.10	39.81	22.00
SR-04	3.50	73.50	82.69	57.94	67.00	47.78	25.50
SR-05	4.50	85.75	97.33	61.52	75.00	55.74	30.00
SR-06	5.00	98.00	111.23	72.12	89.00	63.70	33.75
SR-07	5.50	110.25	115.21	79.73	99.36	71.66	38.00
SR-08	6.00	122.50	126.79	88.49	108.00	79.63	42.75
SR-09	6.50	134.75	137.45	95.71	108.00	87.59	46.50

We are there when you need us

Life Cycle Support

Our dedicated team of UK based Airedale by Modine engineers are available nationwide to provide expert advice and immediate help, ensuring that you get the support you need.* Guaranteed emergency response times mean that a qualified Airedale by Modine 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.

*subject to contract.

Choose the Right Service and Maintenance Contract for You

Our service plans offer a preventative maintenance service solution to improve system resilience and increase the longevity of your HVAC 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

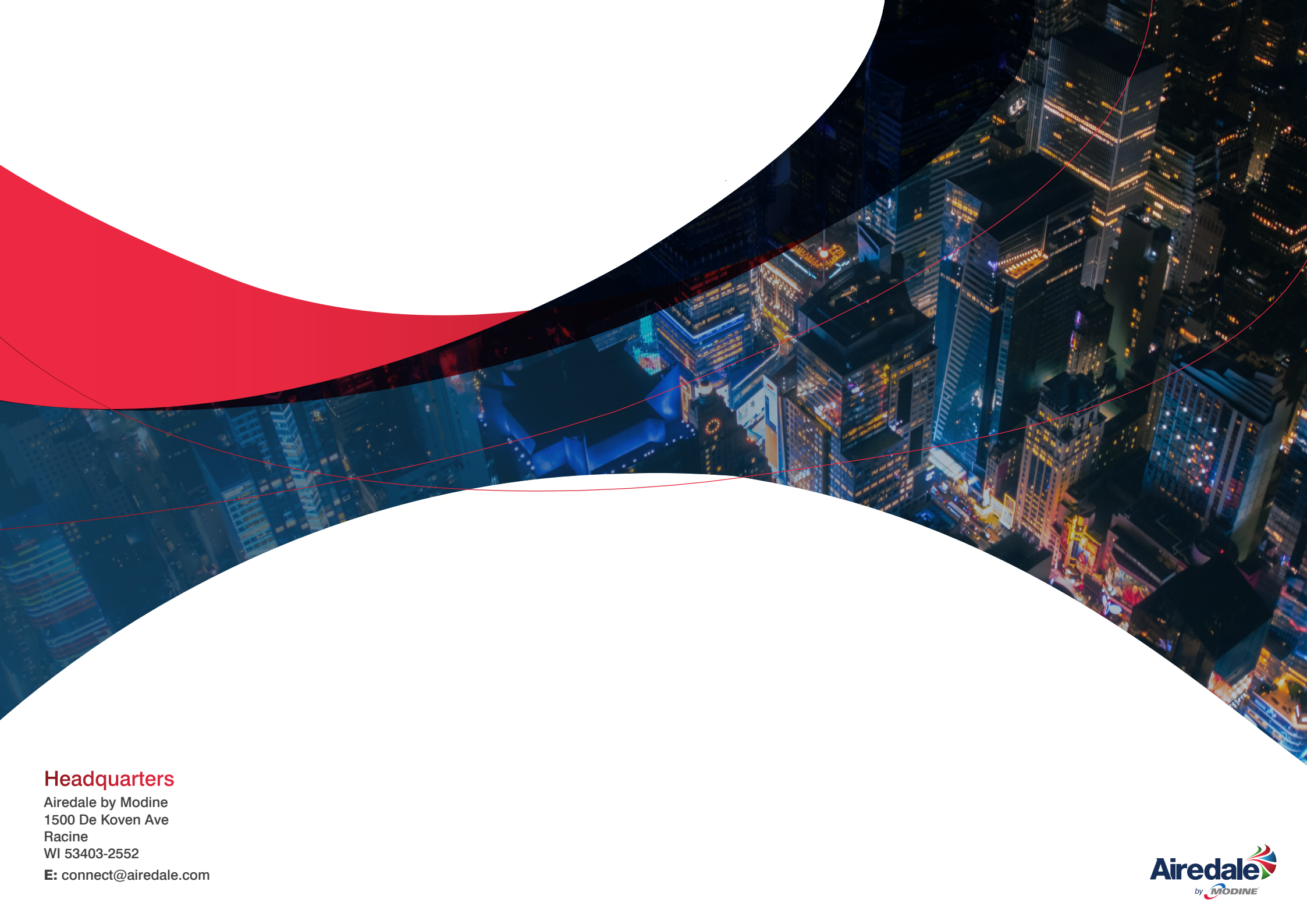
We have high volumes of spares in stock at our global facilities, ready for fast dispatch to our engineers and customers when they need us the most. We deliver worldwide.



Natural
History
Museum

"We are extremely satisfied with the solution presented by Airedale and the delivery of their work. From initial conversations to final installation, they have been meticulous in their approach, working with both design and site teams to meet specification and project timelines."

Natural History Museum, South Kensington



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