EasiCool Evo²

DX 31kW - 80kW

Dual Cool 30kW

CW 38kW - 98kW

R410A

Technical Manual

Original Instructions

ISO 9001 Quality Management FM00542

ISO 14001 Environmental Management EMS52086

Customer Services

Warranty, Commissioning & Maintenance

As standard, Airedale guarantees all non consumable parts only for a period of 12 months, variations tailored to suit product and application are also available; please contact Airedale for full terms and details.

To further protect your investment in Airedale products, Airedale can provide full commissioning services, comprehensive maintenance packages and service cover 24 hours a day, 365 days a year (UK mainland).

For a free quotation contact Airedale or your local Sales Engineer.

All Airedale products are designed in accordance with EU Directives regarding prevention of build up of water, associated with the risk of contaminants such as legionella.

For effective prevention of such risk it is necessary that the equipment is maintained in accordance with Airedale recommendations.

CAUTION ⚠	Warranty cover is not a substitute for maintenance. Warranty cover is conditional to maintenance being carried out in accordance with the recommendations provided during the warranty period. Failure to have the maintenance procedures carried out will invalidate the warranty and any liabilities by Airedale International Air Conditioning Ltd.

Spares

A spares list for 1, 3 and 5 years will be supplied with every unit and is also available from our Spares department on request.

Training

As well as our comprehensive range of products, Airedale offers a modular range of Refrigeration and Air Conditioning Training courses, for further information please contact Airedale.

Customer Services

For further assistance, please e-mail: connect@airedale.com or telephone:

UK Sales Enquiries	+ 44 (0) 113 239 1000	connect@airedale.com
International Enquiries	+ 44 (0) 113 239 1000	connect@airedale.com
Spares Hot Line	+ 44 (0) 113 238 7878	spares@airedale.com
Airedale Service	+ 44 (0) 113 239 1000	service@airedale.com
Technical Support	+ 44 (0) 113 239 1000	tech.support@airedale.com
Training Enquiries	+ 44 (0) 113 239 1000	training@airedale.com

For information, visit us at our web site: www.airedale.com

Health and Safety

IMPORTANT

The information contained in this manual is critical to the correct operation and maintenance of the unit and should be read by all persons responsible for the installation, commissioning and maintenance of this Airedale unit.

Safety

The equipment has been designed and manufactured to meet international safety standards but, like any mechanical/ electrical equipment, care must be taken if you are to obtain the best results.

CAUTION ⚠	When working with any air conditioning units ensure that the electrical isolator is switched off prior to servicing or repair work and that there is no power to any part of the equipment. Ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits etc. Electrical installation commissioning and maintenance work on this equipment should be undertaken by competent and trained personnel in accordance with local relevant standards and codes of practice.

A full hazard data sheet in accordance with COSHH regulations is available should this be required.

Personal Protective Equipment

Airedale recommends that personal protective equipment is used whilst installing, maintaining and commissioning equipment.

Manual Handling

Some operations when servicing or maintaining the unit may require additional assistance with regard to manual handling. This requirement is down to the discretion of the engineer.
Remember do not perform a lift that exceeds your ability.

Refrigerant Warning

The Airedale unit uses R410A refrigerant which requires careful attention to proper storage and handling procedures. Use only manifold gauge sets designed for use with R410A refrigerant. Use only refrigerant recovery units and cylinders designed for high pressure refrigerants.
R410A must only be charged in the liquid state to ensure correct blend makeup.
The refrigerant must be stored in a clean, dry area away from sunlight. The refrigerant must never be stored above 50°C.

Pressure Equipment Directive (2014/68/EU)

Minimum and Maximum Operation Temperature (TS) and Pressure (PS)

Refrigeration

AllowableTemperature Range (TS) = Min -5°C* to Max 120°C**
Maximum Allowable Pressure (PS) = High Side 40.5 Barg, Low Side 29Barg

*Based on the refrigerant temperature in the unit off state in the lowest permitted ambient temperature.
**Based on the maximum allowable super heated refrigerant temperature.

Waterside

AllowableTemperature Range (TS) = Min -5°C* to Max 40°C**
Maximum Allowable Pressure (PS) = 10 Barg

*Based on the waterside temperature in the unit off state in the lowest permitted ambient temperature.
**Based on the waterside temperature in the unit off state in the highest permitted ambient temperature.

Pressure System Safety Regulations 2000

Refrigeration assemblies/systems may constitute a Pressure System as defined in the Pressure System Safety Regulations 2000.

Global Warming Potential

The R410A refrigerant has a GWP of 2088 (based on EN378-1:2016, 100 year life)

Dangerous Substances and Explosive Atmospheres Regulations

The completion of a DSEAR (Dangerous Substances and Explosive Atmospheres Regulations) risk assessment must be completed as a legal requirement by the employer of the business where this equipment will be installed. This is not the responsibility of Airedale International Air Conditioning Ltd to undertake as the manufacturer of the equipment

Environmental Considerations

Units with supply water temperatures below +5°C

- Glycol is recommended when a supply water temperature of +5°C or below is required or when static water can be exposed to freezing temperatures.

Units subject to ambient temperatures lower than 0°C

- Glycol of an appropriate concentration (1) must be used within the system to ensure adequate freeze protection. Please ensure that the concentration is capable of protection to at least 3K lower than ambient.
- Water / glycol solution should be constantly circulated through all waterside pipework and coils to avoid static water from freezing.
- Ensure that pumps are started and running even during shut down periods, when the ambient is within 3K of the solution freeze point (1) (i.e. if the solution freezes at 0°C, the pump must be operating at 3°C ambient).

(1) Refer to your glycol supplier for details.

Environmental Policy

It is our policy to:

- Take a proactive approach to resolve environmental issues and ensure compliance with regulatory requirements.
- Train personnel in sound environmental practices.
- Pursue opportunities to conserve resources, prevent pollution and eliminate waste.
- Manufacture products in a responsible manner with minimum impact on the environment.
- Reduce our use of chemicals and minimise their release to the environment.
- Measure, control and verify environmental performance through internal and external audits.
- Continually improve our environmental performance.

CE Directive

Airedale certify that the equipment detailed in this manual conforms with the following EC Directives:

Electromagnetic Compatibility Directive (EMC)	2014/30/EU
Machinery Directive (MD)	89/392/EEC version 2006/42/EC
Pressure Equipment Directive (PED)	2014/68/EU

To comply with these directives appropriate national & harmonised standards have been applied. These are listed on the Declaration of Conformity, supplied with each product.

Contents

Introduction

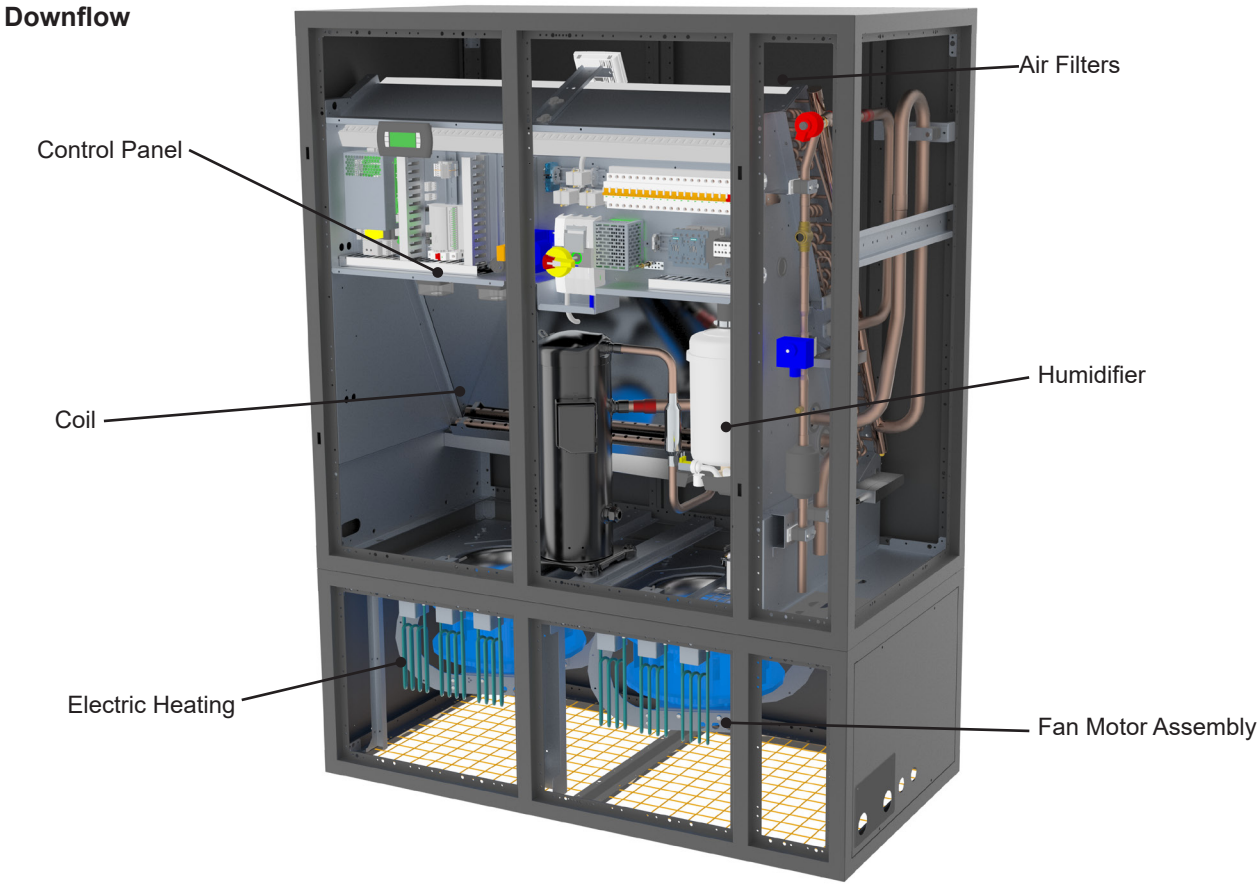
Nomenclature

Example: **ED 25 T 80 R - 1 X 2 0 - 0**

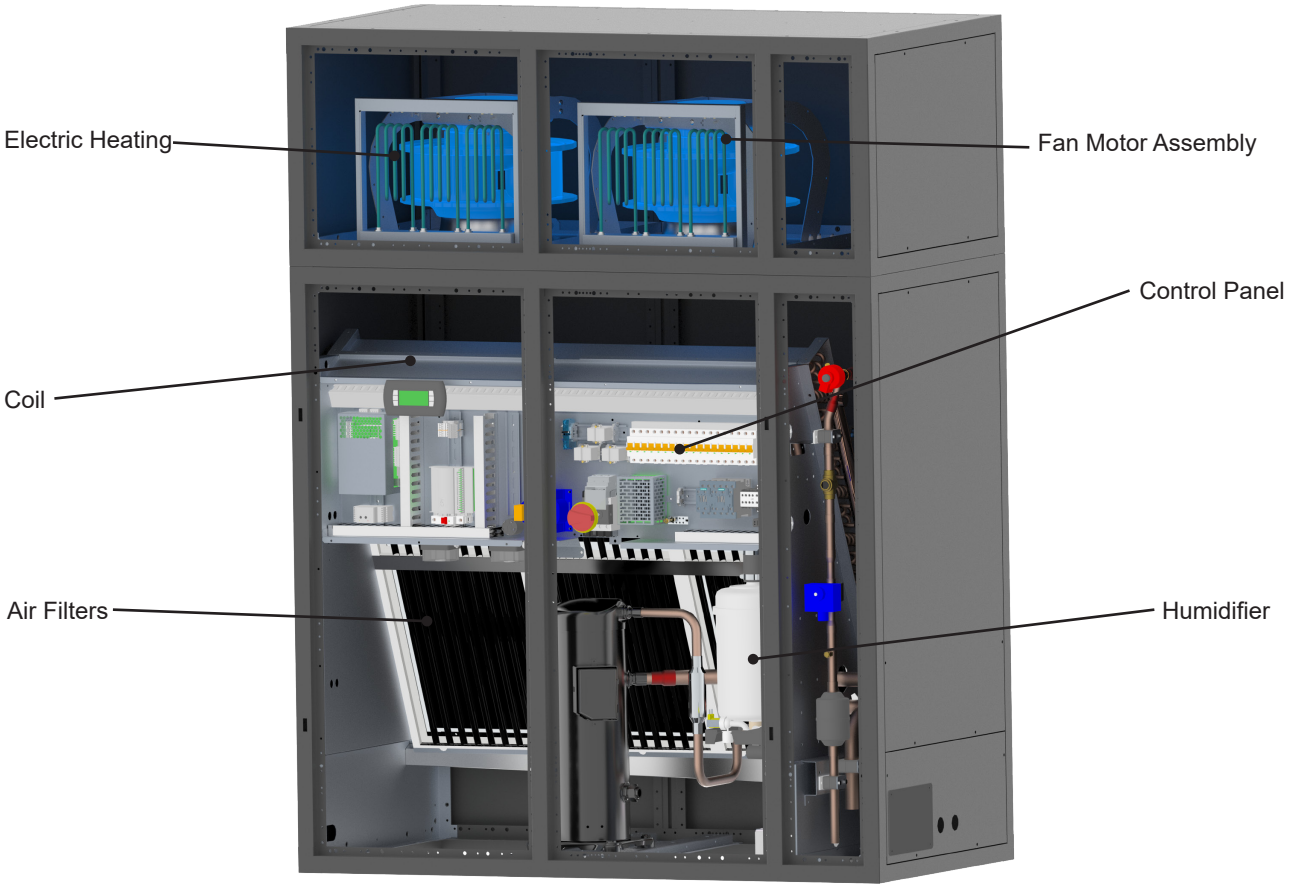
ED	EasiCool Downflow
EU	EasiCool Upflow
15	Case width in decimetres (1460mm) 750mm Deep Case
18	Case width in decimetres (1835mm) 750mm Deep Case
22	Case width in decimetres (2170mm) 750mm Deep Case
25	Case width in decimetres (2550mm) 750mm Deep Case
F	Front Return Air
R	Rear Return Air
B	Base Return Air (Upflow only)
T	Top Return Air (Downflow only)
No.	Nominal cooling capacity (kW)
R	Refrigerant - R410A
-	
1	Single DX/CW circuit
2	Dual DX/CW Circuit
C	Chilled Water
X	Air Cooled - Compressor Indoor
0	No Compressors
1	One Compressor / Circuit
2	Two Compressors / Circuit
0	No Secondary Cooling Coil
C	Secondary Cooling Coil (Chilled Water)
-	
0	400V/3~/50Hz
1	380V/3~/60Hz

Unit Overview

Downflow



Upflow



Example shown is ED/EU15.

Construction

The cabinet comprises of a black painted aluminium frame with black aluminium corners and removable galvanised sheet steel panels. The unit panels are manufactured from galvanised sheet steel coated with epoxy baked powder paint to provide a durable finish. Standard unit colour is Black Grey (RAL 7021); optional Light Grey (RAL 7035).

Cabinets are lined internally with fire resistant foam (UL94 V0) thermal and acoustic insulation:

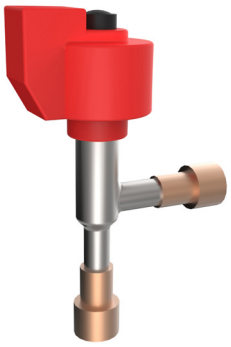
- 30mm deep for removable panels
- 12mm deep for remaining internal surfaces

The cabinet doors are hinged and key lock secured. Hinge arrangement allows flexible door opening/removal for improved access. Rubberised door seals reduce sound breakout and eradicate leakage.

Unit design incorporates a series of M6 fixings to the top and bottom face for connecting to customer ductwork, please contact Airedale for further details.

Dependent upon model type, components such as the expansion valve, compressor, humidifier and sight glass are contained within an acoustically lined enclosure to provide both ease of maintenance and to minimise sound emission.

Refrigeration Components



Electronic Expansion Valve

Scroll Compressor

	Features	System Configuration DX	CW	Dual Cool
Refrigeration	Evaporator Coil	●	–	●
	Efficient Fixed Speed Scroll Compressor(s)	●	–	●
	Refrigeration Sight Glass	●	–	●
	Liquid Line Solenoid Valve	●	–	●
	Filter Drier	●	–	●
	Low Pressure Switch	●	–	●
	High Pressure Switch	●	–	●
	Discharge Line Pressure Transducer	●	–	●
	Head Pressure Control - Intelligent Modulation	●	–	●
	Low Noise Feature for Condenser Fan	○	–	○
	Remote RTPF Condenser	○	–	○
	Remote MCHX Condenser	○	–	○
	Low Ambient Kit	○	–	○
	Discharge Non Return Valve	●	–	●
	Thermostatic Expansion Valves (TEV)	●	–	●
	Electronic Expansion Valves (EEV)	○	–	○

● Standard Feature ○ Optional Feature – Not Available

Evaporator

Large surface area coil(s) ideally positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tube with mechanically bonded aluminium fins. The copper tube is internally rifled for improved heat transfer. Fins are coated with a non-stick acrylic film (hydrophilic) which provides additional corrosion protection and efficient surface water removal for improved performance. The cooling coil is mounted over a full width stainless steel condensate tray. The evaporator is factory pressure tested to 45Barg.

DX Models Only: Sweat copper pipe for brazed connection as standard.

Compressor

Compressor(s) are mounted on the base via the use of vibration isolators.

Each compressor is designed for use with R410A refrigerant.

	X1	X2
Thermal Protection	●	●
Single Compressor	●	–
Tandem Compressors	–	●

● Standard Feature – Not Available

Tandem Compressors

Comprising of 2 scroll type compressors linked together by refrigerant pipework to one common circuit.
Tandem compressors provide variable control of the system performance by activating individual compressors as required. Multiple steps of unloading allow external load demands to be met with greater precision, eliminating unnecessary temperature and humidity variations. Consequently, system efficiency and reliability are much improved by extending major component working hours.

Refrigeration

X Type refrigeration circuit features as standard:

- Externally Equalised Thermostatic Expansion Valve (TEV).
- Sight Glass.
- Head Pressure Control.
- Filter Drier.
- Low Pressure Switch.
- High pressure Switch.
- Discharge Line Pressure Transducer.
- Holding Charge of Inert Gas.

X1 Models

Utilise a single hermetic scroll compressor fitted as standard with:

- Thermal motor protection internal or external (dependent upon model size).
- High temperature discharge protection.

X2 Models

Utilise a tandem hermetic scroll compressor set, to provide 2 stages of control, fitted as standard with:

- Thermal motor protection internal or external (dependent upon model size).
- High temperature discharge protection.
- Sight glass on common equalisation line.

Head Pressure Control - Intelligent Modulation

(X Models)
The system allows set point adjustment and system monitoring via the indoor unit microprocessor controller.
A pressure transducer is fitted to the discharge line which in turn feeds back the head pressure to the microprocessor. The condenser fan speed can then modulate via the controller to provide optimum control under varying ambient conditions. The head pressure can be monitored via the display keypad. Units fitted with thermostatic expansion valves (TEV) have the head pressure factory set to 26 Barg (377 psig). Units fitted with optional electronic expansion valves (EEV) have the head pressure factory set to 22 Barg (319 psig). The head pressure can be monitored via the display keypad.

Low Noise Feature for Condenser Fan

(X Models)
Specifically designed for night time operation, when optimised lower noise levels are achieved with reduced ambient temperature and room loads, this feature is ideal for residential and other outdoor noise critical applications.
Enabled within the controller, the user can define the low noise schedule during which the outdoor fan speed is limited to reduce noise levels.

Remote RTPF Condenser Coil

Designed for a small footprint, low sound level, slimline and aesthetically pleasing appearance. Available in either horizontal or vertical air discharge orientation,
Manufactured from galvanised sheet steel coated with epoxy baked powder paint to provide a durable finish.
Round tube plate fin condenser coil positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tube with mechanically bonded aluminium fins. The copper tube is internally rifled for improved heat transfer. The coil is factory pressure tested to 45Barg and is available in either horizontal or vertical air discharge orientation.

Remote Microchannel Condenser Coil

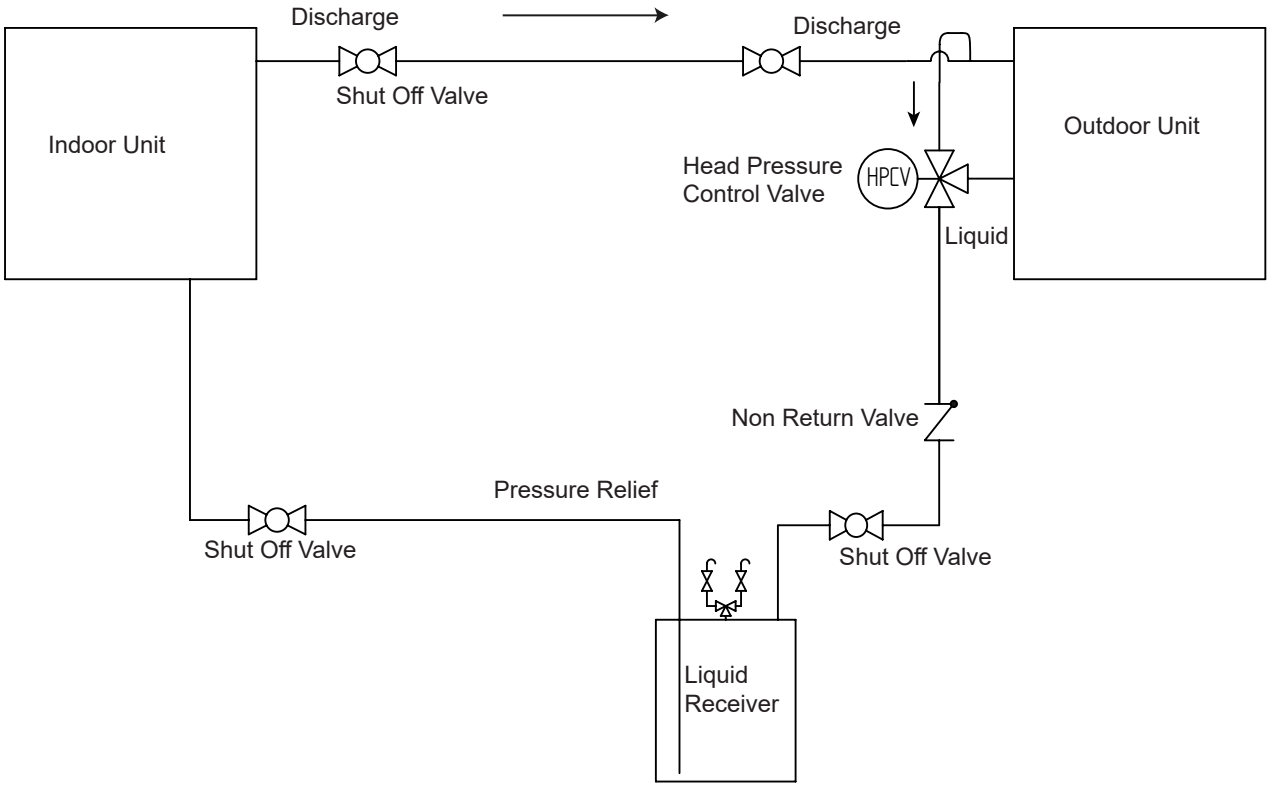
The large surface area coil is ideally positioned to optimise airflow and heat transfer. It comprises of microchannel condenser coil and epoxy coated aluminium fins, and is supplied with a sweat copper pipe for brazed connection on site. The coil is factory pressure tested to 45Barg and is available in either horizontal or vertical air discharge orientation.

Low Ambient Kit

LAK Operation

The LAK allows the unit to operate in lower ambients by raising the condensing pressure through flooding the condenser and reducing the surface area available for heat rejection. This ensures the discharge pressure is maintained and the unit continues to work efficiently at lower ambient temperatures.

Please see diagram below.



Compressor Discharge Line Non Return Valve

Non return valves shall be fitted to ensure liquid refrigerant cannot enter the compressors through the discharge line in the compressor off state.

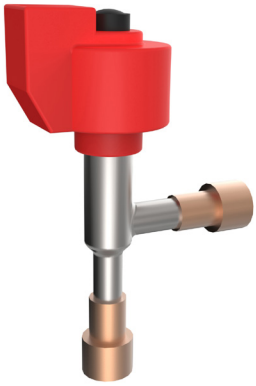
Liquid Line Solenoid Valve

A liquid line solenoid valve is fitted to prevent liquid migration during the off state.

Electronic Expansion Valves (EEV)

Electronic expansion valves differ to the normal thermostatic expansion valves in their ability to maintain control of the suction superheat at reduced head pressures. This can lead to significant energy savings particularly at reduced loading and low ambient temperatures.

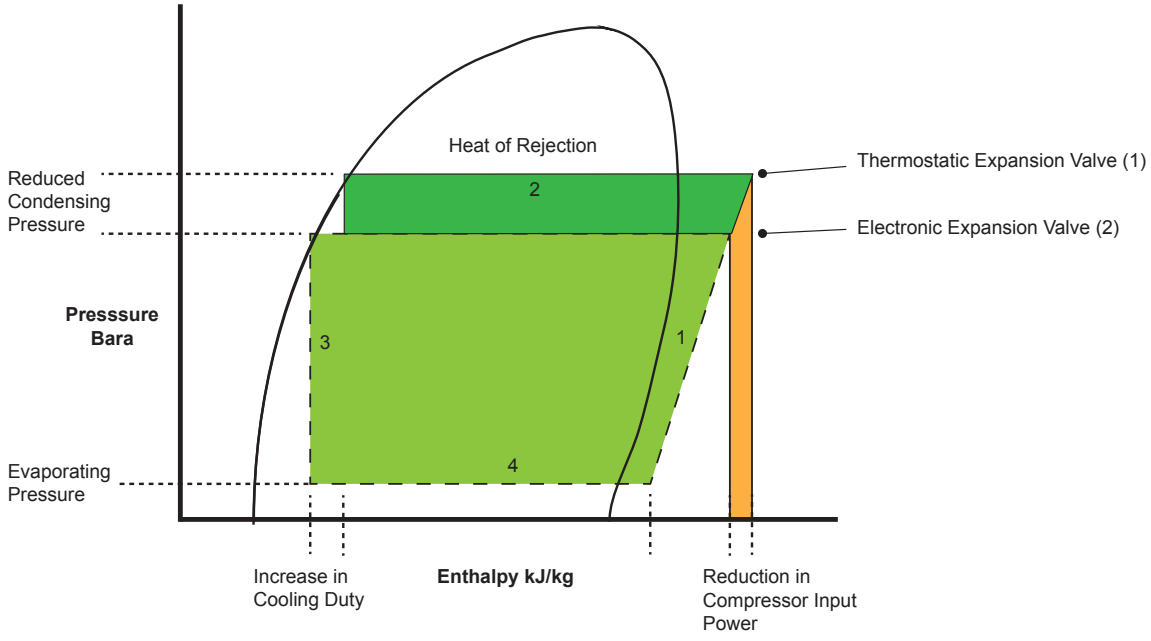
EEV step position, superheat setpoint, head pressure set point and other features can be viewed and adjusted via the microprocessor display.



Whilst offering versatile control at the full design duty of the unit, TEVs 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 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 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 adjusting the head pressure control setting an increase in the system EER (Energy Efficiency Ratio) of up to 30% can typically be seen. The Mollier diagram shown below helps to illustrate how this increase in efficiency is achieved.

The turn-down rate of a typical EEV is superior to that of it's thermostatic equivalent, such that a reduced optimum condensing pressure can be maintained at low compressor load. However low the load is on the compressor, from zero to 100%, there will not be a problem with turn down, even down to 10% of the valves rated capacity.



1	Compression	3	Expansion
2	Condensation	4	Evaporation

Key:

(1) Cooling Cycle @ 22°C ambient with a conventional TEV fitted.

(2) Cooling cycle @ 22°C ambient, demonstrating a typical EEV condensing temperature taking full advantage of lower ambient air temperatures (below 35°C).

Chilled Water Components

	Features	System Configuration		
		DX	CW	Dual Cool
Chilled Water	Chilled Water Coil	–	●	●
	Raise/Lower Chilled Water Valve	–	○	●
	0-10V CW Valve	–	●	–
	2-way valve	–	○	○
	3-way valve with bypass	–	●	●
	Brazed Water Pipe Connection	–	●	●
	Threaded Water Pipe Connection	–	○	○

● Standard Feature ○ Optional Feature – Not Available

Chilled Water Coil

Large surface area coil shall be ideally positioned to optimise airflow and heat transfer, they shall be manufactured from plain copper tubes with mechanically bonded aluminium fins. Fins shall be coated with a non-stick acrylic film (hydrophilic) to provide additional corrosion protection and efficient surface water removal for improved performance. Plain aluminium shall not be acceptable.
The cooling coil shall be mounted over a full width stainless steel condensate tray.

Raise/Lower Chilled Water Valve

For control of water flow, a 3 port modulating regulating valve is fitted as standard, with a 2 port option available.

0-10 Volt Chilled Water Valve

For control of water flow, a 3 port modulating regulating valve with 0-10 volt control is fitted, with a 2 port option available.

Threaded Water Pipe Connection

As an alternative to brazed water pipe connections, BSP brass male taper threaded connections shall be factory fitted.

Airflow Components

Pleated Disposable Panel Filter

EC Direct Drive Backward Curve Fan

	Features	System Configuration					
		Downflow			Upflow		
		DX	CW	Dual Cool	DX	CW	Dual Cool
Airflow Components	EC Fans	●	●	●	●	●	●
	EC Larger Fan	○	○	○	○	○	○
	Front Air Discharge	○	○	○	○	○	○
	Rear Air Discharge	○	○	○	○	○	○
	Top Air Discharge	–	–	–	○	○	○
	Bottom Air Discharge	○	○	○	–	–	–
	3-Way Air Discharge*	–	–	–	○	○	○
	Airflow Switch	●	●	●	●	●	●
	ISO-C-75 Return Air Filter	●	●	●	●	●	●
	ISO-1-60 Return Air Filter	○	○	○	○	○	○

● Standard Feature ○ Optional Feature – Not Available

*Larger DX models (Case sizes 22 and above) can only accommodate this option if fitted with a 3 way plenum. Please contact Airedale for more information.

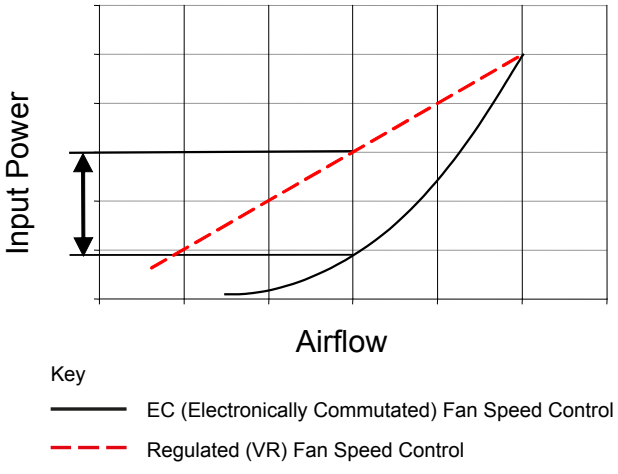
Electronically Commutated (EC) Fan Motor

Backward curved impellers, direct drive centrifugal fan assemblies with integral rotor mounted motor which is statically and dynamically balanced for quiet operation. Designed for high corrosion resistance, the impellers are plastic or are laser welded aluminium with a galvanised rotor and die cast aluminium EC power module. EC motors incorporate integrated electronics to convert AC power to DC for efficient and accurate speed control and are adjustable via the microprocessor display keypad. The fans offer maximum airflow performance while keeping sound levels to a minimum.

EC motors are DC motors with integrated AC to DC conversion; this gives the flexibility of connecting to AC mains with the efficiency and simple speed control of a DC motor. The EC fan offers significant power reduction in comparison with equivalent AC fan at both full and modulated fan speeds. The inbuilt EC fan control module allows for fan speed modulation from 15-100%, a standard AC fans modulating range is typically 40 to 100% of full fan speed.

The EC fan presents superior energy efficiency at full and reduced fan speed compared to the equivalent AC fan motor.

Standard voltage regulated (VR) fan speed controllers offer a linear response. By comparison the EC fan is adjusted on demand via the unit microprocessor with precision, offering substantial energy savings. The following illustration shows a comparison of the typical power input required by each method.

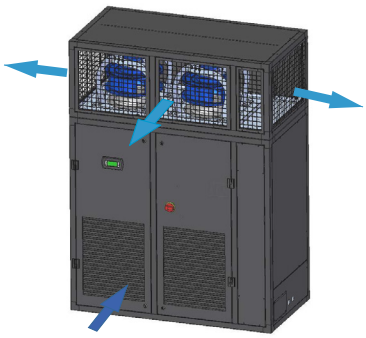


Larger Fan Option

For applications where higher static air pressures are required, a larger fan size can be fitted to replace the standard fan option.

Air Discharge Options

Downflow units can be configured with either top or rear supply airflow matched with front, rear or base air discharge. Upflow units can be configured with base, front or rear supply airflow and have the option of top, front, rear or 3-way air discharge. If 3-way discharge is selected the configuration allows airflow from front and side grilles.



Airflow Switch

An adjustable differential pressure switch activates an alarm at the control panel and protects the system against dangerous operating conditions.

Filters

Pleated disposable panel filters are fitted in a rigid frame. They conform to EN16890:2016 ISO-C-75, with higher grade filters conforming to EN16890:2016 ISO-1-60 optional. Access to the filters is through the unit doors, with removal for the downflow units over the top of the coil and from below it for the upflow units. The filters are supplied with flexible tape to enable easy insertion and removal for the downflow units.As standard the microprocessor provides an alarm following a preset run time limit being exceeded, with an optional filter change switch.

Electrical Components

	Features	System Configuration		
		DX	CW	Dual Cool
Electrical	Door Interlocking Mains Isolator (4 Pole)	●	●	●
	LCD Display	●	●	●
	Energy Manager	○	○	○
	Phase Monitoring Relay	○	○	○
	Phase Rotation Relay	○	○	○
	Fire Detection	○	○	○
	Smoke Detection	○	○	○
	Water Detection Tape	○	○	○
	Water Detection Probe	○	○	○

● Standard Feature ○ Optional Feature ━ Not Available

Electrical

The electrical power and controls panel is situated within the cabinet and has front access for essential maintenance of the unit. This contains major components such as:

- Mains isolator
- Circuit breakers for protection of major unit components
- Power monitoring (based on unit selection)
- Necessary contactors (based on unit selection)
- 24V transformer and controllers
- Mains and inter-connecting terminals (this includes volt-free contacts for common alarm).

The electrical power and controls panel is wired to the latest British/European standards and codes of practice.

Energy Manager

Analysis of system energy consumption can be monitored via a dedicated LCD display. Unit power information can be monitored via the controller, allowing key information, such as real power, voltage, current and power factor to be reviewed, as well as providing additional alarm functionality, such as phase loss.

Phase Rotation Relay

A phase sequence relay shall be fitted for units containing 3 phase scroll compressors, to prevent possible damage by running the compressor in the wrong direction.

Fire Detection

Fire detection is installed within the unit to monitor temperature and shut down the unit in the event of unusually high air temperature and generate a controller alarm.

Smoke Detection

Supplied loose for installation on site, the unit will shut down and activate the alarm upon sensing the presence of smoke.

Water Detection Tape

Water level tape suitable for sensing water droplets shall be supplied loose for remote mounting on site. Standard tape length is 12.5m.

Water Detection Probe

A solid state (probe) sensor shall be supplied loose for remote mounting on site.

Distribution System

This system has been designed to be connected to a TN type distribution system. For alternate distribution type systems, contact Airedale.

Heating and Humidification

	Features	System Configuration		
		DX	CW	Dual Cool
Heating	Electric Heating Staged Control	○	○	○
	Modulating Electric Heat	○	○	○
Humidification	Low Conductivity (Soft Water) Bottle	○	○	○
	Standard Conductivity (Moderate/Hard Water) Bottle	○	○	○
	High Conductivity (Very Hard Water) Bottle	○	○	○
	Humidifier Bottle	○	○	○
	Condensate Pump	○	○	○

Electric Heat	Case Size			
	15	18	22	25
6kW	○	○	○	○
12kW	○	○	○	○
18kW	━	━	○	○

Humidifcation	Case Size			
	15	18	22	25
3kg	○	○	○	○
8kg	○	○	○	○
15kg	━	○	○	○

● Standard Feature ○ Optional Feature ━ Not Available

Heating

Electric Heating Staged Control

Multi-stage electric heating elements complete with auto reset overheat cut-out protection.

Modulating Electric Heat

Offers precision control between 0 - 100% via the microprocessor and auto reset overheat cut-out protection.

Humidification

Humidification is provided by an electrode boiler. 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 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 give an approximate steam output of +/- 3% at 25°C at the sensor, thus ensuring precise control of the conditioned space.

The cylinder operating life time is automatically optimised via the integrated water conductivity sensor, which combined with the controls monitors and regulates the water refill cycle to reduce excessive salt deposits and the progressive wear of the cylinder.

All humidifier parameters and alarms are accessible and adjustable via the microprocessor display keypad unit, main features include:

- Supply water conductivity (µS/cm).
- Actual steam output (kg/h).
- Required steam output (kg/h).
- Actual current rating (A).
- Required current rating (A).
- Status mode (Start Up, Running, Filling, Draining).

Water Conductivity & Cylinder Type

Conductivity is a measure of the ability of water to pass an electric current, measured in micro Siemens / centimetre (µS/cm). 3 different cylinders are available which correspond to the supply water conductivity. Matching the correct cylinder type with the conductivity of the supply water ensures optimum performance and increases the life span of the cylinder.

1	Low Conductivity (Soft Water)	100 to 350 µS/cm
2	Standard Conductivity (Moderate/Hard Water)	350 to 750 µS/cm
3	High Conductivity (Very Hard Water)	750 to 1250 µS/cm

As standard the humidifier is fitted with the standard conductivity cylinder which covers the majority of water supplies. Where the water conductivity is known, please specify at order. For further details please contact Airedale.

CAUTION ⚠	The supply water pressure to the humidifier assembly must be between 1 - 8 barg.

Humidification Control Principles

In a humidifier with electrodes, steam shall be produced by passing a current between electrode plates to generate heat. The higher the current being passed between the electrodes, the greater the quantity of steam that is produced.
To modulate the rate of steam production, this system shall vary the level of water within the cylinder, thereby increasing the immersion level of the electrodes and the current being passed between them. The more conducting area that is available to pass current between the electrodes, the larger the amount of steam that shall be produced.
Modulated by the controller, the water level is varied so that the level of steam being produced ensures that the room humidity set-point is continually maintained within a tight tolerance.

Optimised Lifetime

The life span of the Airedale humidification system shall be optimised by the inclusion of a water conductivity sensor into the bottle feed. This sensor determines the conductivity level of the supply water and by using an algorithm embedded in the software, determines the frequency that the bottle should be drained. As liquid water is boiled off into steam, mineral deposits are left in solution increasing the conductivity of the water. To counter this, the intelligent software increases the frequency of drain meaning that the replenishing supply water keeps the concentration of minerals diluted. By maintaining an acceptable mineral concentration, the bottle life span is maximised.

Condensate and Humidifier

All drain trays are fitted with their own trap assembly. Condensate drain may be run to waste via ordinary plastic waste pipe. Humidifier drain may be run to waste via pipe suitable for liquid temperatures of 100°C. All drain pipework operating under gravity should be sloped away from the equipment and the gradient should be made as steep as possible. Suitable rodding positions should be incorporated particularly if the run is long.

De-humidification

(With Electric Heating and Humidification only)
Controlled by the microprocessor the de-humidification feature reduces fan speeds to increase de-humidification.
This drastically decreases the amount of time and enegry needed to reduce the room humidity to the required level.
The return temperature is monitored during de-humidification to ensure that the temperature does not fall to a critical level. If the temperature reaches the low limit de-humidification is cancelled until the return air temperature increases.

Safe Operation of Humidifier

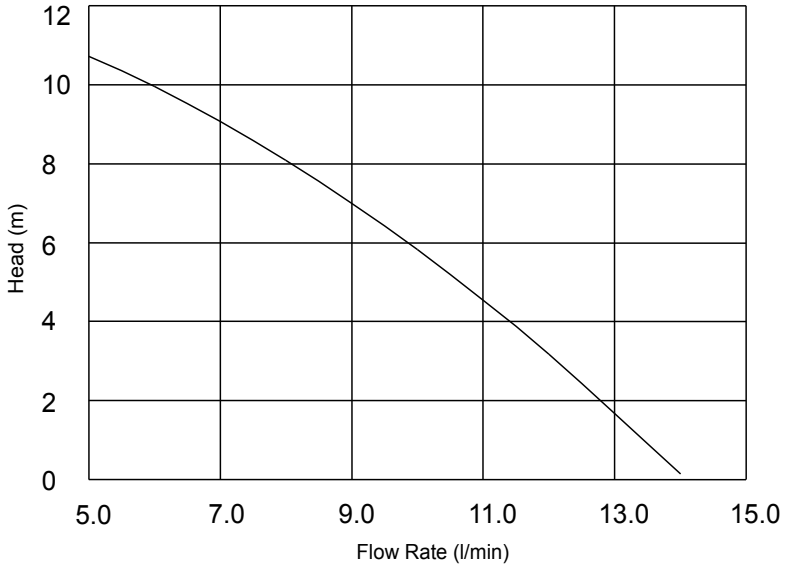
To protect the humidifier bottle from dangerous pressures in event of the steam supply pipe becoming blocked, a tundish is installed between the water inlet solenoid and the cylinder to act as a reservoir and to feed water to the humidifier inlet manifold as required.

CAUTION ⚠	An overflow weir is incorporated in the common fill/drain tundish. Any pressure build up in the cylinder would be allowed to vent through the tundish to atmosphere. It is MOST IMPORTANT that the steam distribution pipe is not damaged or kinked at any time to avoid the risk of unacceptably high pressure building up in the electrode bottle.

Condensate Pumps

Performance

The following graph illustrates the TOTAL static (head) pressure available. The system horizontal pipe losses and vertical lift should be factored in when calculating the condensate pump performance.



The condensate pump uses 10mm (3/8”) copper tube when connecting to the discharge stub of the pump.
Non return valves should not be fitted into the condensate discharge. Backflow is limited due to restricted pipe dimensions.

MPORTANT ⚠	The discharge line from the pump should rise no more than 6 metres vertically and no more than 8 metres in total length before being interrupted with a swan neck air break and tundish.

General Features

	Features	System Configuration		
		DX	CW	Dual Cool
General Features	Secure Door Locks	●	●	●
	Open Floorstand	○	○	○
	Enclosed Floorstand	○	○	○
	Ceiling Duct Extension	○	○	○
	Condensate Pump	○	○	○

● Standard Feature ○ Optional Feature ━ Not Available

Discharge Air Configuration
Forward, reverse, 3-way, top & bottom air discharge options are available, please specify at order.

Open & Enclosed Floorstand
Open or enclosed floorstands are available, complete with adjustable feet and floor tile lip. Enclosed floorstands incorporate an air turning vane. Height of the floorstand; please specify at order.

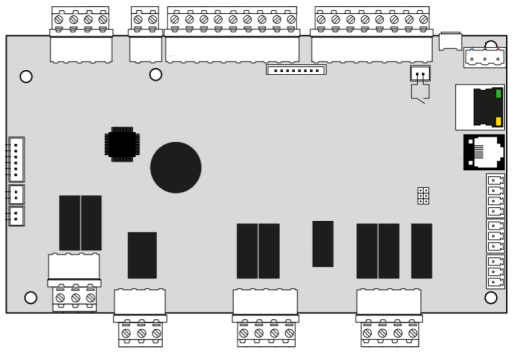
Ceiling Duct Extension
Straight and 'L' shaped duct extensions up to a height of 1350 mm constructed and finished to match the unit are available. For extensions greater than 1350 mm, please contact Airedale.

Services Side Access Gland Plate
As standard services can be routed through the gland plate in the base of the units. A gland plate can be optionally located on the side or the base of the unit if required. Please contact Airdale for more information.

Export Packing
Units can be supplied packed inside a case to provide additional protection during transportation, (not required for container delivery). Standard construction material is solid wood.

Sterling Board LAT (Wooden Case) Packing
Units shall be supplied complete with additional LAT corner protection and cross braces to afford extra transit protection. Sterling board heat treated man made material shall be used (including pallet) to comply with phytosanity import regulations (please contact Airedale for this option).

Controls

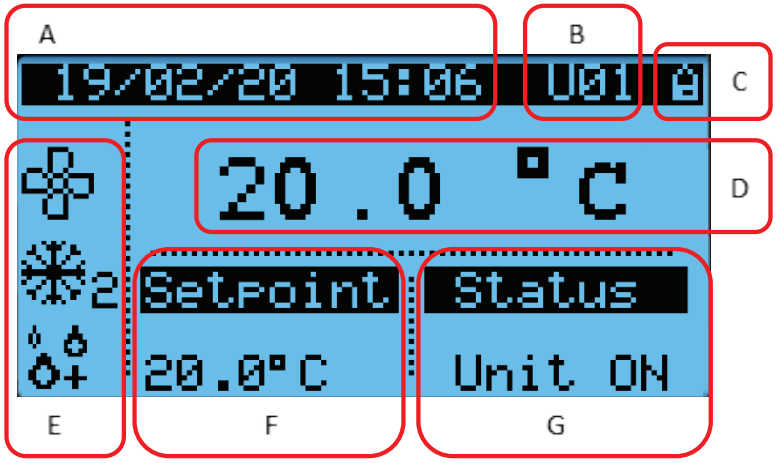


The EasiCool Evo² range is fitted with the next generation Helix controls system to achieve efficient operation and temperature control. The controller monitors system health and alerts of any issues via a range of alarms which are logged for maintenance purposes.

The control system as standard is capable of interacting with other Evo² products for rotation and load sharing purposes. The Helix controller is compatible with Building Management Systems such as Airedale ACIS, through use of an interface card (optional).

For more detailed information about the controller and controls functions, see the EasiCool Evo² controls manual – available on request.

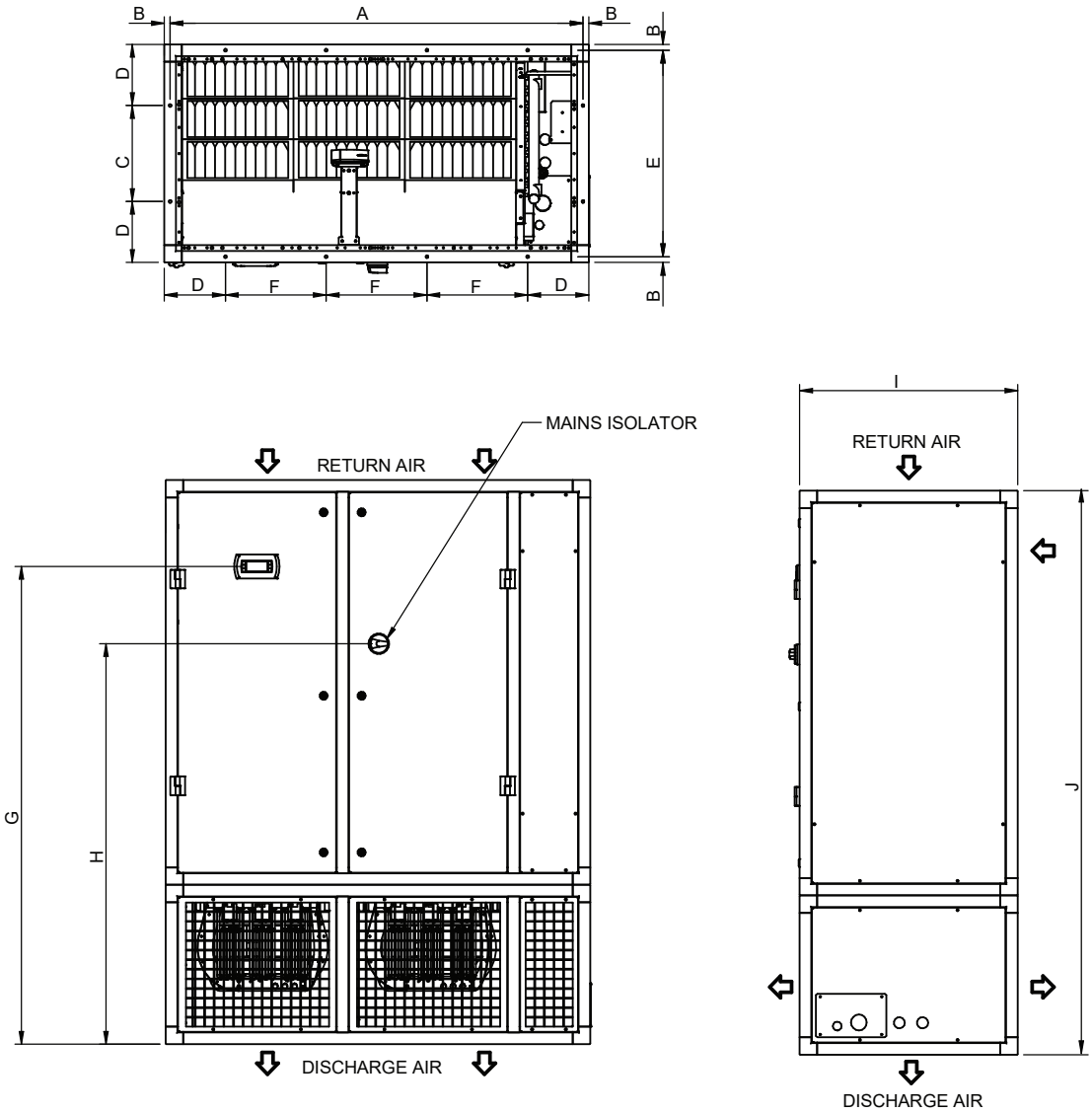
Controls



Key	Symbol	Status
A	-	Date (in DD/MM/YY format) and time
B	Uxx	Unit number in unit-to-unit network
C		Security status (password not entered)
		Security status (password entered)
D	-	Alternates between the return air temperature (°C) / humidity (%RH)
E		Fan ON status
		Cooling ON status (DX or CW) - Includes number of stages
		Heating ON status - Includes number of stages
		Humidifier ON status
		Dehumidification ON status
F	-	Alternates between return air temperature (°C) / humidity (%RH) setpoint
G	-	Unit Status

Dimensional & Installation Data

Dimensions

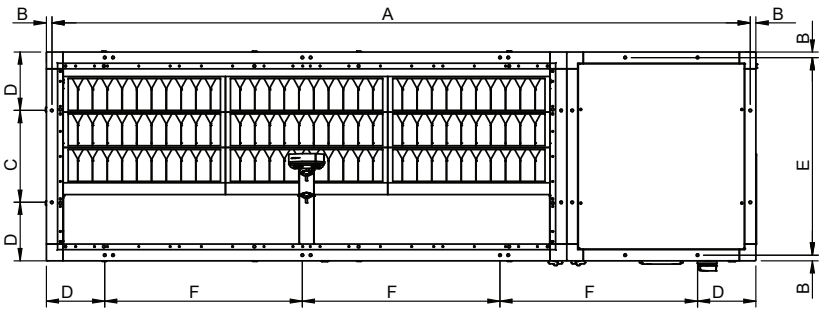


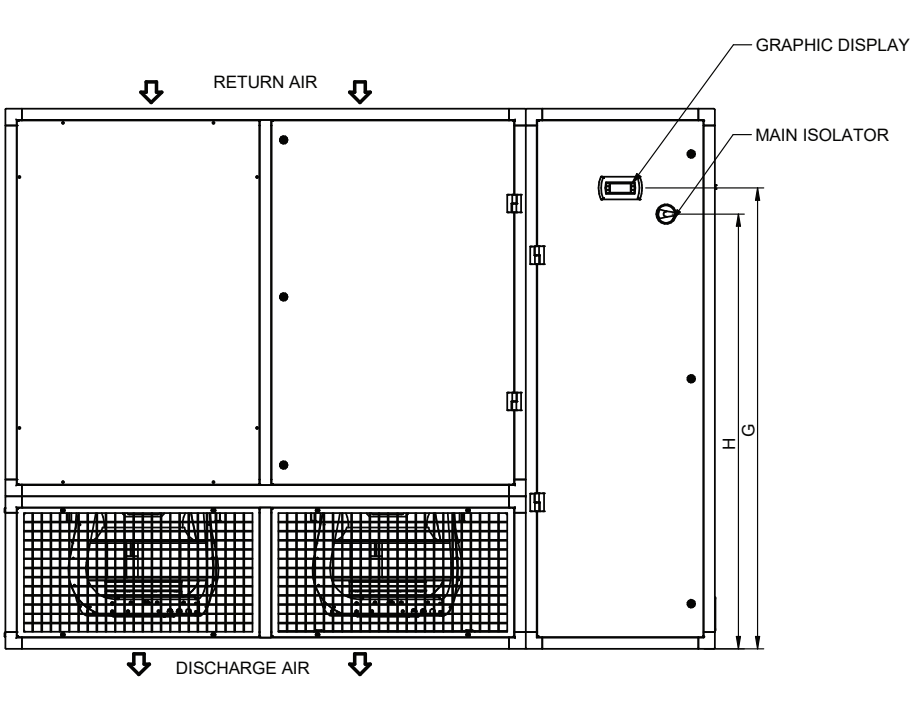
Model shown is ED15.

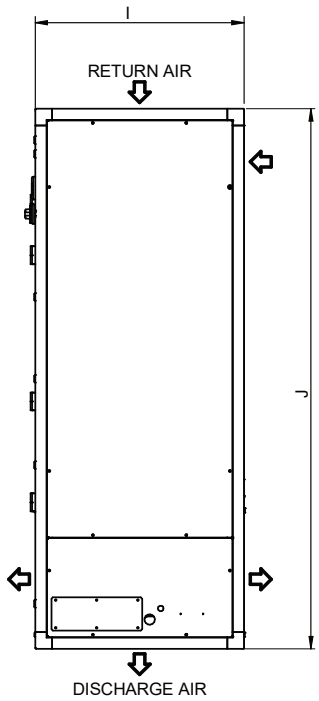
For illustration purposes only. Please contact Airedale for unit specific drawings.

		A	B	C	D	E	F	G	H	I	J
ED15	mm	1420	20	330	210	710	347	1643	1377	750	1940
ED18	mm	1795	20	330	210	710	472	1643	1377	750	1940
ED22-CW	mm	2130	20	330	210	710	583	1642	1316	750	1940
ED25-CW	mm	2510	20	330	210	710	710	1642	1316	750	1940

Dimensions





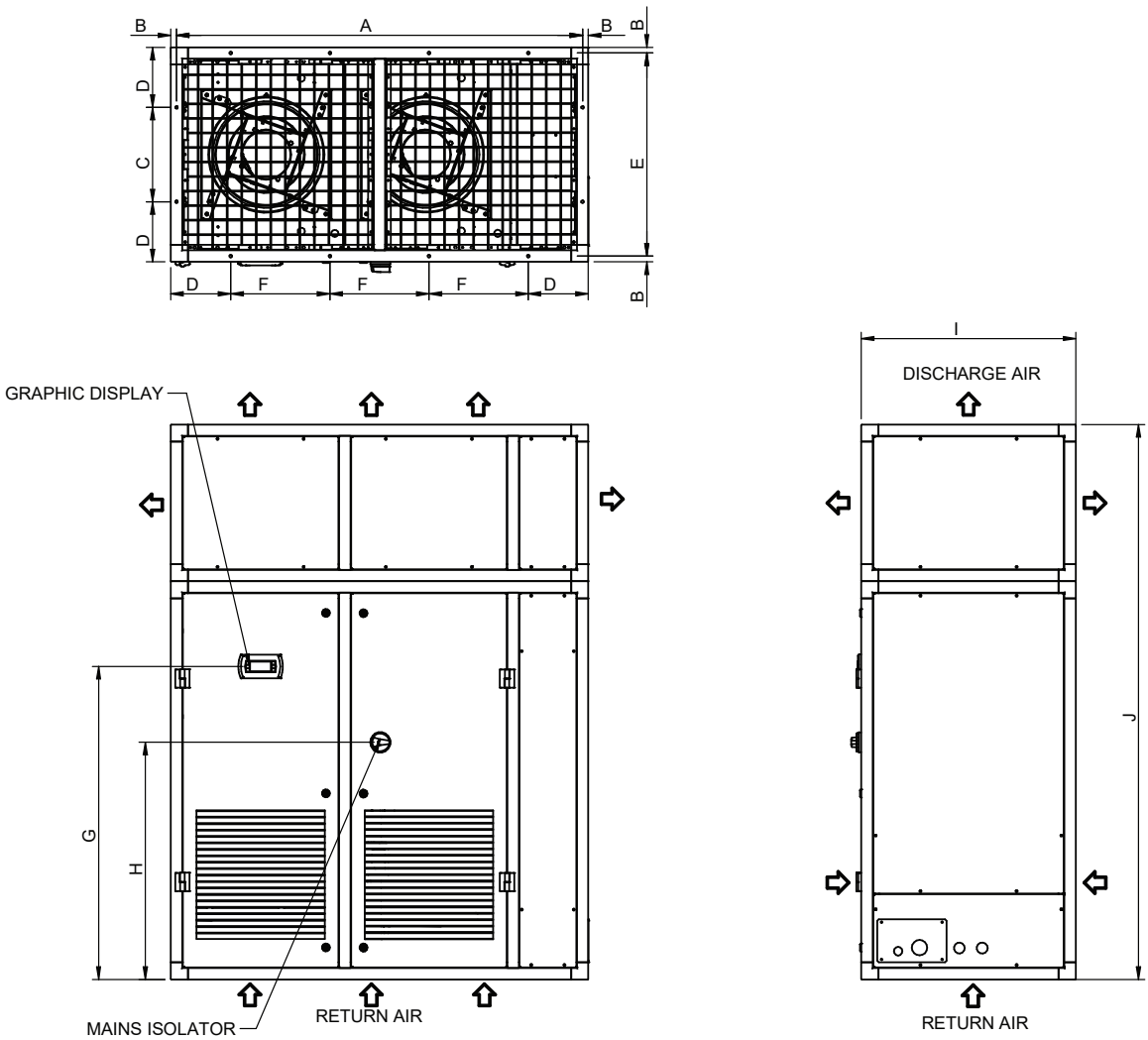


Model shown is ED25-DX.

For illustration purposes only. Please contact Airedale for unit specific drawings.

		A	B	C	D	E	F	G	H	I	J
ED22-DX	mm	2130	20	330	210	710	583	1655	1562	750	1940
ED25-DX	mm	2510	20	330	210	710	710	1655	1562	750	1940

Dimensions

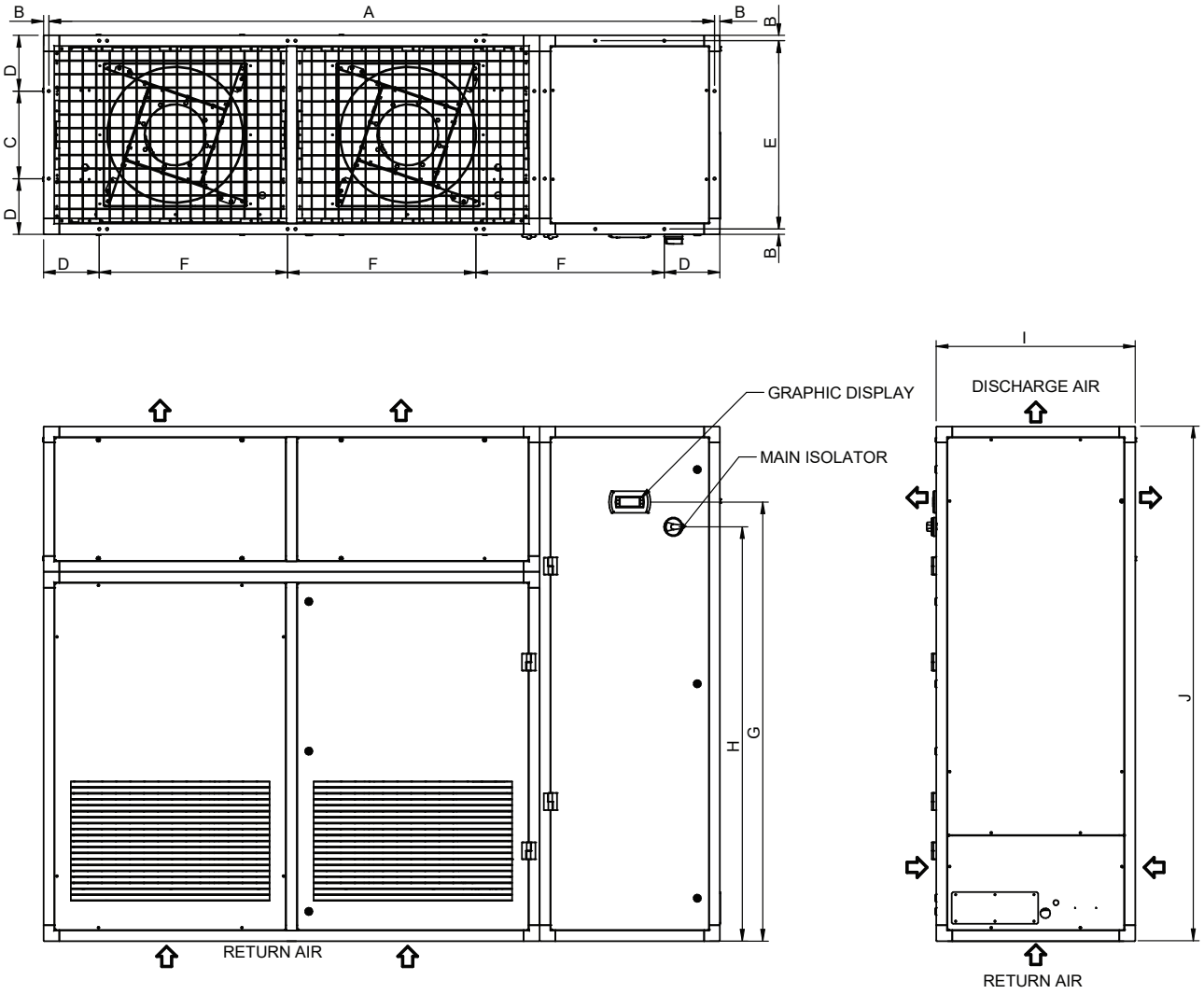


Model shown is EU15.

For illustration purposes only. Please contact Airedale for unit specific drawings.

		A	B	C	D	E	F	G	H	I	J
EU15	mm	1420	20	330	210	710	347	1094	829	750	1940
EU18	mm	1795	20	330	210	710	472	1095	829	750	1940
EU22-CW	mm	2130	20	330	210	710	583	1094	768	750	1940
EU25-CW	mm	2510	20	330	210	710	710	1094	768	750	1940

Dimensions

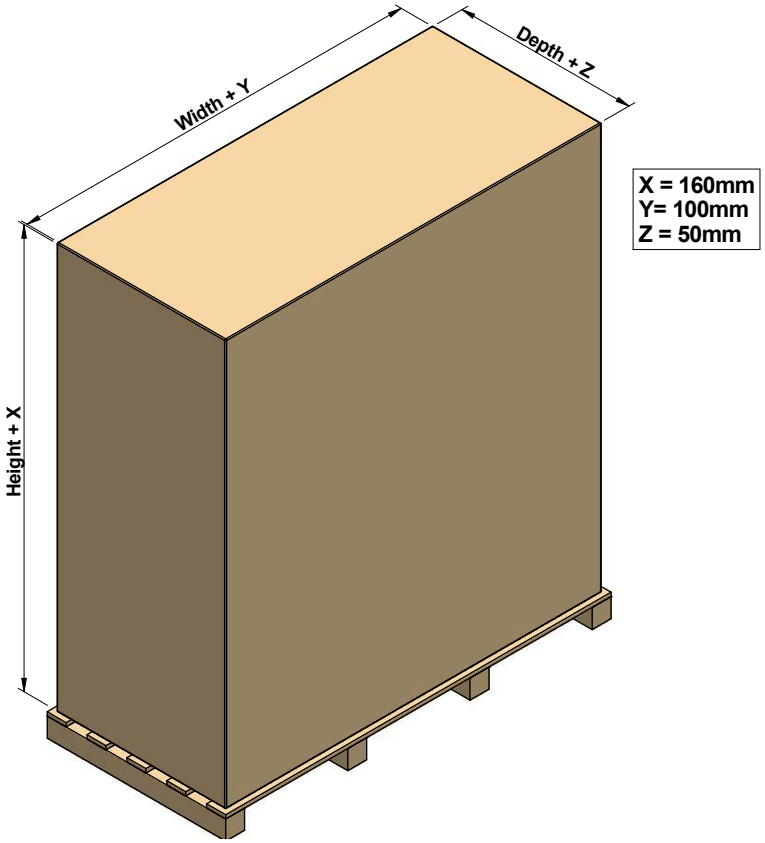


Model shown is EU25-DX.

For illustration purposes only. Please contact Airedale for unit specific drawings.

		A	B	C	D	E	F	G	H	I	J
EU22-DX	mm	2130	20	330	210	710	586	1655	1564	750	1940
EU25-DX	mm	2510	20	330	210	710	710	1655	1562	750	1940

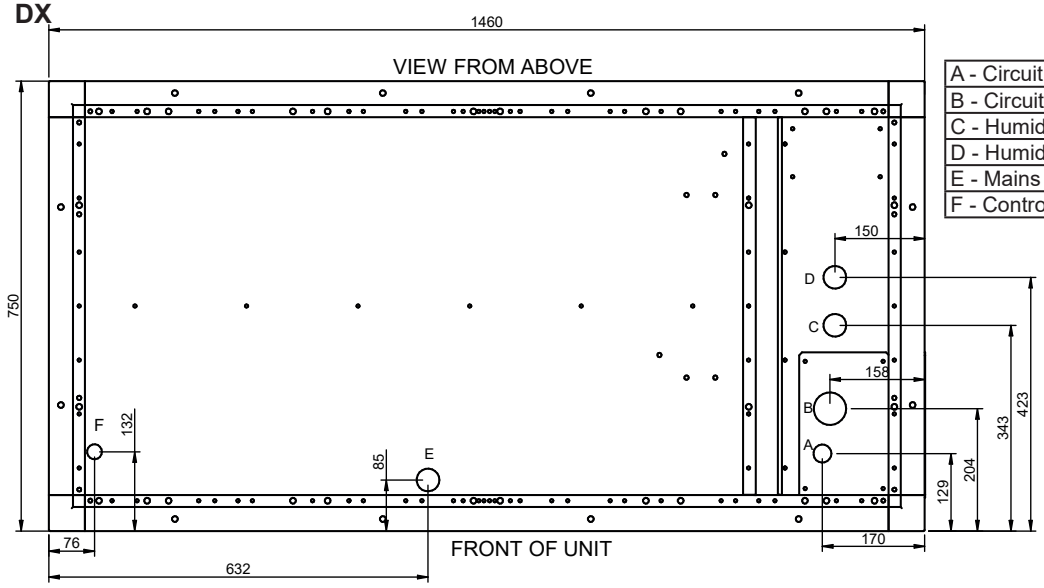
Packed Dimensions



		Height	Width	Depth
ED/EU 15	mm	1940	1460	750
ED/EU 18	mm	1940	1835	750
ED/EU 22	mm	1940	2170	750
ED/EU 25	mm	1940	2550	750

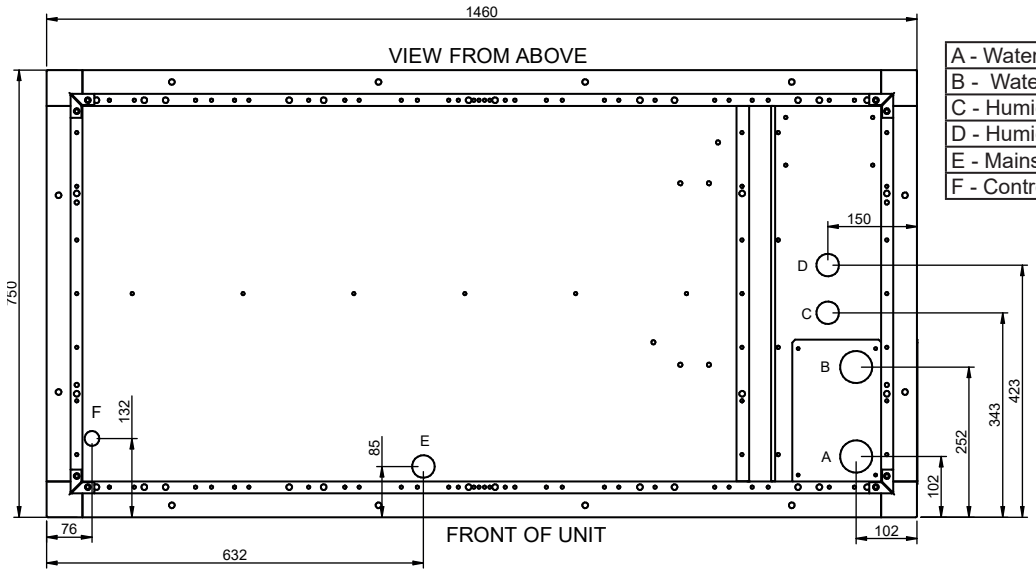
Incoming Services - EU/ED15 (ED15 shown)

DX



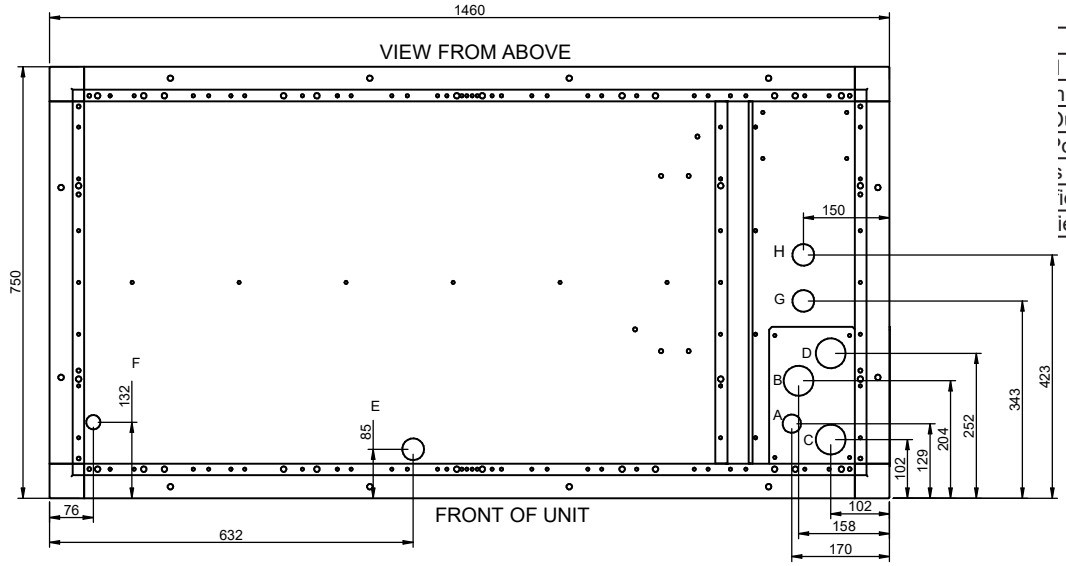
	Diameter mm
A - Circuit 1 Liquid Line	30
B - Circuit 1 Discharge	54
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

CW



	Diameter mm
A - Water Outlet	54
B - Water Inlet	54
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

Dual Cool

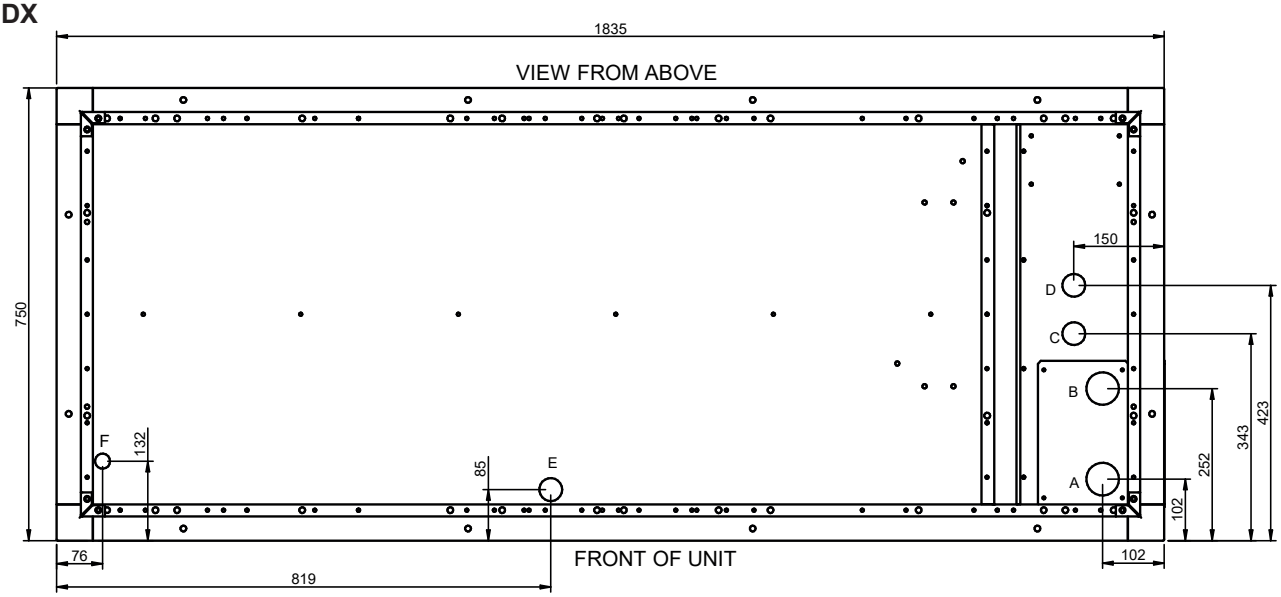


	Diameter mm
Liquid Line	32
Discharge	52
nlet	52
Outlet	52
Power	38
s	25
ier Drain	38
ier Fill	38

Optional side termination available (not shown), please contact Airedale for unit specific drawings.
Please see pipe schematic for pipe sizes.

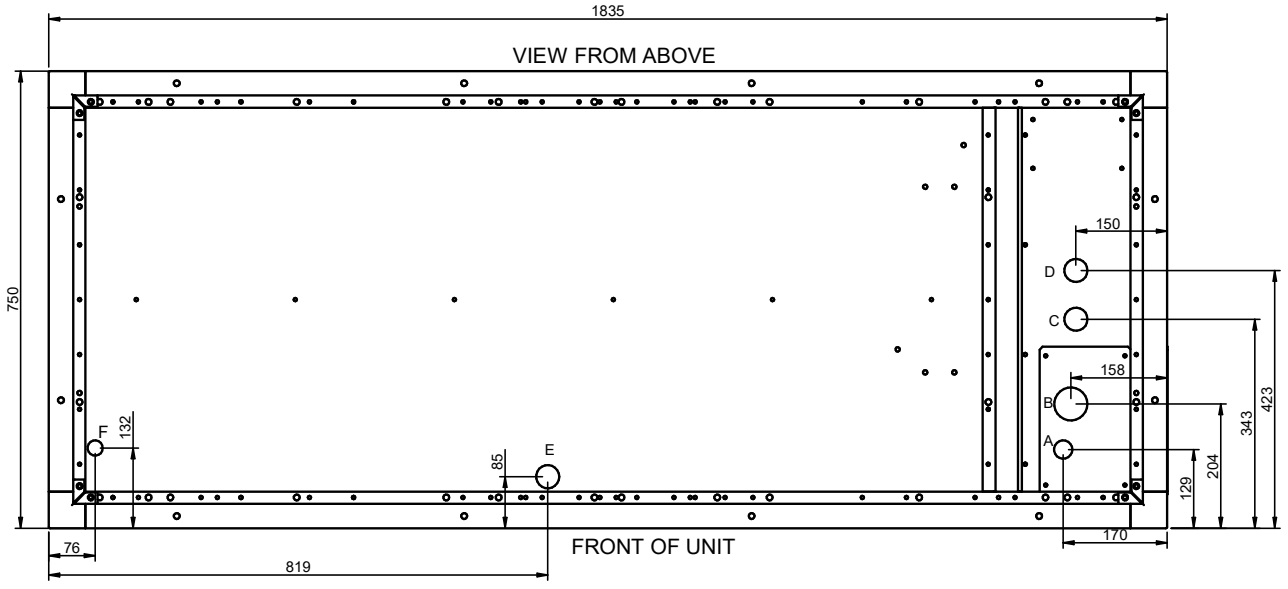
Incoming Services - EU/ED18 (ED18 shown)

DX



	Diameter mm
A - Circuit 1 Liquid Line	30
B - Circuit 1 Discharge	54
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

CW



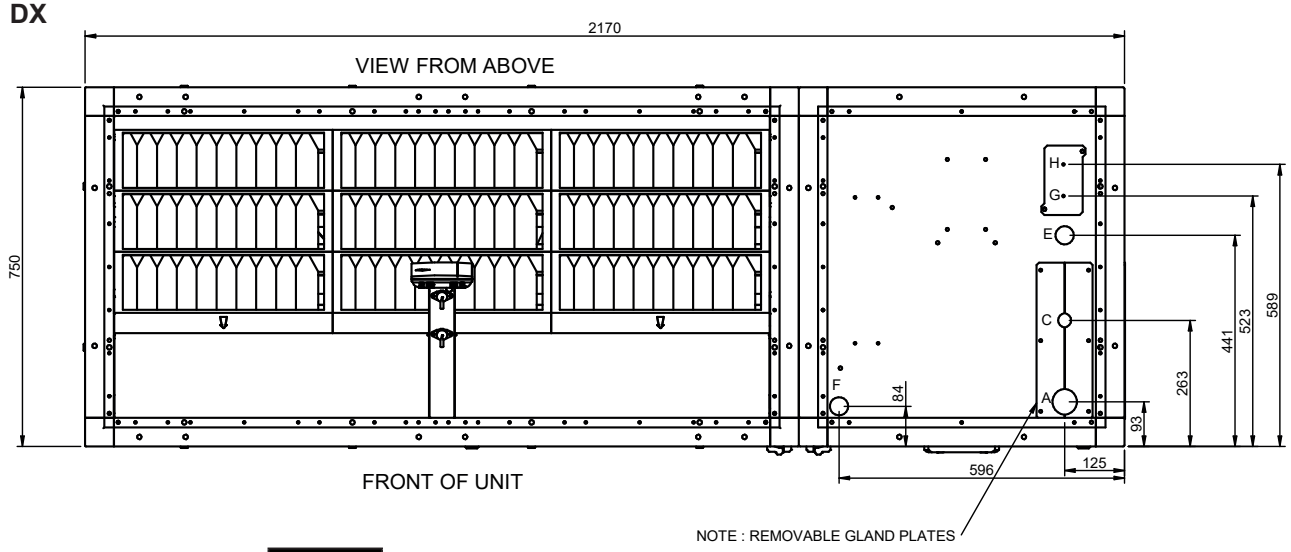
	Diameter mm
A - Water Outlet	54
B - Water Inlet	54
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

Optional side termination available (not shown) please contact Airedale for unit specific drawings.

Please see pipe schematic for pipe sizes.

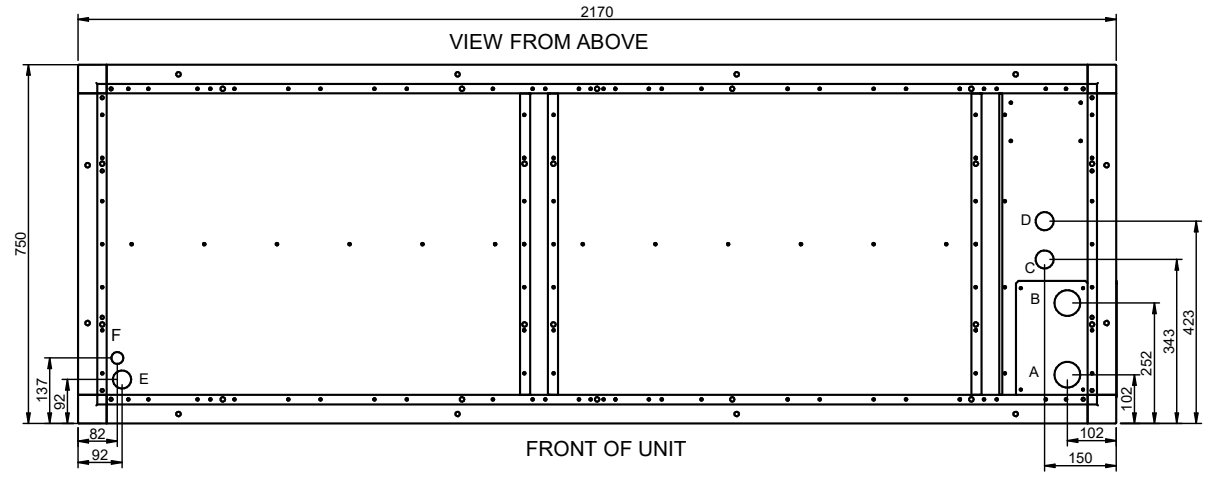
Incoming Services - EU/ED22 (ED22 shown)

DX



	Diameter mm
A - Circuit 1 Discharge	54
B - Circuit 1 Liquid Line	30
C - Humidifier Drain	28
D - Humidifier Fill	28
E - Mains Power Pilot Hole	2.7
F - Controls Pilot Hole	2.7

CW



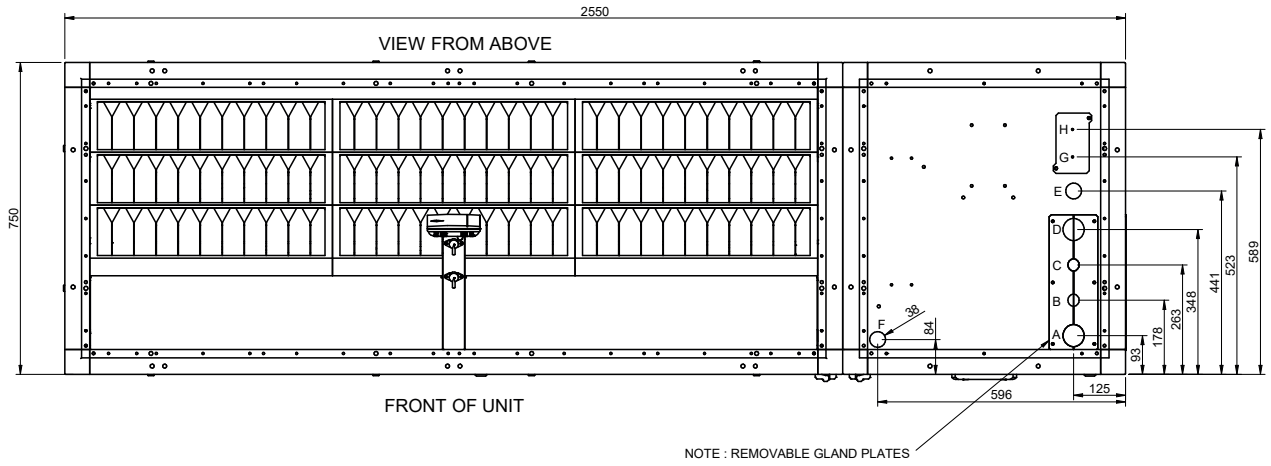
	Diameter mm
A - Water Inlet	54
B - Water Outlet	54
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

Optional side termination available (not shown) please contact Airedale for unit specific drawings.

Please see pipe schematic for pipe sizes.

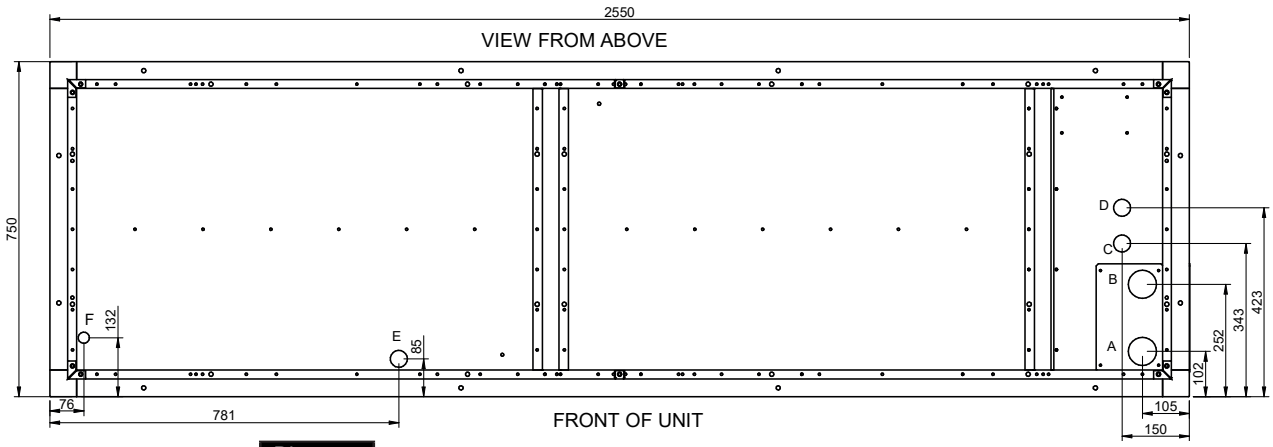
Incoming Services - EU/ED25 (ED25 shown)

DX



	Diameter mm
A - Circuit 1 Discharge	54
B - Circuit 2 Liquid Line	30
C - Circuit 1 Liquid Line	30
D - Circuit 2 Discharge	54
E - Humidifier Drain	38
F - Humidifier Fill	38
G - Mains Power Pilot Hole	2.7
H - Controls Pilot Hole	2.7

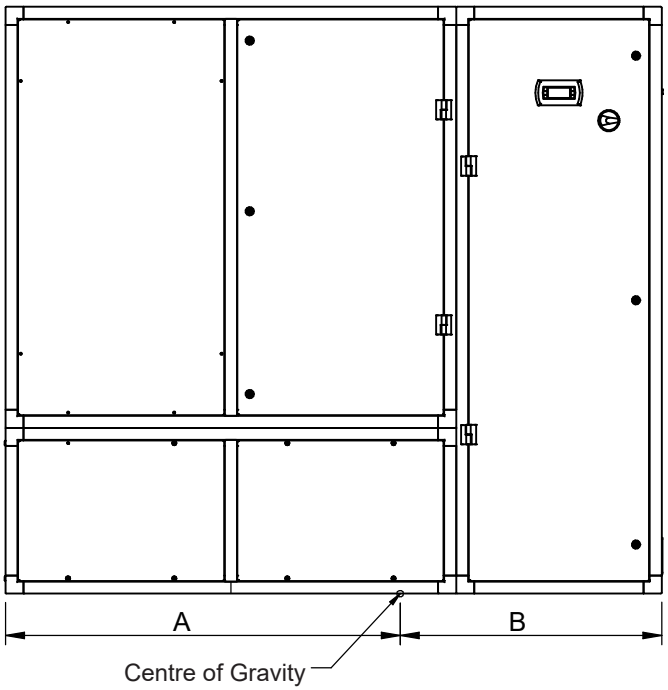
CW



	Diameter mm
A - Water Inlet	63
B - Water Outlet	63
C - Humidifier Drain	38
D - Humidifier Fill	38
E - Mains Power	38
F - Controls	25

Optional side termination available (not shown) please contact Airedale for unit specific drawings.
Please see pipe schematic for pipe sizes.

Centre of Gravity

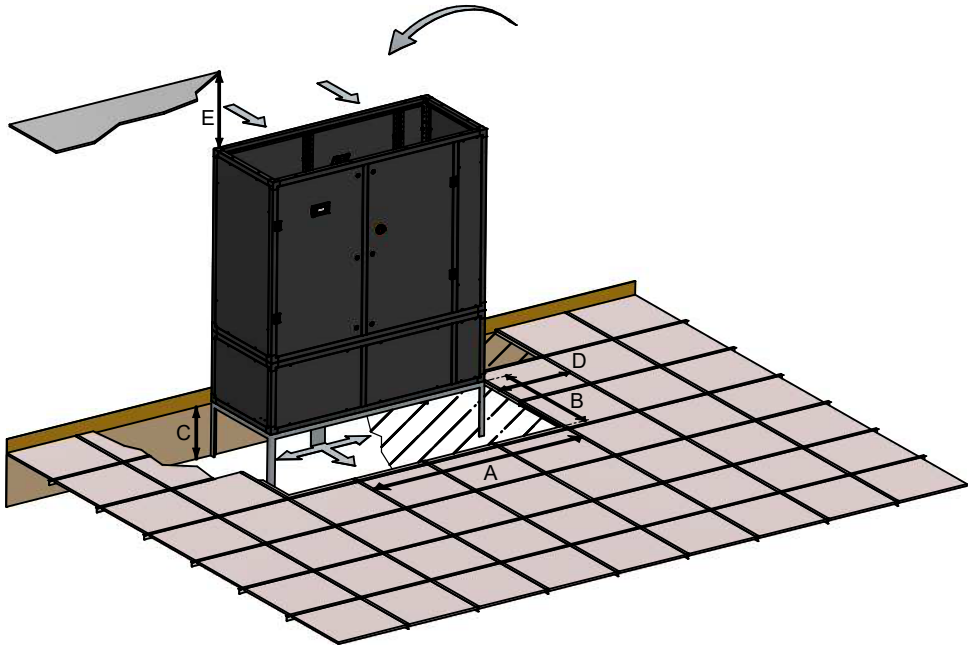


		A	B
EU/ED22-DX	mm	1305	865
EU/ED25-DX	mm	1534	1016

Please note that all other units in this range have a central Centre of Gravity. For more information please contact Airedale.

Positioning

Downflow



Crosshatch area is required for clearance.

CAUTION ⚠	When placing the unit on the floorstand ensure appropriate air seal is used to prevent leakage at the join. It is also important to place all locking bolts in place to secure the unit to its base.

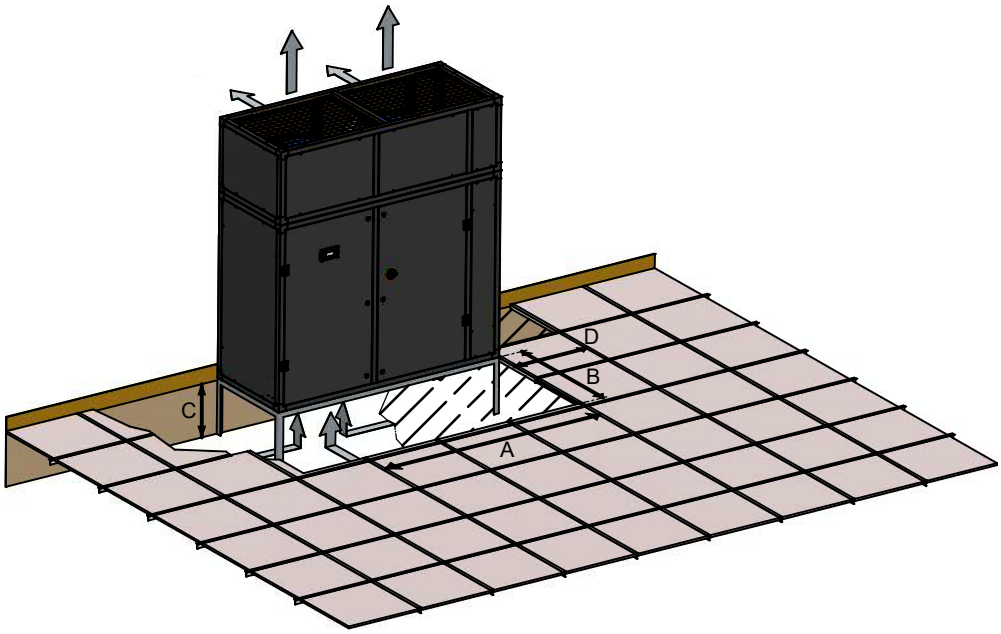
Minimum Unit Clearance

		A	B	C With foorstand(1) Min Max	D
ED15	mm	1460	560	Min 300 - Max 750 (+50mm Feet, Adjustable +/-20mm)	300
ED18	mm	1835	790		
ED22	mm	2170	690		
ED25	mm	2550	880		

(1) Downflow units with front or rear discharge can be seated directly onto the floor if required.

		E - Minimum Ceiling Clearance			
		Forward Only	Forward and 1 Side	Forward and 2 Sides	All Faces
ED15	mm	620	410	310	210
ED18	mm	640	450	350	230
ED22 (DX)	mm	940	630	470	320
ED22 (CW)	mm	710	530	420	270
ED25 (DX)	mm	970	690	540	350
ED25 (CW)	mm	850	660	540	330

Upflow



Crosshatch area is required for clearance.

CAUTION ⚠	Grilles are provided for protection against rotating parts and should only be removed by competent personnel. Placing objects near an unguarded fan may cause injury.

Minimum Unit Clearance

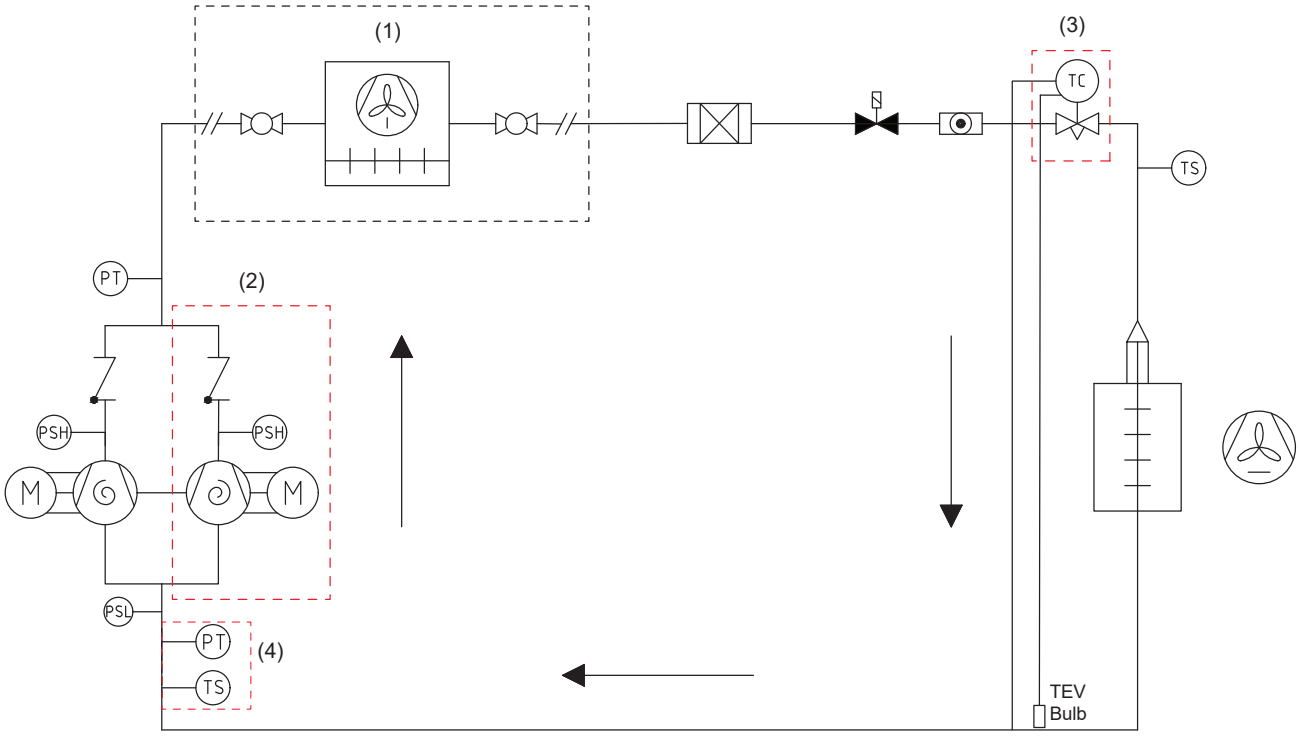
Open and Enclosed Floorstand Option

		A	B	C With foorstand(1) Min Max	D
EU15	mm	1460	560	Min 300 - Max 750 (+50mm Feet, Adjustable +/-20mm)	300
EU18	mm	1835	790		
EU22	mm	2170	690		
EU25	mm	2550	880		

(1) Upflow units with front or rear return, can be seated directly onto the floor if required.

System Pipework Schematic

X Type



(1) Located externally

(2) Tandem compressor only included with 1X20 units

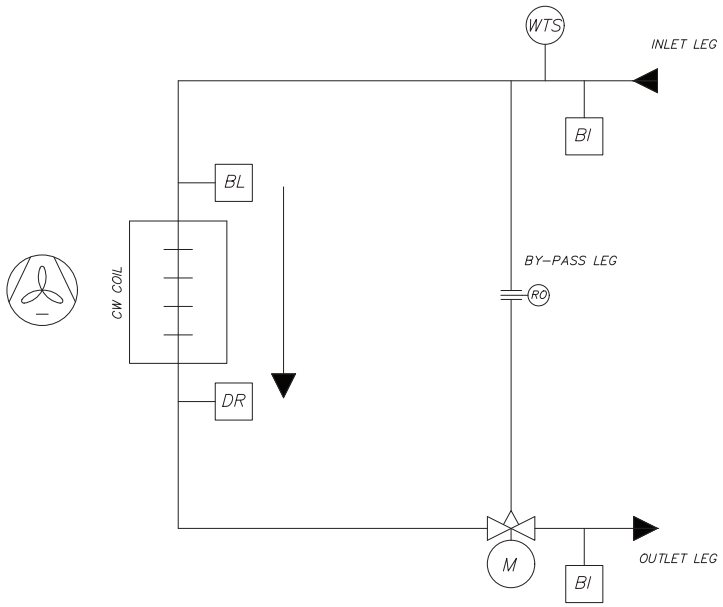
(3) Thermostatic expansion valve option shown; EEV also available.

(4) Only when EEVs are fitted

Dual circuit units second circuit uses the same layout as the first circuit (shared evaporator coil).

Please note: Key is overleaf.

CW Type

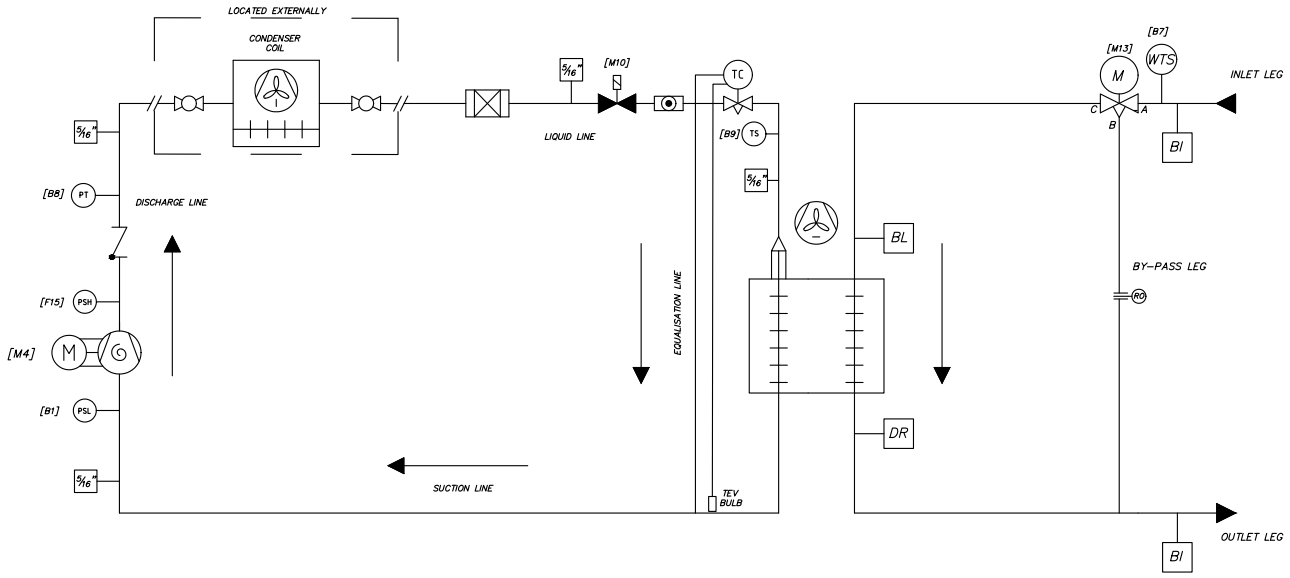


*Upflow unit shown. Arrangement may vary slightly for downflow units.

3 way valve with bypass shown, 2 way valve is also available.

Please note: Key is overleaf.

DX/CW Type



*Downflow unit shown. Arrangement may vary slightly for upflow units.

3 way valve with bypass shown, 2 way valve is also available.

Key

- Centrifugal fan
- Axial fan
- Scroll compressor
- Drain valve
- Normally closed solenoid valve
- Low pressure switch
- High pressure switch
- Shut off valve (optional - supplied loose)
- Water temperature sensor
- Bleed valve
- Check valve
- Thermostatic expansion valve
- Temperature sensor
- 3-way regulating valve
- Flow Disc (Restricted Orifice)
- Filter drier
- Pressure transducer
- Binder point
- Sight glass

Refrigeration Pipework

Oil Traps

For long vertical rises in both liquid and discharge lines, it is essential that oil traps are located every 4m to ensure proper oil movement / entrainment. In addition there should be an oil trap at the exit of the air handling unit before a vertical riser is applied (refer to example below).

Pipe Supports

The following table identifies the maximum distance between pipe supports on vertical and horizontal pipe runs.

Pipe O/D (inches)	Support distance (m)
3/8 - 7/8”	1.0
1 1/8 - 2 1/8”	2.0

IMPORTANT ⚠	For long pipe runs, the pipe work **must** be well grounded to minimise any electrical characteristics. Longer pipe runs may require ground straps in multiple sections to ensure a good earth connection.

Lines passing through walls

Refrigerant lines that rub against solid objects can wear holes in the copper pipework and cause leaks, the lines must pass through sleeved openings in such a manner that the lines do not touch.

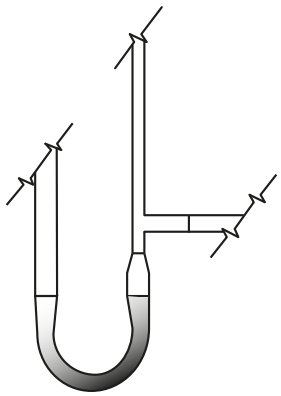
Horizontal Sections

It is good practice to ensure a slight gradient toward the compressor in the direction of the refrigerant flow for suction lines running horizontal. This assists oil return to the compressor. A gradient of approximately 1:200 (0.5%) shall be used.

Discharge Risers

Consideration must be taken when designing vertical risers. Refrigerant velocity must be ensured in vertical risers at a minimum of 8m/s. If required double risers must be designed into the system. Pipework must be sized based upon a reduction in unit capacity as low as 60% of design(1).

The double riser must be sized so that the refrigerant still maintains adequate velocity for the oil to travel around the system. At part load the velocity is reduced in the larger diameter pipe (and cannot carry oil). An oil trap is formed forcing vapour up the smaller tube which still has adequate velocity due to its size to continue carrying oil around the system. The trap at the base of the riser must be as small as possible. This ensures that the trap causes a pressure drop causing vapour to pass up the smaller tube. When the load increases the velocity of the refrigerant ensures that oil carries up both tubes.



CAUTION ⚠	Care must be taken in sizing double riser systems.

IMPORTANT ⚠	(1) For guidance - turndown based on nominal conditions (24°C / 45% RH, 35°C ambient) for a tandem compressor unit. Application specific requirements should be considered.

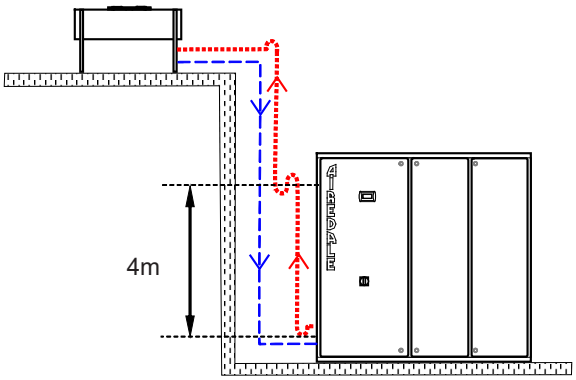
Liquid Line

If the system is configured with the EasiCool unit higher than the condenser unit it may be required to increase the degree of sub cooling to prevent flashing gas occurring in the liquid line. This flashing is due to excess pressure drop caused by the static head of liquid refrigerant and can result in poor operation of the evaporator and expansion device. Careful pipe sizing is recommended to ensure that the liquid line does not have excessive pressure drop. Increasing the liquid line pipe size can minimise pipe pressure drop. However as a fail safe it is recommended that the condenser is installed above the indoor unit to allow for correct liquid drain.

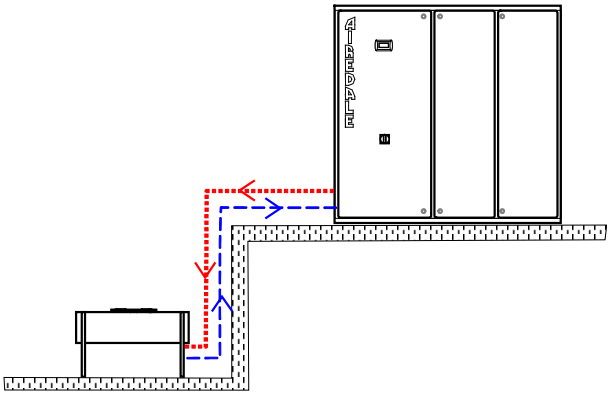
Pipe Insulation

The liquid line of the system must be insulated if passing through extremely warm places (boiler houses etc). Ensuring that the refrigerant does not become flash gas.

Condenser above Air Handling Unit



Condenser below Air Handling Unit



Discharge Line Liquid Line

Refrigerant Charging Guide

The following information can be used to estimate the refrigerant quantity required in a typical split system installation.

Unit Refrigerant Charge

(kg / Circuit)

The following information can be used to estimate the refrigerant quantity required in a typical split system installation.
The table shows the refrigerant charge / circuit for the indoor and outdoor units.

		Standard Condenser		Larger Condenser	
Indoor Unit	kg/Circuit	Outdoor Unit	kg/Circuit	Outdoor Unit	kg/Circuit
ED/EU15_31R-1X10-0	3	CR50	4.5	CR65	9
ED/EU18_35R-1X10-0	4.3	CR50	4.5	CR65	9
ED/EU18_45R-1X10-0	4.6	CR65	9	CR80	7.7
ED/EU22_50R-1X20-0	4.2	CR80	7.7	CR105	15.3
ED/EU22_60R-1X20-0	4.6	CR80	7.7	CR105	15.3
ED/EU25_65R-2X10-0	3.4	CR50	4.5	CR65	9
ED/EU25_65R-1X20-0	5.4	CR105	15.3	CR140	20.2
ED/EU25_80R-2X10-0	3.5	CR65	9	CR80	7.7
ED/EU25_80R-1X20-0	5.6	CR140	20.2	CR165	20.2
ED/EU15_31R-1X10-1	3.3	CR50	4.5	CR65	9
ED/EU18_35R-1X10-1	4.5	CR50	4.5	CR65	9
ED/EU18_45R-1X10-1	4.6	CR65	9	CR80	7.7
ED/EU22_50R-1X20-1	4.3	CR80	7.7	CR105	15.3
ED/EU22_60R-1X20-1	4.8	CR80	7.7	CR105	15.3
ED/EU25_65R-2X10-1	3.4	CR50	4.5	CR65	9
ED/EU25_65R-1X20-1	5.6	CR105	15.3	CR140	20.2
ED/EU25_80R-2X10-1	3.4	CR65	9	CR80	7.7
ED/EU25_80R-1X20-1	5.6	CR140	20.2	CR165	20.2

CAUTION ⚠	The pipe sizes/refrigerant charges quoted are for guidance only. It is the responsibility of the installing contractor/site engineer to check the pipe sizes/refrigerant charges are correct for each system installation and application. Split systems may require additional oil which should be added to the low side of each compressor. Design should be in accordance with accepted refrigeration practice to ensure good oil return to the compressor(s) under all normal operating conditions.

Liquid Line Refrigerant Charge (kg/m)

The following table shows the refrigerant charge / metre for the liquid line, using R410A and assuming a liquid line temperature of 40°C.

Liquid Line (m)	kg/m
3/8”	0.05
1/2”	0.09
5/8”	0.15
3/4”	0.21
7/8”	0.30
1 1/8”	0.53

Refrigerant Pipe Sizing Guide

The refrigerant pipe sizing information below is for a guide only. Pipe sizes based on 100% load.

		Indoor Unit		Equivalent Pipe Lengths with R410A					
		Connection Size		0-15m			15-40m		
Indoor	Outdoor	Liquid	Discharge	Liquid	Discharge		Liquid	Discharge	
					Horizontal	Vertical		Horizontal	Vertical
				(3)	(1)	(2)	(3)	(1)	(2)
ED/EU15_31R-1X10-0	CR050M-7	7/8	1 3/8	5/8	1 1/8	7/8	5/8	1 1/8	3/4
ED/EU15T30R-1X1C-0	CR050M-7	7/8	1 3/8	5/8	1 1/8	7/8	5/8	1 1/8	3/4
ED/EU18_35R-1X10-0	CR050M-7	7/8	1 5/8	3/4	1 1/8	7/8	3/4	1 1/8	7/8
ED/EU18_45R-1X10-0	CR065M-7	7/8	1 5/8	7/8	1 3/8	7/8	7/8	1 3/8	7/8
ED/EU22_50R-1X20-0	CR080M-7	3/4	1 1/8	5/8	1 1/8	7/8	5/8	1 1/8	7/8
ED/EU22_60R-1X20-0	CR080M-7	7/8	1 3/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
ED/EU25_65R-2X10-0	CR050M-7	7/8	1 5/8	3/4	1 1/8	7/8	3/4	1 1/8	3/4
ED/EU25_65R-1X20-0	CR105M-7	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
ED/EU25_80R-2X10-0	CR065M-7	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 1/8	7/8
ED/EU25_80R-1X20-0	CR140M-7	7/8	1 5/8	7/8	1 5/8	1 1/8	7/8	1 3/8	1 1/8
ED/EU15_31R-1X10-1	CR050M-8	7/8	1 3/8	5/8	1 1/8	7/8	5/8	1 1/8	3/4
ED/EU15T30R-1X1C-0	CR050M-7	7/8	1 3/8	5/8	1 1/8	7/8	5/8	1 1/8	3/4
ED/EU18_35R-1X10-1	CR050M-8	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 1/8	7/8
ED/EU18_45R-1X10-1	CR065M-8	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
ED/EU22_50R-1X20-1	CR080M-8	3/4	1 1/8	5/8	1 1/8	7/8	5/8	1 1/8	7/8
ED/EU22_60R-1X20-1	CR080M-8	7/8	1 3/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
ED/EU25_65R-2X10-1	CR050M-8	7/8	1 5/8	3/4	1 1/8	7/8	3/4	1 1/8	3/4
ED/EU25_65R-1X20-1	CR105M-8	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
ED/EU25_80R-2X10-1	CR065M-8	7/8	1 5/8	3/4	1 3/8	7/8	3/4	1 1/8	7/8
ED/EU25_80R-1X20-1	CR140M-8	7/8	1 5/8	7/8	1 5/8	1 1/8	7/8	1 3/8	1 1/8

(1) For interconnecting pipework with a predominantly horizontal layout.

(2) For interconnecting pipework with a predominantly vertical layout.

(3) Careful pipework selection must be carried out if the liquid line rises. Additional system sub cooling may be required to overcome friction losses.

IMPORTANT ⚠	Pipe sizes are based on maintaining sufficient velocity in pipes for oil return to the compressor.

Chilled Water Pipe Sizing Guide

Indoor Unit	Connection Size
	mm
ED/EU15_38R-1C00-0	35
ED/EU18_54R-1C00-0	42
ED/EU22_75R-1C00-0	42
ED/EU25_98R-1C00-0	54

IMPORTANT ⚠	When sizing the interconnecting chilled water pipework, consideration should be given to the flow velocity limits to minimise erosion. Airedale's recommendation is to keep the flow velocity below 2.5m/s where possible.

Calculation of System Refrigerant Charge (kg)

The system refrigerant charge can be calculated using the following equation: SR = LR + IR + OR
Where:

SR	=	Total System Refrigerant Charge (kg)
LR	=	Total Liquid Line Refrigerant Charge. (As calculated from above)
IR	=	Indoor Unit Refrigerant Charge.
OR	=	Outdoor Unit Refrigerant Charge.

Example:
Indoor Unit Model Ref. = ED/EU15_31R-1X10-0
Outdoor Unit Model Ref = CR050M-7
Interconnecting Pipework = 10 metres

From the Refrigerant Pipe Sizing Guide, the liquid line size given for pipework length of 10 metres is:0.30kg/m
LR = L x m
Where:

L	=	10 metres
m	=	0.30 kg/m (Liquid Line Size = 7/8”)
LR	=	10 x 0.30 = 3kg

System Refrigerant Charge
SR = LR + IR + OR
Where:
LR = 3.0 kg. (As calculated from above)
IR = 3.0 kg
OR = 4.5 kg

SR = 3.0 + 3.0 + 4.5

Therefore System Refrigerant Charge
= 10.5 kg / Circuit

Liquid Sub Cooling

The degree of liquid sub cooling required to prevent flashing of liquid refrigerant can be calculated by the following method.

Subcooling = Condensing temperature — Saturation temperature (Nett pressure at expansion valve)

Given the following as an example:

- Refrigerant R410A
- Condensing temperature (54.4°C) equivalent condensing pressure at 54.4°C = 34 Bar
- Liquid lift 20m
- Piping friction loss 0.21 bar
- Losses through valves and fittings 0.5 Bar

Pressure Loss due to Liquid Lift

= H x spl

Where

H = Height (m)

spl = Static pressure loss

= 20 x 0.115 = 2.3 bar

Total Pressure Loss in Liquid Line

TPL Liquid = PFL + Valves

Where

PFL = Pipe friction loss (0.21Bar)

Valves = Losses through Valves and fittings

= 0.21 +0.5 + 2.3

Total pressure loss in liquid line = 3.01 Bar

Nett Pressure at Expansion Valve

= Condensing pressure - Total pressure loss in liquid line

= 34 - 3.01 = 30.99 bar

Saturation temperature at the nett pressure at expansion valve (30.99 bar) = 52°C

(from refrigerant tables)

Sub Cooling Required

= Condensing temperature - Saturation temperature

= 54.4 - 52 = 2.4 °C

Therefore liquid sub cooling required to prevent liquid flashing = 2.4 °C

Oil Charging Guide

In order to determine if a system requires additional oil to accommodate for long interconnecting pipe lines and oil traps, a simple calculation can be used to approximate the volume of oil required as follows:

OT = (RC / 200) - (OC x 0.09)
Where
OT = Additional Oil Charge / Circuit (kg)
RC = Total Refrigerant Charge / Circuit (kg)
OC = Total Compressor Oil Charge / Circuit (l)

This calculation is based on the following assumptions:

1) 10% of the total compressor oil charge enters the system
2) A specific gravity of 0.09 between oil and water
3) Oil is added at a rate of 5 grams per kilogram of refrigerant

Example
What is the additional oil charge required per circuit for an ED/EU15_31R-1X10-0 matched with a CR050M-7 and a 7/8" 10m interconnecting liquid line?

Refrigerant charge of an ED/EU15_31R-1X10-0 = 3.0 kg

Refrigerant charge of a CR050M-7 = 4.5 kg

Interconnecting pipe line = 10 x 0.30 = 3.0 kg

Total system refrigerant charge = 3.0 + 4.5 + 3.0 = 10.5 kg

Compressor oil charge(s) = 1.2 litre

So,

OT = (RC / 200) - (OC x 0.09)

OT = (10.5 / 200) - (1.2 x 0.09)

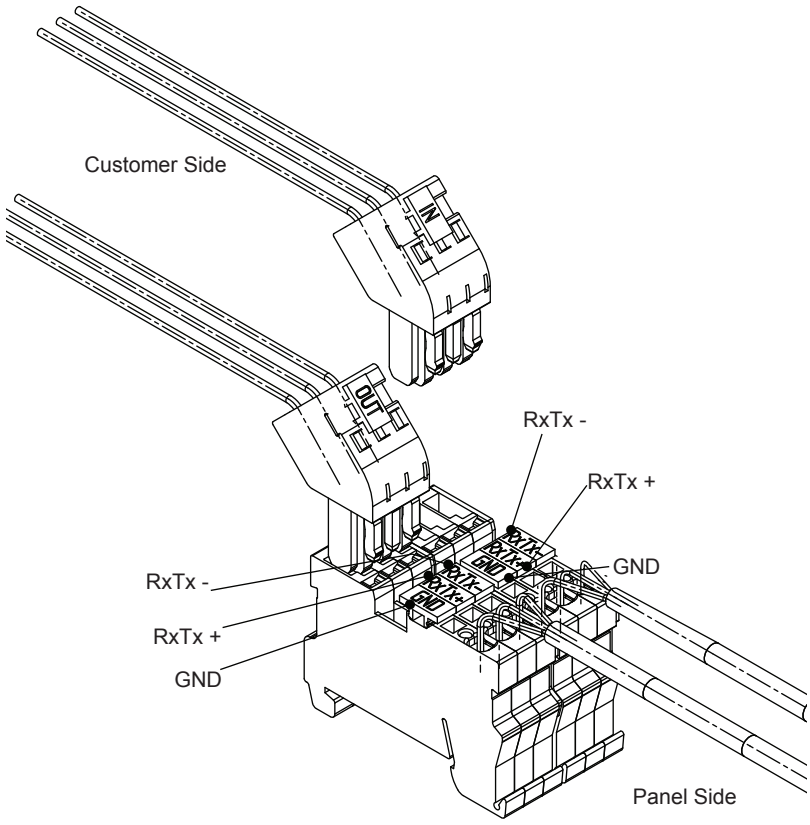
OT = -0.06 litre

A negative value (as above) suggests that there is already sufficient oil in the system. You can calculate the maximum refrigerant charge for this system when additional oil charge is required as follows:

OT = (RC / 200) - (OC x 0.09)
RC = OT + (OC x 0.09 x 200)
RC = 0 + (1.2x 0.09 x 200)
RC = 21.6 kg

Unit-to-Unit Network Termination

The plugged termination ensures that the connections are made simultaneously. Failure to attach the cables this way may cause damage to the controller.



Interconnecting Wiring

INDOOR UNIT	L1	o	←	Mains Incoming Supply 380V 60Hz or 400V 50Hz 3Ph + N				
	L2	o	←					
	L3	o	←					
	N	o	←					
	PE	o	←					

1PH AC Type Outdoor Units

Circuit 1	247	o	→	Mains Power to Outdoor Unit 1	→	o	L1 or 200	Outdoor Unit 1
	N1	o	→		→	o	N	
	PE	o	→		→	o	PE	
Circuit 2	251	o	→	Mains Power to Outdoor Unit 2	→	o	L1 or 200	Outdoor Unit 2
	N2	o	→		→	o	N	
	PE	o	→		→	o	PE	

1PH EC Type Outdoor Units

Circuit 1	247	o	→	Mains Power to Outdoor Unit 1	→	o	L1 or 200	Outdoor Unit 1
	N	o	→		→	o	N	
	PE	o	→		→	o	PE	
Circuit 2	251	o	→	Mains Power to Outdoor Unit 2	→	o	L1 or 200	Outdoor Unit 2
	N	o	→		→	o	N	
	PE	o	→		→	o	PE	

3PH EC Type Outdoor Units

Circuit 1	246	o	→	Mains Power to Outdoor Unit 1	→	o	L1	Outdoor Unit 1
	247	o	→		→	o	L2	
	248	o	→		→	o	L3	
	PE	o	→		→	o	PE	
Circuit 2	249	o	→	Mains Power to Outdoor Unit 2	→	o	L1	Outdoor Unit 2
	250	o	→		→	o	L2	
	251	o	→		→	o	L3	
	PE	o	→		→	o	PE	

1PH/3PH EC Based Outdoor Units

Circuit 1	834	o	→	Fan Speed Control Signal to Outdoor Unit 1	→	o	833	Outdoor Unit 1
	500	o	→		→	o	500	
	SCR	o	→		→	o	SCR	
Circuit 2	835	o	→	Fan Speed Control Signal to Outdoor Unit 2	→	o	833	Outdoor Unit 2
	500	o	→		→	o	500	
	SCR	o	→		→	o	SCR	

Interconnecting Wiring

Standard	800	o	→	Remote On/Off (0V Switching)
	511	o	←	
Standard	560	o	→	Common Alarm Normally Open
	561	o	←	Common
	562	o	→	Common Alarm Normally Closed
Standard	Rx-/Tx-	o	←	Network In (FBUS2)
	Rx+/Tx+	o	←	
	GND	o	←	
Standard	Rx-/Tx-	o	→	Network Out (FBUS2)
	Rx+/Tx+	o	→	
	GND	o	→	

Option	1	o	→	To Smoke Detector	→	o	L	Smoke Detector
	L	o	→		→	o	N	
	800 or 518	o	→		→	o	C	
	517	o	←		←	o	NC	

Option	609	o	→	Flood Detection Tape/ Probe
	610	o	←	
Option	BMS Ethernet	o	←→	BMS Interface (pCOWeb Ethernet)
Option	891	o	←→	BMS Interface (BACnet or Modbus RS485)
	892	o	←→	
	893	o	←→	

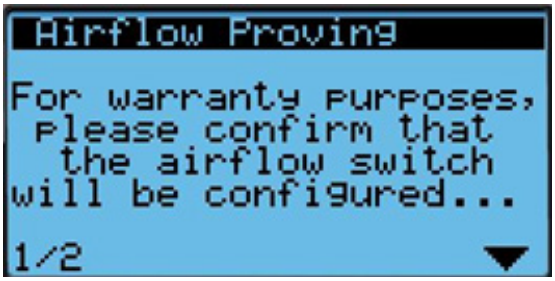
Commissioning

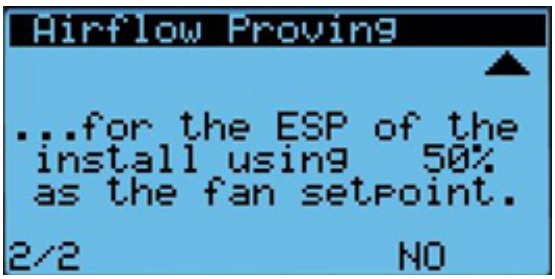
Airflow Switch Setup

IMPORTANT ⚠	Airflow switch setup must be completed as the first step of the commissioning process.

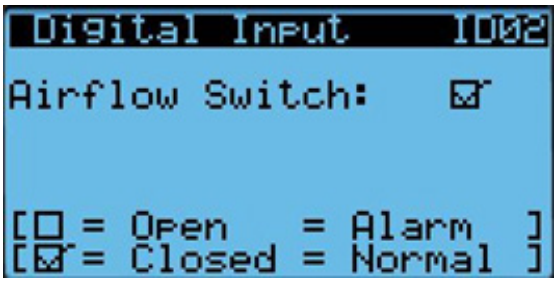
The airflow switch is a safety device used to check airflow through the unit. The setup of this component is vital to ensure safe operation of the heaters and should be completed during the commissioning stage.

1. Complete installation of the unit including any duct work fitting and air balancing.
2. Power the unit on. Ensure the fan MCB(s) are on.
3. The following Airflow Proving message will be shown on the display at start-up. Make note of the fan setpoint value shown – this may be different than the design setpoint to account for operational variations in fan speed.





4. Turn the unit on via the On/Off menu on the display. The fans will begin running to the design setpoint.
   a. The unit is delivered with the Airflow Switch (AFS) in an alarm state. Ensure the airflow alarm is present in the active alarm list on the display (as “Airflow Fail”).
   b. Set the fan setpoint to the AFS setup speed as indicated on the Airflow Proving message (step 3). The fan setpoint is located within the Setpoint menu.
5. Navigate to the Digital Inputs menu on the display.
   a. Turn the AFS anti-clockwise until the AFS input is seen to change to a normal state.
   b. Reset the airflow alarm with a 3sec press of the Alarm pushbutton.



6. Determine the AFS alarm point:
   a. Turn the AFS clockwise until the input goes into the alarm state. Note the mbar setting of the AFS.
   b. Carefully wind the AFS anti-clockwise until the input changes back to normal, then close the unit doors and check if the input goes into the alarm state.
   c. If the input goes into alarm, wind the AFS slightly further anti-clockwise, close the door and check again. Repeat until the AFS is set to a level where the alarm is not triggered with the doors closed.
   d. Wind the AFS anti-clockwise to the next ½ mbar setting.
   e. Reset the airflow alarm.
7. Reset the fan setpoint if necessary. With the fans running, switch off one of the fan MCB(s) and confirm an airflow alarm is generated.
8. Reset the fan MCB(s) and reset the airflow alarm.
9. The airflow switch setup is now complete.

CAUTION ⚠	The airflow switch is one of the key safety interlock features of the Easicool™ Evo² range. Failure to complete the setup correctly may result in a dangerous operating condition.

Water Detector Tape Installation

Monitored by a sensing relay, the water detection tape will provide an alarm when in contact with several drops of conductive liquid. High humidity should normally not cause an alarm unless it results in condensation dripping on the tape surface or condensation present on the surface to which the tape is applied. The recommended installation process is as follows:

- When applying to a surface such as concrete, the most popular method is to press the tape firmly onto a continuous film of approved adhesive or glue. When properly glued to the floor the tape lies flat on the floor avoiding “bridging” (where the detector lifts off the floor allowing water to run under the detector without detection) and avoids damage to the detector.
- When applying the tape directly to the piping, the tape is simply strapped to the pipe.
- Care should be taken to prevent the wire detectors in the tape from coming into contact with any electrically conductive material causing a “fault” condition. Anything used in applying the tape which interferes with the capability of the fleece substrate may adversely affect the detector’s function.
- The tape should not be installed under piping or equipment that can condense liquid as the condensation could drip on the tape causing an alarm.
- The tape should not be installed directly under an air handling unit, but around the unit.
- In the sub-floor of a computer room the tape should be installed after the raised floor, conduit and piping are installed and the sub-floor cleaned and sealed.

IMPORTANT ⚠	Any adhesive which alters the chemical composition of the tape must be avoided and any use thereof voids any warranty, expressed or implied. **3M Scotch-Weld™ 77 adhesive** is strongly recommended to ensure the warranty will be maintained. When adhesive is used, adhesive with an oily or greasy base MUST be avoided as this will affect the tape’s ability to detect moisture. When the use of an adhesive is not desirable or practical, staples, clips or other devices may be used. When applying the tape to piping a combination of glue and plastic or nylon straps or cable ties may be used. The straps or ties help to cut down installation time and secures the tape to the pipe while the adhesive cures and dries.

CAUTION ⚠	Any electrically conductive attachment devices used must not touch the wires that are within the tape fabric. The maximum length of a detector loop, including wire and detector tape is 50 metres. However, this tape length is not practical for most applications. Where the tape is concealed or not easily accessible, tape runs should be limited to no more than 30 metres, and 10 to 15 metres per zone is generally used. If the water detector tape is to be attached to or covered by a metallic or conductive surface, care should be taken not to short the conductors. When installing tape to any surface, be careful not to short circuit or ground out the conductors (such as over/under conduit or sharp edges of cable trays etc.). This also applies to any covering which may be applied over the tape. Before installing the tape, be sure to inspect areas where the tape is to be applied for presence of chemical materials that could create problems. If in doubt, it is recommended to clean the floor with a mild detergent.

For further information, please refer to Airedale’s Technical Bulletin and Loose Part Instruction Manual.

Technical Data

Operating Limits

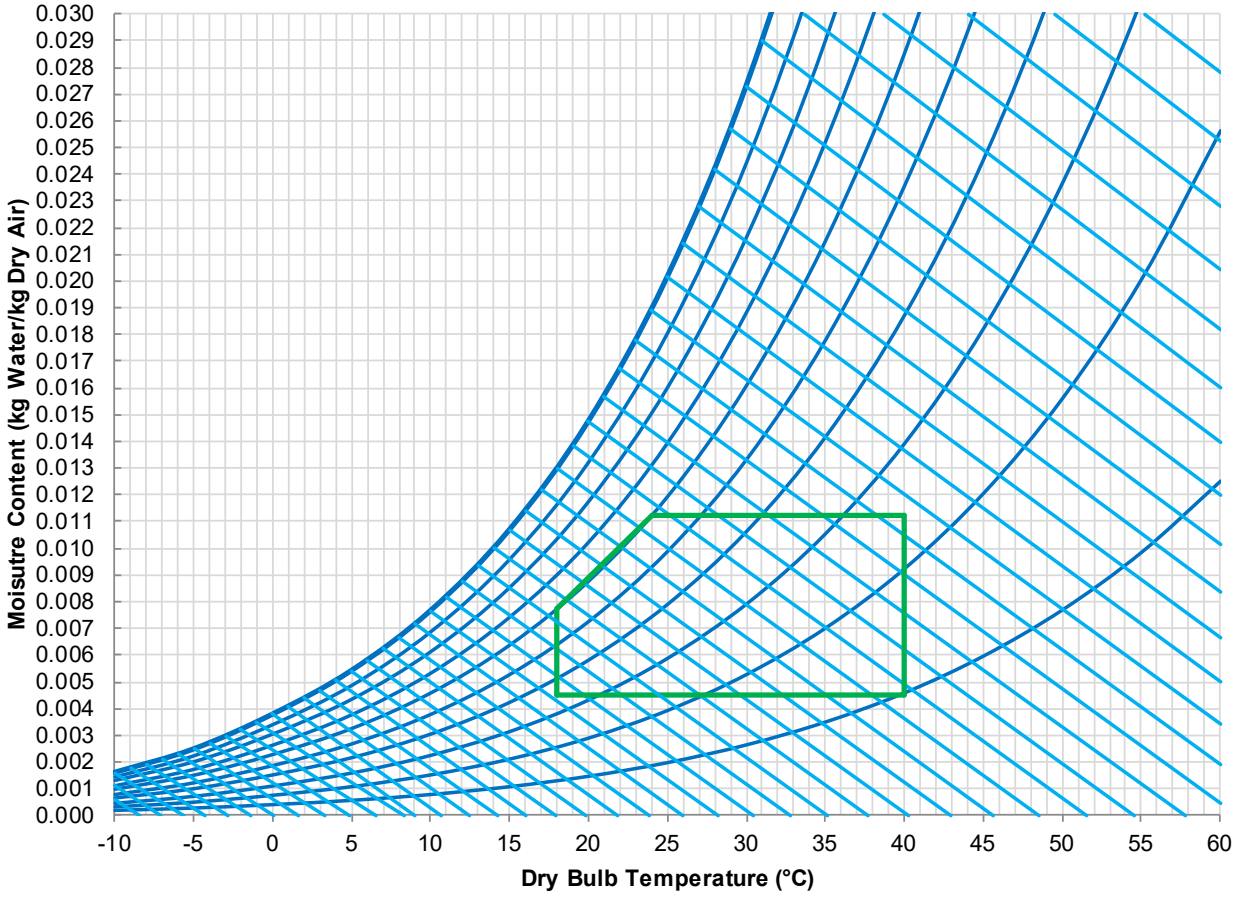
	Minimum	Design	Maximum	
			DX	CW(3)
Ambient Temperature °C	-20(1)	35	52	40
Return air Temperature °C	18	24	40	
Return air Relative Humidity (%)	4.5g/kg	45% / 8.4g/kg	11.2 g/kg	
Inlet Water Temperature °C	3	7	N/A	34(2)
Temperature Difference (K)	3	5	N/A	10

(1) Can be extended to -40 with the LAK option.

(2) Based on return air and water temperature difference (TD).

(3) Based on chiller capabilities.

IMPORTANT ⚠	Fan Power Input (Fan Gain) must be added to the room load to establish full gross cooling capacity requirements. Fan Power Input can be found in the mechanical data sections. Fan Power Input is taken at the operating conditions based on 25Pa ESP.



Nominal Design Operating Condition 24°C Dry Bulb 45% RH

Technical Data

Performance Data - DX

Cooling Capacity (1)		Ambient							
	Air On	25°C		30°C		35°C		40°C	
	(DB°C/%RH)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
ED15_31R-1X10-0	22/50	34.3	31.2	31.9	29.7	29.8	28.4	27.8	27.1
	24/45	35.4	34.6	33.1	32.9	31.0	31.0	29.1	29.1
	26/40	36.8	36.8	34.5	34.5	32.4	32.4	30.5	30.5
ED18_35R-1X10-0	22/50	42.5	39.9	39.4	37.9	36.6	36.0	34.0	34.0
	24/45	43.9	43.9	40.9	40.9	38.1	38.1	35.5	35.5
	26/40	45.6	45.6	42.7	42.7	39.9	39.9	37.3	37.3
ED18_45R-1X10-0	22/50	51.1	45.7	47.7	43.6	44.7	41.8	41.8	40.1
	24/45	52.7	50.7	49.4	48.5	46.4	46.4	43.6	43.6
	26/40	54.6	54.6	51.4	51.4	48.4	48.4	45.6	45.6
ED22_50R-1X20-0	22/50	57.8	51.6	53.8	49.1	50.2	47.0	47.0	45.0
	24/45	59.7	57.2	55.8	54.5	52.2	52.1	49.0	49.0
	26/40	61.8	61.8	58.0	58.0	54.5	54.5	51.3	51.3
ED22_60R-1X20-0	22/50	71.2	59.0	66.1	56.4	61.4	53.9	57.1	51.6
	24/45	73.3	65.0	68.4	62.1	63.7	59.5	59.4	56.9
	26/40	75.5	71.0	70.7	67.8	66.1	64.8	61.8	61.8
ED25_65R-2X10-0	22/50	78.2	68.7	72.8	65.5	67.7	62.5	63.0	59.6
	24/45	80.6	76.0	75.3	72.5	70.3	69.3	65.6	65.6
	26/40	83.4	82.8	78.2	78.2	73.2	73.2	68.6	68.6
ED25_65R-1X20-0	22/50	79.2	69.3	73.8	66.1	68.8	63.2	64.1	60.4
	24/45	81.7	76.7	76.4	73.2	71.4	70.0	66.8	66.8
	26/40	84.5	83.6	79.3	79.3	74.4	74.4	69.8	69.8
ED25_80R-2X10-0	22/50	92.3	76.3	86.8	73.5	81.4	70.7	76.4	68.2
	24/45	95.3	84.1	89.8	80.9	84.5	77.9	79.5	75.1
	26/40	98.4	92.1	92.9	88.4	87.6	85.1	82.7	81.9
ED25_80R-1X20-0	22/50	92.3	76.3	87.2	73.6	81.8	70.9	76.9	68.4
	24/45	95.3	84.1	90.2	81.1	84.9	78.2	80.0	75.4
	26/40	98.4	92.1	93.3	88.7	88.1	85.3	83.2	82.2
ED15_31R-1X10-1	22/50	34.7	31.5	32.8	30.3	30.6	28.9	28.6	27.7
	24/45	36.0	34.9	34.0	33.6	31.9	31.9	29.9	29.9
	26/40	37.5	37.5	35.5	35.5	33.4	33.4	31.4	31.4
ED18_35R-1X10-1	22/50	43.5	40.6	40.7	38.8	38.0	37.0	35.4	35.3
	24/45	45.0	45.0	42.2	42.2	39.6	39.6	37.0	37.0
	26/40	46.7	46.7	44.0	44.0	41.4	41.4	38.9	38.9
ED18_45R-1X10-1	22/50	47.6	43.4	45.0	41.8	41.9	39.9	39.2	38.1
	24/45	49.3	48.4	46.7	46.5	43.6	43.6	40.9	40.9
	26/40	51.3	51.3	48.6	48.6	45.6	45.6	42.9	42.9
ED22_50R-1X20-1	22/50	59.3	52.5	55.7	50.3	52.0	48.1	48.7	46.2
	24/45	61.4	58.3	57.7	55.8	54.1	53.4	50.8	50.8
	26/40	63.8	63.7	60.0	60.0	56.4	56.4	53.1	53.1
ED22_60R-1X20-1	22/50	65.2	55.9	60.9	53.5	56.9	51.3	53.3	49.3
	24/45	67.3	61.8	63.0	59.1	59.1	56.7	55.5	54.5
	26/40	69.6	67.5	65.3	64.5	61.5	61.5	57.9	57.9
ED25_65R-2X10-1	22/50	79.7	69.6	74.7	66.7	69.8	63.9	65.2	61.2
	24/45	82.3	77.0	77.4	73.8	72.6	70.8	68.0	67.8
	26/40	85.1	84.0	80.3	80.3	75.6	75.6	71.1	71.1
ED25_65R-1X20-1	22/50	79.7	69.6	75.5	67.1	70.6	64.4	66.1	61.8
	24/45	82.3	77.0	78.1	74.3	73.4	71.3	68.9	68.4
	26/40	85.3	84.1	81.1	81.0	76.5	76.5	72.0	72.0
ED25_80R-2X10-1	22/50	86.1	73.2	82.0	70.9	76.6	68.0	71.7	65.4
	24/45	89.0	80.8	84.9	78.3	79.6	75.1	74.7	72.2
	26/40	92.1	88.4	88.0	85.5	82.7	81.9	77.9	77.9
ED25_80R-1X20-1	22/50	86.1	73.2	82.3	71.1	76.9	68.2	72.0	65.6
	24/45	89.0	80.8	85.2	78.5	79.9	75.3	75.0	72.4
	26/40	92.1	88.4	88.3	85.7	83.0	82.2	78.2	78.2

TC = Total Cooling

SC = Sensible Cooling

(1) All data quoted is gross. Based on top return base discharge unit configuration with a pipe run of 5m.

Performance Data - DX

Cooling Capacity (1)		Ambient							
	Air On	25°C		30°C		35°C		40°C	
	(DB°C/%RH)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
EU15_31R-1X10-0	22/50	34.3	31.2	31.9	29.7	29.8	28.4	27.8	27.1
	24/45	35.4	34.6	33.1	32.9	31.0	31.0	29.1	29.1
	26/40	36.8	36.8	34.5	34.5	32.4	32.4	30.5	30.5
EU18_35R-1X10-0	22/50	42.5	39.9	39.4	37.9	36.6	36.0	34.0	34.0
	24/45	43.9	43.9	40.9	40.9	38.1	38.1	35.5	35.5
	26/40	45.6	45.6	42.7	42.7	39.9	39.9	37.3	37.3
EU18_45R-1X10-0	22/50	51.1	45.7	47.7	43.6	44.7	41.8	41.8	40.1
	24/45	52.7	50.7	49.4	48.5	46.4	46.4	43.6	43.6
	26/40	54.6	54.6	51.4	51.4	48.4	48.4	45.6	45.6
EU22_50R-1X20-0	22/50	57.8	51.6	53.8	49.1	50.2	47.0	47.0	45.0
	24/45	59.7	57.2	55.8	54.5	52.2	52.1	49.0	49.0
	26/40	61.8	61.8	58.0	58.0	54.5	54.5	51.3	51.3
EU22_60R-1X20-0	22/50	71.2	59.0	66.1	56.4	61.4	53.9	57.1	51.6
	24/45	73.3	65.0	68.4	62.1	63.7	59.5	59.4	56.9
	26/40	75.5	71.0	70.7	67.8	66.1	64.8	61.8	61.8
EU25_65R-2X10-0	22/50	78.2	68.7	72.8	65.5	67.7	62.5	63.0	59.6
	24/45	80.6	76.0	75.3	72.5	70.3	69.3	65.6	65.6
	26/40	83.4	82.8	78.2	78.2	73.2	73.2	68.6	68.6
EU25_65R-1X20-0	22/50	79.2	69.3	73.8	66.1	68.8	63.2	64.1	60.4
	24/45	81.7	76.7	76.4	73.2	71.4	70.0	66.8	66.8
	26/40	84.5	83.6	79.3	79.3	74.4	74.4	69.8	69.8
EU25_80R-2X10-0	22/50	92.3	76.3	86.8	73.5	81.4	70.7	76.4	68.2
	24/45	95.3	84.1	89.8	80.9	84.5	77.9	79.5	75.1
	26/40	98.4	92.1	92.9	88.4	87.6	85.1	82.7	81.9
EU25_80R-1X20-0	22/50	92.3	76.3	87.2	73.6	81.8	70.9	76.9	68.4
	24/45	95.3	84.1	90.2	81.1	84.9	78.2	80.0	75.4
	26/40	98.4	92.1	93.3	88.7	88.1	85.3	83.2	82.2
EU15_31R-1X10-1	22/50	34.7	31.5	32.8	30.3	30.6	28.9	28.6	27.7
	24/45	36.0	34.9	34.0	33.6	31.9	31.9	29.9	29.9
	26/40	37.5	37.5	35.5	35.5	33.4	33.4	31.4	31.4
EU18_35R-1X10-1	22/50	43.5	40.6	40.7	38.8	38.0	37.0	35.4	35.3
	24/45	45.0	45.0	42.2	42.2	39.6	39.6	37.0	37.0
	26/40	46.7	46.7	44.0	44.0	41.4	41.4	38.9	38.9
EU18_45R-1X10-1	22/50	47.6	43.4	45.0	41.8	41.9	39.9	39.2	38.1
	24/45	49.3	48.4	46.7	46.5	43.6	43.6	40.9	40.9
	26/40	51.3	51.3	48.6	48.6	45.6	45.6	42.9	42.9
EU22_50R-1X20-1	22/50	59.3	52.5	55.7	50.3	52.0	48.1	48.7	46.2
	24/45	61.4	58.3	57.7	55.8	54.1	53.4	50.8	50.8
	26/40	63.8	63.7	60.0	60.0	56.4	56.4	53.1	53.1
EU22_60R-1X20-1	22/50	65.2	55.9	60.9	53.5	56.9	51.3	53.3	49.3
	24/45	67.3	61.8	63.0	59.1	59.1	56.7	55.5	54.5
	26/40	69.6	67.5	65.3	64.5	61.5	61.5	57.9	57.9
EU25_65R-2X10-1	22/50	79.7	69.6	74.7	66.7	69.8	63.9	65.2	61.2
	24/45	82.3	77.0	77.4	73.8	72.6	70.8	68.0	67.8
	26/40	85.1	84.0	80.3	80.3	75.6	75.6	71.1	71.1
EU25_65R-1X20-1	22/50	79.7	69.6	75.5	67.1	70.6	64.4	66.1	61.8
	24/45	82.3	77.0	78.1	74.3	73.4	71.3	68.9	68.4
	26/40	85.3	84.1	81.1	81.0	76.5	76.5	72.0	72.0
EU25_80R-2X10-1	22/50	86.1	73.2	82.0	70.9	76.6	68.0	71.7	65.4
	24/45	89.0	80.8	84.9	78.3	79.6	75.1	74.7	72.2
	26/40	92.1	88.4	88.0	85.5	82.7	81.9	77.9	77.9
EU25_80R-1X20-1	22/50	86.1	73.2	82.3	71.1	76.9	68.2	72.0	65.6
	24/45	89.0	80.8	85.2	78.5	79.9	75.3	75.0	72.4
	26/40	92.1	88.4	88.3	85.7	83.0	82.2	78.2	78.2

TC = Total Cooling

SC = Sensible Cooling

(1) All data quoted is gross. Based on base return top discharge unit configuration with a pipe run of 5m.

Technical Data

Performance Data - CW

Cooling Capacity (1)		Chilled water Inlet/Outlet °C							
	Air On	5/10°C		7/12°C		8/14°C		10/16°C	
	(DB°C/%RH)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
ED15_38R-1C00-0	22/50	42.7	36.0	32.6	31.4	27.4	27.4	22.0	22.0
	24/45	47.8	41.6	37.8	37.0	33.1	33.1	27.8	27.8
	26/40	53.3	47.5	43.1	42.9	39.0	39.0	33.7	33.7
ED18_54R-1C00-0	22/50	56.2	47.5	42.8	41.5	36.1	36.1	29.0	29.0
	24/45	63.0	54.9	49.7	48.8	43.6	43.6	36.7	36.7
	26/40	70.3	62.7	56.7	56.6	51.4	51.4	44.5	44.5
ED22_75R-1C00-0	22/50	84.0	66.1	66.5	57.8	51.3	48.8	41.9	41.9
	24/45	93.5	76.0	76.0	67.6	62.8	61.4	52.2	52.2
	26/40	103.6	86.4	86.0	77.9	72.8	71.8	62.7	62.7
ED25_98R-1C00-0	22/50	110.7	89.5	86.0	78.0	68.4	68.4	55.0	55.0
	24/45	123.8	103.2	99.3	91.8	82.6	82.6	69.6	69.6
	26/40	137.7	117.7	113.0	106.1	84.2	84.2	84.1	84.1
ED15_38R-1C00-1	22/50	42.7	36.0	32.6	31.4	27.4	27.4	22.0	22.0
	24/45	47.8	41.6	37.8	37.0	33.1	33.1	27.8	27.8
	26/40	53.3	47.5	43.1	42.9	39.0	39.0	33.7	33.7
ED18_54R-1C00-1	22/50	56.2	47.5	42.8	41.5	36.1	36.1	29.0	29.0
	24/45	63.0	54.9	49.7	48.8	43.6	43.6	36.7	36.7
	26/40	70.3	62.7	56.7	56.6	51.4	51.4	44.5	44.5
ED22_75R-1C00-1	22/50	84.0	66.1	66.5	57.8	51.3	48.8	41.9	41.9
	24/45	93.5	76.0	76.0	67.6	62.8	61.4	52.2	52.2
	26/40	103.6	86.4	86.0	77.9	72.8	71.8	62.7	62.7
ED25_98R-1C00-1	22/50	110.7	89.5	86.0	78.0	68.4	68.4	55.0	55.0
	24/45	123.8	103.2	99.3	91.8	82.6	82.6	69.6	69.6
	26/40	137.7	117.7	113.0	106.1	84.2	84.2	84.1	84.1
EU15_38R-1C00-0	22/50	42.7	36.0	32.6	31.4	27.4	27.4	22.0	22.0
	24/45	47.8	41.6	37.8	37.0	33.1	33.1	27.8	27.8
	26/40	53.3	47.5	43.1	42.9	39.0	39.0	33.7	33.7
EU18_54R-1C00-0	22/50	56.2	47.5	42.8	41.5	36.1	36.1	29.0	29.0
	24/45	63.0	54.9	49.7	48.8	43.6	43.6	36.7	36.7
	26/40	70.3	62.7	56.7	56.6	51.4	51.4	44.5	44.5
EU22_75R-1C00-0	22/50	84.0	66.1	66.5	57.8	51.3	48.8	41.9	41.9
	24/45	93.5	76.0	76.0	67.6	62.8	61.4	52.2	52.2
	26/40	103.6	86.4	86.0	77.9	72.8	71.8	62.7	62.7
EU25_98R-1C00-0	22/50	110.7	89.5	86.0	78.0	68.4	68.4	55.0	55.0
	24/45	123.8	103.2	99.3	91.8	82.6	82.6	69.6	69.6
	26/40	137.7	117.7	113.0	106.1	84.2	84.2	84.1	84.1
EU15_38R-1C00-1	22/50	42.7	36.0	32.6	31.4	27.4	27.4	22.0	22.0
	24/45	47.8	41.6	37.8	37.0	33.1	33.1	27.8	27.8
	26/40	53.3	47.5	43.1	42.9	39.0	39.0	33.7	33.7
EU18_54R-1C00-1	22/50	56.2	47.5	42.8	41.5	36.1	36.1	29.0	29.0
	24/45	63.0	54.9	49.7	48.8	43.6	43.6	36.7	36.7
	26/40	70.3	62.7	56.7	56.6	51.4	51.4	44.5	44.5
EU22_75R-1C00-1	22/50	84.0	66.1	66.5	57.8	51.3	48.8	41.9	41.9
	24/45	93.5	76.0	76.0	67.6	62.8	61.4	52.2	52.2
	26/40	103.6	86.4	86.0	77.9	72.8	71.8	62.7	62.7
EU25_98R-1C00-1	22/50	110.7	89.5	86.0	78.0	68.4	68.4	55.0	55.0
	24/45	123.8	103.2	99.3	91.8	82.6	82.6	69.6	69.6
	26/40	137.7	117.7	113.0	106.1	84.2	84.2	84.1	84.1

TC = Total Cooling

SC = Sensible Cooling

(1) All data quoted is gross. Based on a pipe run of 5m, with top return base discharge unit configuration on downflow units and with base return top discharge unit configuration on upflow units.

Technical Data

Performance Data - Dual Cool

Cooling Capacity (1)		Ambient							
	Air On	25°C		30°C		35°C		40°C	
	(DB°C/%RH)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
ED15_30R-1X1C-0	22/50	33.4	32.0	27.5	27.5	23.3	23.3	18.4	18.4
	24/45	38.0	37.1	32.6	32.6	28.6	28.6	23.8	23.8
	26/40	42.7	42.6	38.0	38.0	34.0	34.0	29.2	29.2
EU15_30R-1X1C-0	22/50	33.4	32.0	27.5	27.5	23.3	23.3	18.4	18.4
	24/45	38.0	37.1	32.6	32.6	28.6	28.6	23.8	23.8
	26/40	42.7	42.6	38.0	38.0	34.0	34.0	29.2	29.2
ED15_30R-1X1C-1	22/50	33.4	32.0	27.5	27.5	23.3	23.3	18.4	18.4
	24/45	38.0	37.1	32.6	32.6	28.6	28.6	23.8	23.8
	26/40	42.7	42.6	38.0	38.0	34.0	34.0	29.2	29.2
EU15_30R-1X1C-1	22/50	33.4	32.0	27.5	27.5	23.3	23.3	18.4	18.4
	24/45	38.0	37.1	32.6	32.6	28.6	28.6	23.8	23.8
	26/40	42.7	42.6	38.0	38.0	34.0	34.0	29.2	29.2

Cooling Capacity (1)		Chilled water Inlet/Outlet °C							
	Air On	5/10°C		7/12°C		8/14°C		10/16°C	
	(DB°C/%RH)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
ED15_30R-1X1C-0	22/50	33.7	30.8	31.4	29.4	29.3	28.0	27.4	26.8
	24/45	34.9	34.2	32.6	32.6	30.5	30.5	28.6	28.6
	26/40	36.3	36.3	34.0	34.0	31.9	31.9	30.0	30.0
EU15_30R-1X1C-0	22/50	33.7	30.8	31.4	29.4	29.3	28.0	27.4	26.8
	24/45	34.9	34.2	32.6	32.6	30.5	30.5	28.6	28.6
	26/40	36.3	36.3	34.0	34.0	31.9	31.9	30.0	30.0
ED15_30R-1X1C-1	22/50	34.1	31.1	32.3	29.9	30.1	28.6	28.2	27.4
	24/45	35.4	34.5	33.5	33.2	31.4	31.4	29.5	29.5
	26/40	36.9	36.9	34.9	34.9	32.8	32.8	30.9	30.9
EU15_30R-1X1C-1	22/50	34.1	31.1	32.3	29.9	30.1	28.6	28.2	27.4
	24/45	35.4	34.5	33.5	33.2	31.4	31.4	29.5	29.5
	26/40	36.9	36.9	34.9	34.9	32.8	32.8	30.9	30.9

TC = Total Cooling

SC = Sensible Cooling

(1) All data quoted is gross. Based on a pipe run of 5m, with top return base discharge unit configuration on downflow units and with base return top discharge unit configuration on upflow units.

Sound Measurement Method

Measurement Of Sound Power

All sound data quoted has been measured in the third-octave band limited values, using a Real Time Analyser calibrated sound intensity meter in accordance with BS EN ISO 3746:2010.

All Sound Power Levels quoted are calculated from measured sound intensity according to BS EN ISO9614 Part 1 : 2009.

Semi Hemispherical

Sound Pressure Levels are calculated from sound power using the semi-hemispherical method where the noise source is in junction with 2 boundaries i.e. the floor and 1 wall.

Free Field

For comparison, the semi hemispherical figures can typically be reduced by 3dB to provide free field conditions.

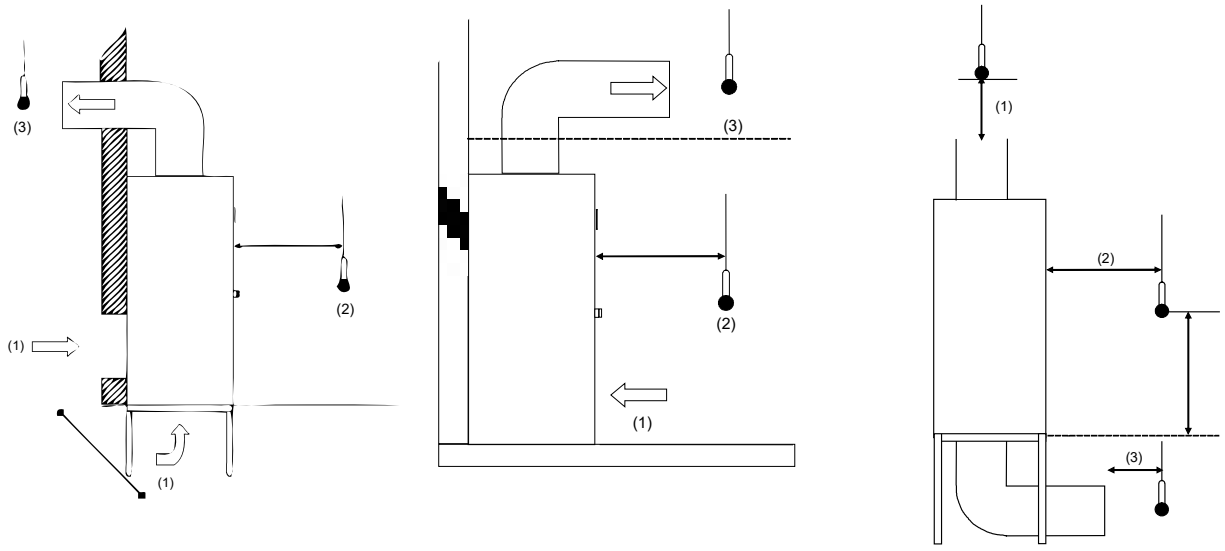
IMPORTANT

The sound data quoted is based on the unit having a ducted return air, ducted (or underfloor) discharge air and standard fans, refer to illustration below.

Case breakout sound data is therefore independent of the discharge air and return air sound data.

For non-ducted return air applications, the overall case breakout sound levels may increase, due to the return air sound being predominant.
Within the conditioned space, sound from in-room ducted discharge air grilles and other equipment will contribute to the overall sound level and should therefore be considered as part of sound calculations.

Specialist acoustic advice is recommended for noise critical applications.



(1) Return Air
(2) Case Breakout
(3) Discharge Air

Technical Data

Sound Data - DX Downflow / 400V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
ED15_31R-1X10-0	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	80	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	64	61	56	53
ED18_35R-1X10-0	Discharge Air	96	82	81	95	93	91	88	82	81
	Return Air	89	80	76	90	89	81	79	76	75
	Case Breakout	96	82	81	95	93	91	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED18_45R-1X10-0	Discharge Air	96	83	81	95	93	92	88	82	81
	Return Air	89	81	77	90	89	82	80	76	75
	Case Breakout	96	83	81	95	93	92	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED22_50R-1X20-0	Discharge Air	80	79	78	79	70	69	70	70	79
	Return Air	78	91	90	79	76	68	63	59	50
	Case Breakout	80	79	78	79	70	69	70	70	79
	Sound @ 3m	59	53	51	52	43	42	43	43	53
ED22_60R-1X20-0	Discharge Air	81	79	78	79	70	69	70	70	79
	Return Air	78	91	90	79	76	68	63	60	50
	Case Breakout	81	79	78	79	70	69	70	70	79
	Sound @ 3m	59	53	51	52	43	42	43	43	53
ED25_65R-2X10-0	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
ED25_65R-1X20-0	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
ED25_80R-2X10-0	Discharge Air	91	82	75	84	76	78	79	81	90
	Return Air	84	91	85	88	83	78	72	68	60
	Case Breakout	91	82	75	84	76	78	79	81	90
	Sound @ 3m	66	55	48	57	50	51	53	54	64
ED25_80R-1X20-0	Discharge Air	91	82	75	84	76	78	79	81	90
	Return Air	84	91	85	88	83	78	72	68	60
	Case Breakout	91	82	75	84	76	78	79	81	90
	Sound @ 3m	66	55	48	57	50	51	53	54	64

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP and with the compressor(s) running.
Sound measurements taken with base return top discharge unit configuration.

Technical Data

Sound Data - DX Downflow / 380V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
ED15_31R-1X10-1	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
ED18_35R-1X10-1	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED18_45R-1X10-1	Discharge Air	96	82	81	95	93	91	88	82	81
	Return Air	89	80	76	90	89	81	79	76	75
	Case Breakout	96	82	81	95	93	91	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED22_50R-1X20-1	Discharge Air	80	79	78	79	70	69	69	69	79
	Return Air	78	91	89	79	76	67	60	58	50
	Case Breakout	80	79	78	79	70	69	69	69	79
	Sound @ 3m	59	53	51	52	43	42	43	43	52
ED22_60R-1X20-1	Discharge Air	80	79	78	79	70	69	69	69	79
	Return Air	78	91	89	79	76	67	60	58	50
	Case Breakout	80	79	78	79	70	69	69	69	79
	Sound @ 3m	59	53	51	52	43	42	43	43	52
ED25_65R-2X10-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	71	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	52	54	64
ED25_65R-1X20-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	71	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	52	54	64
ED25_80R-2X10-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
ED25_80R-1X20-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP and with the compressor(s) running.
Sound measurements taken with base return top discharge unit configuration.

Technical Data

Sound Data - DX Upflow / 400V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
EU15_31R-1X10-0	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	80	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	64	61	56	53
EU18_35R-1X10-0	Discharge Air	96	82	81	95	93	91	88	82	81
	Return Air	89	80	76	90	89	81	79	76	75
	Case Breakout	96	82	81	95	93	91	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU18_45R-1X10-0	Discharge Air	96	83	81	95	93	92	88	82	81
	Return Air	89	81	77	90	89	82	80	76	75
	Case Breakout	96	83	81	95	93	92	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU22_50R-1X20-0	Discharge Air	80	79	78	79	70	69	70	70	79
	Return Air	78	91	90	79	76	68	63	59	50
	Case Breakout	80	79	78	79	70	69	70	70	79
	Sound @ 3m	59	53	51	52	43	42	43	43	53
EU22_60R-1X20-0	Discharge Air	81	79	78	79	70	69	70	70	79
	Return Air	78	91	90	79	76	68	63	60	50
	Case Breakout	81	79	78	79	70	69	70	70	79
	Sound @ 3m	59	53	51	52	43	42	43	43	53
EU25_65R-2X10-0	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
EU25_65R-1X20-0	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
EU25_80R-2X10-0	Discharge Air	91	82	75	84	76	78	79	81	90
	Return Air	84	91	85	88	83	78	72	68	60
	Case Breakout	91	82	75	84	76	78	79	81	90
	Sound @ 3m	66	55	48	57	50	51	53	54	64
EU25_80R-1X20-0	Discharge Air	91	82	75	84	76	78	79	81	90
	Return Air	84	91	85	88	83	78	72	68	60
	Case Breakout	91	82	75	84	76	78	79	81	90
	Sound @ 3m	66	55	48	57	50	51	53	54	64

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP and with the compressor(s) running.
Sound measurements taken with base return top discharge unit configuration.

Technical Data

Sound Data - DX Upflow / 380V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
EU15_31R-1X10-1	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
EU18_35R-1X10-1	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU18_45R-1X10-1	Discharge Air	96	82	81	95	93	91	88	82	81
	Return Air	89	80	76	90	89	81	79	76	75
	Case Breakout	96	82	81	95	93	91	88	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU22_50R-1X20-1	Discharge Air	80	79	78	79	70	69	69	69	79
	Return Air	78	91	89	79	76	67	60	58	50
	Case Breakout	80	79	78	79	70	69	69	69	79
	Sound @ 3m	59	53	51	52	43	42	43	43	52
EU22_60R-1X20-1	Discharge Air	80	79	78	79	70	69	69	69	79
	Return Air	78	91	89	79	76	67	60	58	50
	Case Breakout	80	79	78	79	70	69	69	69	79
	Sound @ 3m	59	53	51	52	43	42	43	43	52
EU25_65R-2X10-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	71	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	52	54	64
EU25_65R-1X20-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	71	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	52	54	64
EU25_80R-2X10-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64
EU25_80R-1X20-1	Discharge Air	91	81	74	84	76	78	79	81	90
	Return Air	84	88	85	88	83	78	72	68	60
	Case Breakout	91	81	74	84	76	78	79	81	90
	Sound @ 3m	66	54	48	57	50	51	53	54	64

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP and with the compressor(s) running.
Sound measurements taken with base return top discharge unit configuration.

Technical Data

Sound Data - CW Downflow / 400V, 380V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
ED15_38R-1C00-0	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
ED18_54R-1C00-0	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED22_75R-1C00-0	Discharge Air	84	82	80	80	72	71	72	71	84
	Return Air	80	93	91	82	79	70	63	60	55
	Case Breakout	84	82	80	80	72	71	72	71	84
	Sound @ 3m	61	55	53	54	46	45	45	45	57
ED25_98R-1C00-0	Discharge Air	83	82	80	81	72	71	72	72	82
	Return Air	80	93	91	82	78	70	63	60	53
	Case Breakout	83	82	80	81	72	71	72	72	82
	Sound @ 3m	61	55	53	55	46	45	45	45	55
ED15_38R-1C00-1	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
ED18_54R-1C00-1	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
ED22_75R-1C00-1	Discharge Air	84	82	80	80	72	71	72	71	84
	Return Air	80	93	91	82	79	70	63	60	55
	Case Breakout	84	82	80	80	72	71	72	71	84
	Sound @ 3m	61	55	53	54	46	45	45	45	57
ED25_98R-1C00-1	Discharge Air	83	82	80	81	72	71	72	72	82
	Return Air	80	93	91	82	78	70	63	60	53
	Case Breakout	83	82	80	81	72	71	72	72	82
	Sound @ 3m	61	55	53	55	46	45	45	45	55

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP.
Sound measurements taken with base return top discharge unit configuration.

Technical Data

Sound Data - CW Upflow / 400V, 380V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
EU15_38R-1C00-0	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
EU18_54R-1C00-0	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU22_75R-1C00-0	Discharge Air	84	82	80	80	72	71	72	71	84
	Return Air	80	93	91	82	79	70	63	60	55
	Case Breakout	84	82	80	80	72	71	72	71	84
	Sound @ 3m	61	55	53	54	46	45	45	45	57
EU25_98R-1C00-0	Discharge Air	83	82	80	81	72	71	72	72	82
	Return Air	80	93	91	82	78	70	63	60	53
	Case Breakout	83	82	80	81	72	71	72	72	82
	Sound @ 3m	61	55	53	55	46	45	45	45	55
EU15_38R-1C00-1	Discharge Air	94	80	80	88	89	90	87	82	79
	Return Air	87	79	78	85	86	79	79	76	73
	Case Breakout	94	80	80	88	89	90	87	82	79
	Sound @ 3m	69	54	54	61	62	63	61	56	53
EU18_54R-1C00-1	Discharge Air	96	82	81	95	93	91	87	82	81
	Return Air	89	80	76	90	89	81	79	75	74
	Case Breakout	96	82	81	95	93	91	87	82	81
	Sound @ 3m	72	56	54	68	66	65	61	56	55
EU22_75R-1C00-1	Discharge Air	84	82	80	80	72	71	72	71	84
	Return Air	80	93	91	82	79	70	63	60	55
	Case Breakout	84	82	80	80	72	71	72	71	84
	Sound @ 3m	61	55	53	54	46	45	45	45	57
EU25_98R-1C00-1	Discharge Air	83	82	80	81	72	71	72	72	82
	Return Air	80	93	91	82	78	70	63	60	53
	Case Breakout	83	82	80	81	72	71	72	72	82
	Sound @ 3m	61	55	53	55	46	45	45	45	55

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP.
Sound measurements taken with top return base discharge unit configuration.

Sound Data - Dual Cool / 400V, 380V

Sound Measurement		Overall dB(A)	Frequency (Hz) dB							
			63	125	250	500	1000	2000	4000	8000
ED15_30R-1X1C-0	Discharge Air	94	80	80	87	89	90	87	83	79
	Return Air	87	79	78	84	86	80	79	76	73
	Case Breakout	94	80	80	87	89	90	87	83	79
	Sound @ 3m	68	53	53	61	62	63	61	56	53
EU15_30R-1X1C-0	Discharge Air	94	80	80	87	89	90	87	83	79
	Return Air	87	79	78	84	86	80	79	76	73
	Case Breakout	94	80	80	87	89	90	87	83	79
	Sound @ 3m	68	53	53	61	62	63	61	56	53
ED15_30R-1X1C-1	Discharge Air	94	80	80	87	88	90	87	83	79
	Return Air	87	79	78	84	86	79	79	76	73
	Case Breakout	94	80	80	87	88	90	87	83	79
	Sound @ 3m	68	53	53	61	62	63	61	56	53
EU15_30R-1X1C-1	Discharge Air	94	80	80	87	88	90	87	83	79
	Return Air	87	79	78	84	86	79	79	76	73
	Case Breakout	94	80	80	87	88	90	87	83	79
	Sound @ 3m	68	53	53	61	62	63	61	56	53

All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.
Sound measurements taken at design air volume, 25Pa ESP and with the compressor(s) running.
Sound measurements taken with top return base discharge unit configuration on downflow units and with base return top discharge unit configuration on upflow units.

Technical Data

Mechanical and Electrical Data - DX Downflow / 400V

	Notes	Units	ED15_31R-1X10-0	ED18_35R-1X10-0	ED18_45R-1X10-0	ED22_50R-1X20-0	ED22_60R-1X20-0	ED25_65R-2X10-0	ED25_65R-1X20-0	ED25_80R-2X10-0	ED25_80R-1X20-0
Standard Condenser Match			1 x CR50	1 x CR50	1 x CR65	1 x CR80	1 x CR80	2 x CR50	1 x CR105	2 x CR65	1 x CR140
Capacity											
Max Cooling (Gross)	(1)	kW	31.0	38.2	46.4	52.2	63.7	70.3	71.4	84.5	84.9
Capacity Steps			1	1	1	2	2	2	2	2	2
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	3.11	2.37	2.37	4.58	4.58	4.58	4.58
Dimensions – D 750 x H 1940 Width		mm	1460	1835	1835	2170	2170	2550	2550	2550	2550
Mass – Machine		kg	381	465	482	559	559	633	633	667	667
Mass – Operating		kg	384	469	487	563	564	639	638	673	673
Fan Motor - [Motor Type]											
Quantity x Motor Size		kW	2 x 2.5	2 x 3.7	2 x 3.7	2 x 3.5	2 x 3.5	2 x 5.6	2 x 5.6	2 x 5.6	2 x 5.6
Speed @25Pa		rpm	3071	2888	2888	1686	1686	2157	2157	2157	2157
Speed @Maximum ESP		rpm	3213	3004	3004	1809	1809	2261	2261	2261	2261
Maximum ESP	(3)	Pa	200	200	200	200	200	200	200	200	200
Nominal Airflow		m³/s	2.8	3.7	3.7	4.2	4.2	5.41	5.41	5.41	5.41
Compressor – Scroll											
Quantity			1	1	1	2	2	2	2	2	2
Oil Charge Volume / Compressor		l	2.5	2.8	3.3	2.5	2.8	2.8	2.8	3.3	3.3
Refrigeration Circuit			Single	Single	Single	Single	Single	Dual	Single	Dual	Single
Charge (per circuit)		kg / kg	3	4.3	4.6	4.2	4.6	3.4 / 3.4	5.4	3.5 / 3.5	5.6
CO_2 Tonnes Equivalent		CO_2Te / CO_2Te	6.3	9.0	9.6	8.8	9.6	7.1 / 7.1	11.3	7.3 / 7.3	11.7
Unit Data Full Function	(4)										
Nominal Run Amps		A	48.6	55.1	61.4	65.7	76.6	85.4	82.6	97.9	97.9
Recommended Mains Fuse Size		A	63	80	100	100	100	125	125	125	160
Unit Data Cooling Only											
Nominal Run Amps		A	31.3	37.8	44.1	49.4	60.3	68.9	66.9	81.6	81.6
Recommended Mains Fuse Size		A	50	50	63	63	80	100	100	125	125
Max Mains Incoming Cable Size		mm²	35	35	70	70	70	70	70	70	70
Evaporator Fan - Motor Per Fan											
Full Load Amps		A	4.0	5.8	5.8	5.8	5.8	8.8	8.8	8.8	8.8
Compressor - Per Compressor											
Quantity x Motor Size	(5)	kW	1 x 9.16	1 x 10..80	1 x 13.45	2 x 7.93	2 x 10.80	2 x 10.80	2 x 10.80	2 x 13.45	2 x 13.45
Nominal Run Amps		A	17.0	19.9	26.3	14.5	19.9	19.9	19.9	26.3	26.3

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH 35°C Ambient.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Based on top return base discharge unit configuration.

(4) Values given for full function units with standard selections for heating, humidification, supply air fans.

(5) Stated motor power is based on maximum electrical power absorbed.

Technical Data

Mechanical and Electrical Data - DX Downflow / 380V

	Notes	Units	ED15_31R-1X10-1	ED18_35R-1X10-1	ED18_45R-1X10-1	ED22_50R-1X20-1	ED22_60R-1X20-1	ED25_65R-2X10-1	ED25_65R-1X20-1	ED25_80R-2X10-1	ED25_80R-1X20-1
Standard Condenser Match			1 x CR50	1 x CR50	1 x CR65	1 x CR80	1 x CR80	2 x CR50	1 x CR105	2 x CR65	1 x CR140
Capacity											
Max Cooling (Gross)	(1)	kW	31.9	39.6	43.6	54.05	59.1	72.6	73.4	79.6	79.9
Capacity Steps			1	1	1	2	2	2	2	2	2
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	3.11	2.37	2.37	4.58	4.58	4.58	4.58
Dimensions – D 750 x H 1940 Width		mm	1460	1835	1835	2170	2170	2550	2550	2550	2550
Mass – Machine		kg	381	465	482	559	559	633	633	667	667
Mass – Operating		kg	384	470	487	563	564	639	639	673	673
Fan Motor - [Motor Type] Quantity x Motor Size		kW	2 x 2.5	2 x 3.7	2 x 3.7	2 x 3.5	2 x 3.5	2 x 5.6	2 x 5.6	2 x 5.6	2 x 5.6
Speed @25Pa		rpm	3071	2888	2888	1686	1686	2157	2157	2157	2157
Speed @Maximum ESP		rpm	3213	3004	3004	1809	1809	2261	2261	2261	2261
Maximum ESP	(3)	Pa	200	200	200	200	200	200	200	200	200
Nominal Airflow		m³/s	2.8	3.7	3.7	4.2	4.2	5.41	5.41	5.41	5.41
Compressor – Scroll Quantity			1	1	1	2	2	2	2	2	2
Oil Charge Volume / Compressor		l	3.25	3.25	3.25	2.51	3.25	3.25	3.25	3.25	3.25
Refrigeration Circuit			Single	Single	Single	Single	Single	Dual	Single	Dual	Single
Charge (per circuit)		kg / kg	3.3	4.5	4.6	4.3	4.8	3.4 / 3.4	5.6	3.4 / 3.4	5.6
CO_2 Tonnes Equivalent		CO_2Te / CO_2Te	6.9	9.4	9.6	9.0	10.0	7.1 / 7.1	11.7	7.1 / 7.1	11.7
Unit Data Full Function	(4)										
Nominal Run Amps		A	51.1	57.2	59.5	69.4	74.4	88.5	85.5	93.0	93.0
Recommended Mains Fuse Size		A	80	80	100	100	100	125	125	125	125
Unit Data Cooling Only											
Nominal Run Amps		A	32.9	39.0	41.2	52.3	57.3	71.4	68.4	75.9	75.9
Recommended Mains Fuse Size		A	50	63	63	80	80	100	100	125	125
Max Mains Incoming Cable Size		mm²	35	35	70	70	70	70	70	70	70
Evaporator Fan - Motor Per Fan											
Full Load Amps		A	4.0	5.8	5.8	5.8	5.8	8.8	8.8	8.8	8.8
Compressor - Per Compressor											
Quantity x Motor Size	(5)	kW	1 x 9.53	1 x 11.10	1 x 12.70	2 x 8.37	2 x 9.53	2 x 11.10	2 x 11.10	2 x 12.70	2 x 12.70
Nominal Run Amps		A	17.8	20.4	22.6	15.3	17.8	20.4	20.4	22.6	22.6

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH 35°C Ambient.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Based on top return base discharge unit configuration.

(4) Values given for full function units with standard selections for heating, humidification, supply air fans.

(5) Stated motor power is based on maximum electrical power absorbed.

Technical Data

Mechanical and Electrical Data - DX Upflow / 400V

	Notes	Units	EU15_31R-1X10-0	EU18_35R-1X10-0	EU18_45R-1X10-0	EU22_50R-1X20-0	EU22_60R-1X20-0	EU25_65R-2X10-0	EU25_65R-1X20-0	EU25_80R-2X10-0	EU25_80R-1X20-0
Standard Condenser Match											
Capacity											
Max Cooling (Gross)	(1)	kW	31.0	38.2	46.4	52.2	63.7	70.3	71.4	84.5	84.9
Capacity Steps			1	1	1	2	2	2	2	2	2
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	3.11	2.37	2.37	4.58	4.58	4.58	4.58
Dimensions – D 750 x H 1940 Width		mm	1460	1835	1835	2170	2170	2550	2550	2550	2550
Mass – Machine		kg	381	465	482	559	559	633	633	667	667
Mass – Operating		kg	384	469	487	563	564	639	638	673	673
Fan Motor - [Motor Type] Quantity x Motor Size		kW	2 x 2.5	2 x 3.7	2 x 3.7	2 x 3.5	2 x 3.5	2 x 5.6	2 x 5.6	2 x 5.6	2 x 5.6
Speed @25Pa		rpm	3071	2888	2888	1686	1686	2157	2157	2157	2157
Speed @Maximum ESP		rpm	3288	3065	3065	1881	1881	2318	2318	2318	2318
Maximum ESP	(3)	Pa	300	300	300	300	300	300	300	300	300
Nominal Airflow		m³/s	2.8	3.7	3.7	4.2	4.2	5.41	5.41	5.41	5.41
Compressor – Scroll Quantity			1	1	1	2	2	2	2	2	2
Oil Charge Volume / Compressor		l	2.5	2.8	3.3	2.5	2.8	2.8	2.8	3.3	3.3
Refrigeration Circuit			Single	Single	Single	Single	Single	Dual	Single	Dual	Single
Charge (per circuit)		kg / kg	3	4.3	4.6	4.2	4.6	3.4 / 3.4	5.4	3.5 / 3.5	5.6
CO_2 Tonnes Equivalent		CO_2Te / CO_2Te	6.3	9.0	9.6	8.8	9.6	7.1 / 7.1	11.3	7.3 / 7.3	11.7
Unit Data Full Function	(4)										
Nominal Run Amps		A	48.6	55.1	61.4	65.7	76.6	85.4	82.6	97.9	97.9
Recommended Mains Fuse Size		A	63	80	100	100	100	125	125	125	160
Unit Data Cooling Only											
Nominal Run Amps		A	31.3	37.8	44.1	49.4	60.3	68.9	66.9	81.6	81.6
Recommended Mains Fuse Size		A	50	50	63	63	80	100	100	125	125
Max Mains Incoming Cable Size		mm²	35	35	70	70	70	70	70	70	70
Evaporator Fan - Motor Per Fan											
Full Load Amps		A	4.0	5.8	5.8	5.8	5.8	8.8	8.8	8.8	8.8
Compressor - Per Compressor											
Quantity x Motor Size	(5)	kW	1 x 9.16	1 x 10..80	1 x 13.45	2 x 7.93	2 x 10.80	2 x 10.80	2 x 10.80	2 x 13.45	2 x 13.45
Nominal Run Amps		A	17.0	19.9	26.3	14.5	19.9	19.9	19.9	26.3	26.3

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH 35°C Ambient.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Based on base return top discharge unit configuration.

(4) Values given for full function units with standard selections for heating, humidification, supply air fans.

(5) Stated motor power is based on maximum electrical power absorbed.

Technical Data

Mechanical and Electrical Data - DX Upflow / 380V

	Notes	Units	EU15_31R-1X10-1	EU18_35R-1X10-1	EU18_45R-1X10-1	EU22_50R-1X20-1	EU22_60R-1X20-1	EU25_65R-2X10-1	EU25_65R-1X20-1	EU25_80R-2X10-1	EU25_80R-1X20-1
Standard Condenser Match											
Capacity											
Max Cooling (Gross)	(1)	kW	31.9	39.6	43.6	54.05	59.1	72.6	73.4	79.6	79.9
Capacity Steps			1	1	1	2	2	2	2	2	2
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	3.11	2.37	2.37	4.58	4.58	4.58	4.58
Dimensions – D 750 x H 1940 Width		mm	1460	1835	1835	2170	2170	2550	2550	2550	2550
Mass – Machine		kg	381	465	482	559	559	633	633	667	667
Mass – Operating		kg	384	470	487	563	564	639	639	673	673
Fan Motor - [Motor Type] Quantity x Motor Size		kW	2 x 2.5	2 x 3.7	2 x 3.7	2 x 3.5	2 x 3.5	2 x 5.6	2 x 5.6	2 x 5.6	2 x 5.6
Speed @25Pa		rpm	3071	2888	2888	1686	1686	2157	2157	2157	2157
Speed @Maximum ESP		rpm	3288	3065	3065	1881	1881	2318	2318	2318	2318
Maximum ESP	(3)	Pa	300	300	300	300	300	300	300	300	300
Nominal Airflow		m³/s	2.8	3.7	3.7	4.2	4.2	5.41	5.41	5.41	5.41
Compressor – Scroll Quantity			1	1	1	2	2	2	2	2	2
Oil Charge Volume / Compressor		l	3.25	3.25	3.25	2.51	3.25	3.25	3.25	3.25	3.25
Refrigeration Circuit			Single	Single	Single	Single	Single	Dual	Single	Dual	Single
Charge (per circuit)		kg / kg	3.3	4.5	4.6	4.3	4.8	3.4 / 3.4	5.6	3.4 / 3.4	5.6
CO_2 Tonnes Equivalent		CO_2Te / CO_2Te	6.9	9.4	9.6	9.0	10.0	7.1 / 7.1	11.7	7.1 / 7.1	11.7
Unit Data Full Function	(4)										
Nominal Run Amps		A	51.1	57.2	59.5	69.4	74.4	88.5	85.5	93.0	93.0
Recommended Mains Fuse Size		A	80	80	100	100	100	125	125	125	125
Unit Data Cooling Only											
Nominal Run Amps		A	32.9	39.0	41.2	52.3	57.3	71.4	68.4	75.9	75.9
Recommended Mains Fuse Size		A	50	63	63	80	80	100	100	125	125
Max Mains Incoming Cable Size		mm²	35	35	70	70	70	70	70	70	70
Evaporator Fan - Motor Per Fan											
Full Load Amps		A	4.0	5.8	5.8	5.8	5.8	8.8	8.8	8.8	8.8
Compressor - Per Compressor											
Quantity x Motor Size	(5)	kW	1 x 9.53	1 x 11.10	1 x 12.70	2 x 8.37	2 x 9.53	2 x 11.10	2 x 11.10	2 x 12.70	2 x 12.70
Nominal Run Amps		A	17.8	20.4	22.6	15.3	17.8	20.4	20.4	22.6	22.6

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH 35°C Ambient.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Based on base return top discharge unit configuration.

(4) Values given for full function units with standard selections for heating, humidification, supply air fans.

(5) Stated motor power is based on maximum electrical power absorbed.

Technical Data

Mechanical and Electrical Data - CW Downflow / 400V, 380V

	Notes	Units	ED15_38R-1C00-0	ED18_54R-1C00-0	ED22_75R-1C00-0	ED25_98R-1C00-0	ED15_38R-1C00-1	ED18_54R-1C00-1	ED22_75R-1C00-1	ED25_98R-1C00-1
Capacity										
Max Cooling (Gross)	(1)	kW	37.80	49.70	76.00	99.30	37.80	49.70	76.00	99.30
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	2.95	4.40	2.10	3.11	2.95	4.40
Dimensions – D 750 x H 1940 Width		mm	1460	1835	2170	2550	1460	1835	2170	2550
Mass – Machine		kg	335	406	494	590	335	406	494	590
Mass – Operating		kg	349	425	531	633	349	425	531	633
Cooling Coil - C										
Water Volume		l	14	18	37	42	14	18	37	42
Water Flow		l/s	1.78	2.34	3.58	4.67	1.78	2.34	3.58	4.67
Pressure Drop		kPa	41.9	23.05	43.26	37.42	41.9	23.05	43.26	37.42
Unit										
Water Volume		l	14	19	37	43	14	19	37	43
Water Flow		l/s	1.78	2.34	3.58	4.67	1.78	2.34	3.58	4.67
Pressure Drop	(3)	kPa	90.3	39.3	80.4	60.9	90.3	39.3	80.4	60.9
Fan Motor - [Motor Type]										
Quantity x Motor Size		kW	2 x 2.5	2 x 3.5	2 x 3.5	3 x 3.5	2 x 2.5	2 x 3.5	2 x 3.5	3 x 3.5
Speed @25Pa		rpm	3071	2888	1827	1788	3071	2888	1827	1788
Speed @Maximum ESP		rpm	3213	3004	1940	1909	3213	3004	1940	1909
Maximum ESP	(4)	Pa	200	200	200	200	200	200	200	200
Nominal Airflow		m³/s	2.80	3.70	4.60	6.50	2.80	3.70	4.60	6.50
Unit Data Full Function	(5)									
Nominal Run Amps		A	35.0	46.2	54.9	60.7	36.4	47.9	57.0	62.8
Recommended Mains Fuse Size		A	50	63	80	80	50	63	80	80
Unit Data Cooling Only										
Nominal Run Amps		A	9.0	12.6	12.6	18.4	9.0	12.6	12.6	18.4
Recommended Mains Fuse Size		A	16	16	16	25	16	16	16	25
Max Mains Incoming Cable Size		mm²	35	35	35	35	35	35	35	35
Evaporator Fan - Motor Per Fan										
Full Load Amps		A	4.0	5.8	5.8	5.8	4.0	5.8	5.8	5.8

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH water 7/12°C.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Pressure drop through heat exchanger, control valve and unit pipe work.

(4) Based on top return base discharge unit configuration.

(5) Values given for full function units with standard selections for heating, humidification, supply air fans.

Technical Data

Mechanical and Electrical Data - CW Upflow / 400V, 380V

	Notes	Units	EU15_38R-1C00-0	EU18_54R-1C00-0	EU22_75R-1C00-0	EU25_98R-1C00-0	EU15_38R-1C00-1	EU18_54R-1C00-1	EU22_75R-1C00-1	EU25_98R-1C00-1
Capacity										
Max Cooling (Gross)	(1)	kW	37.80	49.70	76.00	99.30	37.80	49.70	76.00	99.30
Fan Power Input (Fan Gain)	(2)	kW	2.10	3.11	2.95	4.40	2.10	3.11	2.95	4.40
Dimensions – D 750 x H 1940 Width		mm	1460	1835	2170	2550	1460	1835	2170	2550
Mass – Machine		kg	335	406	494	590	335	406	494	590
Mass – Operating		kg	349	425	531	633	349	425	531	633
Cooling Coil - C										
Water Volume		l	14	18	37	42	14	18	37	42
Water Flow		l/s	1.78	2.34	3.58	4.67	1.78	2.34	3.58	4.67
Pressure Drop		kPa	41.9	23.05	43.26	37.42	41.9	23.05	43.26	37.42
Unit										
Water Volume		l	14	19	37	43	14	19	37	43
Water Flow		l/s	1.78	2.34	3.58	4.67	1.78	2.34	3.58	4.67
Pressure Drop	(3)	kPa	90.3	39.3	80.4	60.9	90.3	39.3	80.4	60.9
Fan Motor - [Motor Type]										
Quantity x Motor Size		kW	2 x 2.5	2 x 3.5	2 x 3.5	3 x 3.5	2 x 2.5	2 x 3.5	2 x 3.5	3 x 3.5
Speed @25Pa		rpm	3071	2888	1827	1788	3071	2888	1827	1788
Speed @Maximum ESP		rpm	3638	3404	2007	2260	3638	3404	2007	2260
Maximum ESP	(4)	Pa	300	300	300	300	300	300	300	300
Nominal Airflow		m³/s	2.80	3.70	4.60	6.50	2.80	3.70	4.60	6.50
Unit Data Full Function	(5)									
Nominal Run Amps		A	35.0	46.2	54.9	60.7	36.4	47.9	57.0	62.8
Recommended Mains Fuse Size		A	50	63	80	80	50	63	80	80
Unit Data Cooling Only										
Nominal Run Amps		A	9.0	12.6	12.6	18.4	9.0	12.6	12.6	18.4
Recommended Mains Fuse Size		A	16	16	16	25	16	16	16	25
Max Mains Incoming Cable Size		mm²	35	35	35	35	35	35	35	35
Evaporator Fan - Motor Per Fan										
Full Load Amps		A	4.0	5.8	5.8	5.8	4.0	5.8	5.8	5.8

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH water 7/12°C.

(2) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(3) Pressure drop through heat exchanger, control valve and unit pipe work.

(4) Based on base return top discharge unit configuration.

(5) Values given for full function units with standard selections for heating, humidification, supply air fans.

Technical Data

Mechanical and Electrical Data - Dual Cool / 400V, 380V

	Notes	Units	ED15_30R-1X1C-0	EU15_30R-1X1C-0	ED15_30R-1X1C-1	EU15_30R-1X1C-1
Standard Condenser Match			1 x CR50	1 x CR50	1 x CR50	1 x CR50
Capacity						
Max Cooling (Gross) - X	(1)	kW	30.5	30.5	31.4	31.4
Max Cooling (Gross) - C	(2)	kW	32.6	32.6	32.6	32.6
Capacity Steps			1	1	1	1
Fan Power Input (Fan Gain)	(3)	kW	2.36	2.36	2.36	2.36
Dimensions – D 750 x H 1940		mm				
Width			1460	1460	1460	1460
Mass – Machine / Operating		kg	357 / 371	357 / 371	357 / 371	357 / 371
Cooling Coil - C						
Water Volume		l	11	11	11	11
Water Flow		l/s	1.45	1.45	1.45	1.45
Pressure Drop		kPa	26.47	26.47	26.47	26.47
Unit						
Water Volume		l	11	11	11	11
Water Flow		l/s	1.45	1.45	1.45	1.45
Pressure Drop	(4)	kPa	58.6	58.6	58.6	58.6
Fan Motor - [Motor Type]						
Quantity x Motor Size		kW	2 x 2.5	2 x 2.5	2 x 2.5	2 x 2.5
Speed @25Pa / Maximum ESP		rpm	3124 / 3259	3124 / 3334	3124 / 3259	3124 / 3334
Maximum ESP	(5)	Pa	200	300	200	300
Nominal Airflow		m³/s	2.8	2.8	2.8	2.8
Compressor – Scroll						
Quantity			1	1	1	1
Oil Charge Volume		l	2.5	2.5	3.25	3.25
Refrigeration Circuit			Single	Single	Single	Single
Charge (per circuit)		kg / kg	3.0	3.0	3.3	3.3
CO_2 Tonnes Equivalent		CO_2Te / CO_2Te	6.3	6.3	6.9	6.9

Unit Data Full Function	(6)					
Nominal Run Amps		A	48.6	48.6	51.1	51.1
Recommended Mains Fuse Size		A	63	63	80	80
Unit Data Cooling Only						
Nominal Run Amps		A	31.3	31.3	32.9	32.9
Recommended Mains Fuse Size		A	50	50	50	50
Max Mains Incoming Cable Size		mm²	35	35	35	35
Evaporator Fan - Motor Per Fan						
Full Load Amps		A	4.0	4.0	4.0	4.0
Compressor - Per Compressor						
Quantity x Motor Size	(7)	kW	1 x 9.16	1 x 9.16	1 x 9.53	1 x 9.53
Nominal Run Amps		A	17.0	17.0	17.8	17.8

All performance data is supplied in accordance with BS EN 14511-1:2018.

(1) Entering air 24°C /45% RH 35°C Ambient.

(2) Entering air 24°C /45% RH water 7/12°C.

(3) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change.

(4) Pressure drop through heat exchanger, control valve and unit pipe work.

(5) Based on top return base discharge unit configuration on downflow units and with base return top discharge unit configuration on upflow units.

(6) Values given for full function units with standard selections for heating, humidification, supply air fans.

(7) Stated motor power is based on maximum electrical power absorbed.

After Sales

Warranty

All Airedale products or parts (non consumable) supplied for installation within the UK mainland and commissioned by an Airedale engineer, carry a full Parts & Labour warranty for a period of 12 months from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.
Parts or Equipment supplied by Airedale for installation within the UK or for Export that are properly commissioned in accordance with Airedale standards and specification, not commissioned by an Airedale engineer; carry a 12 month warranty on non consumable Parts only from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.
Parts or equipment installed or commissioned not to acceptable Airedale standards or specification invalidate all warranty.

Warranty is only valid in the event that

In the period between delivery and commissioning the equipment:

- is properly protected & serviced as per the Airedale installation & maintenance manual provided
- where applicable the glycol content is maintained to the correct level.

In the event of a problem being reported and once warranty is confirmed* as valid under the given installation and operating conditions, the Company will provide the appropriate warranty coverage (as detailed above) attributable to the rectification of any affected Airedale equipment supplied (excluding costs for any specialist access or lifting equipment that must be ordered by the customer).

*Once warranty is confirmed, maintenance must be continued to validate the warranty period.

Any spare part supplied by Airedale under warranty shall be warranted for the unexpired period of the warranty or 3 months from delivery, whichever period is the longer. To be read in conjunction with the Airedale Conditions of Sale - Warranty and Warranty Procedure, available upon request.

Procedure

When a component part fails, a replacement part should be obtained through our Spares department. If the part is considered to be under warranty, the following details are required to process this requirement. Full description of part required, including Airedale's part number, if known. The original equipment serial number. An appropriate purchase order number.
A spares order will be raised under our warranty system and the replacement part will be despatched, usually within 24 hours should they be in stock. When replaced, the faulty part must be returned to Airedale with a suitably completed and securely attached "Faulty Component Return" (FCR) tag. FCR tags are available from Airedale and supplied with each Warranty order.
On receipt of the faulty part, suitably tagged, Airedale will pass to its Warranty department, where it will be fully inspected and tested in order to identify the reason for failure, identifying at the same time whether warranty is justified or not.
On completion of the investigation of the returned part, a full "Report on Goods Returned" will be issued. On occasion the release of this complete report may be delayed as component manufacturers become involved in the investigation. When warranty is allowed, a credit against the Warranty invoice will be raised. Should warranty be refused the Warranty invoice becomes payable on normal terms.

Exclusions

Warranty may be refused for the following reasons.

- Misapplication of product or component
- Incorrect site installation
- Incomplete commissioning documentation
- Inadequate site installation
- Inadequate site maintenance
- Damage caused by mishandling
- Replaced part being returned damaged without explanation
- Unnecessary delays incurred in return of defective component

Returns analysis

All faulty components returned under warranty are analysed on a monthly basis as a means of verifying component and product reliability as well as supplier performance. It is important that all component failures are reported correctly.

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