

AIREDALE

air conditioning for every environment

AlphaCool Close Control Range

8 - 100kW

8 - 100kW



> **AlphaCool**

Typical Applications

- > Telecommunications and ISP facilities
- > Computer rooms
- > Clean rooms
- > Switching stations
- > Laboratories

www.airedale.com

AlphaCool Range

Specifications

Overview

The AlphaCool range of close control air conditioning units is designed in a fully configured package to be quiet and easy to install. High efficiency condenser and evaporator coils combined with carefully selected components ensure the lowest possible life-cycle costs in an excellent value package.

The AlphaCool range is ideal for high-tech environments where performance and reliability are essential. The design is both aesthetically appealing and exceptionally rigid. The cabinets are manufactured from galvanised sheet steel with epoxy baked powder paint, built around a welded space frame to provide maximum strength, durability and allowing full service from the front.

Standard features such as direct drive, anti-vibration fans and AireTronix controls keep the AlphaCool range at the forefront of market technology, whilst the modular construction and extended range of options ensures there is a unit for every application. The range features 72 models with nominal cooling capacities ranging from 8kW to 100kW, available in DX, chilled water and glycol free-cooling versions.



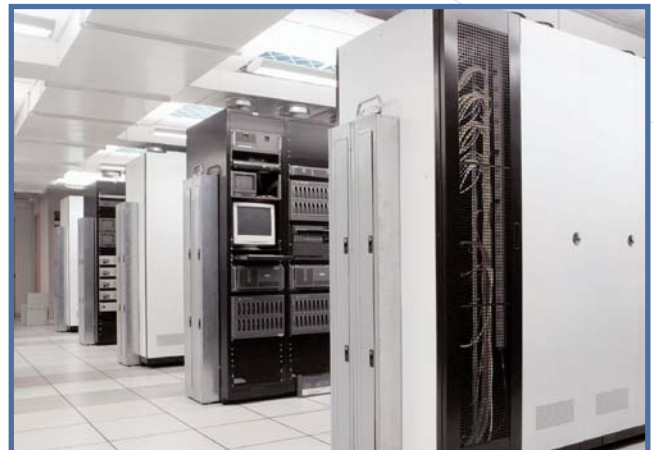
Key Technical Data

- > 8kW to 100kW cooling capacity
- > 72 model sizes
- > Advanced AireTronix controls technology
- > Upflow and downflow configurations
- > Front, rear and base return air options (upflow only)
- > DX, chilled water and glycol free-cooling systems
- > Single, double and triple circuit models
- > Electronic expansion valves
- > Scroll compressor technology
- > Direct drive fan technology (9-19 models only)

Typical Applications



Laboratories



Computer Rooms

Standard Features

The AlphaCool offers a wide range of standard features that enable it to provide precise environmental tolerances within a diverse range of applications.

- > Advanced AireTronix controls technology
- > Backlit display allows for password protection along with on-site adjustment and interrogation of all major components
- > AireTronix controller allows for intelligent unit control and full communication to BMS systems
- > Direct drive fans allow for easy on site airflow adjustment and reduced noise vibration transmission (models 9 - 19 only)
- > Front access to all major components facilitates quicker and easier service and maintenance
- > 20mm acoustic insulation on all panels minimises case noise breakout for quieter operation
- > G4 rated pleated disposable filters give superior high performance with lower airside pressure drops
- > All service connections located at one end of the unit to facilitate quicker and easier installation and maintenance
- > Energy efficient hermetic scroll compressors
- > Sight glass and filter drier included for system reliability
- > Multilingual display (French, German, Spanish and English)
- > Integrated clock card for date and time tagging of alarms
- > Optimised evaporator coils for maximum capacity ensures lowest cost per kW output
- > Factory fitted mains isolator conforms to International safety standards
- > Glycol free-cooling (Models DF65 - 90 only)
- > High efficiency independent, dual or triple refrigeration circuits
- > Designed and optimised for R407C refrigerant
- > Standard RAL 7035 colour ensures an aesthetic match to almost all applications



AlphaCool front view
Detailing the AireTronix controls, electric heat and modulating humidifier

Options

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

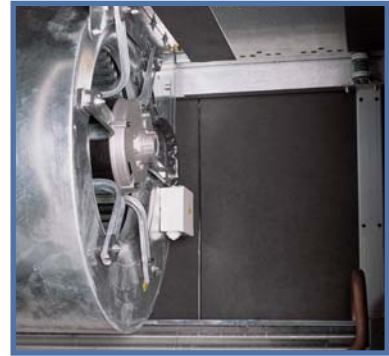
- > Modbus, Trend, Lonworks and Carel BMS interface cards ensure full network connectability
- > GSM modem kit for remote alarm monitoring via specified mobile telephones
- > Night time set-back reduces condenser fan speed at pre-set hours during the day or night for noise sensitive applications
- > Electronic expansion valves provide up to a 30% increase in operational efficiency (fully adjustable from the display) further reducing operating costs
- > Intelligent variable head pressure control ensures energy efficient operation of the condenser fans while protecting the system during low ambient conditions
- > Monitoring and adjustment of the head pressure from the AireTronix display for quick and simple on site commissioning
- > Split-case design simplifies site access and improves unit mobility
- > Low pressure hot water coils inclusive of fully modulated 3-way valve for accurate reheat control
- > Reversed fan configuration available
- > High efficiency fan motors (ECA approved)
- > Front, rear and base return airflow configurations (upflow only) for application versatility
- > Upgraded fan motors for applications requiring high external static pressure or increased air flow
- > Integrated plenum designed to match unit aesthetics (upflow only)
- > High performance condensate pump, incorporating high level alarm contacts, enables greater volume flow and increases flood protection
- > G6 rated filters for high efficiency filtration
- > Modulating capacity output control humidifier ensures precise control and optimised life-time via the integrated water conductivity sensor
- > Low, medium and high water conductivity bottles, for optimised operation and extended life
- > Electric heating
- > Fire, flood and smoke detection
- > Phase rotation detection
- > Duct extensions, constructed and finished to match the unit to enhance aesthetics
- > Open and enclosed floor stands

AlphaCool Range

Features & Options

Key Feature : Direct drive fans (Models 9-19 only)

Models 9-19 of the AlphaCool range feature double inlet, forward curved, direct drive, centrifugal fans as standard. The direct drive fans have an integral shaft-mounted motor which is statically and dynamically balanced for quiet operation. Fan speed, airflow and external pressure are controlled via the AireTronix controller in conjunction with voltage controller. Utilising the unit-mounted AireTronix screen settings, the fan speed can be varied within seconds to maintain optimum performance offering easy on-site adjustment.



Anti vibration mounted direct drive fan

Key Feature : Easy to install, commission, maintain and service

All major components such as the expansion valves, compressor, humidifier, and chilled water valve are accessible from the front of the unit. Isolated from the airflow, the control panel can be worked on with the unit in operation, helping to simplify commissioning and maintenance.



Key Feature: Modular design

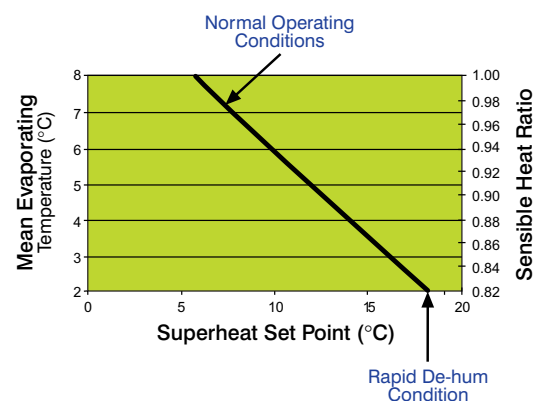
The modular design of the AlphaCool range allows any size or model to be installed side by side in a variety of configurations. This means that two or more units can run together as a group to provide DX/DX, DX/CW or CW/CW multi-circuit functionality.



Option : Rapid de-humidification (with EEV's fitted)

Controlled by the AireTronix microprocessor the electronic expansion valves (EEV's) can be modified independently of the suction line temperature. This unique feature allows the AireTronix controller to raise the superheat set-point, which in turn drops the evaporating temperature to a point at which considerable de-humidification takes place.

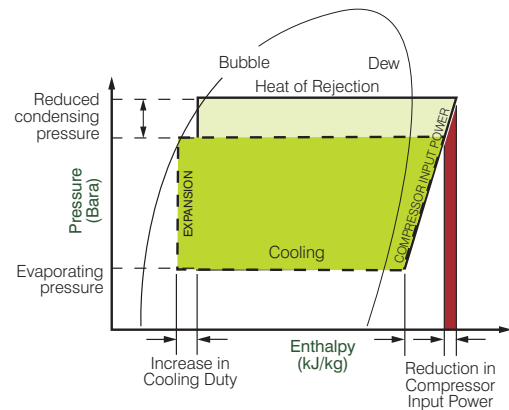
This increase in the de-humidification rate means that time taken to reduce the room humidity to the required level is drastically decreased, and with it the energy required to do so. The graph to the right shows the typical effect that the superheat set-point has on the evaporating temperature and sensible heat ratio.



Option : Electronic expansion valves

Whilst offering versatile control at the full design duty of the unit, standard Thermostatic Expansion Valves (TEV) do not automatically optimise themselves to all operating conditions. Therefore, if the refrigeration system is operating at 40% or 50% of full load, especially at a lower outside ambient temperature than that for which the valve was sized, the conventional TEV must have the design head pressure available to ensure good refrigerant control. Maintaining an artificially high condensing pressure is normal in conventional systems.

Using an Electronic Expansion Valve (EEV) allows for good refrigeration control whilst operating at part load and lower ambient conditions with a reduced condensing pressure. By fitting an EEV and reducing the head pressure control setting an increase in the system Energy Efficiency Ratio (EER) of up to 30% can typically be seen. The Mollier diagram shown right helps to illustrate how this increase in efficiency is achieved.



Option : Variable humidification

The sealed humidifier design ensures that only clean sterile steam is supplied to the conditioned area and corrosive salts and minerals are held in the disposable bottle. The steam is distributed through a sparge pipe fitted to the coil assembly.

Featuring modulating capacity output control as standard, the system provides continuous modulation of steam output in response to a proportional control signal. The output control range is 20%-100% of the humidifier rated value and is designed to ensure precise control of the conditioned space.



Humidifier assembly

Option : Intelligent head pressure control

As an alternative to the standard head pressure control fitted to the outdoor condenser or condensing unit, the system can be fitted with a voltage regulating fan speed controller which allows set point adjustment and system monitoring via the indoor unit AireTronix microprocessor controller.

The condenser fan speed is modulated from the AireTronix controller to provide optimum control under varying ambient conditions, and the head pressure can be monitored via the AireTronix display console.

Option : Low noise condenser fan

Specifically designed for night time operation as optimum low noise levels are achieved with reduced ambient temperature and room loads. This feature is also ideal for residential and other outdoor noise critical applications.



Airedale condenser

AlphaCool Range

AireTronix Controls

AIRETronix Controller

AlphaCool 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
- > Multi-Language (French German, Spanish & English)
- > 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 AlphaCool 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.

DX Units

Model No.	Total Cooling Capacity (kW)		Sensible Cooling Capacity (kW)		Dimensions (H x W x D) mm	Sound Pressure 'A' @ 3m (dBA)		Sound Pressure 'X' @ 3m (dBA)		Airflow m ³ /S	Rec Mains Fuse Size 'A' (A)		Rec Mains Fuse Size 'X' (A)	
	DF	UF	DF	UF		DF	UF ¹	DF	UF ¹		DF	UF	DF	UF
9	8.3	8.4	8.0	8.1	1940 x 900 x 800	34	36	36	49	0.65	25	25	32	32
13	10.7	10.9	10.4	10.6	1940 x 900 x 800	39	42	43	56	0.87	40	40	40	40
16	13.1	13.4	12.8	13.0	1940 x 900 x 800	45	47	46	56	1.09	40	40	50	50
19	16.3	16.6	15.0	15.3	1940 x 1450 x 800	43	45	46	56	1.5	50	40	50	50
23	19.7	20.0	19.5	19.9	1940 x 1450 x 800	47	49	49	56	1.9	40	32	50	50
23D	21.2	20.5	21.1	20.4	1940 x 1450 x 800	49	50	50	59	2.2	20	20	32	40
31D	26.2	25.4	25.9	25.2	1940 x 1450 x 800	54	55	55	60	2.8	25	25	40	50
41D	37.1	36.0	36.8	35.7	1940 x 2000 x 800	50	60	52	62	3.4	40	50	50	50
50D	40.1	38.9	40.1	38.9	1940 x 2000 x 800	53	63	54	64	4.0	63	50	50	50
65D	55.0	53.4	54.7	53.1	1940 x 2550 x 800	54	59	59	66	5.0	63	63	63	80
80D	68.6	66.6	67.4	65.4	1940 x 2550 x 800	58	63	63	69	5.8	80	80	100	100
65T	52.6	n/a	52.7	n/a	1940 x 2550 x 800	54	n/a	n/a	n/a	5.0	50	n/a	n/a	n/a
80T	59.8	n/a	59.8	n/a	1940 x 2550 x 800	58	n/a	n/a	n/a	5.8	50	n/a	n/a	n/a
90T	77.5	n/a	75.6	n/a	1940 x 2550 x 800	60	n/a	n/a	n/a	6.5	80	n/a	n/a	n/a

- > Nominal cooling based on 'A' Models at 24°Cdb / 45%RH and 35°C ambient
- > 'A' Models are matched with Air Cooled Remote Condensing Units (CUS)
- > 'X' Models are matched with Air Cooled Remote Condensers (C)
- > 'D' suffix indicates double circuit DX
- > 'T' suffix indicates triple circuit DX
- > 'DF' - Downflow
- > 'UF' - Upflow
- > Fuse size based on full function unit with electric heat and humidifier

(1) Sound data based on front return air configuration

Chilled Water Units

Model No.	Total Cooling Capacity (kW)		Sensible Cooling Capacity (kW)		Dimensions (H x W x D) mm	Sound Pressure @ 3m dBA		Airflow m ³ /S	Rec Mains Fuse Size (A)	
	DF	UF	DF	UF		DF	UF ¹		DF	UF
9	8.6	8.9	8.5	8.2	1940 x 900 x 800	34	36	0.65	25	25
13	11.0	11.3	10.9	10.6	1940 x 900 x 800	39	42	0.87	40	40
16	13.2	13.6	13.2	13.0	1940 x 900 x 800	45	47	1.09	50	40
19	19.1	19.7	18.9	18.4	1940 x 1450 x 800	43	45	1.5	50	50
23	23.2	24.0	23.2	22.7	1940 x 1450 x 800	47	49	1.9	40	40
31	31.4	30.5	31.4	30.5	1940 x 1450 x 800	54	50	2.8	32	32
41	47.1	45.8	46.1	43.8	1940 x 2000 x 800	50	60	3.4	63	50
50	59.5	57.8	56.9	54.1	1940 x 2000 x 800	53	63	4.0	63	63
65	68.3	66.3	67.1	63.8	1940 x 2550 x 800	54	59	5.0	80	63
80	85.4	82.9	81.9	77.9	1940 x 2550 x 800	58	63	5.8	100	80
90	93.7	91.0	90.5	85.6	1940 x 2550 x 800	60	65	6.5	100	80

- > Nominal cooling based on 24°Cdb / 45%RH and 7°C/12°C water temperatures
- > 'DF' - Downflow
- > 'UF' - Upflow
- > Fuse size based on full function unit with electric heat and humidifier

(1) Sound data based on front return air configuration

Free Cooling Units

Model No.	Total Cooling Capacity (kW)	Sensible Cooling Capacity (kW)	Dimensions (H x W x D) mm	Total Free Cooling Capacity (kW) ¹	Water / Glycol Flow Rate (1/s)	Sound Pressure @ 3m dBA	Airflow m ³ /S	Rec Mains Fuse Size (A)
	DX			FREE COOLING				
DF65GFCT	58.8	56.4	2215 x 3190 x 800	37.7	2.0	56	5.0	80
DF80GFCT	64.5	63.0	2215 x 3190 x 800	43.9	2.2	59	5.8	63
DF90GFCT	80.8	77.7	2215 x 3190 x 800	50.7	2.8	62	6.5	80

- > Nominal DX cooling based on 24°Cdb / 45%RH and 35°C entering glycol temperature
- > Nominal free cooling based on 24°Cdb / 45%RH and 20% glycol mixture at entering water / glycol of 7.2°C
- > Fuse size based on full function unit with electric heat and humidifier

- > For the latest information on our Close Control products please visit : www.airedale.com
- > Please refer to the technical manuals for more detailed information
- > Airedale participates in the Eurovent Certification programme as a founder member. The performance data of certified products is independently verified and identified within the relevant sales literature.

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All specifications are subject to change without prior notice
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