

AIREDALE

air conditioning for every environment

Ultima Screw Chiller Range

200 - 750kW

200 - 750kW



> **Ultima Screw Chiller Range**

Includes Ultima FreeCool Chiller Range

Typical Applications

- > Close Control Cooling
- > Comfort Cooling
- > Process Cooling



Authorised User No. 00007

www.airedale.com

Ultima Screw Chiller Range

Designed for a better environment

Designed for a better environment

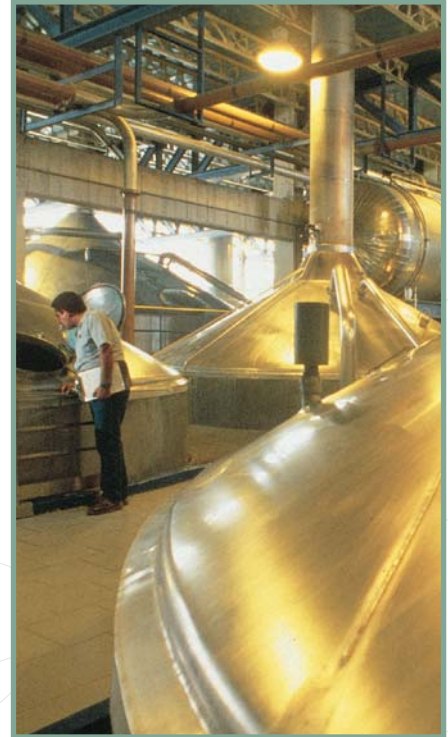
The Ultima Chiller is designed to help you create a better environment, now and for the future, by providing increased energy efficiency, improved performance and lower sound levels. The Ultima is specifically designed and optimised for use with non-ozone depleting R407C refrigerant. So when it comes to refrigerant, the Ultima really does leave you free to select an environmentally friendly chiller without compromising either capacity or efficiency.

To achieve the optimum capacity with R407C refrigerant, we adopted a new approach to chiller design. Individual components were independently tested during the design stages to ensure optimum overall performance and reliability. Newly tested components include:

- > Evaporators
- > Condenser coils
- > Scroll compressors
- > Sickle bladed fans

Through a process of continual change and innovation, it is our aim at Airedale to bring environmental peace of mind to you, our customers, now and for the future.

The Ultima FreeCool Chiller range is also included on the Energy Technology List due to its proven energy efficient performance. Under the Enhanced Capital Allowance scheme, businesses investing in energy saving products published in the approved list can claim 100% first-year capital allowances on their spending. For more information see www.eca.gov.uk

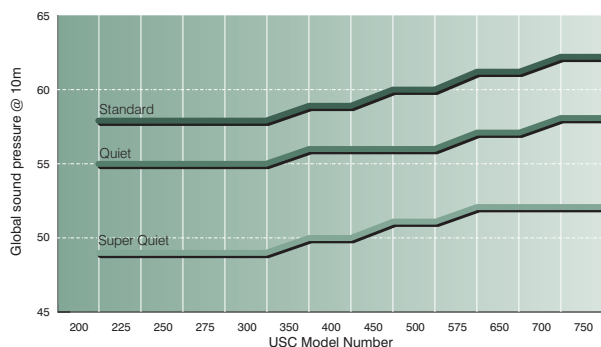


Low sound levels

Airedale recognises that noise pollution is an important issue in today's world. Many urban areas already have strict regulations relating to noise pollution, and this is likely to be a developing trend. That is why our new chillers are designed in three different model ranges - **Standard (D)**, **Quiet (DQ)** and **Super Quiet (DSQ)**. Even the D model offers lower sound levels than previous Airedale chillers, while the DSQ offers some of the lowest sound levels currently available on the chiller market. The DSQ range is ideal for applications where there can be absolutely no compromise when it comes to noise.

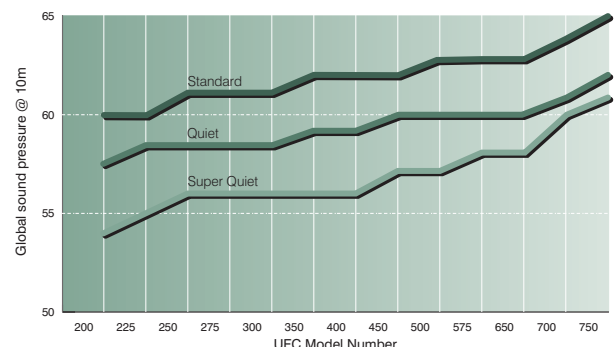
Ultima 200 - 750kW

The Quiet DQ and Super Quiet DSQ models feature acoustically-lined compressor enclosures while the DSQ models also feature slower fans and enhanced condenser coils to accurately match the capacity needs of each specific application.



Ultima FreeCool 200 - 750kW

The Quiet FreeCool DQ and Super Quiet DSQ models feature reduced speed fans while the FreeCool DSQ models also feature acoustically-lined compressor enclosures.



Ultima key technical data

- > 200 to 750kW nominal cooling capacities
- > 39 model sizes
- > Standard, Quiet or Super Quiet variants
- > AireTronix intelligent microprocessor controls
- > Single screw compressors
- > Sickle-bladed fans for lower sound levels
- > Six to eight stage capacity control as standard (depending upon model size)
- > Electronic expansion valves
- > Dual independent refrigeration circuits
- > Intelligent head pressure control



Ultima FreeCool key technical data

- > 200 to 750kW nominal cooling capacities
- > 39 model sizes
- > Standard, Quiet or Super Quiet variants
- > AireTronix intelligent microprocessor controls
- > Single screw compressors
- > Sickle-bladed fans for lower sound levels
- > Six to eight stage capacity control as standard depending upon model size
- > Electronic expansion valves
- > Dual independent refrigeration circuits
- > Modulating head pressure control
- > Free-cool & condenser coil
- > Simultaneous mechanical and free-cooling operation for maximum energy saving (free-cooling takes priority during hybrid operation)
- > Intelligent fan speed control



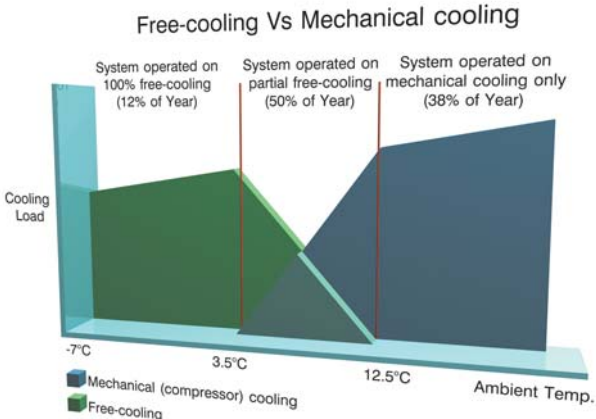
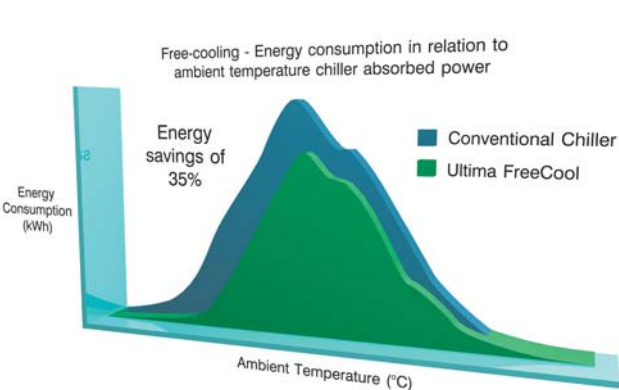
Key Feature : Free-cooling

Where the need for cooling continues during colder ambient temperatures and when the ambient temperature is lower than the return liquid temperature, there is a large potential to reduce the energy consumption of the liquid chiller by utilising the benefit of these lower ambient temperatures for substantial proportions of the year. Ultima FreeCool has been designed as a free-cooling chiller and will provide a low energy consumption solution.

The return liquid temperature of most applications is higher than the actual outdoor temperature for more than 65% of the year and Airedale have paid specific attention to this factor when designing the Ultima FreeCool chiller. The Ultima FreeCool Chiller uses a 'free-cooling' cycle which reduces the need for mechanical cooling and can even totally satisfy the cooling requirement for 10-15% of the year.

During periods where free-cooling cannot completely satisfy the cooling load, Ultima FreeCool will also operate on partial free-cooling which is topped up with an element of mechanical cooling to meet the cooling demand. This feature means that the Ultima FreeCool only needs to operate completely on mechanical cooling for about 38%* of the year and typically saves 35%* of the energy consumed by a conventional air cooled liquid chiller

* Based on Met. Office figures for London, UK



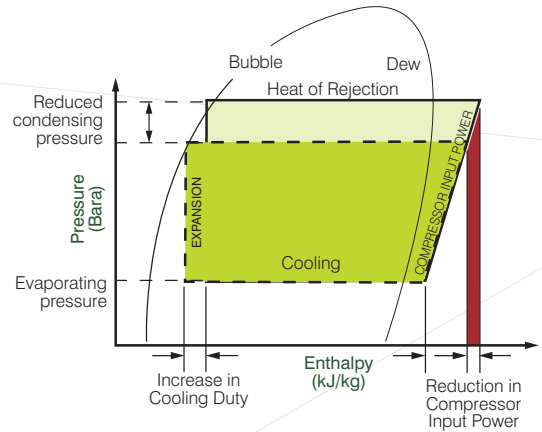
Ultima Screw Chiller Range

Key Features

Key Feature : Electronic expansion valves

A standard thermostatic expansion valve cannot control the refrigeration superheat and therefore prevent the flow of liquid refrigerant out of the evaporator at low condensing temperatures, therefore a head pressure controller is fitted to maintain an artificially high head pressure so that the conventional chiller can operate reliably, but this means the chiller is not running as efficiently as it could do at lower ambient temperatures.

In contrast, an electronic expansion valve can operate at much lower condensing temperatures, reducing the need for unnecessarily high head pressures, and resulting in significant compressor energy savings whenever the ambient temperature and / or cooling requirement are below design conditions.



Key Feature : Screw compressor

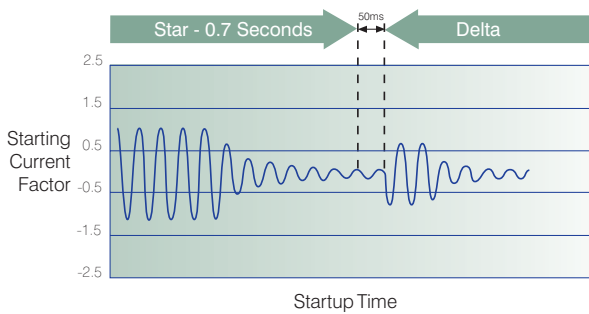
- > Two per chiller, offering independent circuit operation
- > Fewer moving parts for more reliability and smooth operation
- > Lower noise levels
- > Low vibration levels
- > High levels of durability
- > Low current start



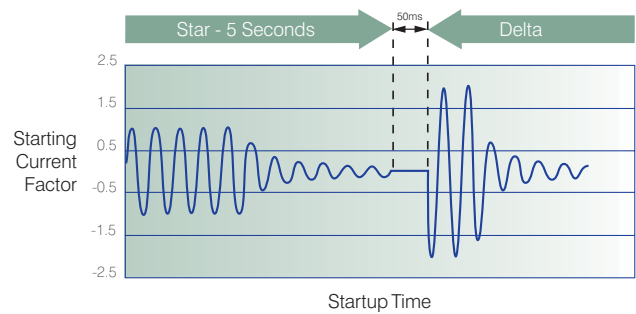
Key Feature : Closed transition star/delta starting

After a run up of 0.7 seconds in star, the delta step is initiated without disconnection from the supply. This eliminates the peak between star and delta transition.

Closed Transition Star Delta Start



Normal Star Delta Start



Key Service : Flexible warranty options

Ultima Chillers are available with a standard warranty package that guarantees all parts and labour for 12 months. Additional customised Chillerguard packages are also available comprising commissioning plus the first 12 months service and maintenance.

To protect your investment in the Ultima Chiller after commissioning, we have introduced our exclusive planned maintenance programme. It includes nationwide service cover 24 hours a day, 365 days a year, plus regular planned maintenance visits from our highly qualified and experienced team of engineers.

Please note that Airedale Service can presently only offer Service and Maintenance to equipment installed on the UK mainland. However Airedale distributors overseas would be pleased to offer any service on Airedale units you may require.

For more information please see our [Service pack](#) or visit www.airedaleservice.com

Ultima standard features

The Ultima and Ultima FreeCool offer a large range of standard features and options, providing the perfect solution for every application.

- > Refrigeration components optimised for R407C
- > Condenser coil with enhanced surface area
- > Shell & tube evaporator with freeze protection
- > Sickle-bladed fans with long bellmouth for low noise and optimisation of airflow across the coils
- > Intelligent head pressure control
- > Two single screw compressors
- > Dual independent refrigeration circuits
- > Segregated control panels with independent power supplies
- > Electrical supply phase rotation protection
- > Control scheme option for constant or variable supply water temperature
- > Electronic expansion valves (see Key Feature)
- > Pressure relief assembly with integral rupture disc and indicator gauge
- > CE labelled for the Pressure Equipment Directive

Ultima FreeCool features

As well as incorporating all the standard Ultima features and options the Ultima FreeCool also offers

- > Free-cool coil and condenser coil
- > Air gap between free-cool and condenser coil to enable coil cleaning
- > Optimised for R407C and 20% ethylene glycol water solution
- > Modulating fan speed control
- > Simultaneous mechanical and free-cooling operation for maximum energy saving
- > Integral flow switch
- > Ability to isolate free-cool coil for maintenance
- > FreeCool operation is initiated whenever the ambient temperature is lower than the return water temperature
- > Coils are designed to maximise free-cooling performance while keeping pressure drop through coil to a minimum.

Options

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

- > Coil guards to help prevent fin damage
- > Modem link for remote monitoring
- > Anti-vibration mounts
- > Flow switch (supplied loose) (standard on UFC)
- > Sequence control of multiple chillers
- > Maintainable dual pressure relief assembly (standard on UFC)
- > Epoxy-coated condenser coils for aggressive atmospheres
- > Condenser fan air discharge plenum
- > Run and standby power supply (USC only)
- > Water filter and de-aeration
- > Pump and pressurisation packages
- > Commissioning
- > Chillerguard®

Energy Saving Features

- > **Power factor correction**
The compressor power factor (optional) is controlled to a minimum operating value of 0.95
- > **Electronic expansion valves**
(standard on USC and UFC - see Key Feature)
- > **Modulating head pressure control**
(for low ambient operation to -20°C)
(standard on USC and UFC)
- > **Closed transition start** (optional)
- > **Water control options** (optional)



Ultima Screw Chiller Range

AireTronix Controls

AIRETronix Controller

Ultima Screw Chiller units are equipped the very latest microprocessors available from Airedale. These fully programmable controllers are specifically developed for use with Airedale air conditioning systems, offering powerful analogue and digital control to meet a wide range of monitoring and control features. The Controller's door mounted display allows viewing of the unit's operating status and it's multi-button keypad allows adjustment to control parameters by allowing the operator easy access to a menu system.



Standard Microprocessor Features:

- > LCD back-lit display
- > 14MHz 16 bit CPU
- > 2MB FLASH program memory
- > 256kB RAM data memory
- > Remote on/off capability
- > Compressor anti-cycle control
- > Compressor rotation
- > Compressor hours run, log and reset
- > Duty/standby operation
- > Duty rotation (network units)
- > Temperature sensors (supply and return)
- > Visual alarm display
- > Password protection

AIRETronix Connections

The controller can be connected and integrated into a wide range of other BMS systems either by using additional internal plug-in serial cards or external gateways. The plug-in serial cards have options to communicate with the following systems – Carel, Modbus-Jbus, Trend, Echelon LonWorks devices and Metasys Johnson Controls. With the addition of external gateways the following integration is also available:

- > BACnet
- > Fax, SMS and GSM
- > SNMP (Simple Network Management Protocol)
– used for Ethernet TCP IP

AIRETronix Supervisory Options

AireWorks

AireWorks is the software program for the supervision and monitoring of chillers and air-conditioning systems managed by AireTronix controllers. It enables the user to monitor plant or building services, and make changes to the way the building is controlled. AireWorks can act as a server allowing access to a graphical representation using a web browser such as Internet Explorer.

AireGate

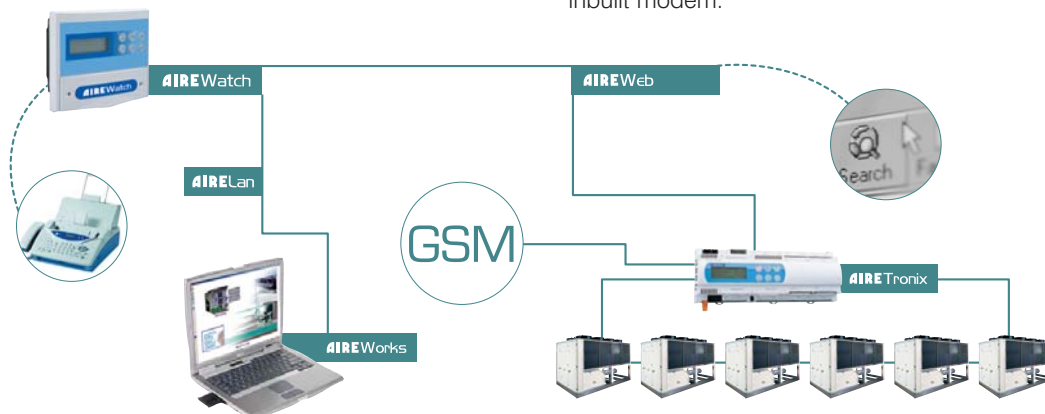
The AireGate device is a gateway for interfacing AireTronix controllers to an Ethernet network. The web pages are created based on specific parameters to the installation, be it Airedale Ultima Screw Chiller systems and Chillers. The user can then display and modify parameters of the installation using standard Internet browsers, by entering the IP address of the AireGate device.

GSM

For very simple remote alarm indication, the AireTronix controllers can be fitted with a modem serial card which allows connection to "dual band" type or GSM modems. A recipients mobile telephone number can be entered into the controller, allowing alarms to be sent to any required person.

AireWatch

For more compact systems, which have the same management and control needs as larger areas, AireWatch offers an integrated solution for monitoring, data logging and remote alarm indication and management via an optional inbuilt modem.



Airedale International have developed an AireTronix Control Centre at it's corporate headquarters in Leeds. The Centre features live, working AireTronix controllers and AireLan local area networks, and fulfils many functions including full live technical presentations, as well as hands-on and pre-sales product demonstrations for customers. The facility also features a bureau which enables Airedale specialists to conduct remote site monitoring.

Technical Specification

USC200 - USC750
UFC200 - UFC750

Ultima Screw Chiller Range

Technical Specifications

Ultima Standard					
Model No.	Nom. Cooling Capacity ¹ (kW)	EER ²	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
USC200D-8	199.1	2.53	58	2595 x 2200 x 4040	2630
USC225D-8	221.5	3.95	58	2595 x 2200 x 4040	2755
USC250D-8	239.7	2.38	58	2595 x 2200 x 4040	2880
USC275D-8	260.9	2.06	58	2595 x 2200 x 4040	2900
USC300D-8	293.0	2.47	58	2595 x 2200 x 4040	2930
USC350D-10	319.4	2.11	59	2595 x 2200 x 4890	3400
USC400D-10	367.1	2.48	59	2595 x 2200 x 4890	3640
USC450D-12	404.9	2.14	60	2595 x 2200 x 5740	3990
USC500D-12	481.0	2.34	60	2595 x 2200 x 5740	4000
USC575D-14	547.5	2.73	61	2595 x 2200 x 6590	4690
USC650D-14	619.8	2.50	61	2595 x 2200 x 6590	4920
USC700D-16	646.9	2.94	62	2595 x 2200 x 7440	5290
USC750D-16	660.6	2.26	62	2595 x 2200 x 7440	5590

Ultima Quiet					
Model No.	Nom. Cooling Capacity ¹ (kW)	EER ²	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
USC200DQ-8	199.1	2.53	55	2595 x 2200 x 4040	2700
USC225DQ-8	221.5	3.95	55	2595 x 2200 x 4040	2825
USC250DQ-8	239.7	2.38	55	2595 x 2200 x 4040	2950
USC275DQ-8	260.9	2.06	55	2595 x 2200 x 4040	2980
USC300DQ-8	293.0	2.47	55	2595 x 2200 x 4040	3000
USC350DQ-10	319.4	2.11	56	2595 x 2200 x 4890	3500
USC400DQ-10	367.1	2.48	56	2595 x 2200 x 4890	3740
USC450DQ-12	404.9	2.14	56	2595 x 2200 x 5740	4090
USC500DQ-12	481.0	2.34	56	2595 x 2200 x 5740	4100
USC575DQ-14	547.5	2.73	57	2595 x 2200 x 6590	4800
USC650DQ-14	619.8	2.50	57	2595 x 2200 x 6590	5030
USC700DQ-16	646.9	2.94	58	2595 x 2200 x 7440	5400
USC750DQ-16	660.6	2.26	58	2595 x 2200 x 7440	5700

Ultima Super Quiet					
Model No.	Nom. Cooling Capacity ¹ (kW)	EER ²	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
USC200DSQ-8	202.2	2.63	49	2595 x 2200 x 4040	2920
USC225DSQ-8	224.8	4.14	49	2595 x 2200 x 4040	3045
USC250DSQ-8	243.9	2.48	49	2595 x 2200 x 4040	3170
USC275DSQ-8	365.4	2.72	49	2595 x 2200 x 4040	3200
USC300DSQ-8	289.6	2.40	49	2595 x 2200 x 4040	3220
USC350DSQ-10	325.5	2.89	50	2595 x 2200 x 4890	3780
USC400DSQ-10	362.3	2.42	50	2595 x 2200 x 4890	4020
USC450DSQ-12	415.8	3.22	51	2595 x 2200 x 5740	4410
USC500DSQ-12	474.8	2.27	51	2595 x 2200 x 5740	4420
USC575DSQ-16	544.0	2.84	52	2595 x 2200 x 7440	5530
USC650DSQ-16	611.9	2.42	52	2595 x 2200 x 7440	5760
USC700DSQ-18	655.9	3.06	52	2595 x 2200 x 8290	6170
USC750DSQ-18	671.0	2.34	52	2595 x 2200 x 8290	6510

1 At nominal conditions of 12/7°C water in/out, 35°C ambient

2 EER = Cooling duty / Compressor input power

Ultima FreeCool Chiller Range

Technical Specifications

Ultima FreeCool Standard						
Model No.	Nom. Cooling Cap ¹ (kW)	EER ²	Nom. FreeCool Cap. (kW) ³	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
UFC200D-8	198.7	2.58	125	61	2590 x 2200 x 4965	3940
UFC225D-8	220.5	4.00	132	61	2590 x 2200 x 4965	3960
UFC250D-8	239.0	2.42	140	61	2590 x 2200 x 4965	3980
UFC275D-8	259.8	3.34	152	61	2590 x 2200 x 4965	4070
UFC300D-8	275.8	2.19	161	61	2590 x 2200 x 4965	4310
UFC350D-10	319.2	3.61	188	62	2590 x 2200 x 6665	4890
UFC400D-10	346.2	2.25	195	62	2590 x 2200 x 6665	4920
UFC450D-12	406.4	4.08	240	62	2590 x 2200 x 7690	5860
UFC500D-12	453.0	2.09	260	63	2590 x 2200 x 7690	5980
UFC575D-14	518.4	3.29	320	63	2590 x 2200 x 7690	6570
UFC650D-14	566.7	2.08	325	63	2590 x 2200 x 7690	6690
UFC700D-18	624.9	2.76	360	64	2590 x 2200 x 9390	7990
UFC750D-18	636.1	2.13	375	65	2590 x 2200 x 9390	8450

Ultima FreeCool Quiet						
Model No.	Nom. Cooling Cap ¹ (kW)	EER ²	Nom. FreeCool Cap. (kW) ³	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
UFC200DQ-8	195.7	2.49	120	57	2590 x 2200 x 4965	3870
UFC225DQ-8	217.4	3.82	127	58	2590 x 2200 x 4965	3890
UFC250DQ-8	235.0	2.33	135	58	2590 x 2200 x 4965	3910
UFC275DQ-8	255.5	3.18	140	58	2590 x 2200 x 4965	4000
UFC300DQ-8	270.2	2.08	148	58	2590 x 2200 x 4965	4240
UFC350DQ-12	326.1	3.88	195	59	2590 x 2200 x 6665	5300
UFC400DQ-12	355.8	2.38	210	59	2590 x 2200 x 6665	5320
UFC450DQ-14	412.2	4.26	260	60	2590 x 2200 x 7690	6290
UFC500DQ-14	461.2	2.18	270	60	2590 x 2200 x 7690	6390
UFC575DQ-16	523.6	3.39	320	60	2590 x 2200 x 8540	6970
UFC650DQ-16	573.4	2.14	330	60	2590 x 2200 x 8540	7090
UFC700DQ-18	614.2	2.64	350	61	2590 x 2200 x 9390	7830
UFC750DQ-18	623.6	2.03	370	62	2590 x 2200 x 9390	8290

Ultima FreeCool Super Quiet						
Model No.	Nom. Cooling Cap ¹ (kW)	EER ²	Nom. FreeCool Cap. (kW) ³	Sound Pressure @ 10m dB(A)	Dimensions (H x W x D) mm	Operating Weight (kg)
UFC200DSQ-8	186.8	2.24	105	54	2590 x 2200 x 4965	3870
UFC225DSQ-8	208.2	3.36	110	55	2590 x 2200 x 4965	3890
UFC250DSQ-8	223.0	2.08	115	56	2590 x 2200 x 4965	3910
UFC275DSQ-10	256.6	3.22	130	56	2590 x 2200 x 5795	4500
UFC300DSQ-10	272.0	2.12	141	56	2590 x 2200 x 5795	4750
UFC350DSQ-14	323.1	3.76	195	56	2590 x 2200 x 7690	5840
UFC400DSQ-14	351.0	2.31	202	56	2590 x 2200 x 7690	5860
UFC450DSQ-16	406.3	4.07	250	57	2590 x 2200 x 8540	6810
UFC500DSQ-16	451.9	2.08	257	57	2590 x 2200 x 8540	6920
UFC575DSQ-18	513.2	3.19	275	58	2590 x 2200 x 9390	7480
UFC650DSQ-18	558.9	2.01	305	58	2590 x 2200 x 9390	7600
UFC700DSQ-20	612.4	2.61	325	60	2590 x 2200 x 10240	8350
UFC750DSQ-20	621.2	2.01	330	61	2590 x 2200 x 10240	8800

1 Based on water in/water out 12/7°C, 20% Ethylene Glycol, ambient 35°C

2 EER = Cooling duty / Compressor input power

3 Based on water in/water out 12/7°C, DX Cooling/flowrate with 20% Ethylene Glycol, ambient 5°C

4 EER excluding pump power

- > For the latest information on our chiller products please visit : www.airedale.com
- > Please refer to the technical manuals for more detailed information

Your nearest Airedale distributor is:



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All specifications are subject to change without prior notice
ENG-CHIL-USC-12/05