



The Critical Cooling Specialists

airedale.com



Airedale by Modine is the critical cooling specialist, with the technology and expertise to meet the specific operational demands of data centers worldwide. We take a collaborative approach, delivering customized solutions at scale to hyperscale, neocloud and colocation data center clients whose network of global facilities demand a more bespoke solution. As part of the US-based Modine group, our global organization is Engineering a Cleaner, Healthier World™.

Airedale by Modine cooling solutions encompass high efficiency air and liquid cooling systems, intelligent controls software and comprehensive in-territory aftersales support.

Our design philosophy prioritizes flexibility over prescriptive solutions, and we work with a system-focus approach, designing units as components of an integrated ecosystem that can flex and grow with the technology demands of the future.

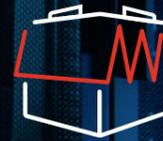
Renowned for the expertise of our people, with world class products and plants, Airedale by Modine is proud of its R&D ethos being firmly rooted in sustainability and quality.

We are committed to deliver best-in-class technical design, energy performance, project delivery and ongoing lifecycle optimization; all of which comes together to support our clients in meeting their performance, efficiency and sustainability goals.

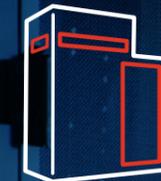
With a global network of facilities, encompassing R&D laboratories, test chambers, production, training and sales offices, Airedale by Modine has sites across three continents: North America, Europe and Asia.

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Air & water cooled chillers
30–3000kW



Liquid cooling



Fan walls
200–650kW



Precision air conditioning
DX/CW 5–1000kW



IT cooling
in-row 10–67kW



Custom engineered data
center AHUs



Condensers/dry coolers
3–1900kW



Software solutions
– system optimization



Tailored maintenance packages/
spares/tech support



Industry accredited
HVAC training



Complete system design
& project management

We are trusted



The global critical cooling specialist



Global Locations

- **Leeds, UK** – Chiller production, R&D and test laboratories, training center
- **Bradford, UK** – CDU, CRAH, CRAC, fan wall production
- **Consett, UK** – AHU production
- **Guadalajara, ES** – CDU, CRAH, fan wall production, test laboratories
- **Chennai, India** – CRAH, fan wall production
- **Franklin, WI, US** – AHU, modular, test laboratories
- **Jefferson City, MO, US** – Chiller production
- **Dallas, TX, US** – Chiller production
- **Grenada, MS, US** – CDU, CRAH, fan wall production, test laboratories
- **Rockbridge, VA, US** – Chillers, CDU, R&D and test laboratories
- **Calgary, CAN** – Modular, AHU production and test laboratories
- **Dubai, UAE** – Sales office

Testing Facilities

Leeds, UK

- Air and water-cooled chillers testing to 2MW
- CRAH/CRAC testing to 250kW
- Fan wall testing to 400kW
- –20°C to +52°C ambient temperature simulation
- Capability to test with Glycol

Guadalajara, Spain

Development testing:

- CRAH/CRAC testing to 120kW
- Up to 50°C ambient temperature simulation
- Hemi-anechoic and reverberant chambers for acoustic testing

Rockbridge, Virginia

- Air-cooled chiller and dry cooler testing to 2.2MW
- Up to 55°C ambient temperature simulation

Grenada, MS

- CRAH/fan wall testing to 500kW
- Precise airflow measurement
- Up to 40°C ambient temperature simulation
- Capability to test with Glycol

Calgary, Alberta

- AHU testing – 175kW to 290kW
- Up to 180m³/s airflow testing
- Free field acoustic testing
- Unit vibration testing
- Functional testing of all control systems

The complete cooling solution for global data centers

Today's technology, designed for tomorrow

Increasing demand for emerging digital technologies is driving the transformation of neocloud, hyperscale and colocation data centers, and it is imperative that the cooling technology employed evolves at the same pace.

System design

Airedale by Modine takes a holistic approach to data center cooling; designing units as components of an integrated ecosystem that can flex and grow with the technology demands of the future. Our cooling solutions are designed with built-in redundancy and up to Tier 4 compliance, and work harmoniously with the building and each other, to maximize efficiency and resilience.

Customized solutions

Our design philosophy prioritizes flexibility over prescriptive solutions. Our engineering teams collaborate with our clients to develop customized solutions that align precisely with operational parameters and site-specific demands.

Full solution provider

Over 50 years' experience tells us that when a customer invests in a full cooling system encompassing controls and service options, it is more than a transaction – it is a relationship built on trust, with ongoing lifecycle optimization at its core.

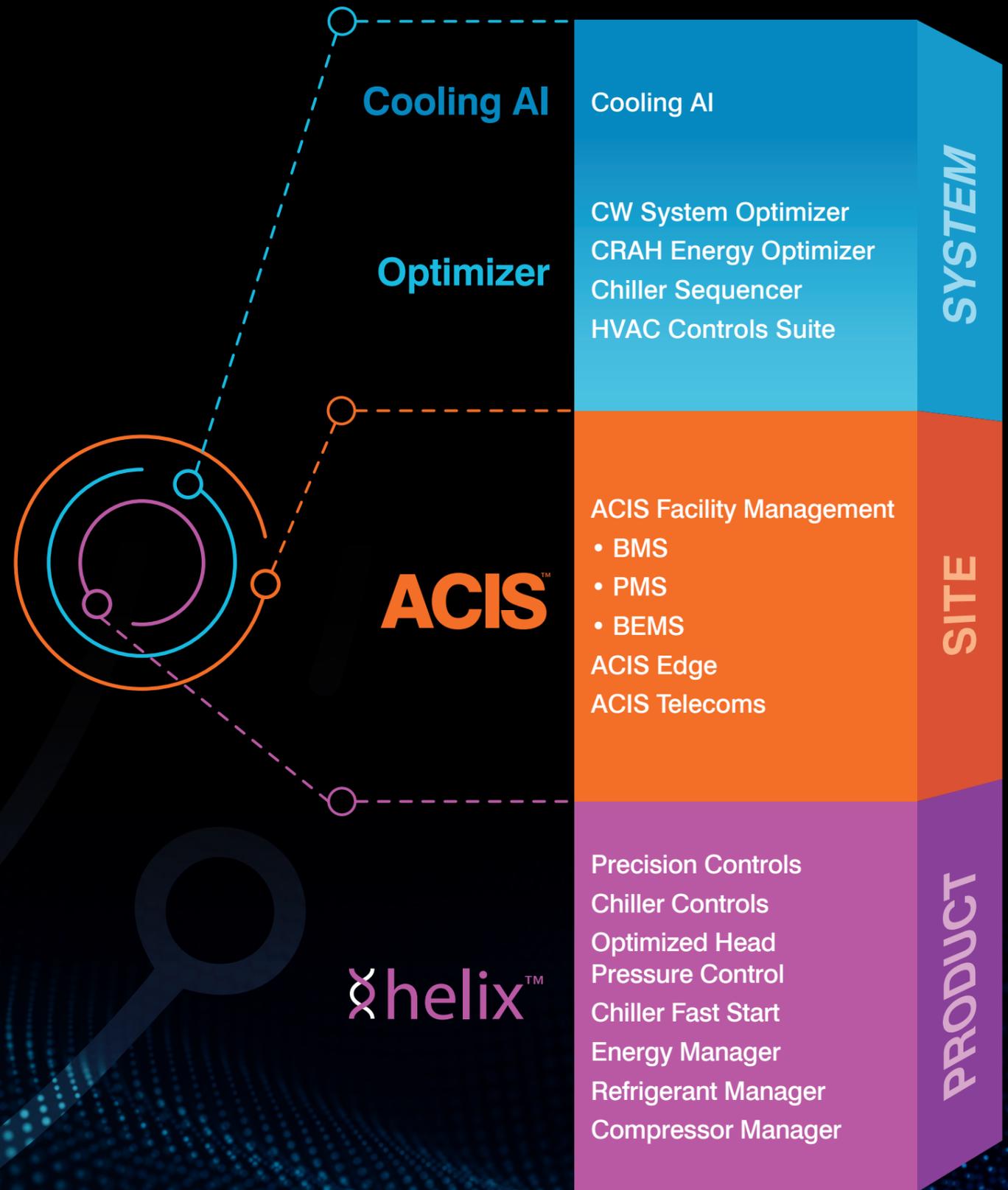




IQity™ is Airedale's next-generation technology stack, engineered to unlock maximum performance from your critical infrastructure. By combining intelligent building software with high-efficiency hardware, IQity™ delivers superior energy savings, exceptional uptime, and greater operational control.

Constant real-time analysis allows IQity™ to eliminate waste, drive down carbon output, reduce risk, and keep operating costs firmly under control – all while ensuring your critical environments stay resilient.

Proven at scale, IQity™ is already powering performance across major data center facilities worldwide, delivering measurable results from day one.





54MW data center

CyrusOne challenged their partners to design a cooling system that would deliver exceptional energy and water efficiency, to compliment 100% renewable green energy usage and bespoke landscaping, which included a biodiversity and pollinator plan.

The client

Since 2001, and with years of continued success, CyrusOne competes at the forefront of the data center industry as a respected leader and innovator. CyrusOne's portfolio now includes more than 40 enterprise-class facilities across three continents and more than four million square feet of total net rentable square footage (NRSF).

Sustainability initiatives at data center giant CyrusOne are a core tenant of everything they provide and do. They embrace an eco-centric mindset and their responsibility is guided by a qualitative, quantitative and meaningful sustainability plan that includes a pledge to become carbon neutral.

As a founding member of the Climate Neutral Data Centre Pact (CNDCP), and with senior representation on the Board in the form of EVP Managing Director, Matt Pullen, CyrusOne is committed to achieve carbon neutrality by delivering to agreed criteria set out by the self-regulatory framework for energy and water efficiencies (PUE and WUEs), clean energy, the circular economy and waste management. Over and above targets set out in the Pact, CyrusOne's plan includes commitment to sustainable construction and habitat.

Recently, CyrusOne reported it had successfully adhered to terms of the CNDCP, and was the first to inform the board that all its fully operational data centers in Europe have been independently audited to comply with the Pact's terms.

The project

- 54MW DC Campus
- 33,500 sqm technical space across three buildings

One site, a 54MW data center campus offering 33,500 sqm technical space across three buildings, exemplifies where they have successfully implemented changes to improve sustainability during design, construction and operation.

With such focus on sustainability as well as performance, CyrusOne were keen to appoint a cooling solutions provider that could advise them on design as well deliver the solution; Airedale by Modine was the obvious appointment.

Base line model PUE	1.38
Delivered PUE	1.2
Energy reduction vs. base line	34%

At commissioning, a further analysis was carried out and the dPUE was reduced to 1.18.

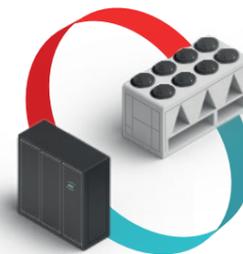
Airedale by Modine solution



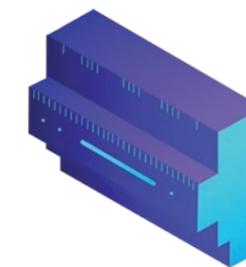
64 × SmartCool ONE™ chilled water CRAHs



12 × OptiChill Free Cool™ air-cooled chillers with Enhanced Free Cooling™



"Water Side Optimization" system design



Cooling System Optimizer™ controls platform

Museum of the Future, Dubai

The Museum of the Future creates a platform to demonstrate and test the latest inventions and prototypes from both innovative start-ups and the world's greatest technology giants.

Airedale by Modine has once again been recognised for quality engineering, selected to supply the cooling systems for this incredible project. We supplied a total of five SmartCool dual fluid systems, customizing our units with special outdoor fans to meet extremely high ESP requirements due to the unusual installation.



We care for the future

“Airedale by Modine is a great example of a supplier that is engaged in the sustainability collaboration challenge. They are responsive to our sustainability priorities, and we take the lead from them on areas such as controls optimization to improve energy efficiency, reducing embodied carbon in cooling equipment and sustainability performance metrics relating to our products.”

Senior Carbon Accounting Engineer at a data center developer

With over five decades of expertise in critical cooling, Airedale by Modine leads the charge toward greater energy efficiency and sustainable solutions.

As global air conditioning demand continues to rise, we’re committed to shaping the future – delivering next-generation solutions that maximize energy efficiency and drive meaningful progress in the fight against climate change.

Airedale by Modine invests significantly in research and development, and works alongside component suppliers to deliver innovations that enhance energy efficiency and reduce environmental impact. By leveraging and evolving existing technologies, we are able to continually enhance and improve performance.

Our expanding portfolio includes sustainable solutions such as high-efficiency compressors, low-GWP refrigerants, the Cooling System Optimizer™, and our Enhanced Free Cooling™ range.



Energy efficiency

Legislation rightly encourages manufacturers and end users to consider the environmental impact of a system over the lifetime of the product. We recognize that providing our customers with energy efficient solutions is a critical sustainable development opportunity for us all.

We are driven by quality and efficiency at every stage of our research, development and manufacturing process. We are committed to our environmental responsibility and welcome legislation that supports a more sustainable planet.



Refrigerants

At Airedale by Modine, we take our commitment to the environment seriously. Much of our R&D resource is focused on ensuring our solutions are compatible with lower GWP (global warming potential) refrigerants. We have precedent in this area too. We led the market years ago with the change from R22 to R407C refrigerant in 1994 on the ACC range of chillers and we were the first to market with a range of chillers utilizing R1234ze in 2013.

Newer refrigerants in many cases are classified as mildly flammable, so care has to be taken when designing, testing, installing and servicing air conditioning systems that use them. Airedale is already investing heavily in our ability to design and manufacture such systems and are always on hand to offer advice to clients who are also on this journey.



Embodied carbon

We can offer comprehensive embodied carbon Life Cycle Assessments (LCAs) across our full product portfolio upon request, enhancing our sustainability credentials and helping customers meet rising market and regulatory demands for carbon transparency.

LCAs evaluate a broad range of environmental impacts, including global warming potential, resource depletion, acidification and ozone layer depletion. This provides a clear and holistic picture of each product’s environmental footprint.

By delivering robust, high-quality LCAs, we also support clients in securing third-party-verified Environmental Product Declarations (EPDs) whenever they are required.

We build people as well as products

At Airedale by Modine, we are proud of our exceptional facilities that support the design, installation, commissioning and maintenance of modern data center cooling systems. Our state-of-the-art training centers play a crucial role in maintaining Airedale by Modine's high standards. Our technical teams are rigorously trained and continually developed in a hands-on environment designed to refine skills, strengthen expertise and ensure consistent excellence across air conditioning and refrigeration technologies. We also deliver continuous professional development (CPD) presentations to consultants and industry professionals, available online or at client sites, to support ongoing industry knowledge and best practice.

Our training centers include a range of purpose-built spaces designed to support hands-on development and technical expertise:

- A modern training classroom equipped with the latest conferencing and presentation technology, ideal for interactive learning and collaboration.
- A variety of air conditioning and refrigeration demonstration rigs, showcasing multiple refrigerants alongside advanced measurement, testing and monitoring equipment, including air-ducting, airflow measurement and chilled-water systems.
- A dedicated brazing area, fully equipped to support the development of correct and reliable refrigerant pipework installation skills.
- An electrical workspace, designed to provide practical exposure to safe working practices, wiring, testing of electrical assemblies, and effective fault-finding techniques.



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.

We offer a 24/7 emergency helpline and call out service, available 365 days of the year to our contracted service and maintenance clients from the data center industry.

Guaranteed response times means that an accredited Airedale by Modine engineer will be with you in an agreed timeframe, maximizing your system's uptime.

Choose the right service and maintenance contract for you

Our 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, delivering worldwide

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



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.”

Precision cooling



EasiCool™ evo²

EasiCool evo² is a compact and flexible precision cooling system unit that has been designed to build on the global success of the EasiCool product family. AHRI certified.

31–98kW

Chilled Water, DX (Scroll compressors, R410A), Dual Cool

Upflow/downflow

EC fans

Return air temperatures ranging from 18°C to 40°C

Ambient temperatures of –20°C to +52°C

Variable heating options

Flexible air discharge/return options

Helix controls.



SmartCool™ i-drive

SmartCool just got smarter. This inverter-driven iteration of the versatile SmartCool range offers exact control and superior efficiency.

5–83kW

Inverter DX (Scroll compressors, R410A, R32)

Downflow

Optimized for hot and cold aisle containment

Inverter compressors for exact control and efficiency

Supply temperatures up to 26°C

A wide ambient temperature of –20°C to 50°C

Up to 21% more cooling kW/m² than similar leading competitor units.



SmartCool™ DX

Airedale's flagship range of precision air conditioners. Developed for applications where precise temperature and humidity control are key to operations.

11–233kW

DX (Scroll compressors, R410A), Dual Cool

Downflow

EC fans

Dual cool option with glycol free cooling

Flexible range of models and case sizes

Maximized coil surface areas reduce fan power and improve air flow

Fixed speed tandem compressors offer four stages of cooling.



SmartCool™ ONE

A large capacity computer room air handler (CRAH) designed to meet the needs of colocation and hyperscale data centers.

35–1000kW

Chilled water

Downflow

Large surface area slab coils reduce pressure drop and maximize heat transfer

High capacity backward curved EC fans under floor to enhance airflow delivery and efficiency

Various control valve options LH/RH fluid connections

Designed for close approach and wide waterside TDs

Helix intelligent unit controls.



AireWall ONE™

AireWall ONE is our revolutionary parametric data center fan wall range, designed in collaboration with data center consultants, end users and contractors.

200–650kW

Parametric design

Optimized coil and bespoke footprint

2–12 fan models

Solid floor applications

Designed for close approach and elevated water/air temperatures

Blowthrough configuration

PIC valves as standard

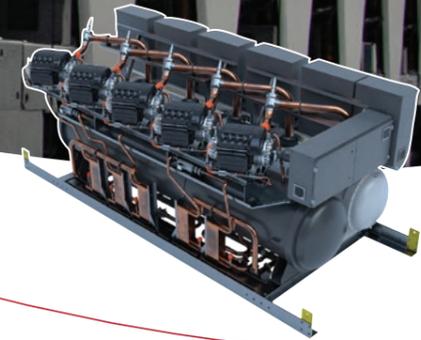
Optional energy valve available

Forklift grooves as standard

Hinged fans for ease of maintenance.



Chillers



TurboChill™ – 2MW and 3MW

Air-cooled, high efficiency, high-capacity chiller with Turbocor® oil-free centrifugal compressors.

Up to 3MW+

Turbocor® oil-free centrifugal compressors

EER up to 4.35 (2MW unit)

R1234ze

Free cooling available, including Enhanced Free Cooling™

Three BREEAM points

Near silent, oil-free compressor operation

Exact match for load requirements

Spray evaporator option with reduced refrigerant charge

Helix intelligent controls.

TurboChill™ Stainless Steel

The stainless steel design delivers the hydraulic capacity required for modern direct liquid cooling in high-density AI deployments.

Facilitates the elimination of the CDU, reducing system complexity

Corrosion-resistant

Precise filtration and fluid management

Improved efficiency for optimized PUE

Space saving design

Variable capacity control

Operational at up to 55°C (131°F) ambient temperatures

Supply water temperatures up to 26°C (79°F)

Seismic Design Category D compliant

Free cooling model available.

DeltaChill™

Air-cooled, high efficiency scroll chiller offering free cool and wide range of cooling capacities.

110–1600kW

Optimized for use with R32

Dual circuit

Scroll compressors

EER up to 3.6

Free cooling available, including Enhanced Free Cooling™

Three BREEAM points

Exceptional flexibility

Helix intelligent controls

Quiet and extra quiet modes for reduced noise.

OptiChill™

Airedale's original data center chiller platform is based on a screw compressor and has been optimized with a V-block evaporator condenser for high capacity cooling.

1300–1800kW

Screw compressor

EER up to 3.86

R134a and R513A

High free cooling capability due to high airflow EC fans and high efficiency heat exchangers, including Enhanced Free Cooling™

Twin screw compressors increase reliability, efficiency and improve overall chiller performance

Optional inverter-controlled pump, combined with flow monitoring, provides effective water management

Helix intelligent controls.

TurboChill Hydro

High capacity, water-cooled, Turbocor® chiller with flexible arrangements and great energy efficiencies.

200–3000kW

Turbocor® oil-free centrifugal compressors

EER up to 5.79, ESEER up to 8.98

R513A and R1234ze

Near silent, oil-free compressor operation

Vertical and horizontal arrangements for flexibility of application and ease of shipping

Electronic expansion valves – maximum efficiency through the operating envelope of the unit

Variable flow options

Helix intelligent controls.



Liquid & IT cooling



EdgeBox

Two phase liquid immersion cooled HPC up to 120kW.

Highly energy efficient with partial Power Usage Effectiveness (pPUE) as low as 1.03

Small footprint

Allows the most advanced compute processors in market to be deployed at Edge

Can be deployed in fixed or mobile scenarios

Simplified and reduced maintenance intervals

30kW in 16ft²/120kW in 49.5ft²/4.5kW in 17ft²

208V power feed.



CDU – Inrow

400kW–2MW+ liquid-liquid heat exchanger for liquid cooled data centers.

Up to 2MW+ capacity

Variable speed N+1 pumps, drives and filters

Extra-large filter bodies to maximize filtration area

Front access to control panel, VSDs, expansion tanks and filters

Customizable to suit site specific operations demands

Active harmonic filtration (AHF) to compensate for unwanted harmonics whilst improving system efficiency. Complies with IEEE 519 standard

Stainless steel pipework.



CDU – Skid based

Configurable to specific footprints; suitable for both plant rooms and service corridors.

Pre-manufactured; self-contained and tested off-site

Increased buffer tanks and storage vessels (full stainless steel)

Designed for easy access for maintenance and quick connection between FWS and TCS

1K to 4K design approach temperatures.

Incorporates engineering characteristics consistent with the inrow design, subject to model configuration.



InRak™

The InRak™ is a high performance in-row cooling solution which precisely cools and conditions air in close proximity to the servers and provides industry-leading cooling for its footprint.

15–53kW nominal cooling capacities

17–100% variable capacity control

EER up to 6.25

Transmits cooled air horizontally across the front of the server racks

Can be integrated into a traditional hot or cold aisle system; when applied with aisle containment, performance is significantly enhanced

Up to 83% more cooling/m² compared with conventional CRAC unit

Quiet, efficient scroll compressors

Efficient 'A' frame coil design for maximum heat exchanger area

Adaptable to align with site-specific parameters.



Ecotel™ Free Cool

The Ecotel™ Free Cool is a self-contained, outdoor cabin cooler which has been specifically developed to cool outdoor cabins, shelters, computer rooms, re-locatable equipment buildings and telecom base stations.

36 models available

Two case sizes (H x W x D):
740mm x 560mm x 560mm and
850mm x 730mm x 730mm

Three capacities: 5kW, 10kW, 15kW

Secure, tamper-proof fixings

Removable centrifugal EC fan for efficiency and extra quiet operation

G4 filtration

Downflow installation (recommended installation)

Metal frame panel filters – prevent the risk of moisture damage

Cabin temperature control

Supply voltage options:

- 230V/1PH + N/50Hz
- 220V/1PH + N/60Hz
- 220V/2PH no neutral/60Hz

Emergency –48V DC fresh air free cooling option

Remote display

High temperature alarm

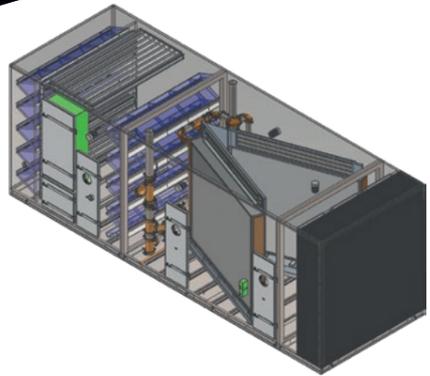
Mains isolator

Pressure relief exhaust damper

Operating temperatures –20°C to +40°C.



AHUs, condensers & dry cooling



Custom Engineered Data Center AHUs

Our custom engineered data center AHUs are built for exceptional efficiency, durability, and long-term performance, helping reduce total cost of ownership while ensuring reliable operation. Designed with advanced technology and industry best practices, each unit delivers high-quality, dependable performance that meets and exceeds modern data center demands. We take pride in providing innovative, fully tailored solutions that address the unique requirements of every client, ensuring optimal serviceability and results that stand the test of time.

Adiabatic Cooling for Maximum Efficiency

Our custom-built adiabatic cooling systems are engineered to adapt seamlessly to your operational schedule and scale effortlessly with the increasing demands of high-performance data centers.

Water Efficiency in Evaporative Cooling

Our evaporative cooling technology leverages the natural power of evaporation to significantly lower energy and water usage compared to traditional HVAC systems. By continuously recirculating water to minimize waste, and maintaining system health through routine care to prevent mineral buildup, these solutions remain highly efficient, reliable, and environmentally responsible.

Airflow Capacity

Delivering airflow performance up to **450,000 CFM**.

Key features include:

Energy-efficient design that reduces power consumption and lowers ongoing operational costs.

Reliable performance and easy serviceability, simplifying maintenance and maximizing uptime.

High-quality fabrication using premium materials and precision manufacturing for long-term durability.

Continuous product and process innovation that enhances functionality, efficiency, and system performance.

On-time delivery to support project schedules and ensure seamless integration into data center operations.

Air Cooled Condensers

Airedale offers a range of air-cooled condensers suitable for R410A, custom designed with a small footprint, low sound level and a slimline appearance.

12–165kW total heat rejection

Suitable for R410A

16 model sizes

Small footprint, with slimline appearance

Low sound level

Corrosion resistant coated coils

Head pressure control

Shut off valves for easy maintenance

Horizontal or vertical air discharge orientation

Large surface area coil, positioned to optimize airflow and heat transfer.

ECO™ Dry Coolers

Engineered using the very best dry cooling technology and components, the ECO Dry Cooler family offers great efficiency and performance across a wide spectrum of capacities and applications.

Coils made from special profile aluminium fins and copper tube

Casings are:

- Designed to allow easy access to internal components
- Impact resistant
- Resistant to low temperatures
- Non-toxic

Fan motors fitted to unit with an anti-vibration system where possible

Fan guards made from fiberglass charged polyamide or painted steel

All units comply with strict safety standards.





Designed and produced by www.ledgardjepson.com

Headquarters:

Airedale by Modine
1500 De Koven Ave
Racine
WI 53403-2552
T: 1-800-828-HEAT
E: connect@airedale.com