Airedale
APPLIED THERMAL INNOVATION

TurboChill *Hydro*

- 200kW to 3000kW
- ESEER up to 8.98
- EER up to 5.79
- Low noise
- Flexible footprint
- Ecodesign Tier 2 Compliant for comfort and process applications

200kW to 3000kW
Water-Cooled Chiller

MADE IN BRITAIN

ecoDesign COMPLIANT

TurboChill Hydro pairs the latest in water cooling technology with the highly efficient Turbocor® compressor range, to deliver our highest capacity, highest efficiency chiller with reduced risk to our planet.

TurboChill Hydro

200kW to 3000kW Water-Cooled Chiller

TurboChill Hydro is a highly efficient water cooled chiller that offers extensive cooling capacity. Ranging from 200kW to 3000kW, TurboChill Hydro offers flexibility at a competitive price without compromising on performance.

Single circuit units are available with up to 3 compressors on a single circuit and on a dual circuit there are units with 2 to 5 compressors available shared between the circuits.

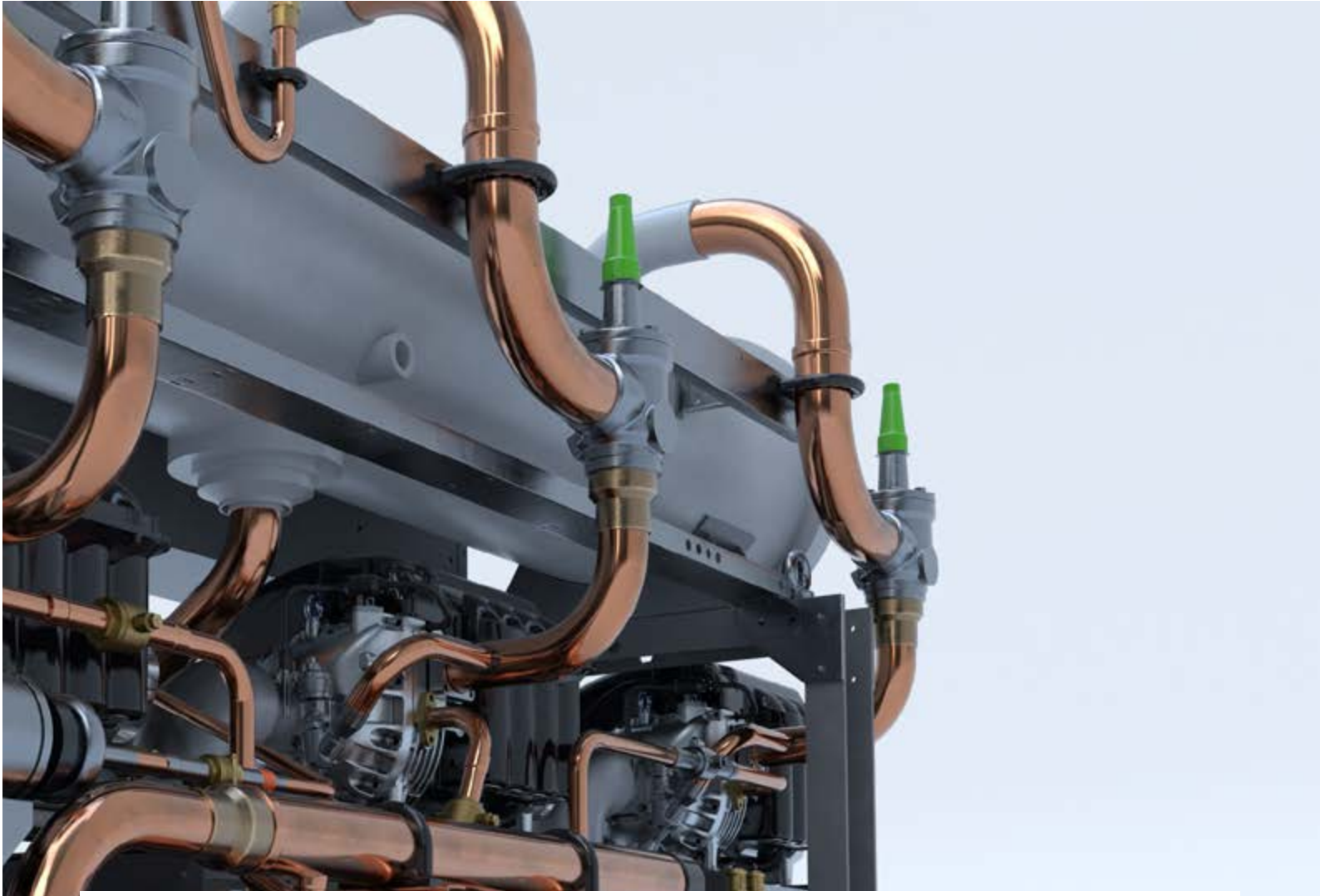
All TurboChill Hydro units can use either R134a or the lower GWP alternative R513A.

Turbocor®, Turbo Charged

Airedale have worked with Turbocor for over 16 years and were one of the first companies in the world to adopt this innovative oil-free compressor technology. Our ability to optimise the Turbocor range is unparalleled in the HVAC industry and with the TurboChill Hydro we have unleashed all its performance, flexibility and efficiency potential.

The TurboChill Hydro range utilises oil-free centrifugal compressors; S-TT300, L-TT350, M-TT400, N-TT700.These intelligent, self-optimising compressors enable variable speed control and minimise input power with reduced noise levels compared to traditional compressor technology.

Magnetic bearings within the centrifugal compressor levitate the compressor shaft and with no mechanical contact or friction between mating surfaces, the need for lubrication is eliminated. Turbocor use substantially less power at part load and gives accurate set point control and exact capacity match. The in-built soft start, producing a current of just 2A eradicates the need to oversize electrical components on site.



Benefits

Performance

- Variable capacity control
- Operates effectively at very low pressure ratios with liquid refrigerant pump installed
- Compatible with a wide range of dry air coolers
- Cooling tower or dry air cooler applications compatible
- Can be used with variable flow to help reduce primary pumping losses
- High pressure condensers
- Competitive pricing structure

Efficiency

- ESEER of up to 8.98
- Economiser option for increased capacity for a given footprint
- From supply water temperatures of 5°C to 20°C on the evaporator
- One expansion valve per compressor, increasing efficiency when fitted. This also improves expansion valve control at reduced loads.

Installation & Maintenance

- Oil free compressor for reduced service and maintenance requirements
- Vertical or horizontal arrangement allows flexibility for transport and site footprint utilisation
- Large side by side unit configurations can fit into a standard width container
- Forklift options to allow ease of unit movement on vertical and single compressor units.

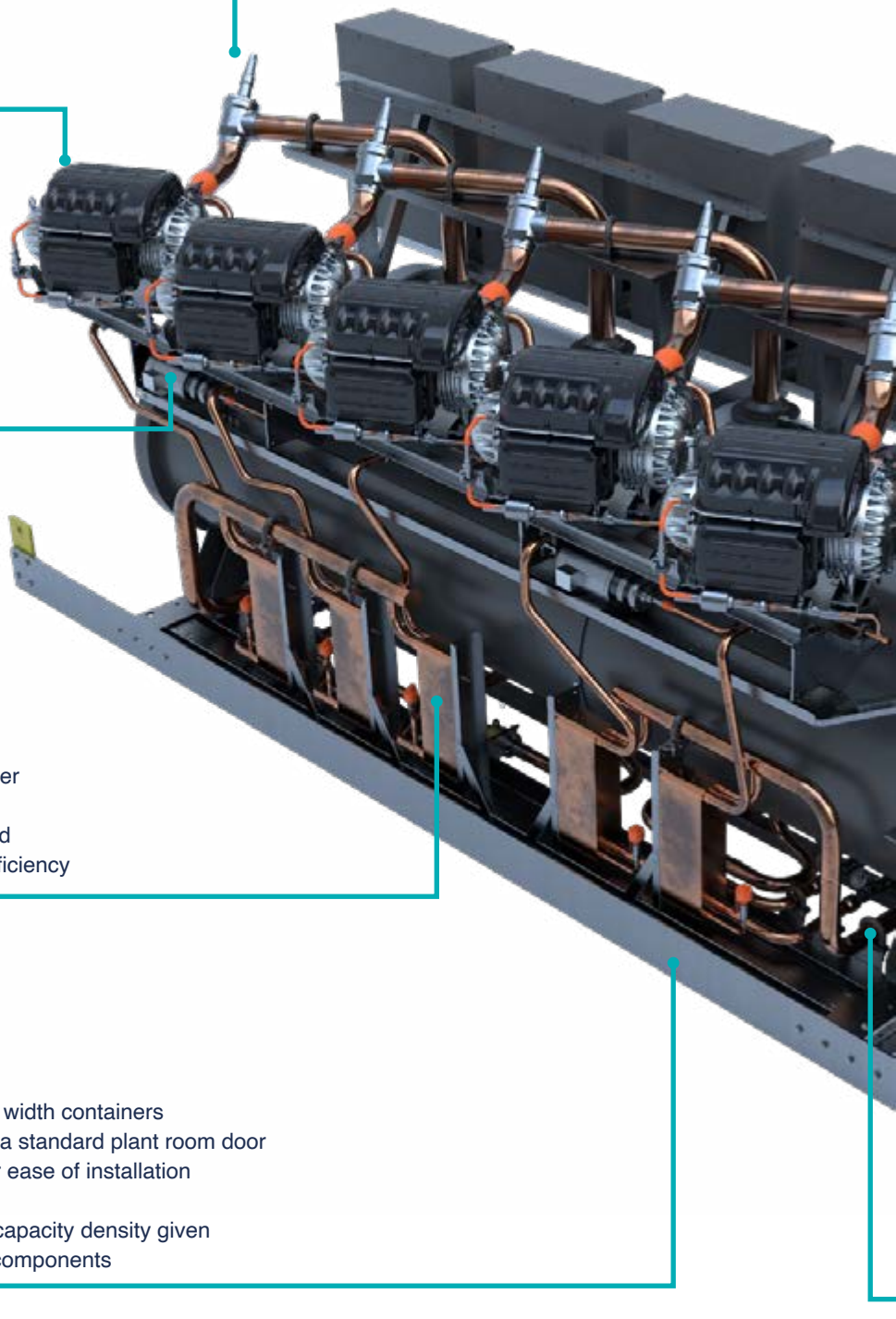
TurboChill Hydro
Features

Combined isolation and check valve minimises line component quantity.

Variable Flow Rate
Units can operate under a variable flow regime safely to allow primary pump savings to be achieved.

Turbocor Compressor
- Oil free – low maintenance
- High efficiency
- Optimised for part load efficiencies
- Single or dual circuit

Liquid Refrigerant Pump*
- Improves part load efficiencies
- Supports fast restart
- Can operate at reduced head pressures
- Low pressure ratio operation compared to units without it



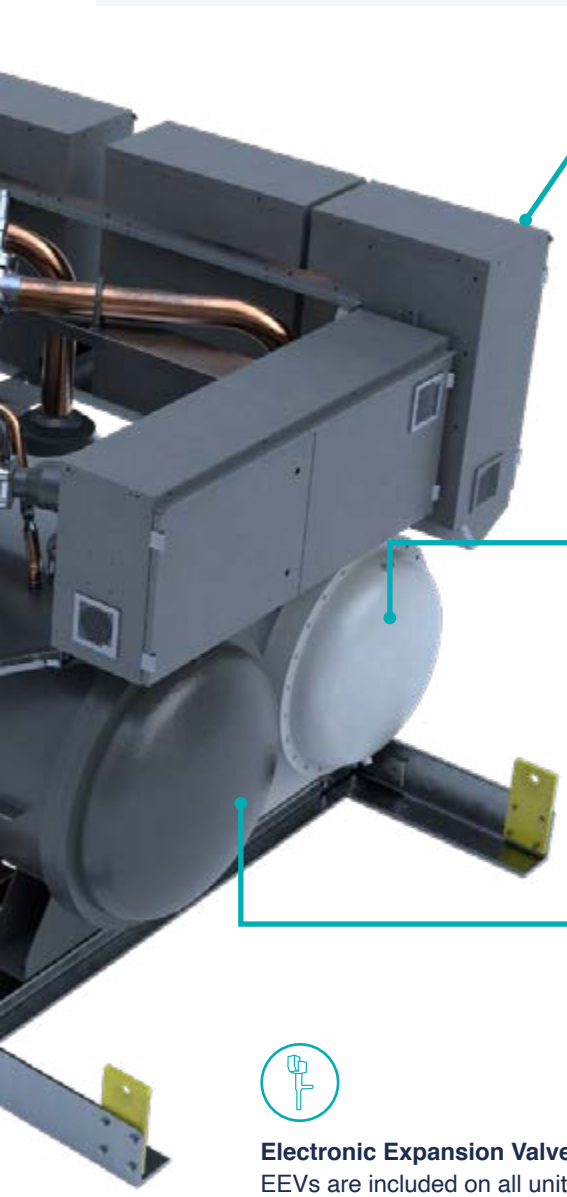
Parallel Economisers*
- One EEV and economiser per compressor
- Better control in part load
- Enhanced capacity & efficiency

Flexible Configuration
- All units fit into standard width containers
- Vertical units fit through a standard plant room door
- Lifting lugs and skids for ease of installation and shipping
- Vertical units offer high capacity density given unique arrangement of components

helix

Chiller Controls

- Next gen C-pco controller
- Ethernet connection to BMS
- USB data import/export
- Smart capacity match
- Tandem compressor management allows faster restarts
- Intelligent compressor rotation promotes unit longevity
- Optimised compressor loading
- Intelligent auxiliary heating reduces standby power consumption
- Control of EEVs delivers subcool control and dynamic setpoint based on conditions
- Designed to deliver maximum capacity turndown for increased efficiency
- Variable flow management



Head Pressure Valve option available. Not shown on image.

Enhanced Safety Features:
- Leak detection*

Condenser:
- Designed for flexibility with 50/55 and 30/35. Various operating conditions possible
- High pressure condensers available
- Perfect for high-rise buildings

Evaporator:
- Supply water 5-20°C
- Variable flow available
- Dynamic control of bypass pump delivers efficiency gains
- Low pressure drop
- Stable return temperatures
- Great part load efficiencies

Electronic Expansion Valves
EEVs are included on all units as standard. Not applicable to flooded units. These valves allow maximum efficiency to be achieved throughout the operating envelope of the unit.

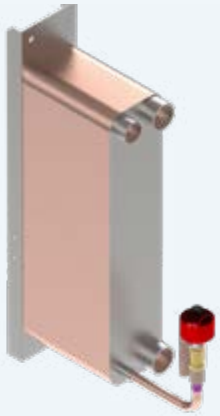
* Optional

TurboChill Hydro Options

TurboChill Hydro is available in an extensive range of cooling capacities, with a wide range of sizes, varying numbers of compressors, types of compressors, and layout options for increased customer flexibility. The base and unit panels are fabricated from galvanised steel to ensure a rigid, durable, weatherproof construction. Standard unit colour is Black Grey (Ral 7021). With over 21 models available and with a range of options including the economiser, the liquid refrigerant pump, leak detection and head pressure control options, we have explained below how some of these features work in more detail.

Spotlight on Economiser

The economiser works alongside the evaporator within the refrigeration circuit. It works by taking a portion of the liquid refrigerant from the plate heat exchanger and pushing it through the expansion valve, to convert it into a gas. As it drops in temperature, it then cools the liquid refrigerant increasing the subcool level of the fluid. This increased subcool allows higher cooling capacities in the region of up to 5% at standard EN14511 conditions helping to further lift unit efficiency.



Spotlight on Liquid Refrigerant Pump

The liquid refrigerant pump allows the chiller to operate at a lower condensing pressure for a given evaporating temperature, improving part-load efficiencies and capacity control.

Should a compressor need to do a fast re-start, the liquid refrigerant pump can allow the compressor to deliver more cooling for a given low pressure for a short period of time.

Energy Efficiency

TurboChill Hydro

Our planet

Working with refrigerants means we have to consider our environment, and what the consequences a leak – however unlikely – would have. Airedale invest heavily into research and development and much of our work goes into making chillers that operate effectively and efficiently with lower GWP refrigerant gases. We also look to offer life span energy savings, not only for the long-term financial benefits, but also for our planet.

R513A

R513A is an effective alternative to the refrigerant R134a, offering a lower GWP without compromising on performance or efficiency. Whilst it is important to note that the chiller operating efficiently contributes more to CO2 emissions than its refrigerant does, lower GWP refrigerants also have a part to play.

Efficiencies

By utilising technologies such as the Turbocor compressors, variable flow compatibility, liquid refrigerant pump, one EEV per compressor and the economiser, the TurboChill Hydro offers significant life span energy savings, delivering both financial and environmental benefits.

The lifetime operating efficiency of a chiller plays a significant role in CO_2 emissions and as such the effect it might have on greenhouse gases. Choosing a highly efficient unit will not only save on energy costs but also reduces the impact on our planet.

ESEER up to 8.98

EER up to 5.78

Tier 2 (2021) SEPR and SSCEE

The TurboChill Hydro units offers Tier 2 compliance for both (2021) SEPR and SSCEE

BREEAM

BREEAM aims to reduce life cycle impacts of new buildings on the environment by awarding credits.

The TurboChill Hydro will contribute to a building achieving two credits.

R513A/R134a is Eligible for 1 BREEAM credit - Direct Effect Life Cycle CO2 equivalent emissions (DELC) of ≤1000kgCO2 -eq/kW.

The HydroChill turbo system is eligible for 1 Credit for being hermetically sealed, with a tested leakage rate of less than 3g/year.

Airedale is committed to developing its chiller technology to reduce the impact on the environment.

How to choose your **TurboChill** Hydro

With 21 models available in an assortment of dimensions and layouts, our nomenclature table explains how to select the model most suitable for your requirements and the technical table gives more detail on the models available. We always recommend speaking with your sales engineer to ensure you select the optimum model for your project.

Nominal cooling is based on units performance at 12/7°C return/supply temperature and 30/35°C condenser water temperatures. This range is water cooled.

Nomenclature explained

TCW11RC*E*-S-0-L

TCW	1	1	R	C*	E*	-	S	-	L	-	0

TCW	TurboChill WaterCooled
1 - 2	Number of Circuits
1- 5	Number of Compresors
R	Noise Variant (Regular R or Extra X Quiet)
C*	Condenser Code (C1)
E*	Evaporator Code (E1)
-	Separator
S	TT300 Compressor
L	TT350 Compreesor
M	TT400 Compressor
N	TT700 Compressor
-	Separator
L	Left or Right Hand Connections (L or R)
-	Separator
0	Supply Voltage (See electrical SOM)

RANGE	No of Compressors	No of Circuits	Dimension (H x W x L) (mm)	ESEER (Up to)	EER (Up to)	Capacity From	Capacity To
TCW11RCAEA-S-L-0	1	1	1780 X 1150 X 2624	8.15	5.65	200	300
TCW11RCBEB-L-L-0	1	1	1780 X 1150 X 2624	7.8	5.68	300	400
TCW11RCCEC-M-L-0	1	1	1870 X 1150 X 2584	8.13	5.78	300	500
TCW11RCDED-N-L-0	1	1	1870 X 1150 X 2610	7.49	5.74	450	650
TCW12RCEEE-S-L-0	2	1	2307 X 1230 X 2950	8.49	5.65	400	600
TCW12RCFEF-L-L-0	2	1	2307 X 1230 X 2950	8.32	5.68	550	850
TCW12RCGEG-M-L-0	2	1	2307 X 1256 X 3543	8.64	5.79	650	1000
TCW13RCHEH-L-L-0	3	1	2307 X 1243 X 3850	8.53	5.68	850	1300
TCW13RCIEI-M-L-0	3	1	2307 X 1256 X 3850	8.81	5.79	1000	1500
TCW13RCJEJ-N-L-0	3	1	2035 X 2052 X 4410	8.74	5.74	1350	2050
TCW22RCKEK-S-L-0	2	2	2307 X 1248 X 3592	8.49	5.65	400	600
TCW22RCLEL-L-L-0	2	2	2307 X 1254 X 3532	8.32	5.68	550	850
TCW22RCMEM-M-L-0	2	2	2307 X 1256 X 3543	8.64	5.79	650	1000
TCW22RCNEN-N-L-0	2	2	2307 X 1256 X 3543	8.47	5.74	900	1350
TCW23RCOEO-L-L-0	3	2	2307 X 1256 X 3849	8.53	5.68	850	1300
TCW23RCPEP-M-L-0	3	2	2005 X 2052 X 5500	8.81	5.79	1000	1500
TCW23RCQEQ-N-L-0	3	2	2057 X 2052 X 5500	8.74	5.74	1350	2050
TCW24RCRER-L-L -0	4	2	2057 X 2052 X 5500	8.65	5.68	1150	1750
TCW24RCSES-N-L-0	4	2	2133 X 2192 X 5500	8.98	5.74	1150	2750
TCW25RCTET-L-L-0	5	2	2133 X 2192 X 5500	8.60	5.69	1400	2150
TCW25RCUEU-N-L-0	5	2	2133 X 2192 X 5500	8.51	5.74	2250	3000

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 beyoung other BMS solutions in selecting optimised operating condistions 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 diagnosis 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 third party system integration.

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

KPIs
ACIS can privide 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.

Total support 24/7

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 beneit 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.

An Airedale service plan provides a planned, preventative maintenance package to sustain the optimum effciency 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 qualifed 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 **airedale.com**

For customers outside the UK, our international distributors trained by Airedale would be pleased to offer service on Airedale units.

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			✓

Talk directly with an experienced engineers

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/hour 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.

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** for further details.

About Airedale

Formed in 1974, Airedale International Air Conditioning is a British manufacturer and world leader in the design and manufacture of innovative, high effciency 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-effcient, 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

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Airedale
APPLIED THERMAL INNOVATION

YORKSHIRE'S FINEST excellence in business AWARDS 2019 YORKSHIRE POST WINNER

CIBSE Yorkshire Awards Winner 2019