Airedale
APPLIED THERMAL INNOVATION

Precision Air Conditioning | Air cooled / Free-cooling



Ecotel™

5 - 15kW

+ Self-contained compact outdoor cabin cooler
+ Fresh air free cooling with 100% mechanical backup
+ Designed and optimised for R410A
+ - 48V DC emergency backup (option)
+ Easy serviceability (front and side component access)
+ Secure, tamper proof fixings

HFC R410A | AIR DX | FREE COOL | DOWNFLOW | SCROLL COMPRESSOR | EC FAN | ecoDesign COMPLIANT

www.airedale.com

BRITISH MANUFACTURER | ENERGY EFFICIENCY | CONTROLS | SERVICE | TRAINING

Outdoor cabin cooler

Compact, efficient, resilient

The Ecotel™ 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.

Designed for where internal space is limited or unavailable, the Ecotel™ is quick and easy to install, utilising a secure mounting bracket system.

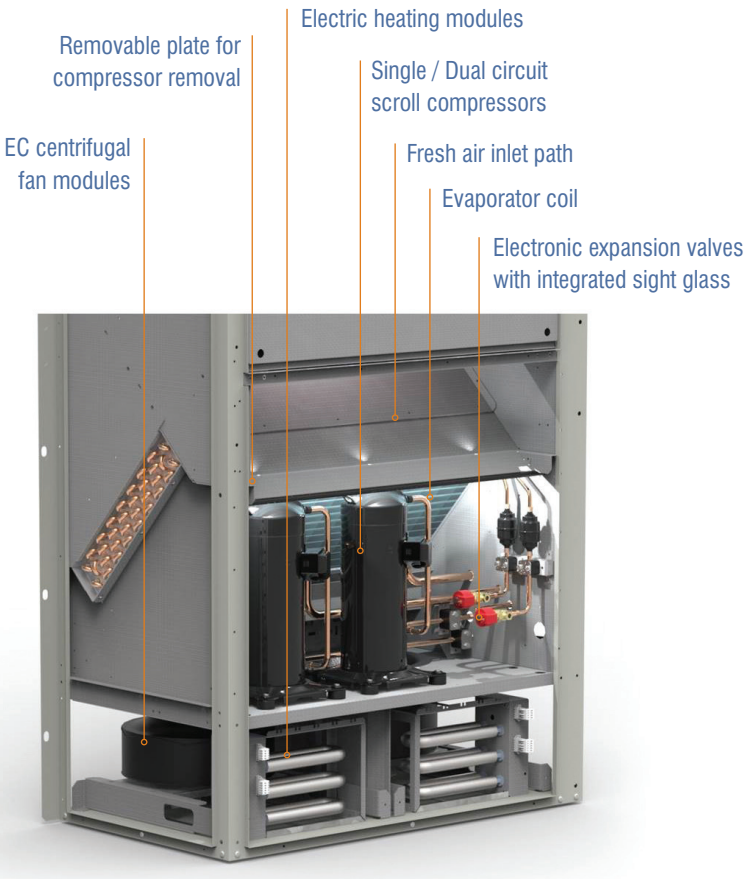
The system is ideal for new installations or can be supplied as a retrofit solution.

Optimise your unit selection

The Ecotel™ gives you the flexibility to optimise unit selection to match the considerations of your specific project.

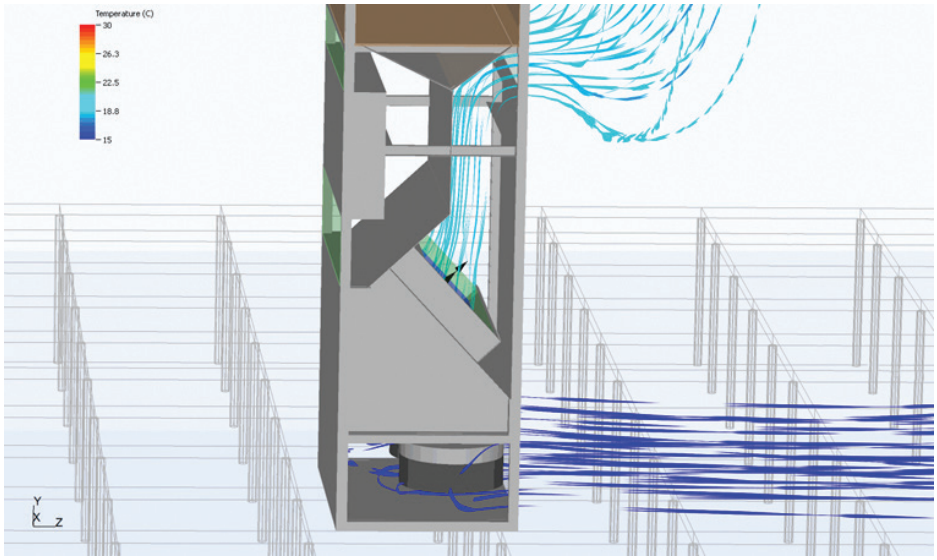
Choose from:

- Two case sizes
- 4 modes of operation:
  - Heating mode
  - Free Cooling mode
  - Concurrent Cooling mode
  - Mechanical Cooling mode
- Four capacities (5kW (single circuit), 8kW (single circuit), 12kW (single or dual circuit), 15kW (single or dual circuit) - multiple units can be combined
- 36 models
- Wide operating range:
  - Low Ambient Temperature Range: -40°C to +40°C (low ambient kit option)
  - Standard Ambient Temperature Range: -20°C to +40°C
  - High Ambient Temperature Range: -20°C to +48°C (high ambient kit option)



Optimised air flow

CFD analysis was used to determine the CFD analysis was used to determine the optimum airflow path in all modes of operation. The aim was to have minimum air side pressure drop in free cooling mode, where the unit spends the majority of time operating. Fans discharge air into the lower section of the cabin space and pressurise the return air to the top of the unit.

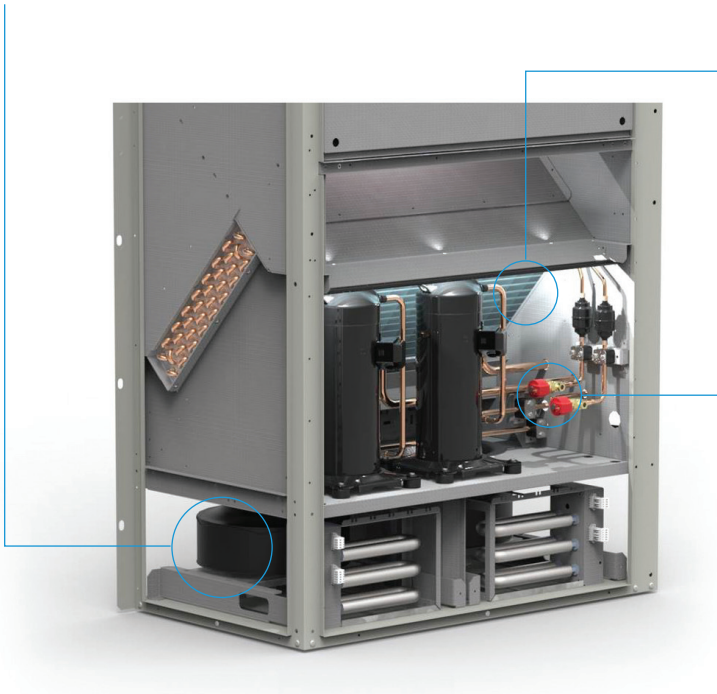


Typically a 50% drop in air volume results in an 83% reduction in fan power consumption

High efficiency components = increased EER

EC centrifugal fan modules – up to 70% more efficient than AC fans, particularly at part load between 30% and 100%. EC fans respond seamlessly to load fluctuations.

The centrifugal EC fans are fixed to a mount and wired to the unit via plug connectors resulting in fast removal.

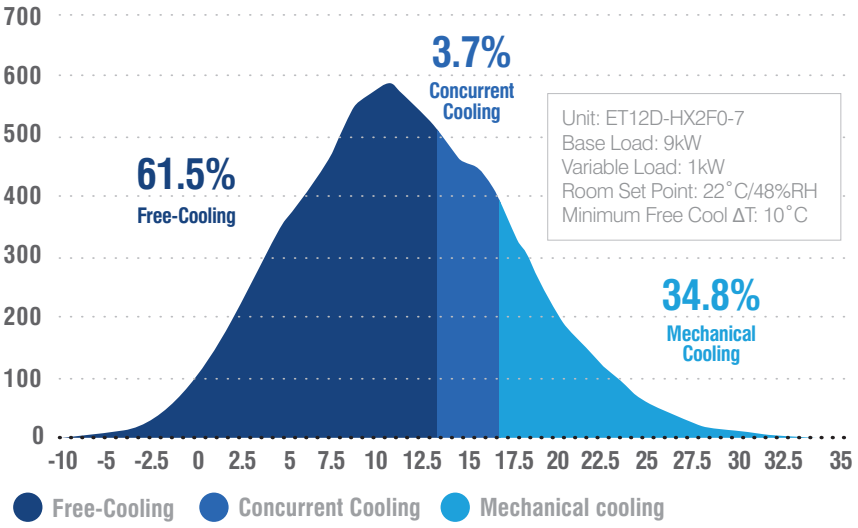


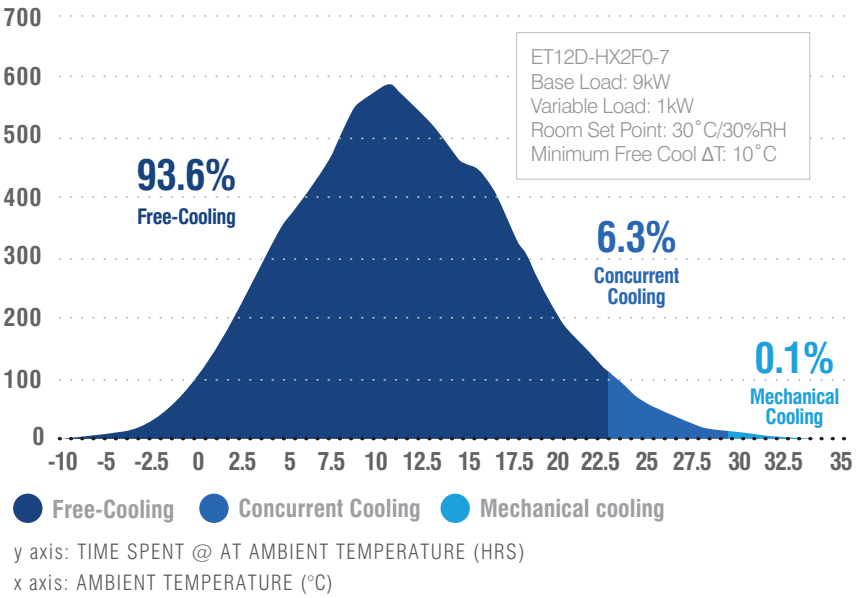
Evaporator coil – 7mm coils result in reduced refrigerant charge and airside pressure drop for improved system performance.

Electronic expansion valves – typically provide an EER increase of 30% over a thermostatic expansion valve (TEV), by reducing the need for high head pressure.

Reduced operating costs

Minimal environmental impact





Up to 99.9% of the year spent free-cooling

Designed for maximum efficiency, the Ecotel™ utilises free-cooling whenever possible, to minimise energy consumption and carbon footprint.

Free-cooling saves vast amounts of energy, particularly when room set point temperatures are high. For free-cooling operation, the temperature difference between the ambient air and the return air can be as little as 2°C.

For example, as per the second chart above, with a room temperature set point of 30˚C, the Ecotel™ offers free-cooling only mode for up to 93.6% of the year (cumulative hours, London, UK).

Annual running costs of just **£70.18***

*Figure based on an ET05D-HX1F0-0 at 30°C/30% RH Air On, in London, base load of 3kW, variable load of 2kW

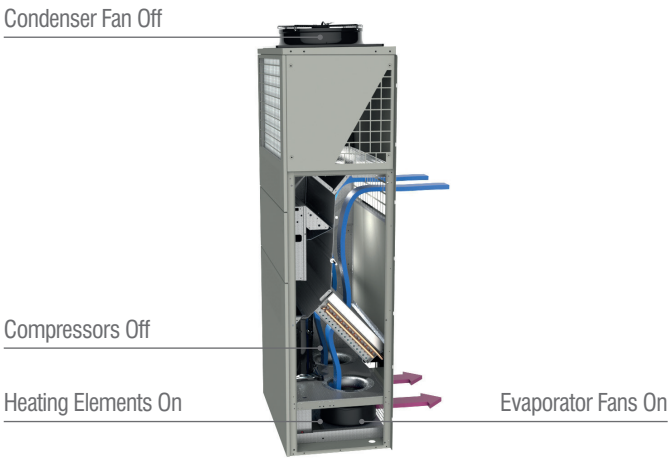
HFC R410A

Optimised performance and efficiency

The Ecotel™ range has been specifically developed for use with the refrigerant R410A. With the higher heat transfer capabilities of R410A it is designed to increase system efficiencies, reduce system size and is less susceptible to efficiency losses due to pressure drop when compared with R407C.

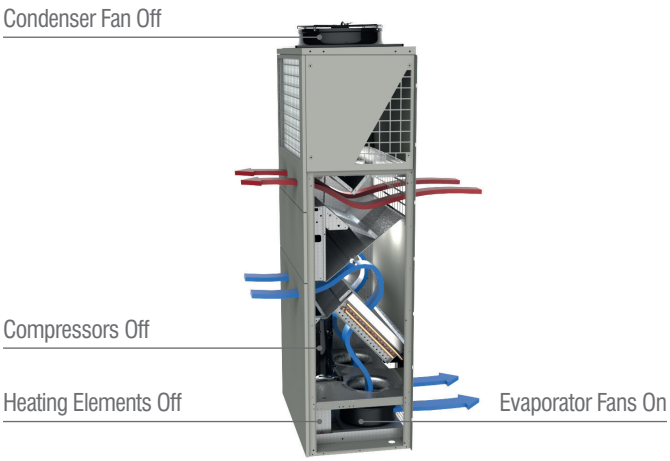
Unit operation

Minimal environmental impact



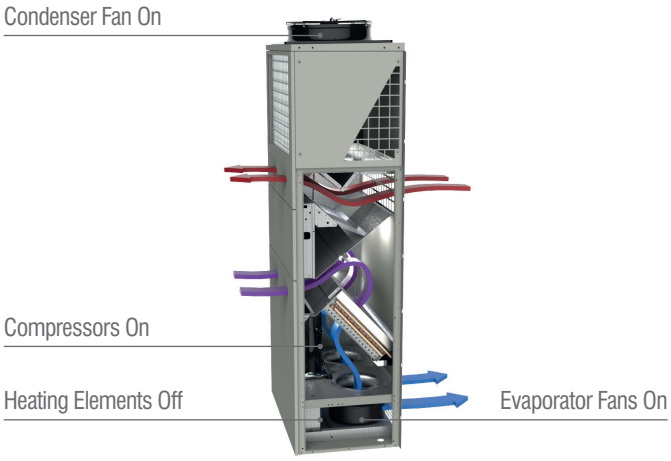
Heating Mode

In low ambient conditions the space within the cabin may drop below a lower threshold if the internal equipment is not rejecting enough heat. At this point the unit damper is positioned in the vertical position, the cabin air is cycled through the unit and the electric heat is turned on, heating the return air and supplying to the cabin space.



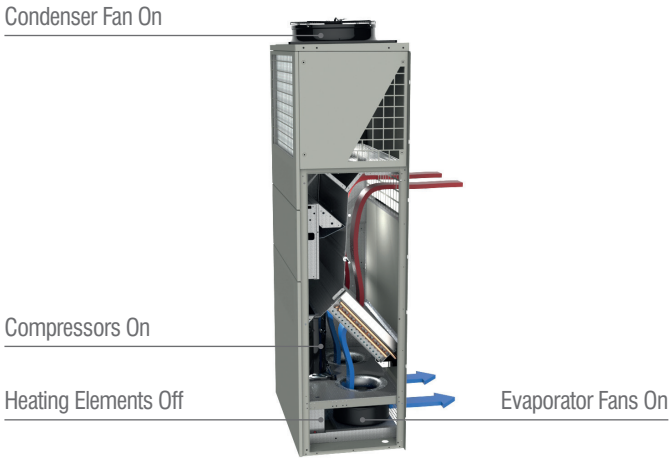
Free Cooling Mode

When the ambient temperature is low enough to provide full free cooling duty, the refrigeration circuit is switched off and the damper is positioned horizontally. The EC fans are set to a required fan speed to draw fresh air in to the cabin space and pressurise exhaust air back out of the cabin.



Concurrent cooling Mode

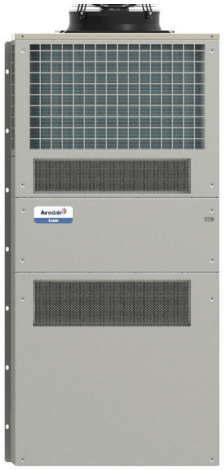
When the ambient temperature is below the set point of the cabin space yet not low enough to achieve the full cooling requirement. The mechanical cooling is activated concurrently to trim the remainder of the required cooling. This saves energy by not operating in full mechanical mode and utilises every opportunity for Free Cooling.



Mechanical cooling Mode

When the ambient temperature is above the set point of the cabin space, the fresh air damper switches into the vertical position and cycles the cabin air through the unit and evaporator coil. The mechanical circuit is switched on and modulates to the required cooling demand.

Specifications at a glance



Case Size	ET05/08D-HX...	ET12/15D-HX
Width (mm)	910	1020
Depth (mm)	580	580
Height (mm)	2219	2368
Cooling Capacity (kW)	5-8	12-15
Number of Fans	1	2
Number of Compressors	1	1 & 2

Product features and options

Standard

- Fixed speed scroll compressors
- Efficient EC evaporator fans
- AC condenser fan
- G4 filtration
- Wide operating range
  - Standard Ambient Temperature Range: -20°C to +40°C
  - Low Ambient Temperature Range: -40°C to +40°C
  - High Ambient Temperature Range: -20°C to +48°C
- Hydrophilic coated evaporator coil
- Ambient weather louvres
- Optimised evaporator fan control
- R410A refrigerant
- Return air temperature control
- Electronic expansion valves
- 230VAC air damper actuator – spring return
- Remote display
- High temperature alarm – cabin
- Mains isolator
- Tamper proof fixings
- Power supply options:
  - 400V / 3Ph + N / 50Hz
  - 230V / 1Ph + N / 50Hz
  - 380V / 3Ph + N / 60Hz
  - 220V / 3Ph / 60Hz

Optional

- - 48VDC emergency backup
- M5 filtration
- Electric heating
- Upgrade evaporator fans for higher ESP
- EC condenser fan
- Compressor soft start
- Remote temperature management
- Refrigerant leak detection
- Attend switch
- Filter change switch
- Phase rotation
- Energy manager
- Fire rated dampers
- BMS interface cards; pCO Web, Modbus
- Fault code display

Technical Specifications

Nomenclature and positioning

Nomenclature explained

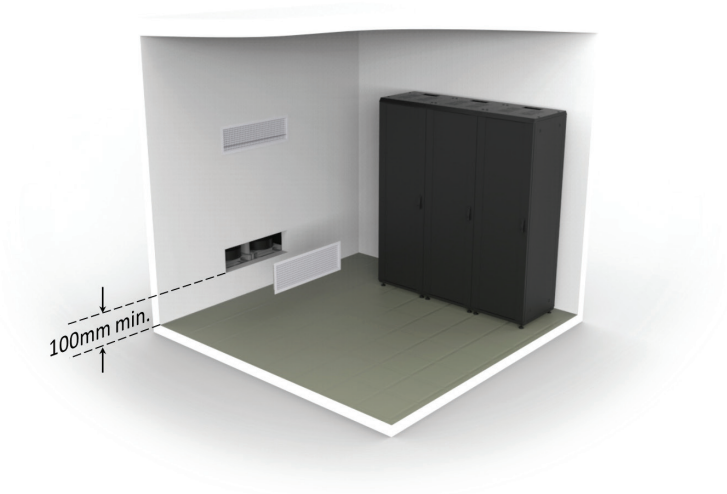
Example: ET 05 D - H X 1 F 1 7

ET	Ecotel Unit
05 - 15	Nominal cooling capacity in (kW)
D	Downflow
H	High Efficiency
X	DX cooling
1 2	Single Circuit, Single Compressor Dual Circuit, Single Compressor
F	Free Cooling
0 1	No Emergency Backup Emergency Backup (-48VDC)
0 1 2 7	400V/3~/50Hz 380V/3~/+N/60Hz 220V/3~ /60Hz no neutral 230V/1~/50Hz

Unit positioning

It is recommended that the unit discharge grille should be positioned at a minimum height of 100mm. Measurement should be taken from the lower edge of the evaporator aperture to the floor inside the cabin.

This ensures the cool air enters below the mid height of the cabin in order to supply the cabin space with cool air at a lower point and allow the warm air to rise up to a higher exhaust on the unit.



DC

-48V DC unit supply option

The Ecotel™ has an option of a DC powered centrifugal fan and controls circuit, to ensure power supply via the battery supply. The option provides power to the actuator which drives the damper from free cool to mechanical modes.

Fault code alarm display option

- Display & cycle through codes of active alarms
- Mounted within the unit, externally visible
- Off when no alarms are active
- Bright, easy to read
- Modbus interface
- IP64 rated

Technical specifications

Detailed information

Model No.	Case Size (W x D x H) mm	Nominal Cooling kW (TC)	Nominal Cooling kW (SC)	EER	No. of Fans	Air Volume m^3/s
400V/3PH/50Hz						
ET05D-HX1F0-0	910 x 580 x 2219	6.1	6.1	2.88	1	0.37
ET05D-HX1F1-0	910 x 580 x 2219	6.1	6.1	2.86	1	0.37
ET08D-HX1F0-0	910 x 580 x 2219	8.4	8.4	2.93	1	0.70
ET08D-HX1F1-0	910 x 580 x 2219	8.4	8.4	2.93	1	0.70
ET12D-HX1F0-0	1020 x 580 x 2368	12.3	12.3	3.41	2	0.95
ET12D-HX1F1-0	1020 x 580 x 2368	12.3	12.3	3.28	2	0.95
ET12D-HX2F0-0	1020 x 580 x 2368	13.1	13.1	3.03	2	0.95
ET12D-HX2F1-0	1020 x 580 x 2368	13.1	13.1	2.94	2	0.95
ET15D-HX1F0-0	1020 x 580 x 2368	14.8	14.8	3.11	2	1.10
ET15D-HX1F1-0	1020 x 580 x 2368	14.8	14.8	2.99	2	1.10
ET15D-HX2F0-0	1020 x 580 x 2368	15.3	15.3	2.84	2	1.10
ET15D-HX2F1-0	1020 x 580 x 2368	15.3	15.3	2.74	2	1.10
230V/1PH/50Hz						
ET05D-HX1F0-7	910 x 580 x 2219	6.2	6.2	2.91	1	0.37
ET05D-HX1F1-7	910 x 580 x 2219	6.2	6.2	2.89	1	0.37
ET08D-HX1F0-7	910 x 580 x 2219	8.4	8.4	2.92	1	0.70
ET08D-HX1F1-7	910 x 580 x 2219	8.4	8.4	2.93	1	0.70
ET12D-HX1F0-7	1020 x 580 x 2368	12.4	12.4	3.31	2	0.95
ET12D-HX1F1-7	1020 x 580 x 2368	12.4	12.4	3.20	2	0.95
ET12D-HX2F0-7	1020 x 580 x 2368	13.3	13.3	3.11	2	0.95
ET12D-HX2F1-7	1020 x 580 x 2368	13.3	13.3	3.01	2	0.95
ET15D-HX1F0-7	1020 x 580 x 2368	14.9	14.9	3.07	2	1.10
ET15D-HX1F1-7	1020 x 580 x 2368	14.9	14.9	2.94	2	1.10
ET15D-HX2F0-7	1020 x 580 x 2368	15.4	15.4	2.90	2	1.10
ET15D-HX2F1-7	1020 x 580 x 2368	15.4	15.4	2.79	2	1.10
380V/3PH/60Hz						
ET12D-HX1F0-1	1020 x 580 x 2368	11.8	11.8	2.70	2	0.95
ET12D-HX1F1-1	1020 x 580 x 2368	11.8	11.8	2.62	2	0.95
ET15D-HX1F0-1	1020 x 580 x 2368	15.0	15.0	2.45	2	1.10
ET15D-HX1F1-1	1020 x 580 x 2368	15.0	15.0	2.37	2	1.10
ET15D-HX2F0-1	1020 x 580 x 2368	14.8	14.8	2.37	2	1.10
ET15D-HX2F1-1	1020 x 580 x 2368	14.8	14.8	2.30	2	1.10
220V/2PH/60Hz						
ET08D-HX1F0-2	910 x 580 x 2219	8.2	8.2	2.39	1	0.70
ET08D-HX1F1-2	910 x 580 x 2219	8.2	8.2	2.39	1	0.70
ET12D-HX1F0-2	1020 x 580 x 2368	12.4	12.4	2.70	2	0.95
ET12D-HX1F1-2	1020 x 580 x 2368	12.4	12.4	2.62	2	0.95
ET15D-HX1F0-2	1020 x 580 x 2368	14.1	14.1	2.54	2	1.10
ET15D-HX1F1-2	1020 x 580 x 2368	14.1	14.1	2.46	2	1.10

Nominal cooling capacity based on return air conditions 30°C / 30%RH @ 35°C ambient. All performance data is supplied in accordance with BS EN 14511-1:2013

Performance tested

And proven

Quality is assured by our on-site, world-class testing facilities that set the standard as one of the most advanced testing centres of its kind within the global air conditioning industry. This facility is integral to our development process and ensures our team of designers and engineers conduct a rigorous test program to produce and improve each of our manufactured units.

Airedale's dedicated test facility is the only purpose-built Designed and built to exceed stringent international standards, our test centre is capable of testing a complete range of air conditioning equipment including precision air conditioning to 250kW and chillers up to 2MW.

We apply a consistent design philosophy which combines innovative sustainability with premium performance and efficiency across each range. Our state-of-the-art, on-site R&D laboratory is BS EN 14511 and BS EN 13053 compliant and allows us to test units for every application.

Our air conditioning units consistently offer some of the industry's leading proven environmental and cost performance figures, combined with the highest quality, reliability and service.

We have a positive, responsible partnership with Airedale in which we share knowledge

It is only through Airedale's continued site involvement that we can fine tune the system to such an extent. We don't mind spending capital expenditure to recoup such significant energy savings as these.

Paul Lovegrove - General Affairs Assistant Manager, Epson

Energy efficiency was the crucial factor

Airedale proved that its free-cooling chiller can save energy and is the right system for us. Anything that improves payback is of interest to the Society. We have also had good service from other Airedale products.

Steven Ward - Premises Engineer, Yorkshire Building Society

EDF Energy is already seeing a PUE of 1.2

I believe we are the first company in the world to install Airedale's advanced technology, the TurboChill™ FreeCool chiller. When the data centre is operating in free-cooling mode, the PUE has been measured at 1.2 and we expect that to reduce further as we install more equipment.

Bob Finn - Programme Manager, EDF Energy

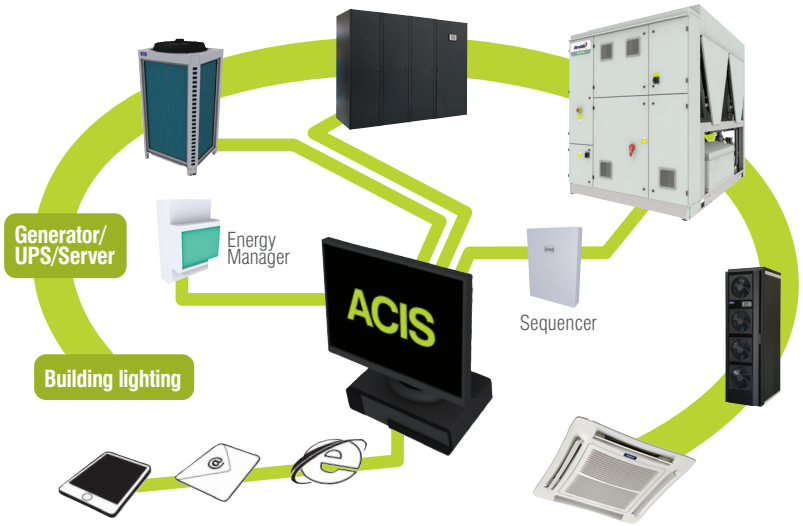
Intelligent controls

Seamlessly managing your system

The control centre of each of our cooling systems is a sophisticated electronic microprocessor specially developed by Airedale. The intelligent microprocessor uses sensors which allow active components to interact. By integrating and sequencing components, the controller manages and optimises the system's performance, availability and power draw, giving the operator complete system control.

Fully-programmable via the control panel's user-friendly display, the microprocessor can be linked with all standard BMS protocols to:

- **Trigger alarm messages**
- **Send alarm/service messages via email or SMS using an interface**
- **Operate time scheduling**
- **Allow adjustment of temperature setpoints**

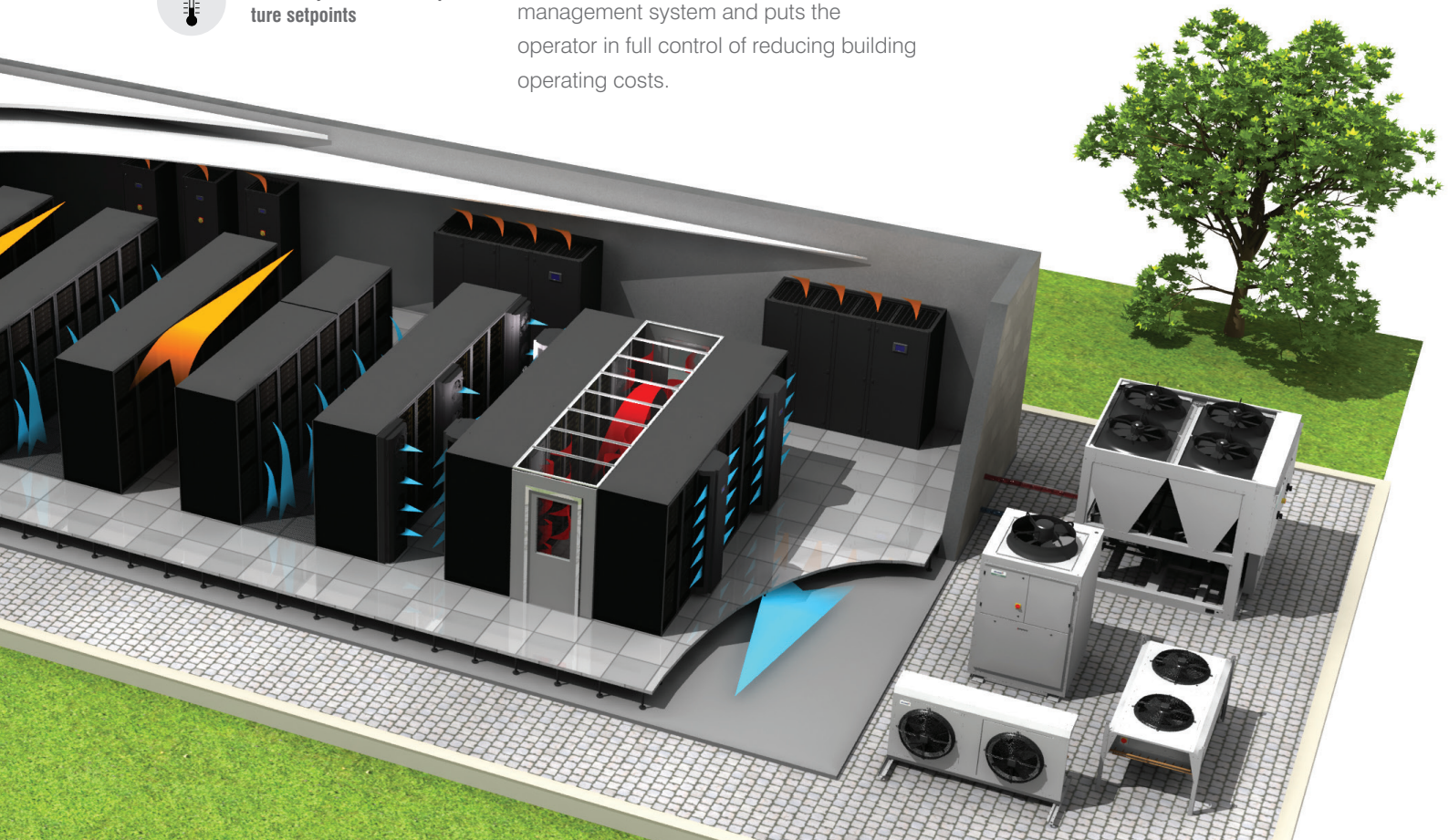


ACIS™

ACIS™ is a building management system developed by Airedale, which enables smart cooling and other building services, from any manufacturer, to be managed through a single, integrated solution across multiple sites and communication protocols.

ACIS™ sits at the front end of a building management system and puts the operator in full control of reducing building operating costs.

Through the click of a button on a PC, tablet or phone, intelligent information can be retrieved automatically allowing informed, data driven decisions to be made. With 24/7 access, ACIS™ provides an ideal solution for remote monitoring and maintenance, including live PUE, EER and COP calculations and power distribution monitoring.



Total support

Whenever you need it

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.

Service plans

Maximising your system's effectiveness 24/7

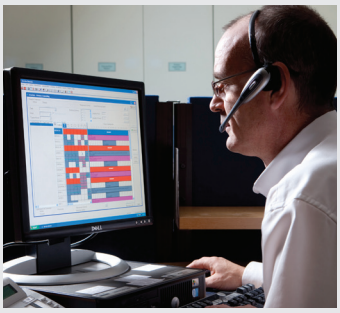
An Airedale service plan provides a planned, preventative maintenance package to sustain the optimum efficiency of your system, enabling the user to see real savings in energy costs and reduced carbon emissions.

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**

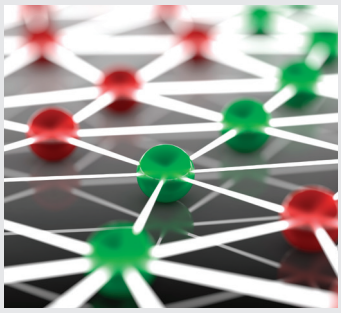
* For customers outside the UK, our international distributors trained by Airedale would be pleased to offer service on Airedale units



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



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.

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.

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 **training@airedale.com** for further details.

Distributed by:

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