

# Ultima R32

30-150kW Air-Cooled Compact Chiller



## Ultima R32 key features

- + Compact footprint
- + Low GWP R32 refrigerant
- + ESEER up to 4.29
- + Next generation scroll compressor technology
- + Zero ODP (Ozone Depletion Potential)



## Ultima R32

### 30-150kW Air-Cooled Compact Chiller

The Ultima Compact Chiller is a high efficiency, compact, air-cooled single/dual circuit chiller. Optimised for R32 refrigerant with leak detection as standard and operational with a supply water temperature of up to 18°C, the Ultima Compact chiller range has been engineered using next generation scroll compressor technology to increase efficiency and deliver improved performance.

Developed with low sound levels as a key factor in its design, the Ultima Compact chiller is perfectly suited to a variety of environments including data centres, retail, manufacturing and leisure. It is available with an extensive range of hydronic options seamlessly designed within the unit to reduce installation time, footprint and capital costs.



ESEER\* of up to 4.29

EER part load efficiencies are enhanced by sequenced scroll compressors and EC fans.

\* European Seasonal Energy Efficiency Ratio

## Airedale Azure Range

Airedale International's Azure air conditioning range is the result of several years of research and development. At Airedale we take our environmental responsibilities seriously, and understand that the industry needs a lower GWP alternative to refrigerants such as R410A. The Azure range has been specifically developed for use with next generation R32 refrigerant. With both a low GWP and zero ODP, R32 has a lower impact on the environment:

- 16% less refrigerant volume per kW when compared to R410A
- GWP of 675; compared to R410A at 2088
- In line with F-Gas phase-down regulations
- A2L rated - low toxicity and lower flammability
- Lower carbon footprint
- Eligible for 2 BREEAM points



## BREEAM

BREEAM aims to reduce the life cycle impact of new buildings on the environment by awarding credits for products used within the building's design which minimise the building's carbon footprint.

Ultima R32 is eligible for 2 BREEAM credits:

1 credit - Direct Effect Life Cycle CO2 equivalent emissions (DELCO) of  $\leq 1000\text{kgCO}_2\text{-eq/kW}$

1 credit - All systems are hermetically sealed, with a tested leakage rate of less than 3g/year



## Features

- 30-150kW
- EER up to 3.07
- ESEER up to 4.29
- Supply water temperature from 5 to 18°C
- Compact footprint making it ideal for smaller spaces
- Regular and extra quiet options
- 1, 2, 3 or 4 compressors for different stages of cooling
- 5 case sizes with up to 4 fans
- Various hydronic options including pumps, water filter, flow switch and buffer tanks
- Enhanced safety features

## Benefits



### PERFORMANCE

Next generation compressors deliver proven performance of scroll technology, optimised for R32 with innovative Intermediate Discharge Valve, further enhancing part-load efficiencies.

Dual circuit models available, delivering flexible capacity control, redundancy and high efficiencies at part load.

Electronically commutated axial fans give increased performance for reduced power input, offering up to 80% increased efficiency compared to an AC fan at part load.



### EFFICIENCY

Exceptional European Seasonal Energy Efficiency Ratios (ESEER) of up to 4.29 and Energy Efficiency Ratios (EER) of up to 3.07 deliver reduced cost of ownership.

Upgraded evaporators, which have increased efficiency in comparison to previous models.

Supply water temperatures between 5°C and 18°C, 6°C higher than previous models. This represents a significant energy and cost saving over the life cycle of the product.



### INSTALLATION & MAINTENANCE

Available in a variety of models and 5 case sizes, the Ultima R32 can be selected to suit your building's specific requirements.

Available with an extensive range of pump options and buffer tanks to reduce installation time, footprint and operating costs.

Enhanced safety features for peace of mind.

## Safety

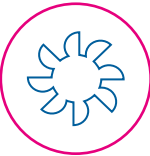
R32 is classified by ASHRAE as an A2L refrigerant i.e. mildly flammable. This means that there is a low risk of ignition and flame propagation should the gas come into contact with an ignition source, however all Ultima R32 chillers come with the following safety features as standard:

- Leak detection – sensor that will shut the unit down in the presence of a refrigerant leak.

- ATEX rated ventilation fan in the compressor enclosure – activates in the event of a leak to disperse the refrigerant in order to prevent build-up.
- Isolating contactor – removes ignition sources within the chiller.

Of course it is very unusual for a leak to occur but these additional features are in place to offer reassurance to the end-user and site maintenance team.

# Inside the new Ultima R32 chiller



## EC Fans as standard

Up to 80% more efficient than an AC fan at part load. Electronically commutated axial fans give increased performance for reduced power input.



## Wide range of hydronic options

Including single and run-standby, standard and high head pumps, buffer tanks, water filters, flow switch, bypass valves and expansion vessels.

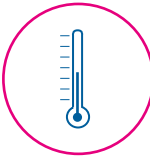
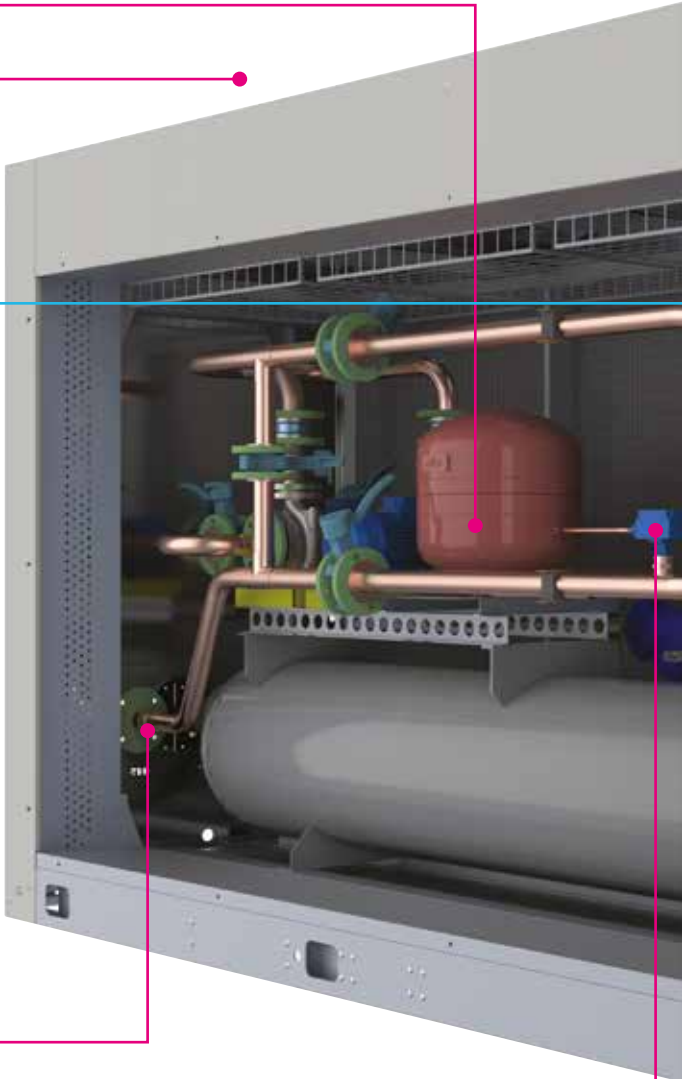
## DSF Scroll Compressor

For increased efficiency and reliability, the Ultima Compact R32 Chiller range utilises state-of-the-art DSF scroll compressor technology.



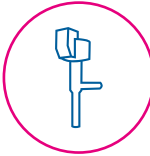
Ideal for a range of applications, the DSF scroll is a compressor with a low vibration level. It delivers excellent part-load energy efficiency, lower applied costs and improved robustness.

- Optimised for R32
- Intermediate Discharge Valve (IDV) increase seasonal efficiency (ESEER)
- Increased application envelope
- Scroll design reduces friction and running costs



## Supply water

Supply water temperature from 5 to 18°C allows for greater energy efficiency.



## EER\* increase of up to 30% with electronic expansion valves

Electronic expansion valves (EEVs) are included on all units as standard. An EEVs 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%.

\* Energy Efficiency Ratio



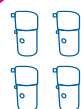
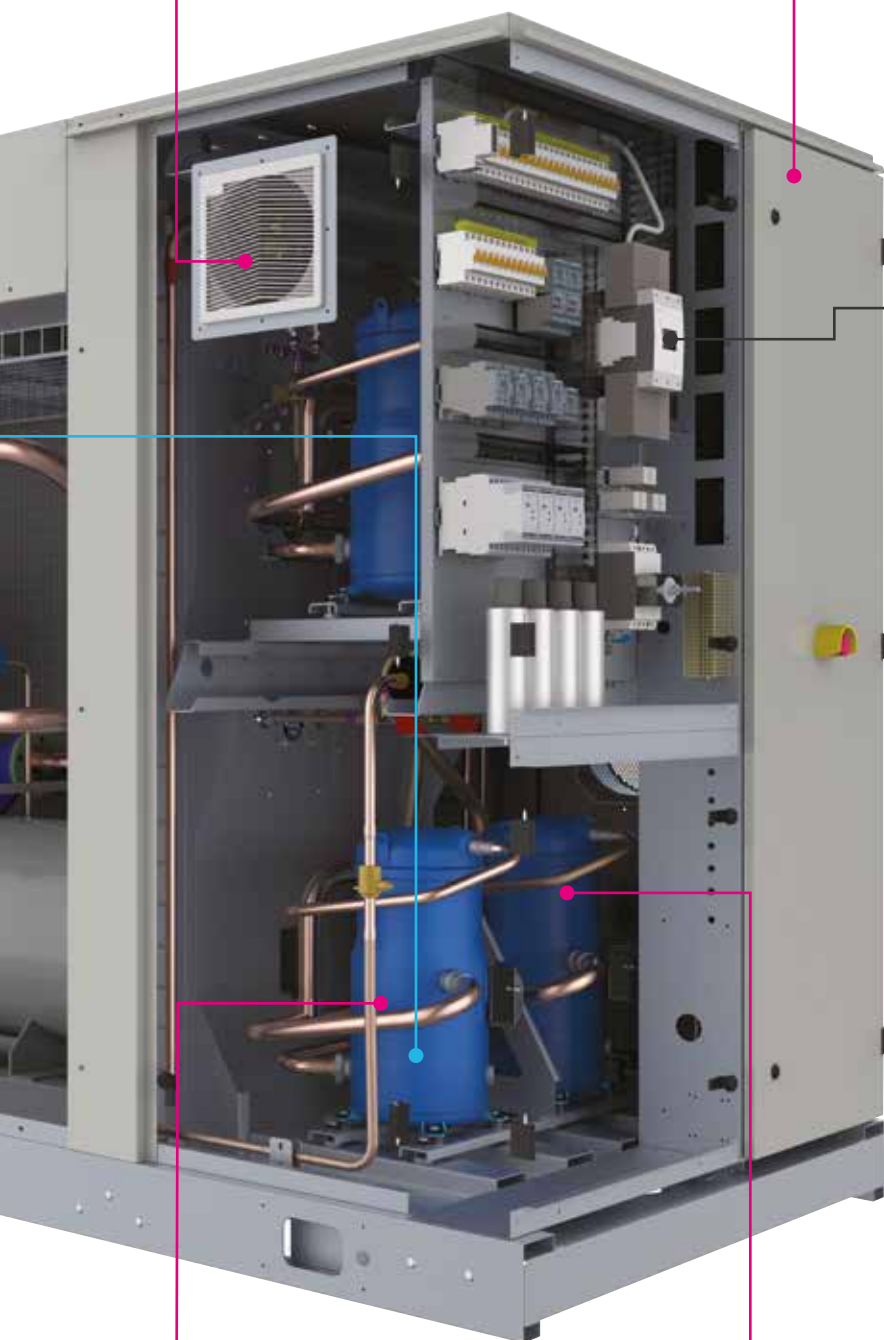
### Enhanced safety features



- Leak detection as standard
- ATEX rated ventilation fan to reduce any risk of ignition in an unlikely leak scenario
- Isolating contactor to remove ignition sources
- Pump down facility



Compact footprint to suit challenging installations



### Up to 4 stages of cooling

Up to 4 compressors, offering single or dual circuit options. Dual circuit offers increased capacity for larger units and redundancy cover; single offers increased efficiency with a larger condenser area.



Integrated non-return valves prevent refrigerant migration

### Helix Chiller Controls



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

Accurate, efficient and safe, Helix is tested and qualified in Airedale's state of the art research and development laboratory. The pre-programmed controller contains a range of control parameters that can be individually modified, enabling units to be specifically configured to suit customer requirements.

- Dynamic cooling demand adjustment
- Compressor rotation
- Constant superheat via EEV control
- Optimised head pressure control utilises dynamic set point adjustment to select optimised operating condition
- Variable supply control raises set point in colder weather to reduce power consumption
- Intelligent/dynamic crank case heater control helps reduce power consumption in standby
- Intelligent auxiliary heating
- Intelligent refrigerant management shuts down the unit in the event of a leak and activates the ventilation fan



### Night mode

The Ultima R32 chiller features a night setback mode, reducing the fan speed automatically at times when the unit is not required to work as hard... saving energy and keeping the neighbours happy with a reduced sound level.



# How to select your Ultima R32



The Airedale range of Ultima Compact air cooled liquid chillers covers the nominal capacity range 30kW to 150kW.

The range is available in a variety of models and case sizes. It is available with many optional variations including Regular Quiet (R) and Extra Quiet (X) sound levels. Attention has been placed on maximising the unit's performance while keeping the sound levels, vibration levels and footprint to an absolute minimum.

## Nomenclature explained

	U	CCL	075	D	R	-	2	A
<b>U</b>	Ultima							
<b>CCL</b>	Compact Chiller Range R32							
<b>xxx</b>	Nominal Capacity (kW)							
<b>S</b>	Number of Circuits Single Circuit Dual Circuit							
<b>D</b>								
<b>R-</b>	Noise Variant Regular Quiet Extra Quiet							
<b>X-</b>								
	Separator							
<b>1 - 4</b>	Number of Fans/Case Size							
<b>A</b>	Evaporator Code							



5 case sizes  
available

1450 x 1310 x 1650mm  
1450 x 1310 x 2500mm  
2000 x 1300 x 2800mm  
2000 x 1300 x 3650mm  
2000 x 1300 x 4500mm

## Standard Features

The Ultima Compact Chiller range offers a wealth of cost effective, energy saving features. These features help to provide the necessary internal environment expected within an energy efficient building.

- DSF Scroll Compressors
- Optimised Head Pressure Control
- 630mm and 710mm Diameter EC Fans
- Round Tube Plate Fin (RTPF) Condenser Coils
- Fan Discharge Standard Height Plenum
- 400V / 50Hz / 3~
- Liquid and Discharge Line Shut-Off Valves
- Low Pressure Switch with Auto-Reset
- High Pressure Trip Switches
- UltraCap Power Backup
- Compressor Enclosure Ventilation
- Evaporator Pad Heater
- Phase Rotation Relay
- Electronic Expansion Valves
- Dual Maintainable Pressure Relief Valves
- Leak Detection
- Pump Down – Discharge Line Check Valves

## Options

In addition to its wide range of standard features the Ultima Compact Chiller range offers a number of enhanced options that can be specified to create a bespoke product that meets each individual's unique application needs.

## Mechanical

- AC Fans
- Extended Height Fan Discharge Plenum
- Anti-Vibration Mounts
- Condenser Coil Guards
- Epoxy Coated RTPF Condenser Coils

## Water

- Flow Switch
- Water Filter
- Standard and Larger Head Pump Options
- Standard and Larger Head Twin Head Pump Options\*

- Standard and Larger Head Run and Standby Pump Options
- Regulating Bypass Option
- Flushing Bypass Option
- Buffer Tank\*
- Expansion Vessel
- Differential Water Pressure Transducer

## Electrical

- Power Monitoring
- Compressor Soft Start
- Power Factor Correction\*

## Optional Features – Controls

- Interface Cards

\* Model specific

# Technical and performance data



Below is a selection of our most popular Ultima models and accompanying technical specification, including Ecodesign rating.

The Ecodesign directive sets out minimum mandatory requirements for the energy efficiency of products. Please contact us for more information on other model variants.

	Number of Circuitssw	Nominal Cooling Capacity (kW)	Input (kW)	EER	Sound Pressure @ 10m dB(A)	Dimensions (H x W x L)	Operating Weight (kg)	ESEER (Gross)	SEPR Tier
UCCL030SX-2AE0	1	27.9	9.1	3.07	41.5	1450 x 1310 x 2500	600	3.77	Tier 2 (2021)
UCCL040SX-2AH0	1	40.4	14.3	2.82	43.0	1450 x 1310 x 2500	657	3.80	Tier 2 (2021)
UCCL050SX-2AJ0	1	48.5	17.1	2.83	45.5	1450 x 1310 x 2500	675	3.91	Tier 2 (2021)
UCCL070SX-2AL0	1	60.9	22.9	2.65	45.2	1450 x 1310 x 2500	695	3.76	Tier 2 (2021)
UCCL075SX-2AM0	1	67.8	27.7	2.45	45.4	1450 x 1310 x 2500	701	3.61	Tier 2 (2021)
UCCL075SR-2AP0	1	82.7	39.3	2.10	47.0	1450 x 1310 x 2500	701	3.57	Tier 2 (2021)
UCCL085SX-2AP0	1	87.5	36.4	2.40	45.2	2000 x 1300 x 2800	1007	3.92	Tier 2 (2021)
UCCL100SX-3AP0	1	92.9	33.9	2.74	45.8	2000 x 1300 x 3650	1229	4.19	Tier 2 (2021)
UCCL125DX-4AKK	2	114.6	38.4	2.99	47.4	2000 x 1300 x 4500	1491	4.14	Tier 2 (2021)
UCCL150DX-4AMM	2	144.6	52.4	2.76	48.2	2000 x 1300 x 4500	1523	3.95	Tier 2 (2021)

Nominal cooling is based on units performance at 12/7°C return/supply temperature and 35°C ambient, 100% water

## The origin of Azure

R32 has been widely cited as an effective replacement for R410A due to it having similar properties, but the decision to develop a product range using R32 wasn't a simple one. Our existing products, having been optimised for use with R410A, wouldn't work with R32 as a simple drop-in replacement.

Due to thermodynamic and physical property differences, substantial design work was required to optimise our products for R32, followed by a period of intense testing in various prototype units under extreme conditions.

The Azure range has been 2 years in the making and the result gives our customers a choice of products for many applications and includes the highest capacity, the most efficient, the most compact and the quietest R32 chillers available anywhere in the world.\*

\*based on information available at the time of printing.



# ACIS

## More than just a BMS

ACIS™ is an innovative, scalable and future-proof solution which has been specifically designed to enhance system performance, drive down operational costs and aid decision making for a wide range of building services.



**HVAC Optimisation.** Airedale's 45 years' experience in air conditioning allows ACIS to go far beyond other BMS solutions in selecting optimised operating conditions for HVAC systems.



**Power Management System.** ACIS can manage a facility's power infrastructure and provide insights into usage and faults.



**Energy Management System.** ACIS provides detailed insights into a facility's energy usage, with inbuilt diagnostic tools that allow users to pinpoint areas of improvement.



**Compatibility.** Airedale is one of the largest developers of Tridium, the world's forefront IoT architecture. We use open, standard protocols that allow for third party system integration.



**Single Pane of Glass.** ACIS provides BMS, PMS and EMS information in a fully customisable single dashboard.



**KPIs.** ACIS can provide live data on metrics such as PUE (Power Usage Effectiveness), tailored to end-user.



**Security.** ACIS complies with the latest cyber-security protocols, hardening your facility against incursions.



**Sequence of Events.** ACIS can timestamp power events within 2ms, allowing for greater accuracy when determining root cause of outages.



## About Airedale

Formed in 1974, Airedale International Air Conditioning is a British manufacturer and world leader in the design and manufacture of innovative, high efficiency cooling solutions. With offices in three continents and customers in over 60 countries, we have built a global reputation for quality and innovation.

Airedale's Headquarters, located in Leeds UK, is a world class 23,000 square foot manufacturing, research, testing and training facility. From here we provide complete thermal solutions that encompass precision air conditioning and IT cooling systems, chillers, condensers/dry coolers, air handling units and comfort cooling solutions.

## End-User Application

We are specialists in the design of super-efficient, integrated cooling solutions that provide real end-user benefits in reducing power consumption and operational costs. Our unrivalled product ranges are backed up by extensive end-user application expertise, including data centres, pharmaceuticals, clean rooms, healthcare, retail, leisure and telecoms.

## Research & Development

Airedale has a strong pedigree in pioneering product developments and our success is built on a constant strive for excellence in product design and application. Today, much of our investment goes in to the research and development of more energy efficient products and the use of lower GWP refrigerants. Our state of the art R&D facility allows us to stay ahead of the curve in offering cutting edge thermal management solutions whilst mitigating our impact on the planet.

## There when you need us

As a British manufacturer, we understand that quality products are nothing without quality service. Airedale products are supported by a full range of complementary services, including tailored maintenance packages, on-demand spares, training and technical support.

We have a nationwide team of trained HVAC engineers on hand to provide support when you need it most. Choose from one of the three comprehensive packages opposite for complete piece of mind.



Airedale Headquarters in Leeds, UK



The Airedale International Research & Development Team

# Total Support



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.

## Airedale ChillerGuard™ Maintenance Packages

	BRONZE	SILVER	GOLD
Annual maintenance visits	4	4	4
On call engineer, 24/7	✓	✓	✓
Travel and mileage included	✓	✓	✓
Cleaning materials / lubricants	✓	✓	✓
Consumables (filters, belts etc)		✓	✓
All parts		✓	✓
All associated costs		✓	✓
All refrigerant costs			✓

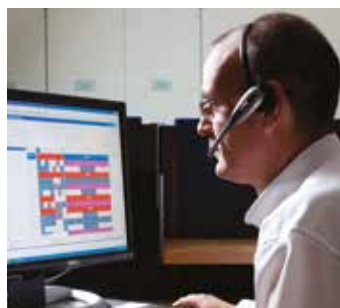
An Airedale service plan provides a planned, preventative maintenance package to sustain the optimum efficiency of your system, enabling the user to see real savings in energy costs and reduced carbon emissions.

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](http://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**



**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.



**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.



**Develop your skills**

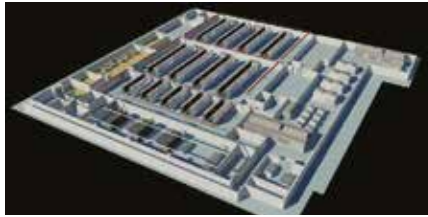
Learn more about your cooling system by attending an air conditioning and refrigeration course in our purpose-built training school. Train on high-tech cooling systems and fully operational rigs in our dedicated workshops. Industry recognised courses also available. Email [connect@airedale.com](mailto:connect@airedale.com) for further details.

# Tailor made for you

**Customer focus is central to our core principles at Airedale. We will work closely with you to adapt our flexible systems to fit exactly to your specific cooling needs and energy requirements.**

Communication is key to understanding your requirements so we ensure you are kept informed and actively involved every step of the way.

Our ability to handle complex projects worldwide and meet the toughest of deadlines ensures we always deliver quality assured products and service, no matter how challenging the task.



## London Data Exchange

### £5m colocation facility

4 x 280kW DeltaChill™ FreeCool chillers supplying chilled water to 10 x chilled water 110kW SmartCool™ precision air conditioning units, each providing under floor cold aisle delivery at a constant 22°C to contained aisles.

#### Benefits:

- PUE less than 1.3
- Free-cooling for up to 95% of the year
- 13% less space claim
- N + 1 redundancy



## The Tower of London

As part of a major refurbishment programme, Airedale was selected to supply two Ultima™ twin circuit compact chillers to deliver comfort cooling to the building.

#### Benefits:

- Energy-saving four-staged cooling maximises part-load efficiencies, reduces water consumption and improves reliability
- Electronic soft-start delivers reliable start-up and reduces starting current by approx 40%
- Compressor acoustic jackets for further 10 dBa noise reduction
- Design adapted to minimise installation time and costs



## National Gallery

6 x TurboChill™ chillers supplying chilled water to a primary circuit.

The TurboChill™ replace existing R22 chillers with a bespoke, sequenced chiller solution, integrating new technologies; modern refrigerant and design criteria and increased control.

#### Benefits:

- ESEER 5.87
- £16,000 energy saving in first year
- Enhanced reliability and less maintenance
- Matches existing rooftop space and connections



## John Lewis York

Airedale's TurboChill™ chiller was the first UK-manufactured chiller incorporating the low Global Warming Potential (GWP) refrigerant R1234ze to hold BSI approval and was installed in the new John Lewis Store in York.

#### Benefits:

- Free cooling to maximise energy efficiency
- Low GWP refrigerant R1234ze to minimise the impact on the environment
- Automatically receives two BREEAM points for its low GWP characteristics
- Excellent compressor reliability with no operational wear and tear, due to virtually no vibration and fewer moving parts



For more information about Airedale's commitment to developing environmentally compliant products without compromising on performance, please contact us on **0113 2391000** or visit **[www.airedale.com](http://www.airedale.com)**



[www.airedale.com](http://www.airedale.com)

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All specifications are subject to change without prior notice | **ENG-ULTR32-10-19**

A **MODINE** Company

