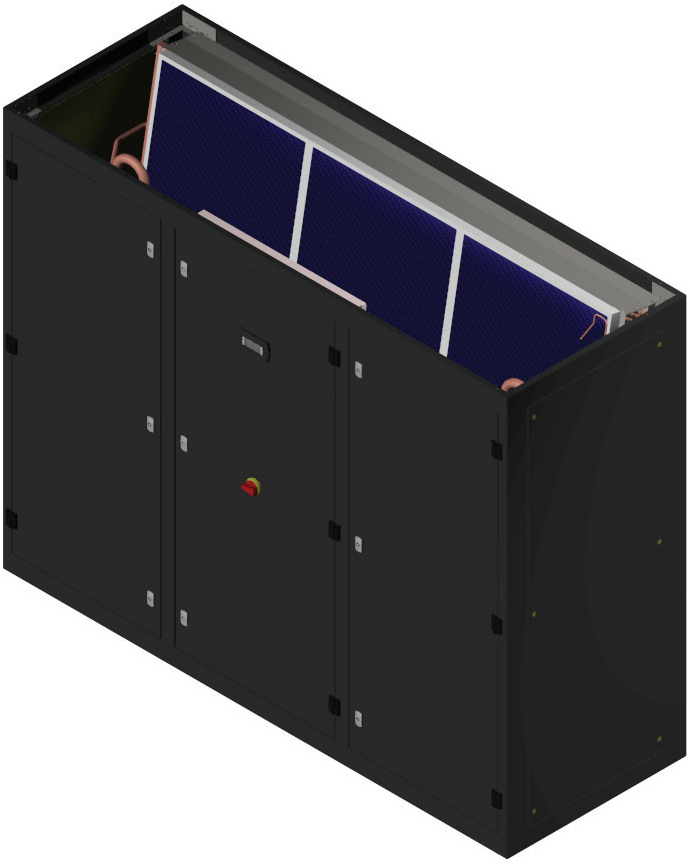
Airedale
APPLIED THERMAL INNOVATION

SmartCool™ Downflow
60 to 140kW

Direct Expansion

2X20
2X2C
2W20
2W2F



Technical Manual

bsi. 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. In addition to commissioning, a 24 hour, 7 days a week on-call service is available throughout the year to UK mainland sites. This service will enable customers to contact a duty engineer outside normal working hours and receive assistance over the telephone. The duty engineer can, if necessary, attend site, usually within 24 hours or less.

Full details will be forwarded on acceptance of the maintenance agreement.

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: enquiries@airedale.com or telephone:

UK Sales Enquiries	+ 44 (0) 113 239 1000	enquiries@airedale.com
International Enquiries	+ 44 (0) 113 239 1000	enquiries@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	enquiries@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.

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. Also ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits etc.

CAUTION ⚠	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.

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.

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

Refrigeration

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

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

Waterside

Allowable Temperature Range (TS) = Min -5°C* to Max 55°C **
Maximum Allowable Pressure (PS) = High Side 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)

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.

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 3°C 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 3°C of the solution freeze point (1) (i.e. if the solution freezes at 0°C, the pump must be operating at 3°C ambient).
- Additional trace heating is provided for interconnecting pipework.

(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

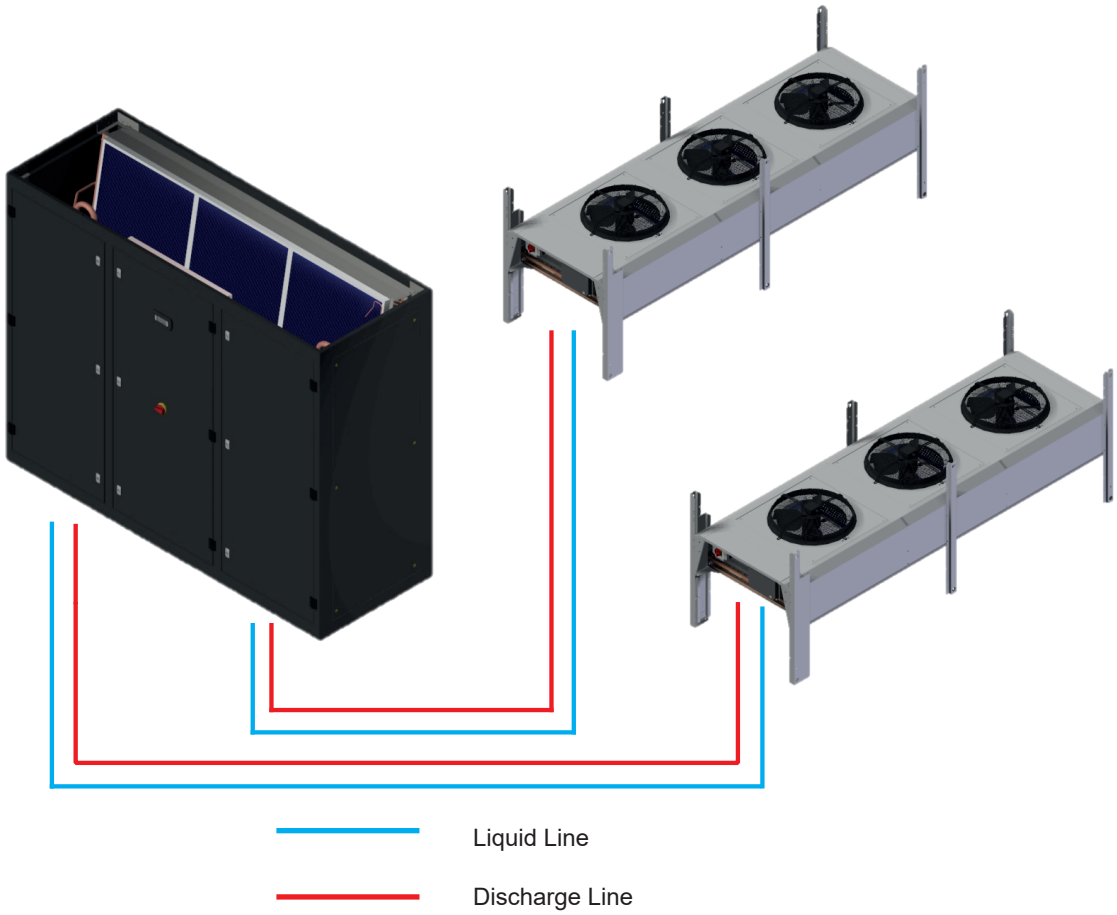
Contents

Contents

System Configurations

DX Air Cooled – Dual Circuit (2X20)

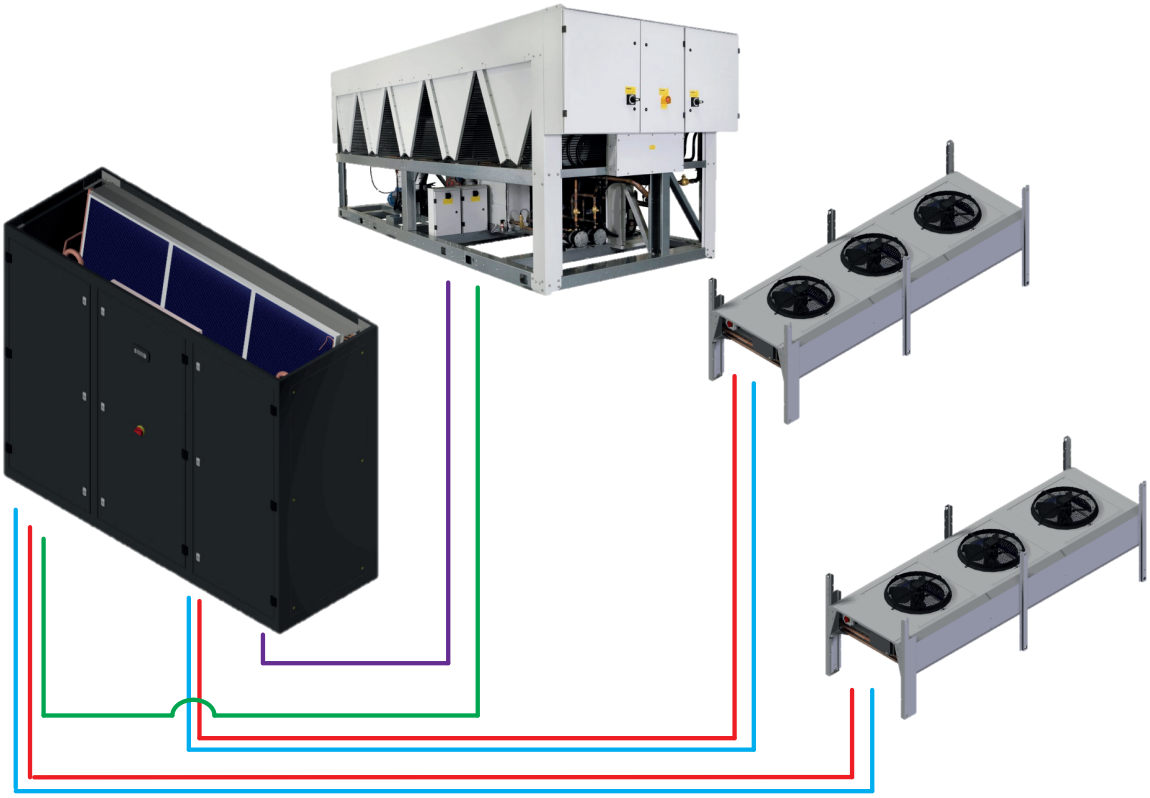
Dual circuit DX air cooled with compressors located in the indoor unit. R410A fixed capacity compressors will be integrated into the design. Tandem compressor sets will be used to offer multiple cooling stages with fixed speed compressors.



System Configurations

Dual Cool – DX Air Cooled and Chilled Water (2X2C)

Triple circuit, multi-cooling format – dual circuit DX air cooled and single circuit chilled water to support redundancy specifications in data centres. The cooling circuits will be configured for run/standby or 'high temperature assist' as opposed to continuous concurrent cooling.



Liquid Line

Discharge Line

Chilled Water Flow

Chilled Water Return

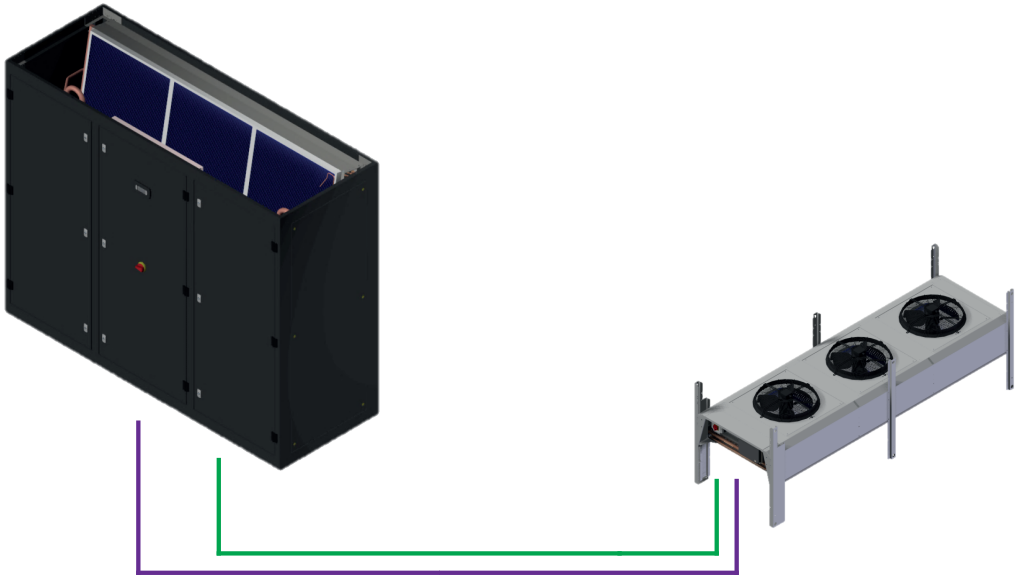
System Configurations

DX Water Cooled – Dual Circuit (2W20)

Dual circuit DX water cooled with compressors located in the indoor unit. R410A fixed capacity compressors will be integrated into the design. Tandem compressor sets will be used to offer multiple cooling stages with fixed speed compressors.

Free Cool – DX Water Cooled with Free Cooling (2W2F)

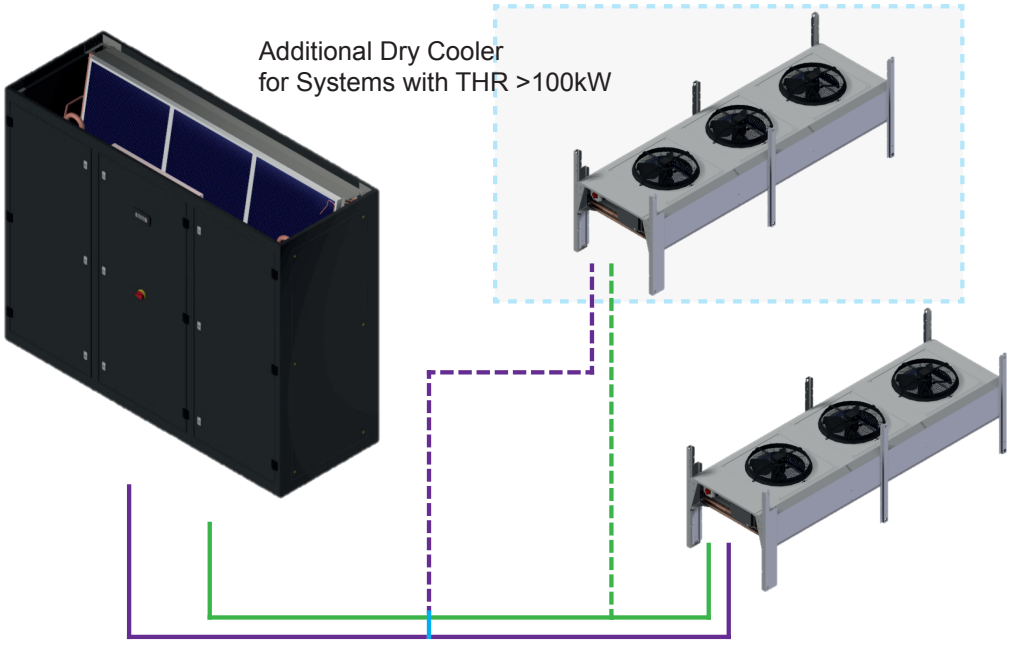
Dual circuit DX water cooled with free cooling chilled water coil.
The unit will have the ability to run in full free cooling mode (free cooling coil active), hybrid mode (DX circuit and free cooling coil active) or mechanical cooling only (DX circuit active).



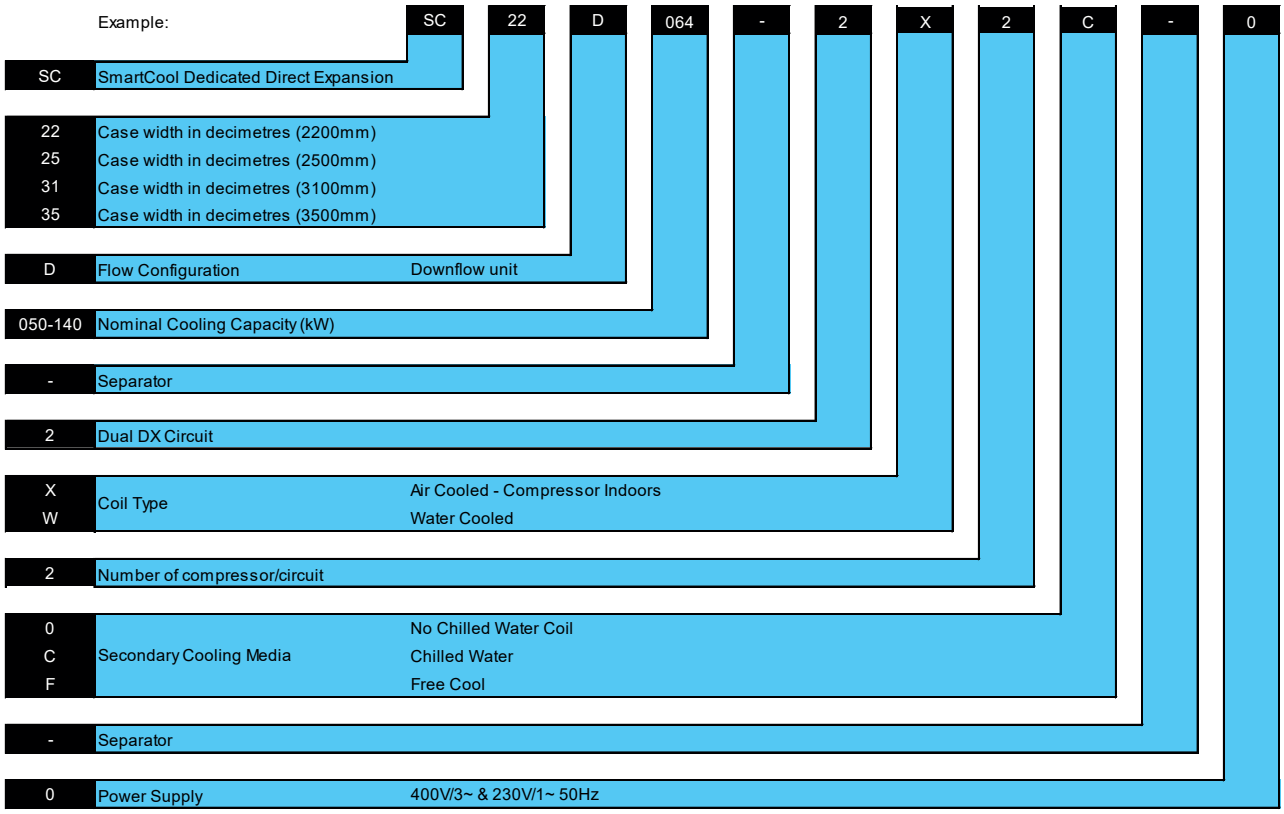
Dry Cooler Flow

Dry Cooler Return

Additional pumps and valves may be required (Not supplied by Airedale).



Nomenclature



Introduction

Designed to provide environmental precision air conditioning for applications such as telecommunication facilities, data centres, computer rooms, clean rooms and laboratories. Full function units provide full control of temperature, humidity and filtration. The modular design of the SmartCool allows grouping of differing model types and capacities to be installed side by side. The flexibility of this type of installation provides for multi-circuit functionality.

Precision Air Conditioning System

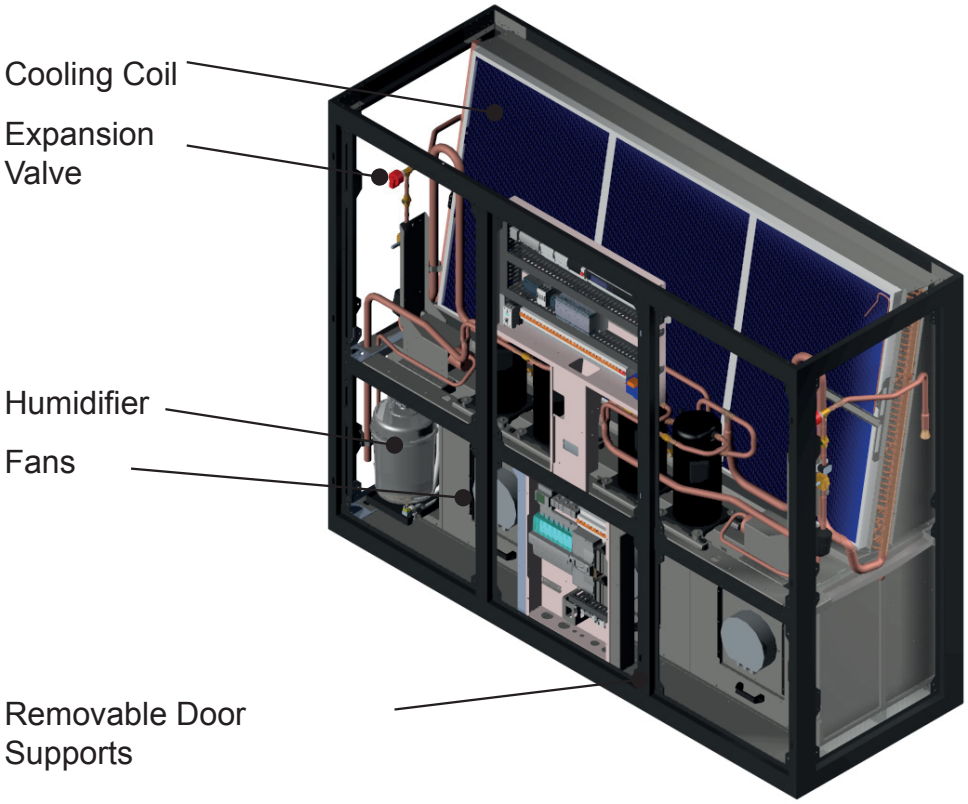
The computer room air conditioning equipment shall be designed specifically for precision temperature and humidity control applications. It shall automatically monitor and control cooling, heating, humidification, de-humidification and filtering functions for the conditioned space. The system shall be built to the highest quality engineering and manufacturing standards and shall be subject to a functional test prior to leaving the factory.

Construction

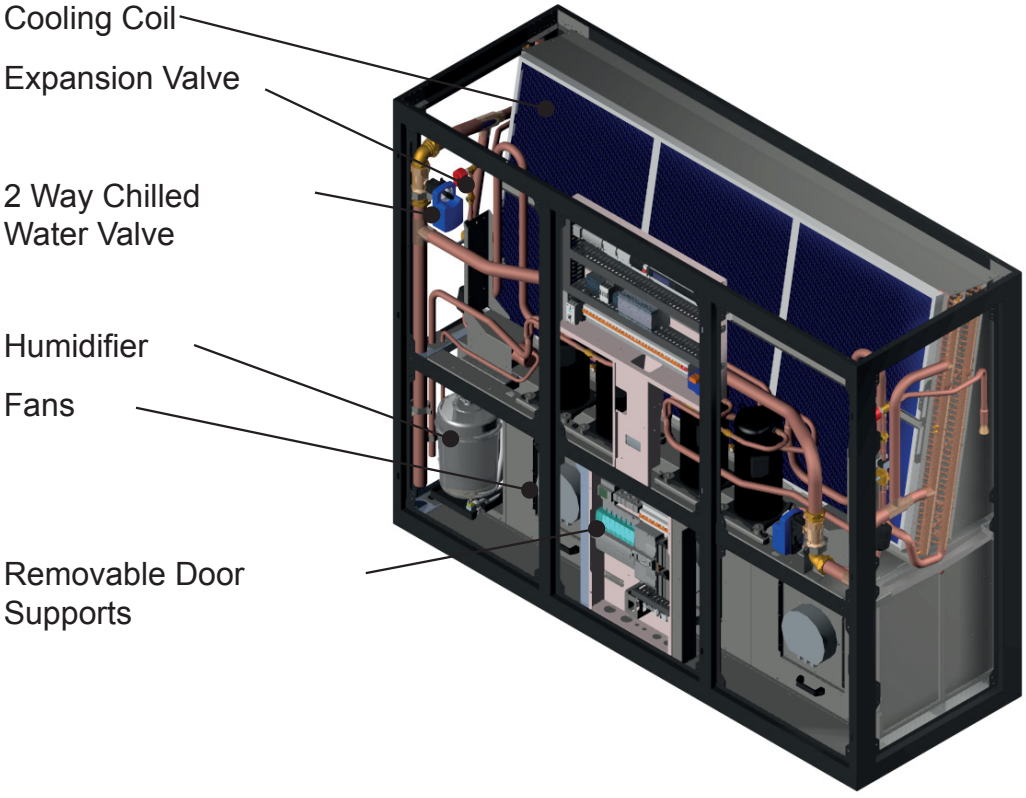
The cabinet shall be manufactured using a steel frame. Panels shall be removable so that access can be gained to the side and rear of the unit by removing panels during installation. The galvanised sheet steel panels and welded steel frame shall be coated with an epoxy baked powder paint to provide a durable finish. Standard unit colour shall be Black Grey to RAL 7021. Cabinets shall be lined internally with various thickness fire resistant foam (BS 476) for thermal and acoustic insulation. The insulation density shall not be less than 75 kg/m³. The cabinet doors shall be full height, hinged and key lock secured. The hinge arrangement shall allow flexible door opening/removal for improved access. A propriety rubberised door seal shall reduce sound breakout and eradicate air leakage. In-seal type foam based door seals shall not be acceptable. The unit design shall incorporate a series of M6 fixings to the top and bottom face to ease customer ductwork connection and reduce installation time.

Unit Overview

2X20

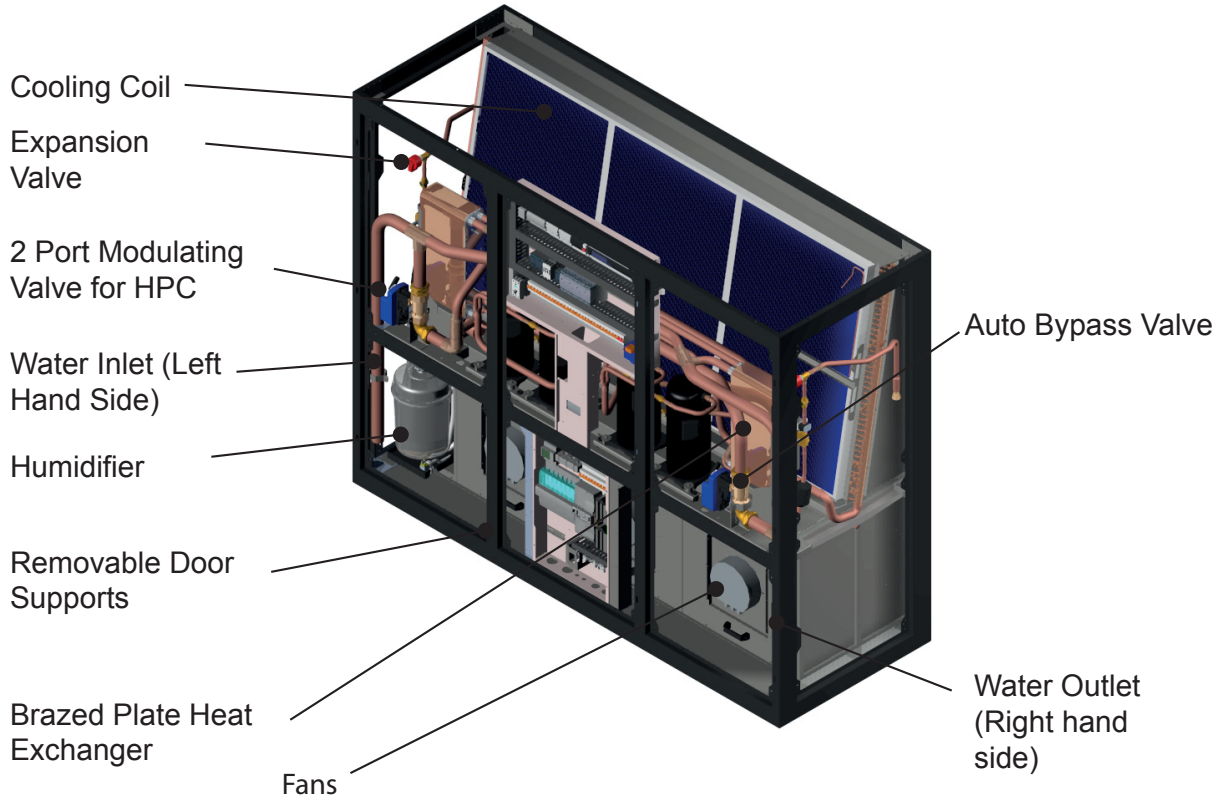


2X2C

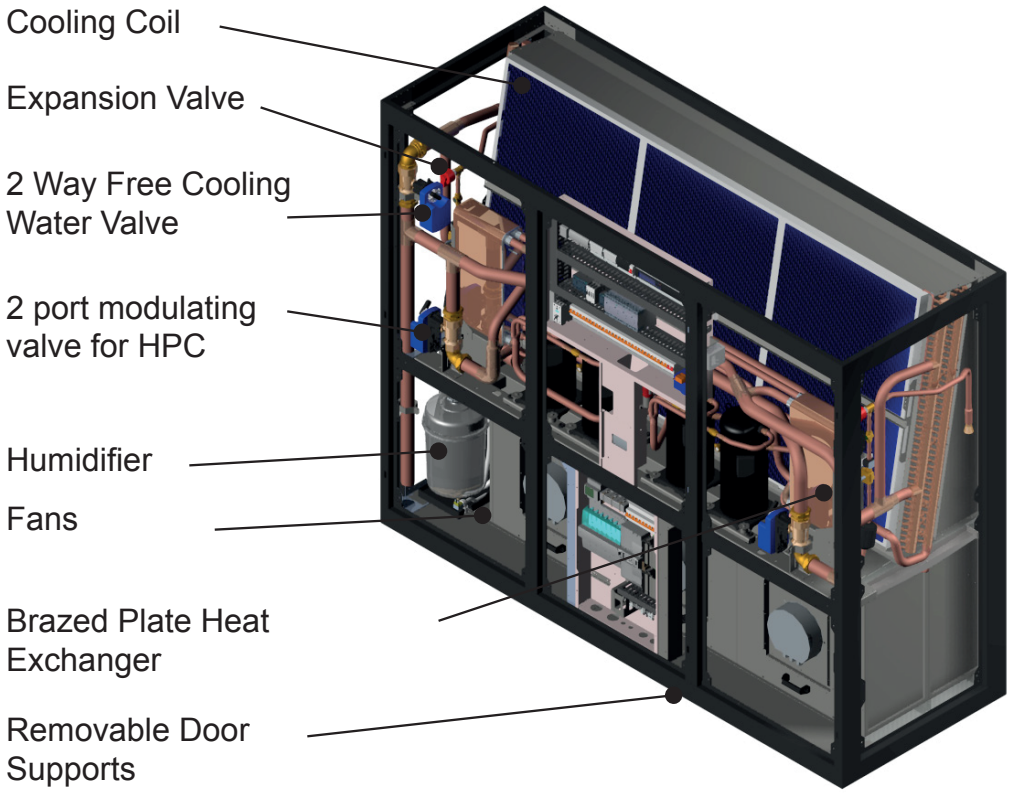


Unit Overview

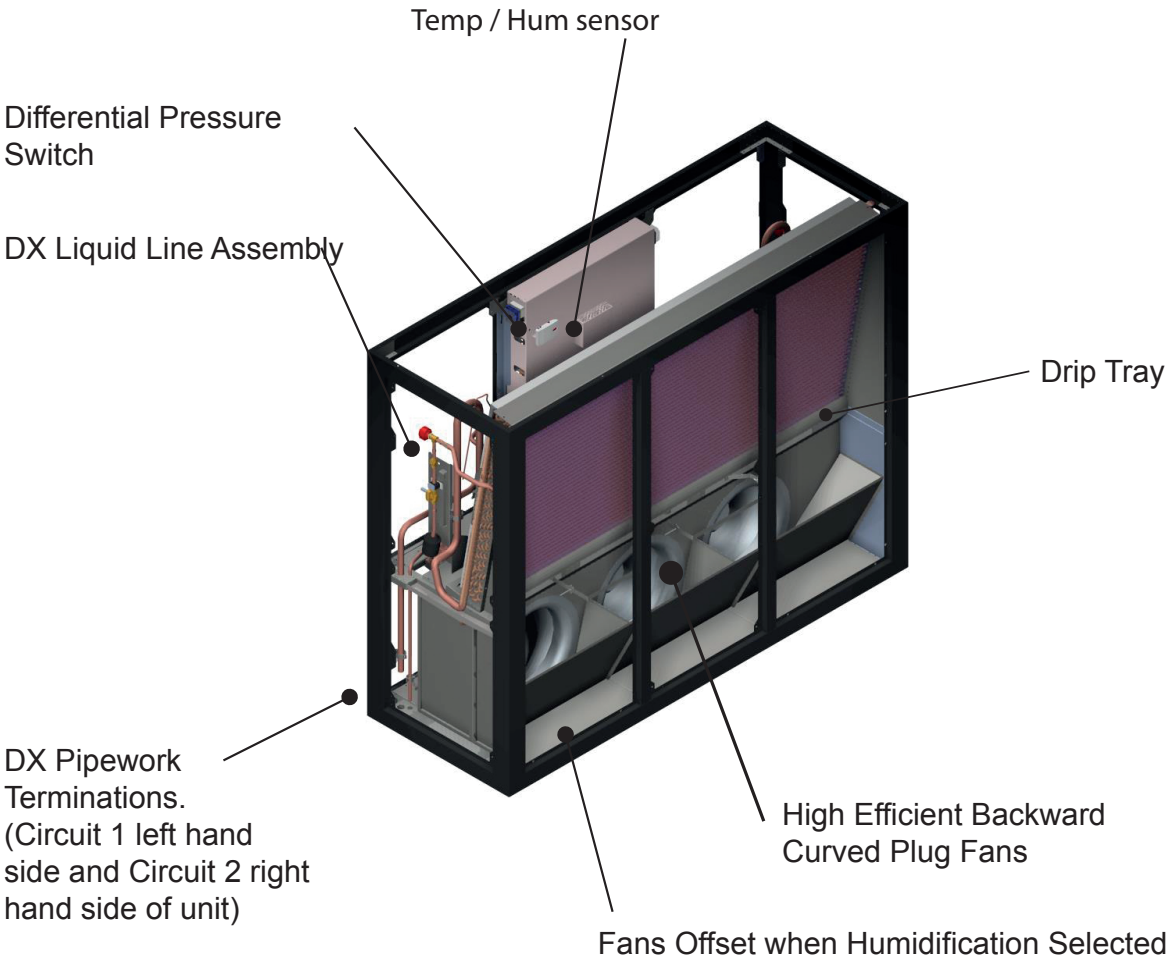
2W20



2W2F



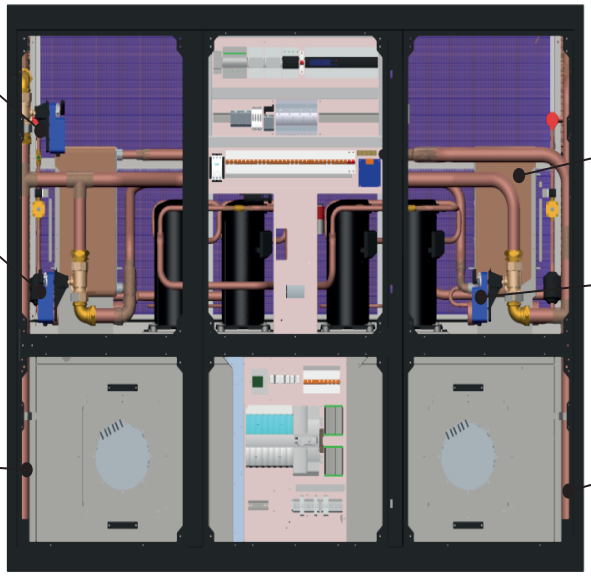
Unit Overview



Chilled Water

		System Configuration			
		2X20	2X2C	2W20	2W2F
Chilled Water	Hydrophilic Epoxy Coated RTPF Chilled Water Coil	—	●	—	●
	0-10 Volts Chilled Water Regulating Valve (2 Way)	—	●	—	●
	Spool Piece (interconnection pipe work)	—	●	●	●
	Brazed Connections	●	●	●	●
	Threaded Connections	—	○	○	○
	Grooved Connections	—	○	○	○
	Hydronics Kits	—	—	○	○

● Standard Features ○ Optional Features — Feature Not Available

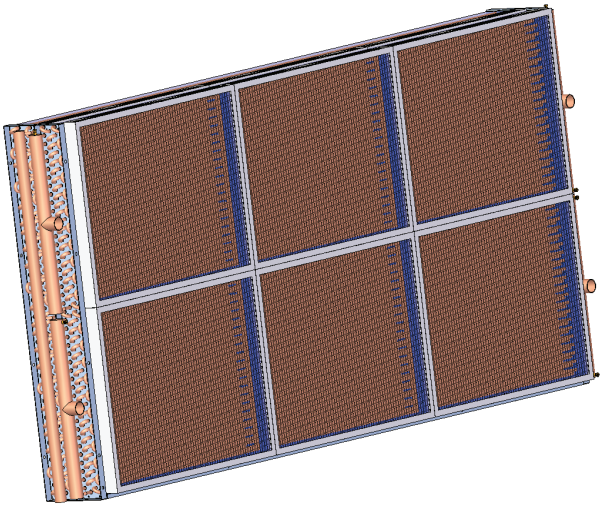


Chilled Water Coil

Chilled water coils 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 allow 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. For control of water flow, various valve options shall be fitted.

The factory test pressure shall not be less than 20 Barg and the maximum operating pressure shall be less than 10 Barg.

Sweat copper pipe for brazed connection shall be standard. Optional threaded and Grooved connections shall be available.



Threaded Water Pipe Connection

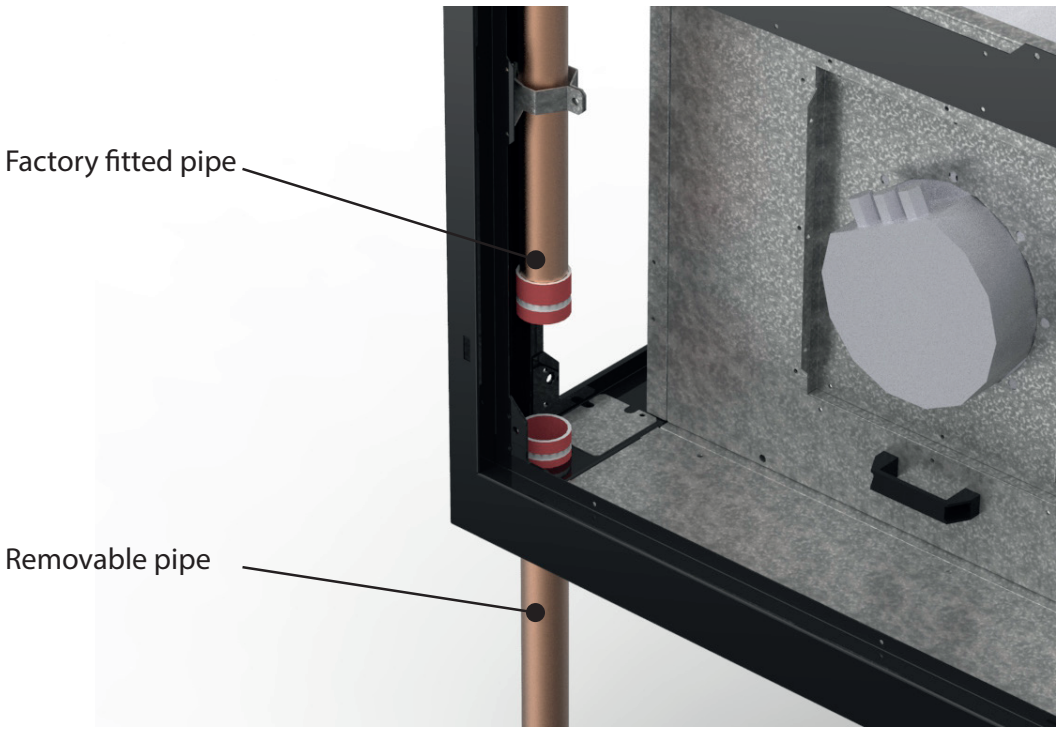
As an alternative to brazed water pipe connection, BSP brass male taper threaded connections shall be factory available.

Grooved Water Connections

Grooved water connections shall be available enabling easy pipe work termination.

Water Spool Pieces

The spool piece piping needs to be fitted through the hole in the floor stand. A collar is factory fitted to the pipework. The clamp is fitted with the rubber seal on-site once the unit is mounted on the floorstand.

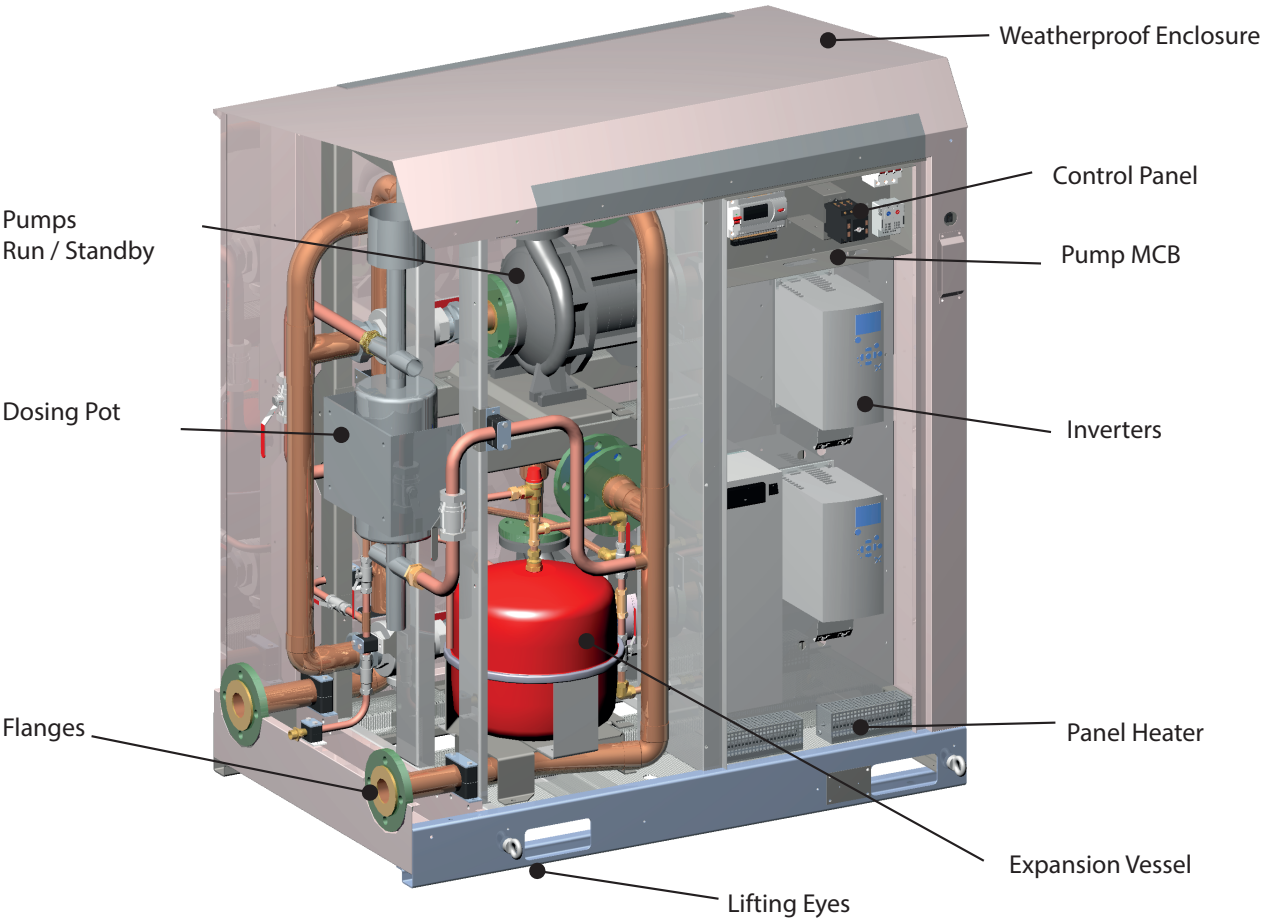


The customer side of the spool piece has one of the following connections:

- Brazed
- Threaded (optional)
- Grooved (optional)

Please confirm customer side water connection at time of ordering.

Hydronics Kits



The purpose of the hydronics kit shall be to facilitate the flow of water around the system. The Hydronics kit shall be installed in series with a dry cooler (two where necessary) and the indoor unit, supplying chilled water to the free-cooling coil or water for head pressure control in DX mode. The hydronics kit is not avaliable for chilled water only units. The unit shall be unobtrusive with a minimal footprint and able to be installed inside a building, such as in a plant room or outside a building, for example on a rooftop or at ground level hence necessitating water and freeze protection.

Four versions shall be available:

- Standalone Fixed Speed (HY11-1F)
- Standalone Variable Speed (HY11-1V)
- Run/Standby Fixed Speed (HY15-2F)
- Run/Standby Variable Speed (HY15-2V)

A microprocessor shall be used to control the pump(s) and the pressurisation unit (option) on all of the models in the range as standard. The control panel enclosure shall also contain a heater as standard to ensure that the electronics and the pressurisation unit will not drop below 0°C (based on a minimum ambient of -20°C. The control panel shall also be ventilated to avoid the electronics getting too hot up to ambient temperatures of 40°C.

Refrigeration

Expansion Valve

Brazed Plate Heat Exchanger

Compressor

		System Configuration			
		2X20	2X2C	2W20	2W2F
Refrigeration	Hydrophilic Evaporator Coil	●	●	●	●
	Scroll Compressor	●	●	●	●
	Electronic Expansion Valve	●	●	●	●
	Brazed Plate Heat Exchanger	—	—	●	●
	Sight Glass with Moisture Indicator	●	●	●	●
	Liquid Line solenoid valves	●	●	●	●
	Discharge non-return valve	●	●	●	●
	Filter Drier	●	●	●	●
	Head pressure Control to -20°C	●	●	●	●
	Low Ambient Kit -32°C (LAK)	○	○	—	—
	Extra Low Ambient Kit -40°C (ELAK)	○	○	—	—
	R410A Refrigerant Charge	●	●	●	●

● Standard Features ○ Optional Features — Feature Not Available

Evaporator

A large surface area coil(s) shall be ideally positioned to optimise airflow and heat transfer; it shall be manufactured from refrigeration quality copper tube with mechanically bonded aluminium fins. The copper tube shall be internally rifled for improved heat transfer.

Fins shall be coated with a non-stick acrylic (hydrophilic) film 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. The factory pressure test shall be not less than 45 Barg. Sweated copper pipe for brazed connection shall be standard.

Compressor

Compressor(s) shall be mounted on the unit base via the use of vibration isolators. Each compressor shall be designed for use with R410A refrigerant.

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.

Liquid Line Solenoid Valve

A liquid line solenoid valve is fitted to enable partial / full refrigerant pump down.

Compressor Discharge Line Non Return Valve

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

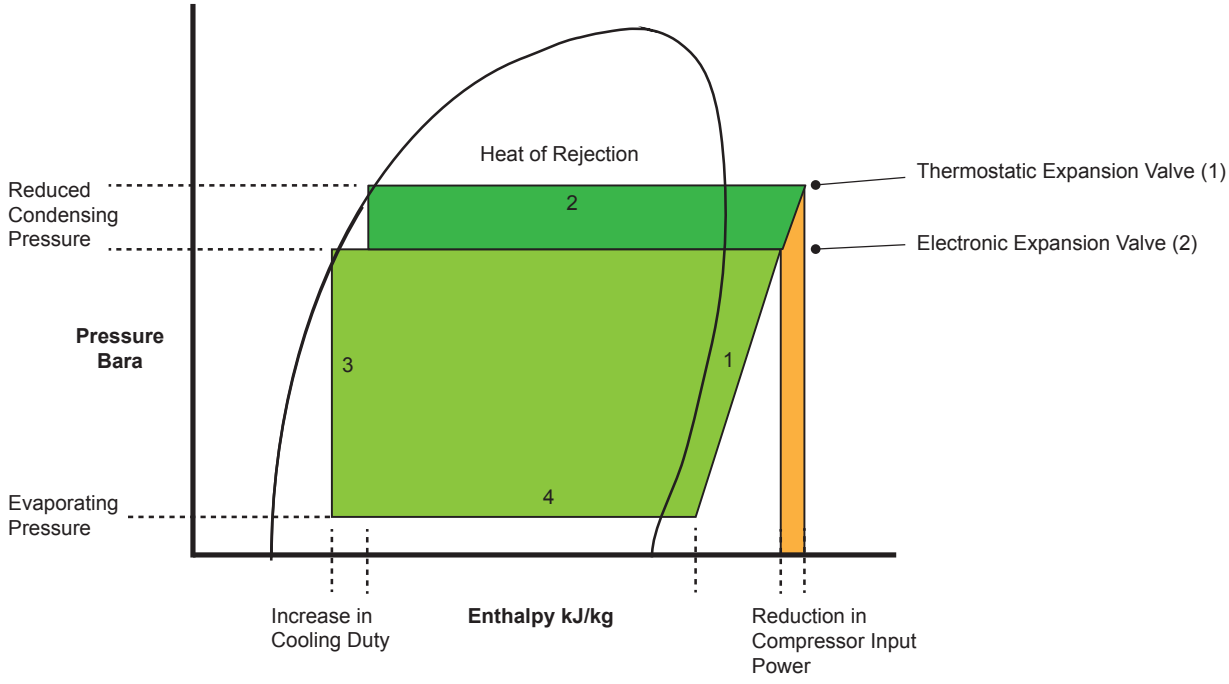
Electronic Expansion Valves (EEV)

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, Thermostatic Expansion Valve's (TEV) do not automatically optimise themselves to all operating conditions. Therefore, if the refrigeration system is operating at 40% or 50% of full load, especially at a lower 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.

EEVs differ from thermostatic expansion valves in their ability to maintain control of refrigerant flow and suction superheat at reduced head pressures. 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 0 to 100%, there will not be a problem with turndown, even down to 10% of the valve's rated capacity.



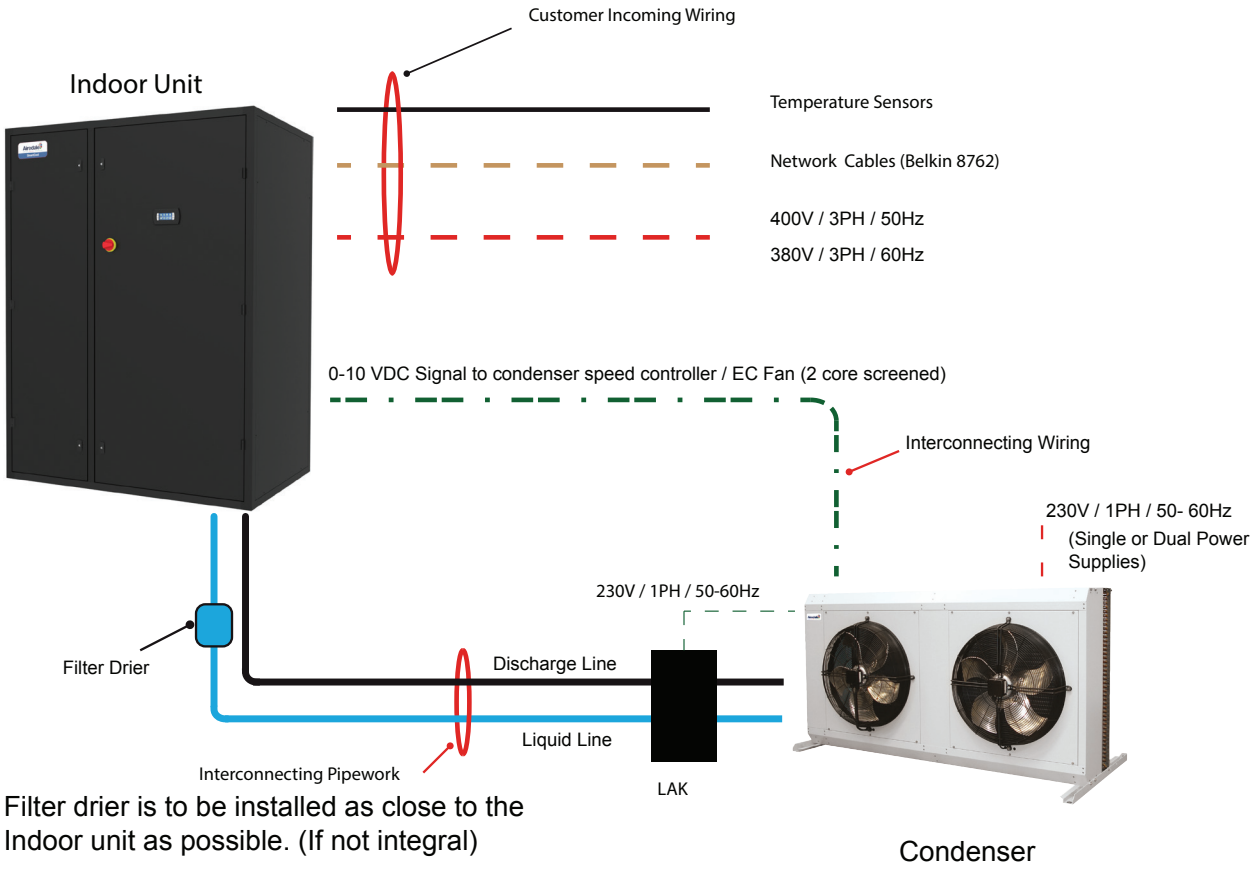
Key:
(1) Cooling Cycle @ 22°C ambient with a conventional TEV fitted.
(2) Cooling Cycle @ 22°C ambient, showing a typical EEV condensing temperature taking full advantage of lower ambient air temperatures (below 35°C).

Introduction

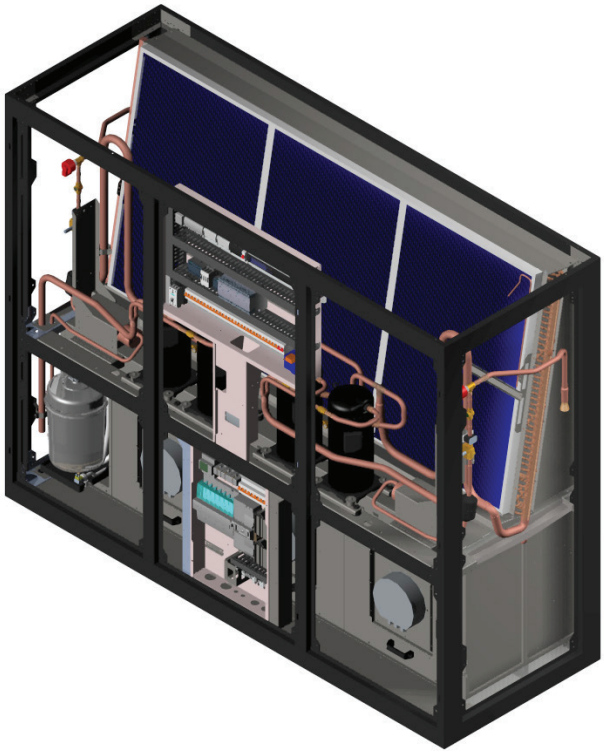
LAK / ELAK

HPCV ELAK Operation

When the outdoor ambient falls, the condensing pressure falls. This causes the discharge pressure to fall as well.
When the discharge pressure falls below the dome pressure, the valve modulates open the discharge port which allows discharge gas to bypass the condenser. The discharge gas then enters the receiver. The mixture of discharge gas and liquid refrigerant creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up in the condenser.
Flooding the condenser reduces the surface area available for heat rejection. This reduction in effective condenser surface area results in a rise in condensing pressure.
During summer conditions, the discharge pressure is higher than the dome pressure, which closes the discharge port of the head pressure control valve. Hence, there is full liquid flow from the condenser to the receiver.



Airflow Components



		System Configuration			
		2X20	2X2C	2W20	2W2F
Airflow	EC Backward Curved Centrifugal Fans in Unit	●	●	●	●
	ISO-C-80 Air Filtration	●	●	●	●
	High Grade ISO-1-60 Air Filtration	○	○	○	○
	Airflow Switch	●	●	●	●
	Constant Air Volume	○	○	○	○

● Standard Features ○ Optional Features ━ Feature Not Available

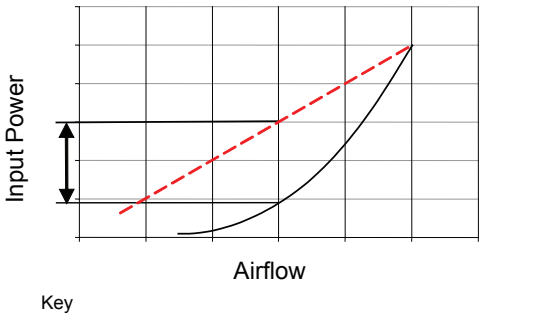
Fan & Motor Assembly

Backward curved impellers, direct drive centrifugal fan assemblies shall be used with integral EC motors. They shall be dynamically balanced for quiet operation.

Fan speed, air flow and external static pressure shall be controlled by the use of a voltage controller which shall maintain optimised performance and reduce energy consumption. Designed for high corrosion resistance, the impellers shall be composite plastic with a galvanised rotor.

Electronically Commutated (EC) Fan Motor

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 air flow performance while keeping sound levels to a minimum. It 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 an equivalent AC fan at modulated fan speeds. The in built EC fan control module allows for fan speed modulation from 15-100%.
A standard AC fans modulating range is typically 40 -100% of full fan speed.
Standard voltage regulated (VR) fan speed controllers offer a linear response. The illustration on the right shows a comparison of the typical power input required by each method.

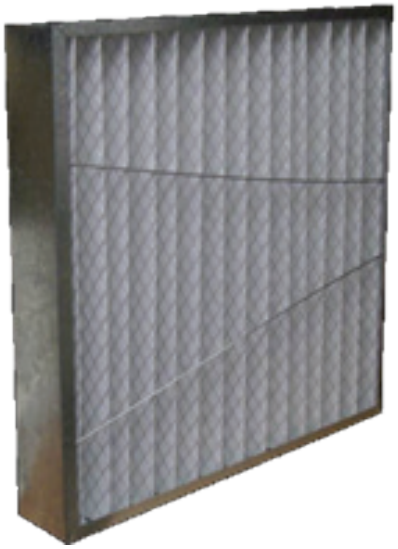


ISO-C-80 Air Filtration

Vertical Pleated disposable panel filters in a rigid frame. Conforming to ISO-16890-ISO-C-80. Access and removal from unit front.
As standard the microprocessor provides an alarm following a pre set run time limit being exceeded.

High Grade ISO-1-60 Air Filtration

Vertical Pleated disposable panel filters conforming to ISO-168900-ISO-1-60 shall be provided.



Air Flow Switch

An adjustable differential pressure switch shall activate a visual alarm at the status panel and break the 0-10 V signal in the event of a fan or motor failure.

Electrical Components

Humidifier Bottle

Dual Power Supply

UltraCap

		System Configuration			
		2X20	2X2C	2W20	2W2F
Electrical	Door Interlocked Mains Isolator	●	●	●	●
	Electrical Switch Gear	●	●	●	●
	Customer Connection Terminals	●	●	●	●
	Power Monitoring	○	○	○	○
	Phase Monitoring Relay	○	○	○	○
	Ultra Capacitive Module (Controller Power Backup)*	○	○	○	○
	Dual Power Supply	○	○	○	○
	Variable Humidification	○	○	○	○
	Electric Heating	○	○	○	○
	Modulating Electric Heating	○	○	○	○

● Standard Features ○ Optional Features ━ Feature Not Available

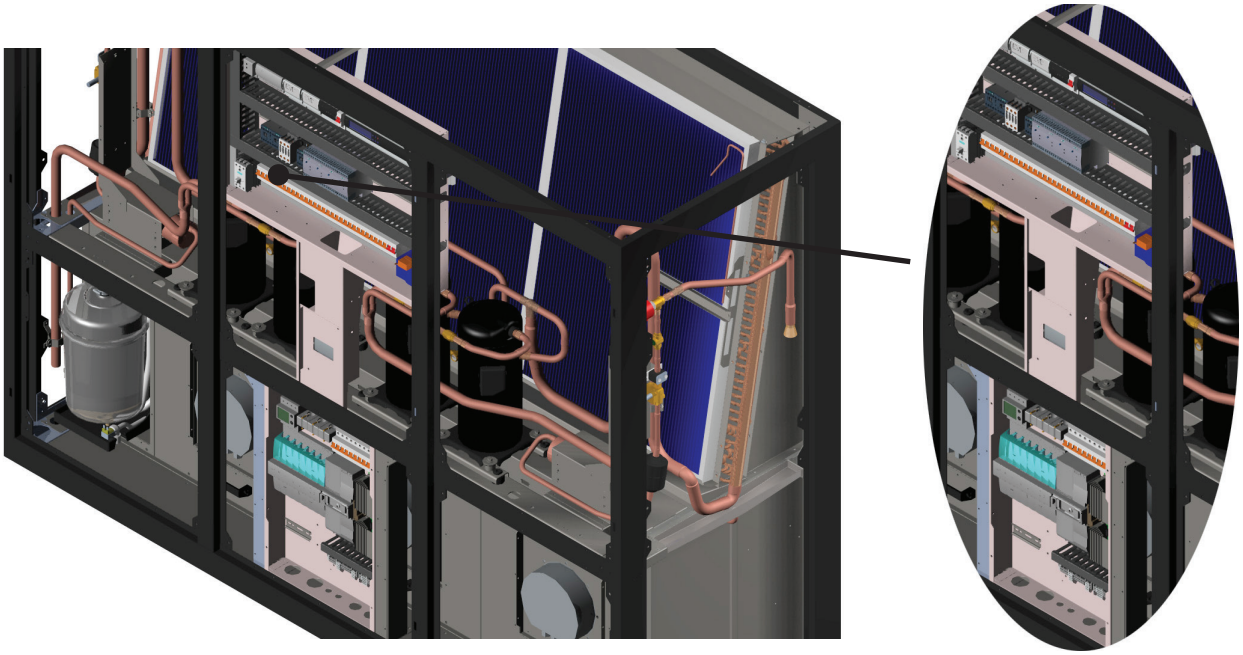
*Fitted as standard when dual power supply is fitted.

Electrical Panels

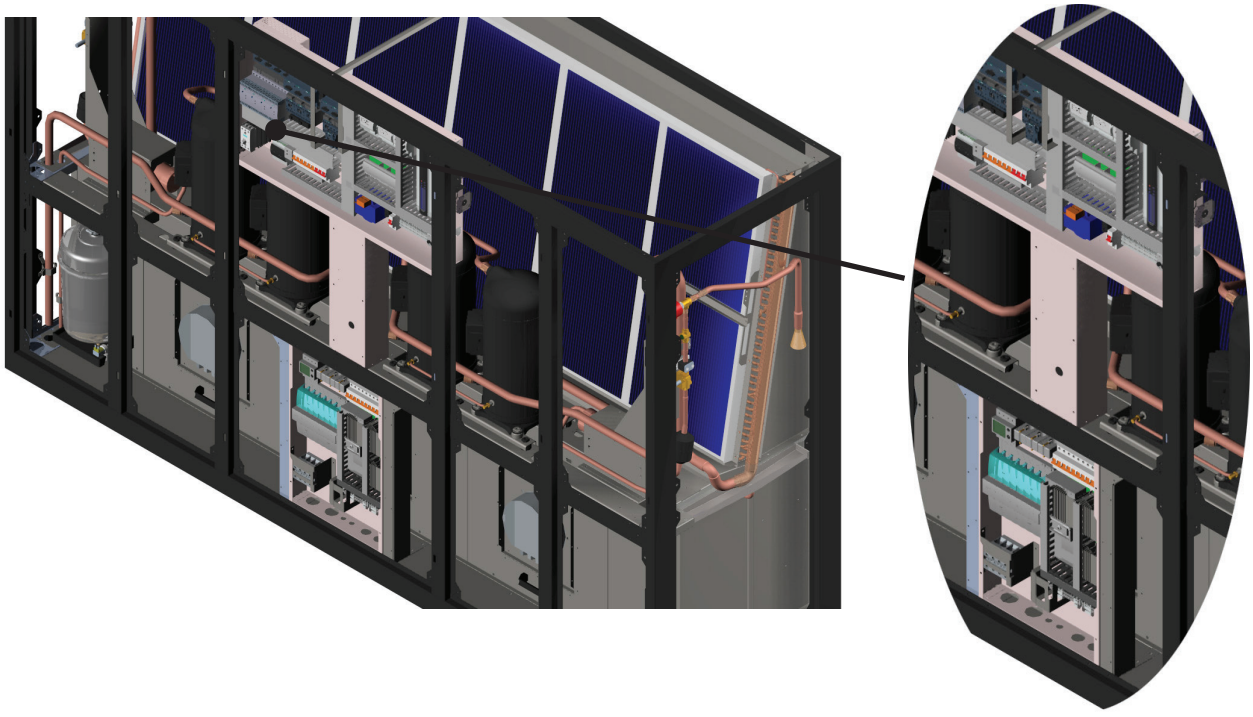
The control panel contains the necessary contactors, transformer, sub circuit protection, volt free contacts for a common alarm and mains and inter-connecting terminals. The panel is situated within the cabinet and allow's for essential maintenance of other components within the unit. The electrical control panels are wired to the latest European standards and codes of practice.

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

Control Panel (22 and 25 Units)



Control Panel (31 and 35 units)



Electric Heating

These shall be multi-stage finned electric heating elements complete with auto and manual reset overheat cut-out protection, element shall be phase balanced for increased efficiency.

The electric heating elements are designed to be located post cooling coil, prior to fans. This enables the unit to effectively re-heat the air and evenly distribute the heat within the floor void. All sizes of electric heating are configurable based upon customer requirements.

A maximum bank of 7.5kW is installed on the inlet side of each fan inside the unit. The available heating shall be 7.5kW, 15kW, 22.5kW (3 and 4 fan) and 30kW (4 fan only). The level of configuration is dependent on the number of fans in the unit.

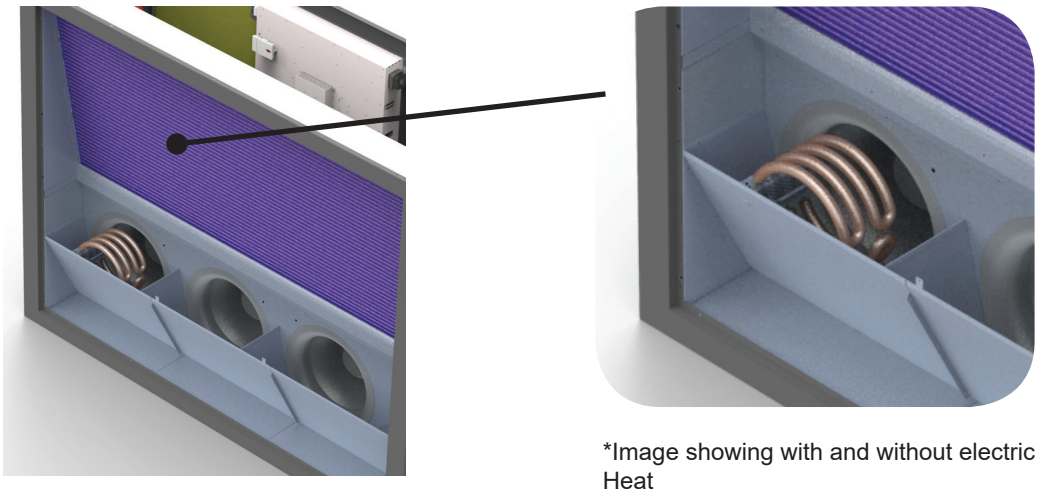


*Image showing with and without electric Heat

Electric Heating Thyristor Control

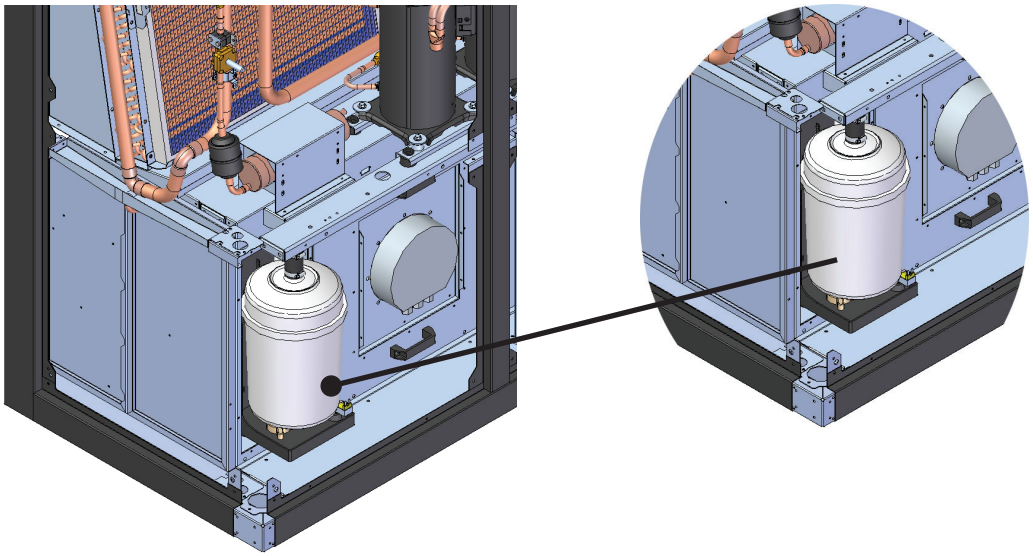
In addition to the electric heat option a 0 – 100% thyristor shall be provided to deliver accurate heating control.

		System Configuration			
		SC22	SC25	SC31	SC35
Electric Heat	7.5kW Electric Heat	○	○	○	○
	15kW Electric Heat	○	○	○	○
	22.5kW Electric Heat	—	○	○	○
	30kW Electric Heat	—	—	—	○

○ Optional Features — Feature Not Available

Humidification

The SmartCool Range has configurable humidification selections delivering 3,8,15, 23 or 30 kg/hr



The flexibility of the humidification options across the SmartCool range enables the humidification to be configured to meet the customers design requirements and conditions.

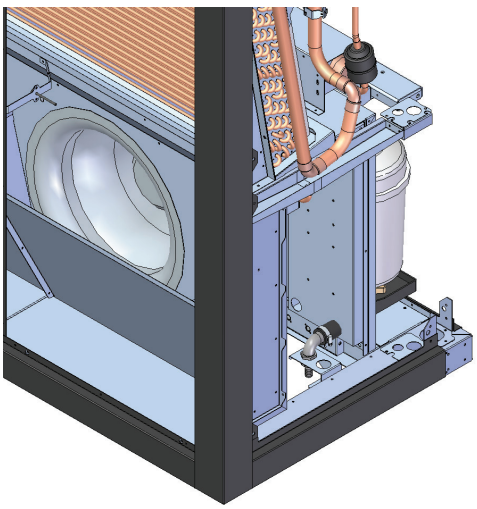
Note: the 23kg/hr uses 1 x 15kg/ hr and 1 x 8kg/hr bottle and the 30 kg/hr option utilises 2x 15 kg/hr bottles.

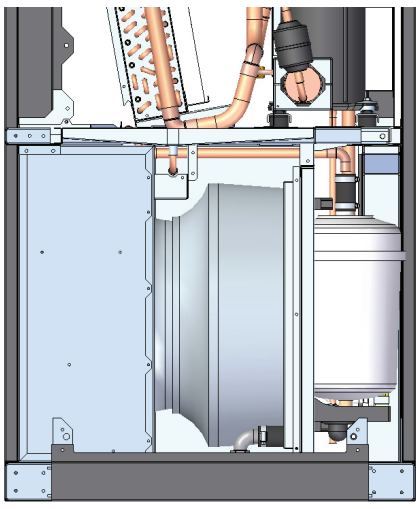
Humidification Sizes

		System Configuration			
		SC22	SC25	SC31	SC35
Humidification	3kg/hr Humidification	○	○	○	○
	8kg/hr Humidification	○	○	○	○
	15kg/hr Humidification	○	○	○	○
	23kg/hr Humidification*	—	—	—	○
	30kg/hr Humidification*	—	—	—	○

○ Optional Features — Feature Not Available

* Only available in the SC35 Units.





Humidification

Control Principles

In a humidifier with electrodes, steam shall be produced by passing a current between electrode plates and the water 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 shall determine 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.
Example: (Optimised Lifetime with High Water Conductivity Supply)
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 lifespan is maximised.

De-humidification

(With Electric Heating and Humidification only)
Controlled by the microprocessor the de-humidification feature reduces fan speeds by 20% (adjustable). The reduction of fan speed increases de-humidification which means that the time taken to reduce the room humidity to the required level is drastically decreased, along with the energy required to do so.
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 lower limit de-humidification is cancelled until the return air temperature increases.

Humidifier - Intelligent Modulation

Humidification shall be provided by an electrode boiler. The sealed humidifier design shall ensure that only clean sterile steam is supplied to the conditioned area and corrosive salts and minerals are held in the disposable bottle. The steam shall be distributed through a sparge pipe fitted to the coil assembly.

Featuring modulating capacity output control as standard, the system shall provide continuous modulation of steam output in response to a proportional control signal. The output control shall range from 20%-100% of the humidifier rated value and be designed to give an approximate steam output of +/- 5% at 25°C (at the sensor), thus ensuring precise control of the conditioned space.

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

All humidifier parameters and alarms shall be accessible and adjustable via the microprocessor display keypad unit, main features shall include not less than:

- 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

Three different cylinders shall be available which correspond to the supply water conductivity.

The cylinder type shall be matched with the standard conductivity of the supply water to ensure optimum performance and to increase 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

Conductivity is a measure of the ability of water to pass an electric current, measured in micro Siemens / centimetre (µS/cm). As standard the humidifier shall be fitted with the standard conductivity cylinder which shall cover the majority of water supplies. Where the water conductivity is known, please specify at order. For further details please contact Airedale.

Dual Power Supply

The SmartCool range shall be designed with dual power supply capability, so that in the event of a power failure the supply can be switched from utility to an alternative power supply (such as second utility or generator). A dual power supply changeover switch shall be provided to enable continuous power to the SmartCool in order to reduce unit downtime and therefore loss of cooling to a minimum. For the dual power supply feature to operate effectively the two incoming power supplies must have the same voltage and frequency. During changeover of power there is an interval of ≈180ms with no power. For critical applications a power backup module can be added to maintain power to the unit controls, allowing for immediate reinstatement of cooling following changeover.

The option as standard offers switch position status and supply priority set, both of which are configurable via the unit's display. Supply priority set is fully configurable via the unit's display and is used to set which of the two power supplies power will be drawn from when both power supplies are active. Switch position status indicates to the end user which position the switch is currently in i.e. A or B and is shown via the unit's display.

When the dual power supply is fitted the Ultracap UPS is fitted as standard.

Ultracap UPS

The Ultracap module is an external backup device for the controller. The module guarantees temporary power to the controller in the event of power failures and allows for enough time to keep the controller running with time to change power supplies. The module is made using Ultracap storage capacitors (EDLC = Electric Double Layer Capacitor), which are recharged independently by the module. These ensure reliability in terms of much longer component life than a module made with lead batteries: the life of the Ultracap module is at least 10 years. When the dual power supply is fitted the Ultracap UPS is fitted as standard.

Energy Manager

Analysis of system energy consumption can be monitored via a dedicated LCD display. Unit parameters can be adjusted via the unit microprocessor control to affect energy usage in line with the system need.

Controls

		System Configuration			
		2X20	2X2C	2W20	2W2F
Controls	PCO5+ Microprocessor	●	●	●	●
	Airetronix Controls	●	●	●	●
	Vu™ Touch Screen Display	●	●	●	●
	PGD1 Display (Door Mounted)	○	○	○	○
	PGD1 Display with Audible Alarm (Door Mounted)	○	○	○	○
	PGD Touch Display	○	○	○	○
	Constant Air Volume	○	○	○	○
	Return Air Temperature Control	●	●	●	●
	Return Air Temperature & Humidity Control	○	○	○	○
	Optimised Head Pressure Control	○	○	○	○
	NTC Water Temperature Sensor / Probe	—	●	●	●
	Filter Change Switch	○	○	○	○
	BMS and SNMP Compatibility	○	○	○	○
	Drip Tray Level Detection	○	○	○	○
	Fire Detection	○	○	○	○
	Waterside Flow sensor	—	○	●	●
	Waterside Differential Pressure Transducer	—	○	●	●
	Smoke Detection	○	○	○	○
	Water Detection	○	○	○	○

● Standard Features ○ Optional Features — Feature Not Available

Vu™

The units shall be supplied with a European ROHS Directive 2002/95/EC compatible microprocessor controller connected to a 4.3” colour resistive TFT LCD touch screen display. The microprocessor controller offers powerful analogue and digital control to meet a wide range of monitoring and control features including a real time clock and industry standard communication port and network connections.
All the SmartCool products feature a 32 bit microprocessor, offering significant calculation power and operation processing speed. Also featured is the facility to adjust and display control settings by local operator, for information and control.

Display / Keypad

The 4.3” touchscreen Vu™ display provides important unit status and allows page navigation with a swipe. The default screen shows the unit status and room condition (°C/RH %). Further screens offer adjustment to parameters, fine-tuning of setpoints (via a rotating control wheel) and scrollable data tables.
Trends of system information can be analysed and managed via the Vu™ allowing for easy system optimisation.
The operating status of the unit can also be easily be determined “at a glance” with a colour coded LED bar.

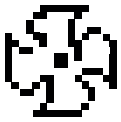
	Home		Temperature
	Main Menu		Humidity
2	Current Alarms (and no. of alarms)		Setpoint
	Help Screen		Fan
	Unit Status		Cooling
1	Network Address		Heating

Controls

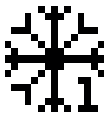
The units shall be supplied with a European ROHS Directive 2002/95/EC compatible microprocessor controller connected to an 8 x 22 character back-lit LCD keypad display. LEDs shall not be acceptable.
The microprocessor controller offers powerful analogue and digital control to meet a wide range of monitoring and control features including a real time clock and Industry standard communication port and network connections.
All the boards feature a 16 bit microprocessor, and consequently the calculation power and operation processing speed have been significantly increased.
Also featured are a visual alarm and the facility to adjust and display control settings by local operator for information and control.

Display / Keypad

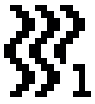
The display keypad features a simple array of keys to navigate through the in built menus.
With an 8 x 22 character (132 x 64 pixel) screen size, back lit in white for improved contrast, the larger screen shall provide for user friendly viewing and easy status recognition by displaying a combination of text and icons. The default screen shall show the unit status and room condition (°C/RH %) without the need for interrogation and an easy to navigate menu structure for further interrogation and adjustment shall be provided.



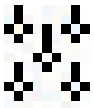
Fan Operating



Cooling - Up to 4 Stages



Heating - Various Stages
2 - 4 Stages



De-humidification

Humidification - Variable

Controls

Password Protection

The control system integrity shall be maintained by restricting access with a password PIN number.

IMPORTANT

To change the PIN , please contact Airedale at time of order with the preferred 4 digit number.

Remote On/Off

Terminals for interlocking shall be provided to enable or disable the unit remotely.

Fire Shut Down

Terminals for interlocking shall be provided to shut down the unit in the event of fire.

Evaporator Fan Hours Run Log & Reset

Shall allow the user to monitor the running times of the evaporator fans and reset after maintenance. Hours run log or visual service indicator shall be provided.

Evaporator Fan Speed Control

Evaporator fan speed control shall be easily set via the display keypad and can be incrementally increased or decreased to meet on site airflow and external static pressure requirements.

Filter Change Alarm

Filter change shall be managed by the software, and shall be based on fan(s) hours run with an alarm being generated when the pre-set run time limit has been exceeded. The set-point value shall be adjusted to suit each application and is factory set to 4000 hours.

Waterside Differential Pressure Transducer

Due to the fact that the valves on the waterside are configured in parallel, the flow is essentially split between the free-cooling coil, the plate condensers and the bypass leg. The bypass valve controls to unit pressure drop in order to maintain a constant pressure drop across the unit. The pressure drop across the unit shall be measured between the inlet and outlet sides of the unit respectively. If the system flow changes, the SmartCool unit would not be aware of the change and would continue to try and control to the target unit pressure drop set during commissioning

Waterside Flow Sensor

A flow sensor has been fitted to the water inlet side of the unit so that the unit controller is aware of when the system flow changes. The unit will then compensate for this by changing the target pressure drop across the unit in line with the new flow rate which in turn will encourage flow through the plate condensers, keeping the compressors within their operating envelope and ensuring cooling is maintained to the application. Due to the maximum flow rate of the flow sensor some of the units shall incorporate a bypass leg around the flow sensor to reduce the flow to within its accurate measuring range whilst avoiding the issue of damaging the sensor with high velocities.

Controls

Standard Network Features

As standard the controller shall be capable of providing a platform for the following and shall be enabled on request for 2 to 8 units, please specify at order:

Networking

A Local Area Network (pLAN) shall be used to connect up to 8 units to offer intercommunication and Run / Standby control. This also allows the connection of computers, printers and modems on the same communications ring.
For further details, please contact Airedale Controls.

CAUTION ⚠	When adding to an existing network, please consult Airedale to ensure strategy compatibility.

Run/Standby Operation

The controller shall enable units to operate in run/standby mode, with up to 8 units networked together, without the need for additional hardware or controllers. Standby units shall be configured to start when the run unit has a critical alarm.

Smart Key

A smart key shall be supplied to offer software back-up of the control strategy. The key shall feature simple plug in operation and allow transfer of software programs from the key to the microprocessor and vice versa. The use of a service laptop shall not be necessary.

Audible Alarm

The display keypad shall be upgraded to include audible alerts.

Water Detector

Three methods shall be available:

1. A solid state (probe) sensor shall be supplied loose for remote mounting on site.
2. Tape suitable for sensing water droplets shall be supplied loose for remote mounting on site. Standard tape length 10m.
3. Condensate drain tray level detection.

Fire Detection

Shall be supplied loose for installation in the return air stream to shut down the unit in the event of an unusually high return air temperature.

Smoke Detector

Shall be supplied loose for remote mounting to shut down the unit and activate the alarm upon sensing the presence of smoke.

Controls

Temperature Control

A temperature sensor shall be mounted in the return air side of the unit to sense the return dry bulb condition (cooling only variants). A combined temperature and humidity sensor shall be supplied on full function units. The temperature sensor shall be an NTC type thermistor with an accuracy of not less than +/ - 5% at 25°C at the sensor.
The microprocessor shall sense the return air conditions and maintain the return air temperature and humidity by controlling cooling, heating, humidification and dehumidification outputs accordingly.
The microprocessor shall monitor and display the following values as a minimum:

- Return Air Temperature
- Return Air Humidity (Optional on Full Function units)
- Fan run hours
- Coil Temperature Sensor (2W2F only)

The maintenance of key components such as air filters shall be monitored via a service indicator which visually demonstrates the status relative to the component service intervals.

Alarm Log

The controller shall log and allow viewing of not less than the last 200 conditions recorded in descending chronological order through the keypad display. The standard display keypad shall visually display operating alarms, however, as an optional extra, a display keypad with audible alarms is available.

Duty Rotation

Networked units shall be configured to duty rotate, providing equal hours run of fans.

BMS Interface Cards

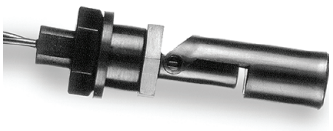
BMS Interface Card controlled units shall be interfaced with most BMS, factory fitted, please contact Airedale. A wide range of protocols shall be accommodated through the use of interface devices. Available as a standard option are: ModBus/Jbus, and Carel. For interfaces such as SNMP, LonWorks, Metasys and BACnet, please contact Airedale. Also available shall be Airedale's own supervisory plug-in BMS card pCOWEB. Based on Ethernet TCP/IP secure technology with SNMP features. It shall require no proprietary cabling or monitoring software and be supplied pre - programmed with an IP address for ease of set up. Cables to the BMS to be supplied by others.

Constant Air Volume

Constant air volume is a method of automatically adjusting the unit fan speed to deliver a specific air volume. When faced with a change in system resistance, the fan speed modulates to obtain the air volume set point. Constant air volume monitors the air pressure differential between two points. These two pressure points, positive and negative, are routed back to an air differential pressure sensor inside the unit.

General Features

Condensate Pumps



Level Sensor

		System Configuration			
		2X20	2X2C	2W20	2W2F
General	Open Floorstand	○	○	○	○
	Front and Rear Floorstands (enclosed)	○	○	○	○
	Sterling Board LAT (Wooden Case) Packing	○	○	○	○
	Condensate Pump (Hot or Cold Water)*	○	○	○	○
	Condensate Drain Level Sensor	○	○	○	○

● Standard Features ○ Optional Features ━ Feature Not Available

*Condensate pump type depends if humidification is selected.

Open & Enclosed Floorstand

Open or enclosed floor stands shall be available, complete with adjustable feet and floor tile lip. Enclosed floor stands shall incorporate an air turning vane The height of the floor stand shall be specified at order.

Discharge Air Configuration

Standard configuration shall be downflow “draw through” design.

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.

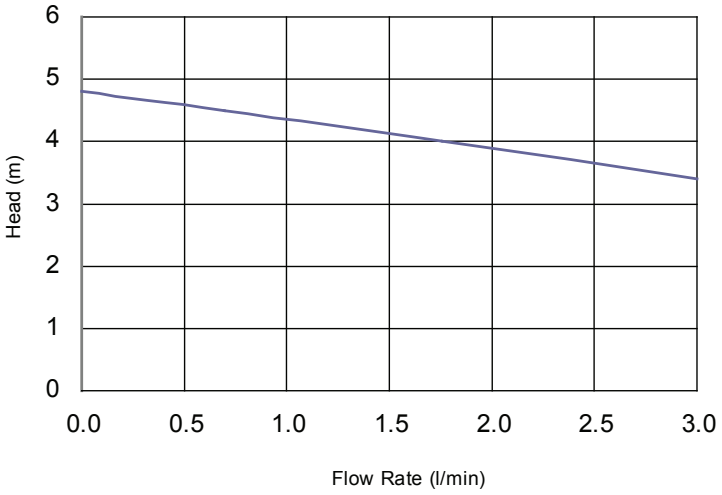
Condensate Pumps (suppled loose)

The SmartCool condensate pump shall be either hot water (full function units when a humidifier is fitted) or cold water type (cooling only).

Performance

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

Cold Water (Cooling only units)

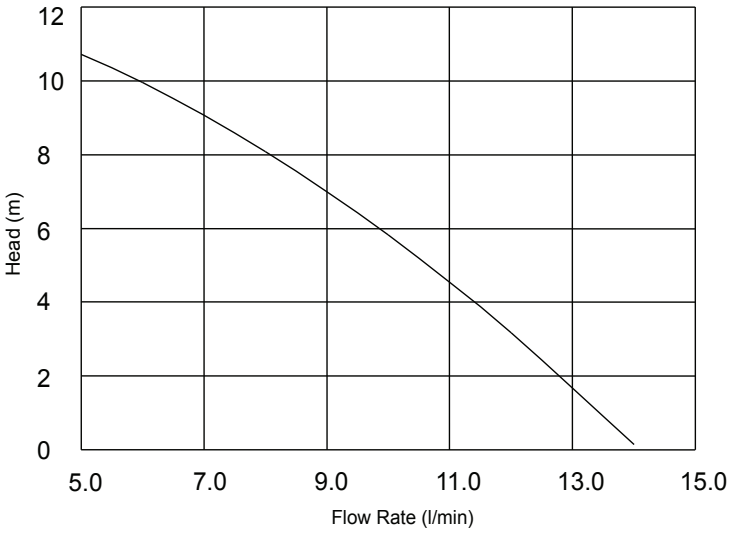


The cold water condensate pump has 10mm quarter turn plastic “barbed” connection.

Cold Water Condensate Pump
1.7l/s @4m head.

IMPORTANT
The discharge line from the pump should rise no more than 4 metres before being interrupted with a swan neck air break and tundish.

Hot Water (Full function units)



The hot water condensate pump uses 10mm (3/8”) copper tube when connecting to the discharge stub of the pump.

IMPORTANT
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.

Hot Water Condensate pump
10.8l/s @5m head

Condensate Drain Level Sensor

A float level switch shall be incorporated into the unit drain tray for indication of a high water alarm.

Measurement of Sound Data

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 ISO9614 Part 1: 2009.

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 6dB to provide free field conditions.

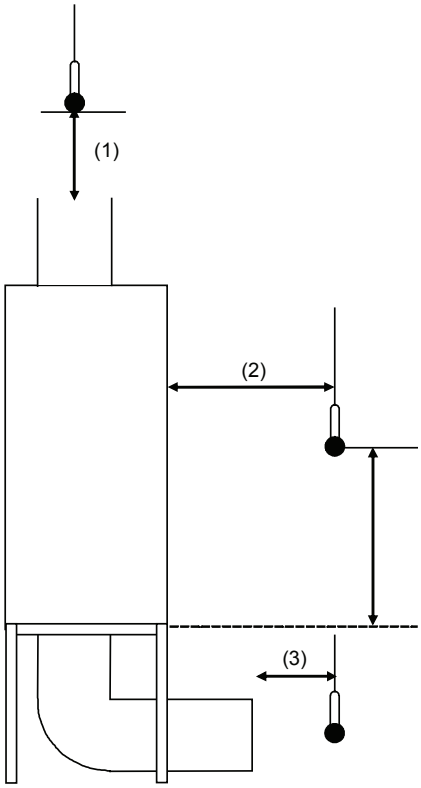
IMPORTANT

The sound data quoted is based on the unit having a ducted return air and standard backwards curved EC motors fitted, 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.

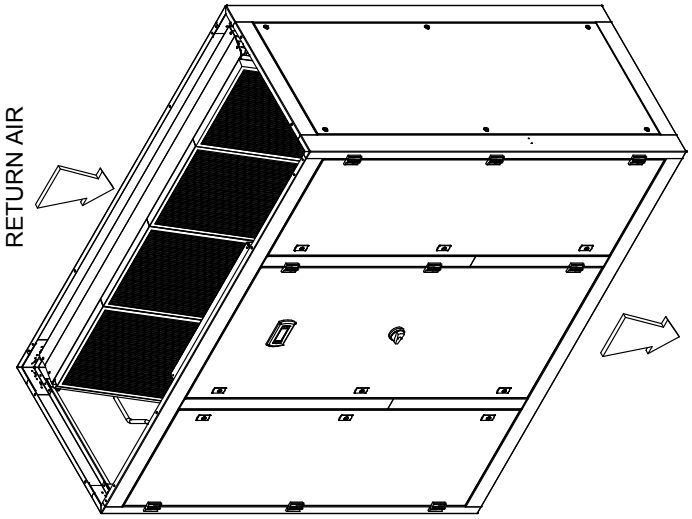


(1) Return Air
(2) Case Breakout
(3) Discharge Air

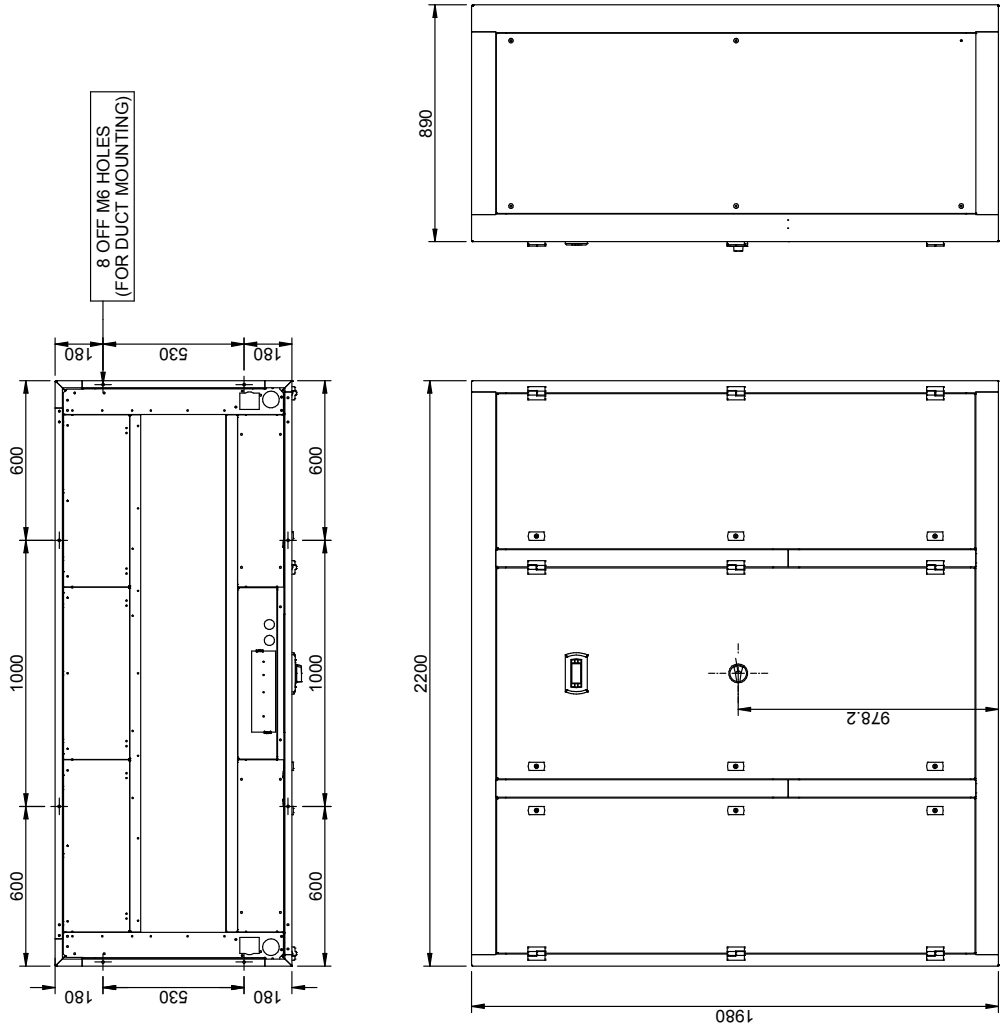
Installation Data

Dimensions

SC22D



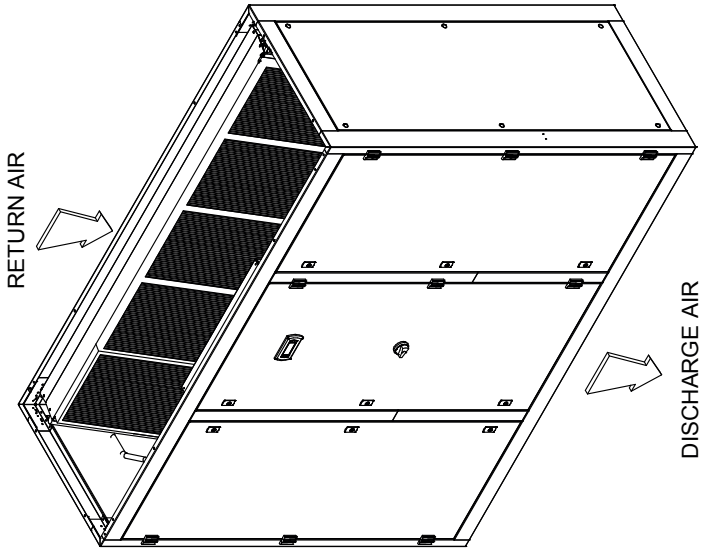
SC22D GENERAL ARRANGEMENT DRAWING



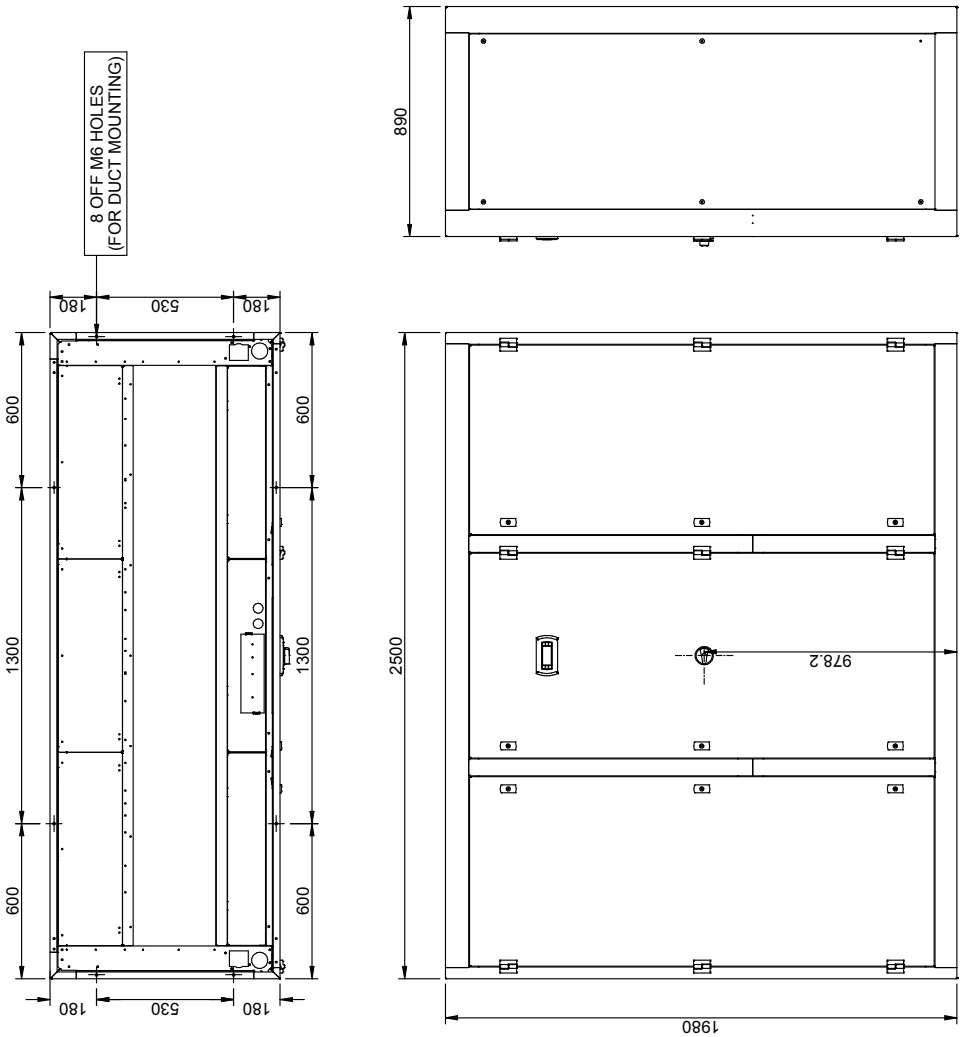
Installation Data

Dimensions

SC25D



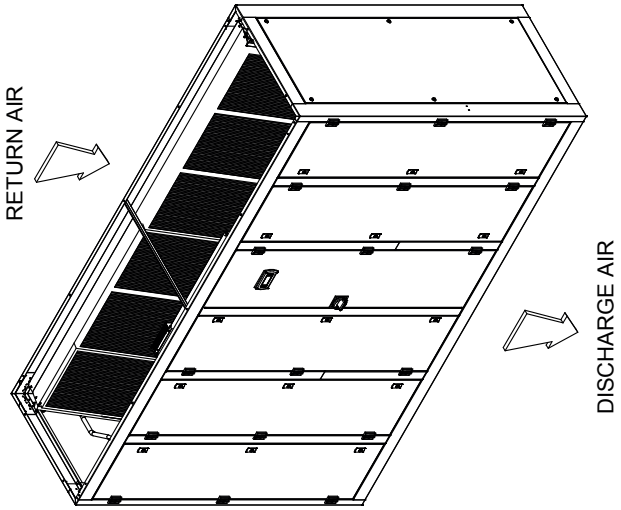
SC25D GENERAL ARRANGEMENT DRAWING



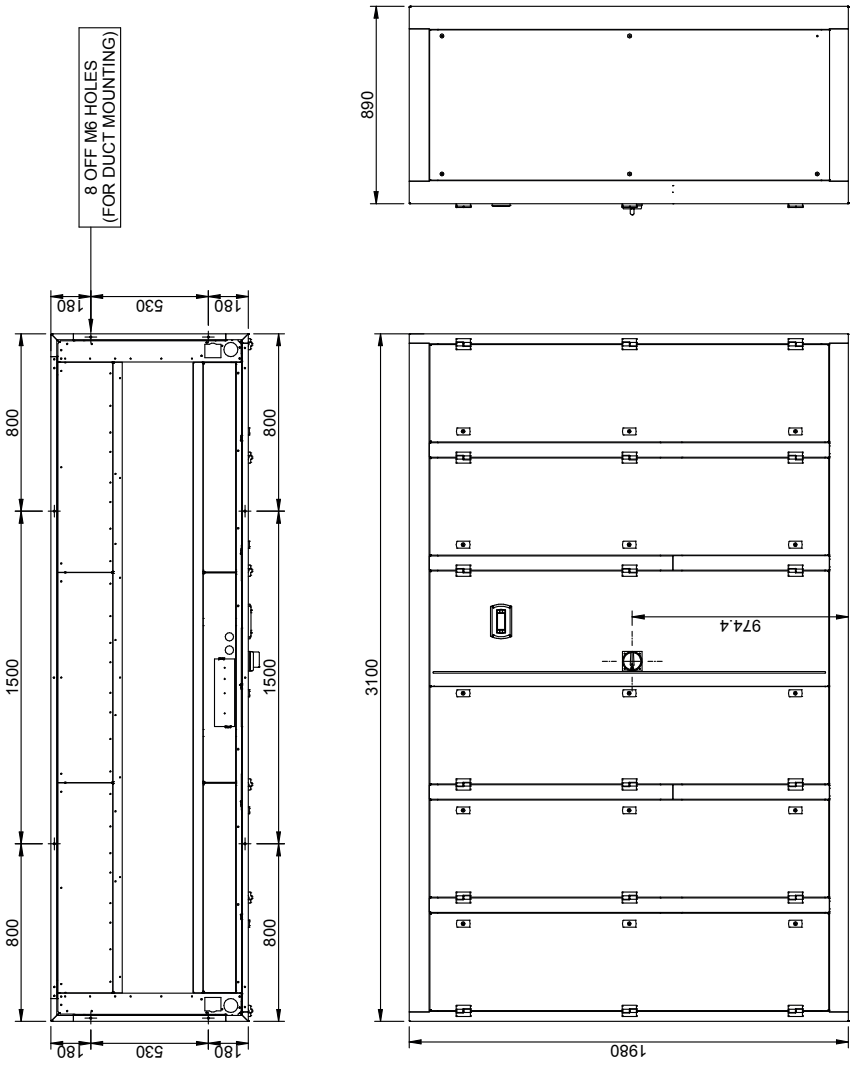
Installation Data

Dimensions

SC31D



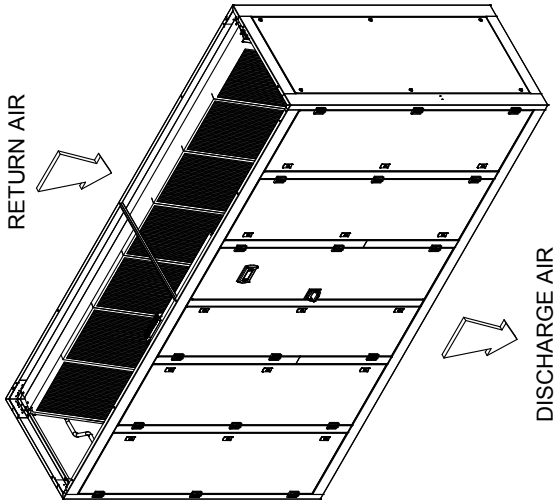
SC31D GENERAL ARRANGEMENT DRAWING

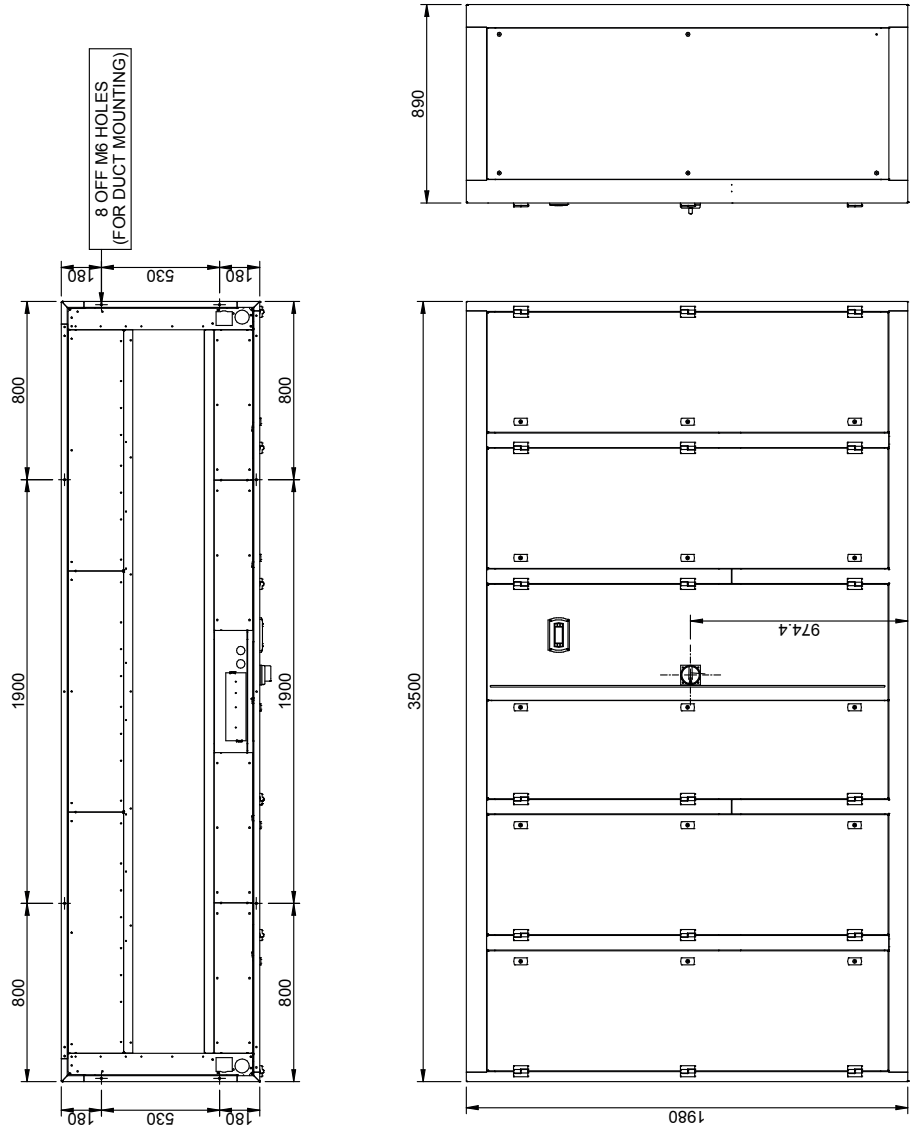


Installation Data

Dimensions

SC35D





SC35D GENERAL ARRANGEMENT DRAWING

Installation Data

Lifting

Whenever the unit is lifted, it should be from the base and, where possible, with all packing and protection in position.If any type of slinging is used, due care should be taken to ensure that the slings do not crush the casework.

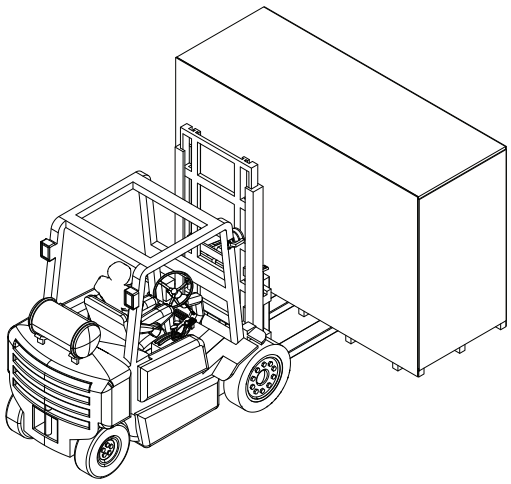
IMPORTANT

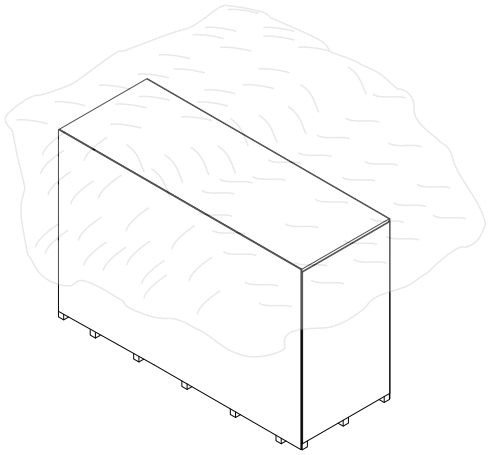
- If the unit is dropped, it should immediately be checked for damage
- Employ lifting specialists
- Local codes and regulations relating to the lifting of this type of equipment should be observed
- Lift the unit slowly and evenly

Positioning & Levelling

- The unit should be positioned on a stable and even base. With the use of a spirit level the base should be levelled to ensure good condensate removal and prevent door misalignment.
- Positioning the unit should be achieved by the use of rollers or skids. Crowbars must not be used as they impose a point load on the unit frame which may cause damage and distortion.
- Check the unit is as ordered. Discrepancies or transit damage should be reported to Airedale immediately.
- Care should be taken during handling and lifting, that the unit is well supported and properly balanced.
- Observe airflow and maintenance clearances
- Check all services are present and accessible

CAUTION ⚠	Airedale will accept no responsibility for mishandling during the positioning of the equipment.





Plastic Bag

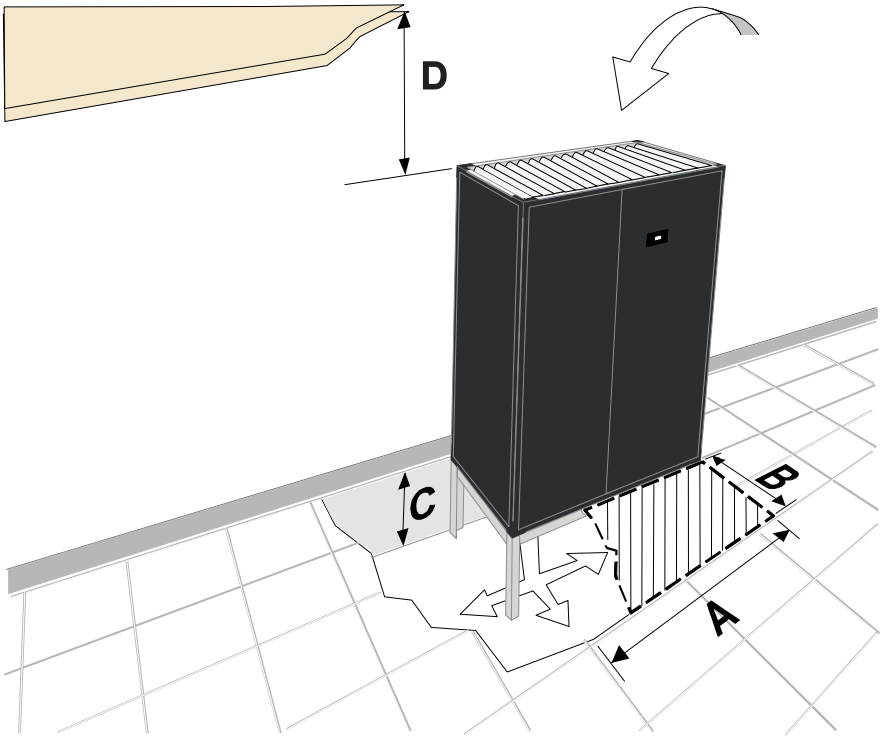
ATTENTION
The unit comes fixed on a pallet.
Use forklifts for handling

Unpacking

The unit is to be carefully unpacked. Inspected and any damage reported to Airedale immediately.

All packaging is to be recycled accordingly.

Positioning



Unit for illustration only

Minimum Unit Clearance

Open and Enclosed Floorstand Option

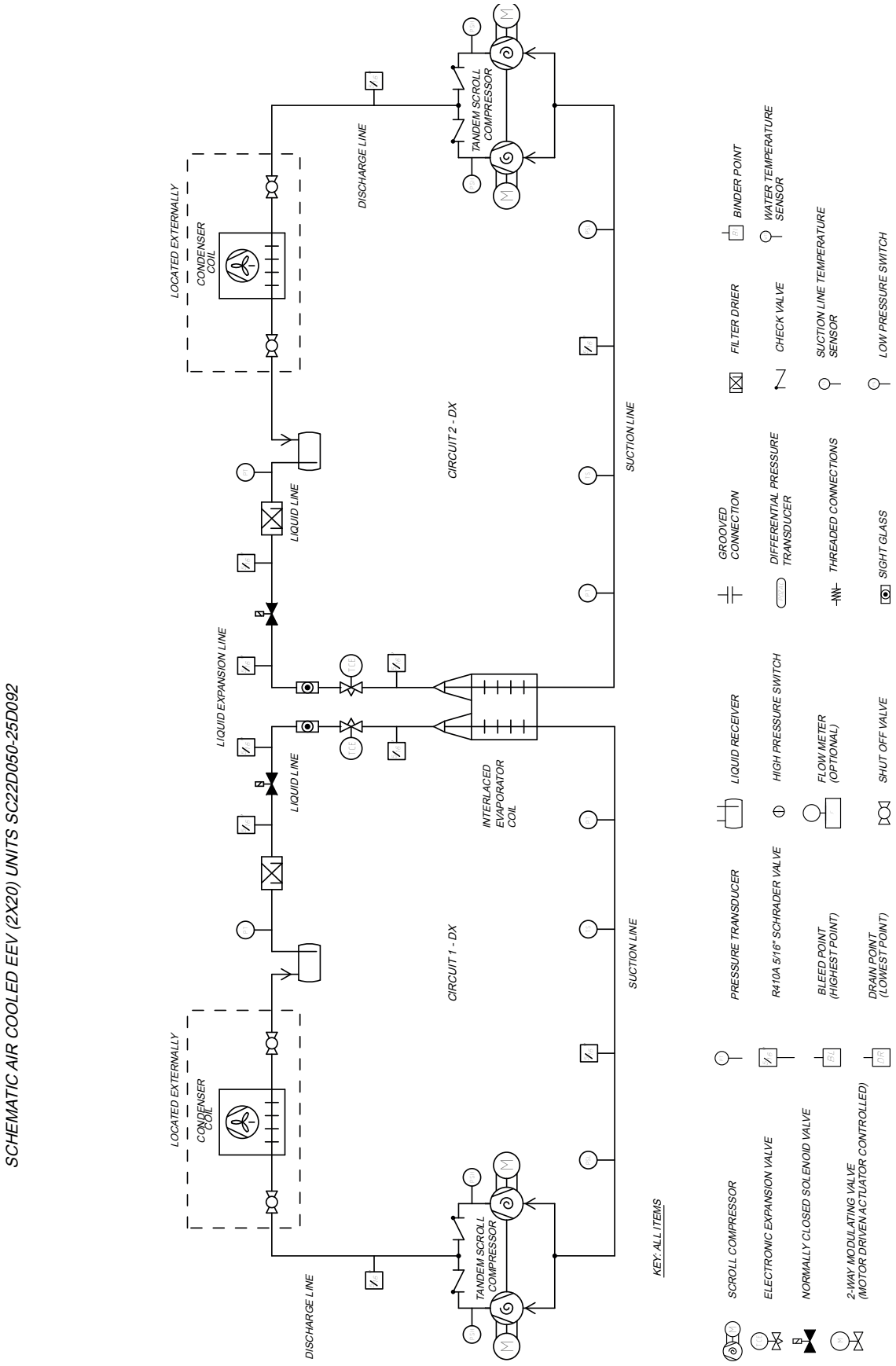
		A	B	C - Floorstand(3)
SC22D	mm	2200	880	Min 300– Max 750 (+ 50mm Feet Adjustable +/-20mm) (4)
SC25D	mm	2500	880	
SC31D	mm	3100	880	
SC35D	mm	3500	880	

		Minimum Ceiling Clearance- (D)			
		Forward Only	Forward and 1 Side	Forward and 2 Sides	All Faces
SC22D	mm	720	500	380	250
SC25D	mm	720	500	380	250
SC31D	mm	740	550	440	280
SC35D	mm	750	590	480	300

(1) Shown with standard open floor stand.
(2) Shaded area indicates minimum service and maintenance requirements. The unit must be installed with allowance for carpet tile clearance.
(3) Dimension C denotes recommended minimum/maximum floor stand height, refer to Airedale for special applications, please specify at order.
(4) Min = Threaded foot at minimum extension (additional to “C” dimension).
Max = Threaded foot at maximum extension (additional to “C” dimension).

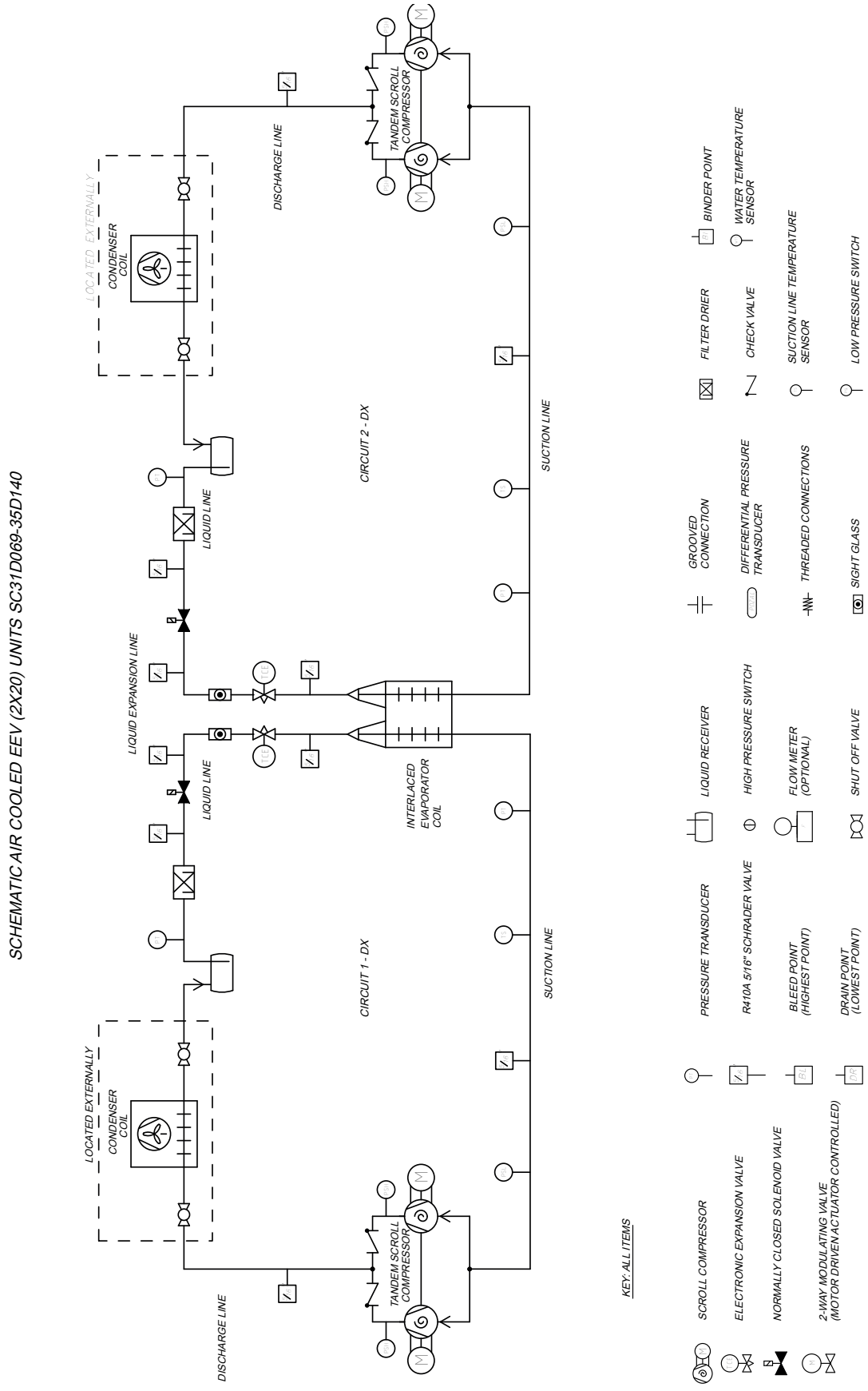
Pipework Schematics

SC22D050-25D092 - 2X20



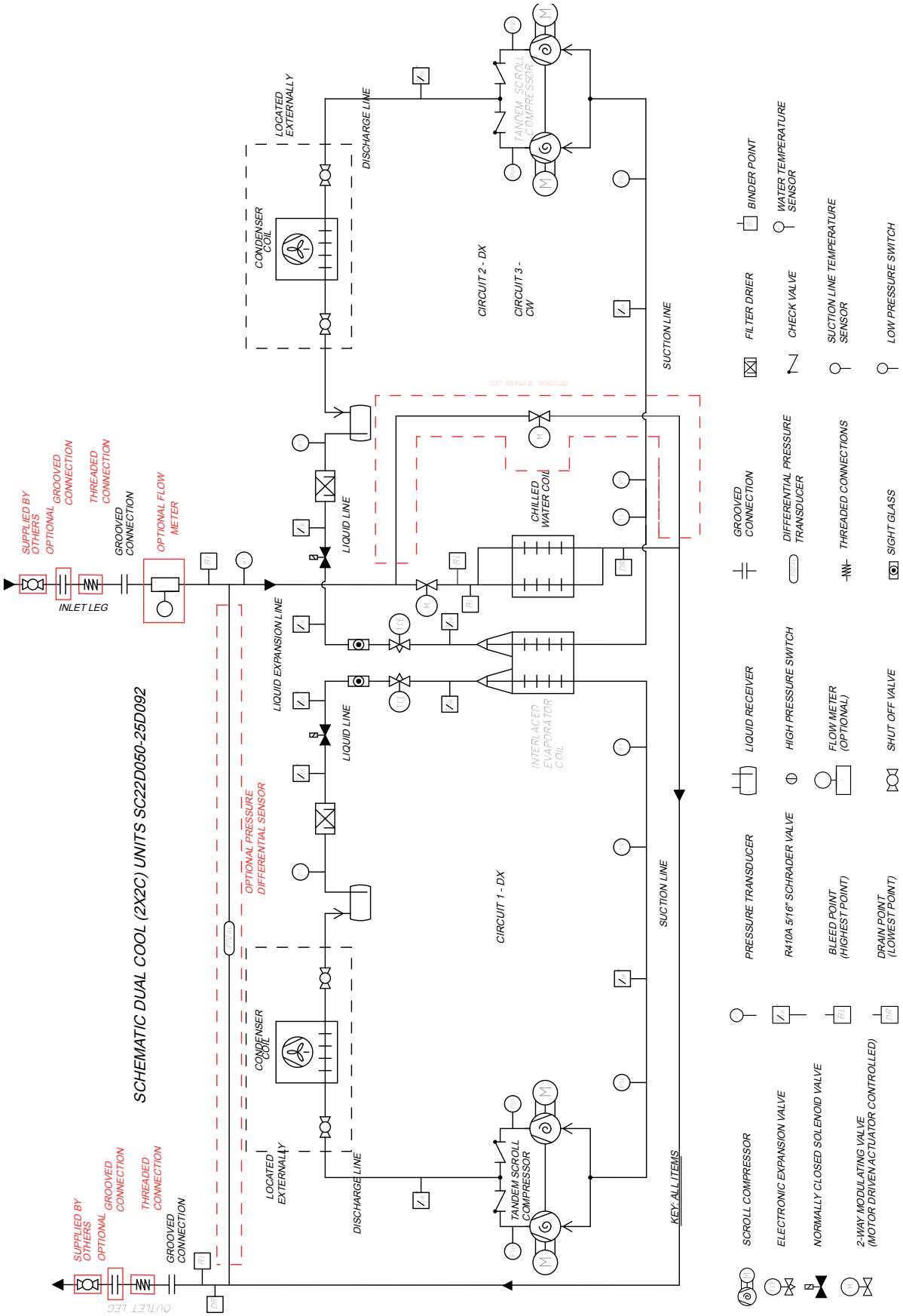
Pipework Schematics

SC31D069 - 35D140 - 2X20



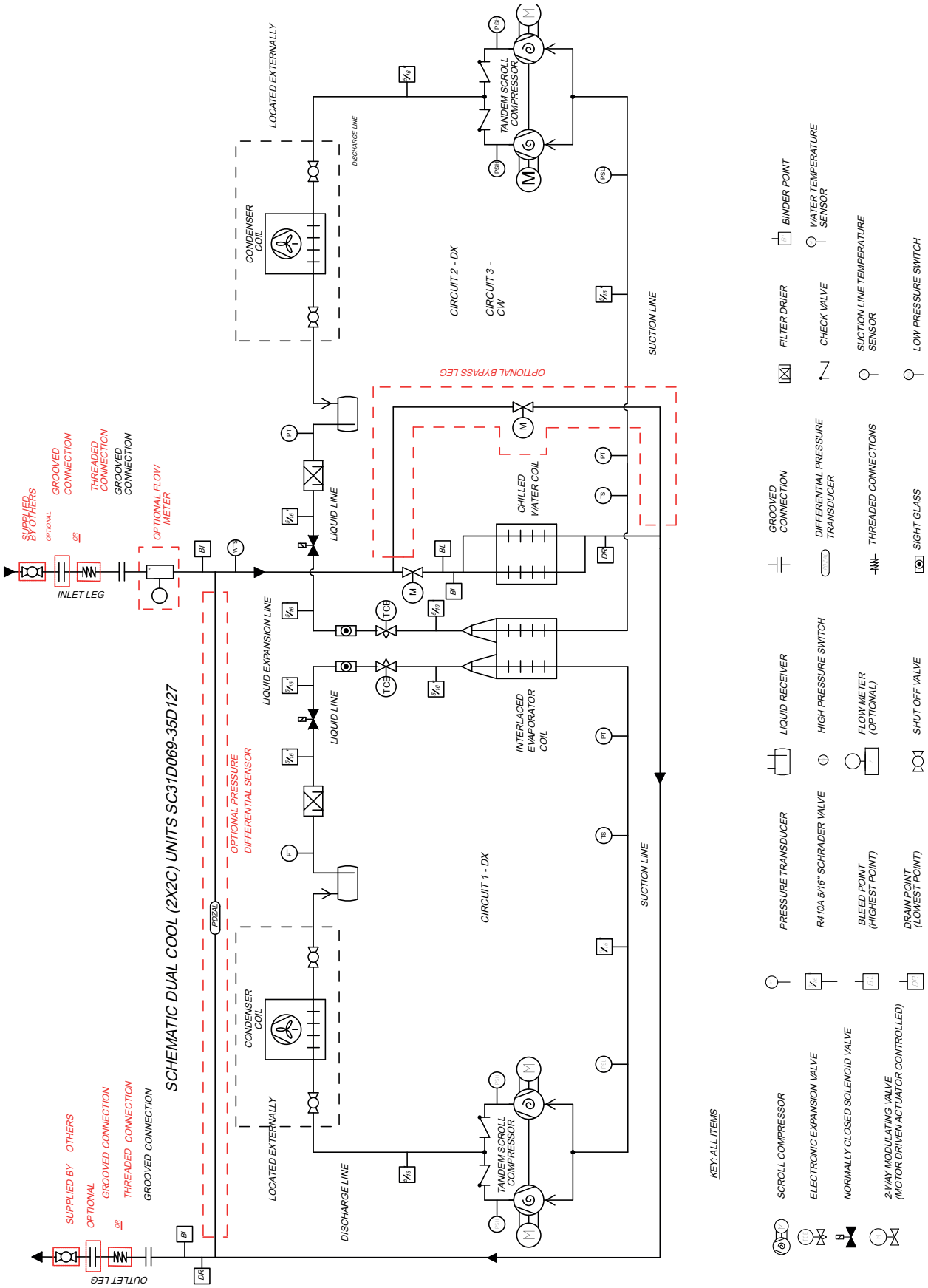
Pipework Schematics

SC22D050 - 25D092 - 2X2C



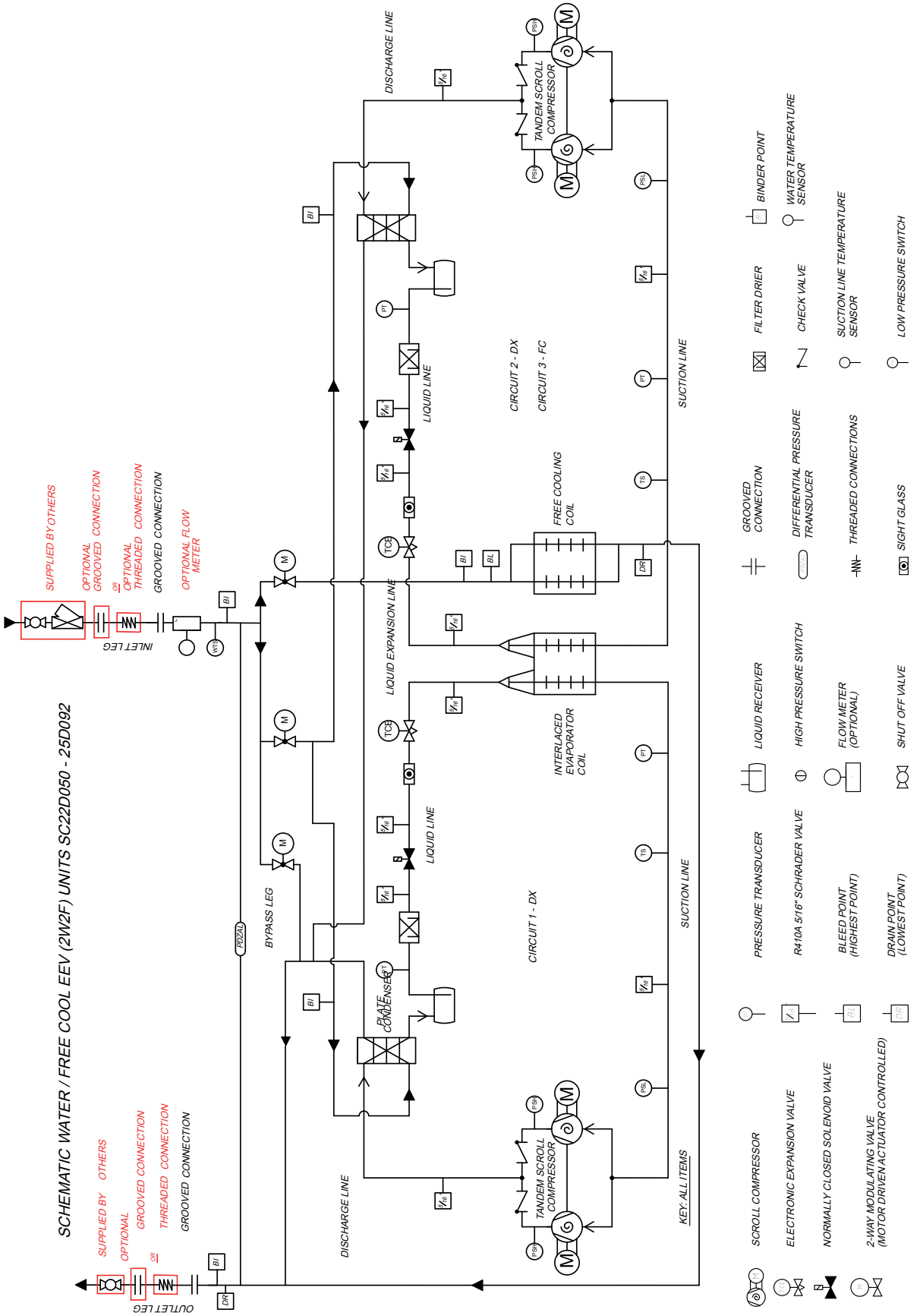
Pipework Schematics

SC31D 069 - 35D127 - 2X2C



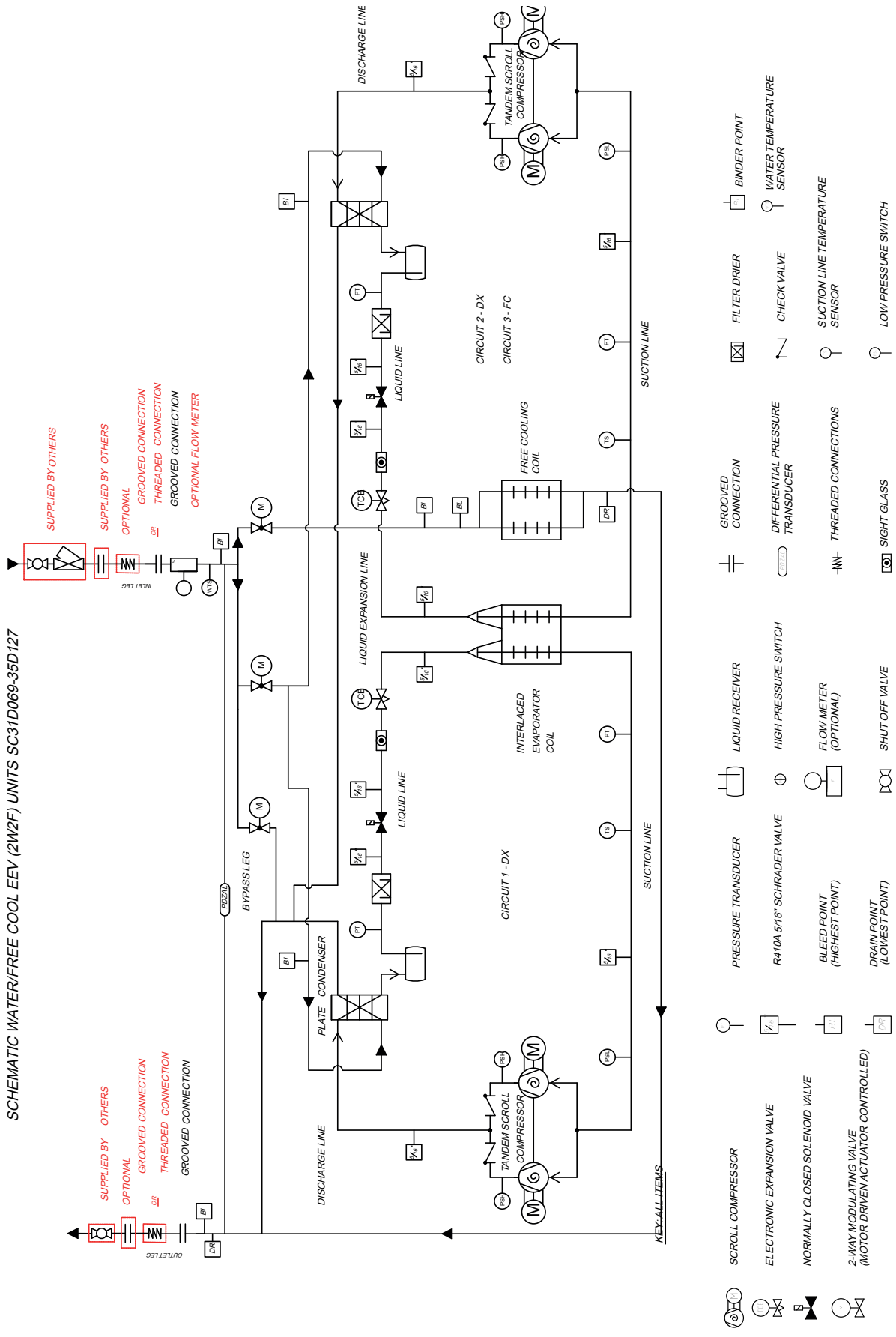
Pipework Schematics

SC22D050- 25D092 - 2W2F



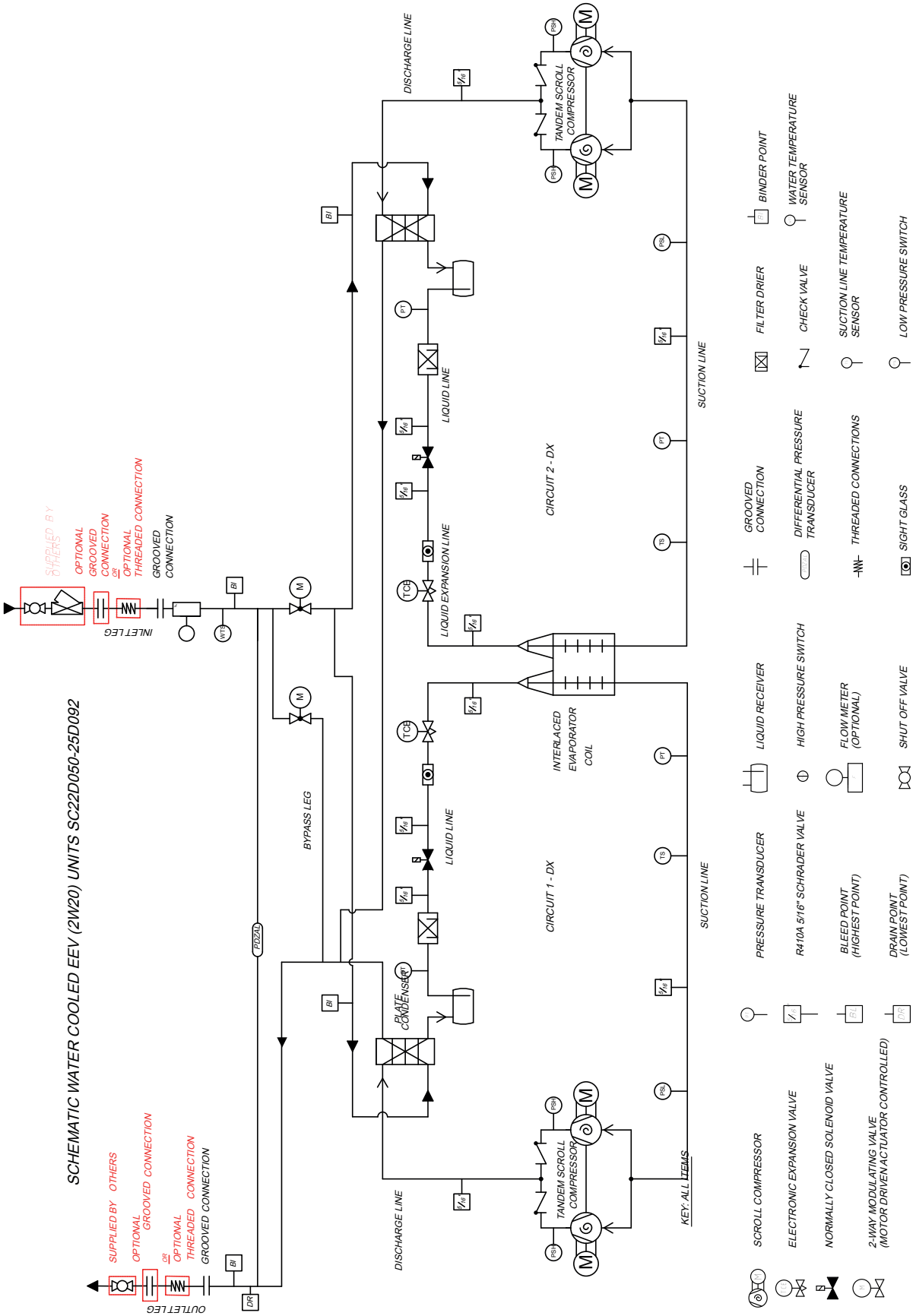
Pipework Schematics

SC31D 069 - 35D127 - 2W2F



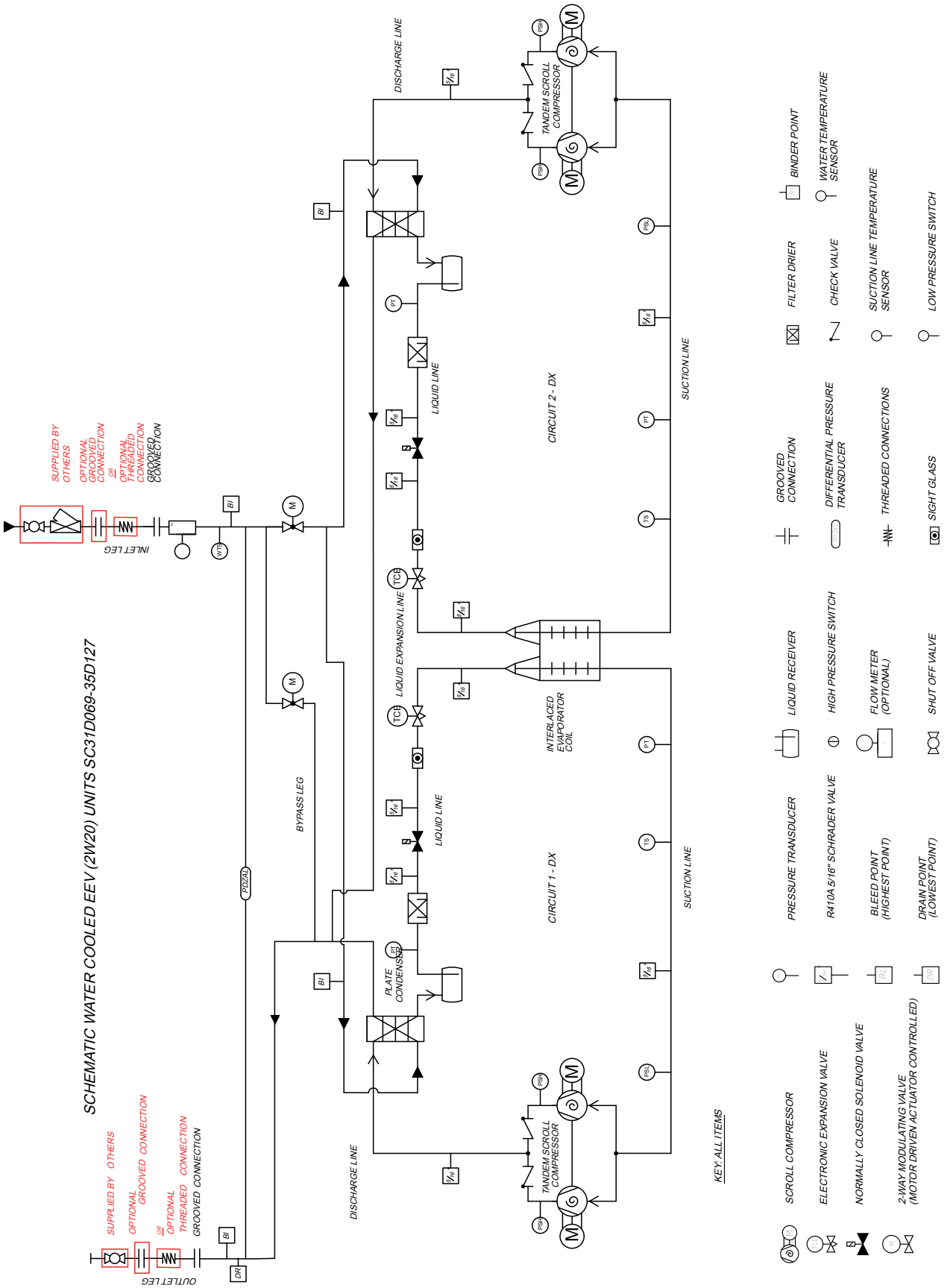
Pipework Schematics

SC22D050 - 25D092 - 2W20



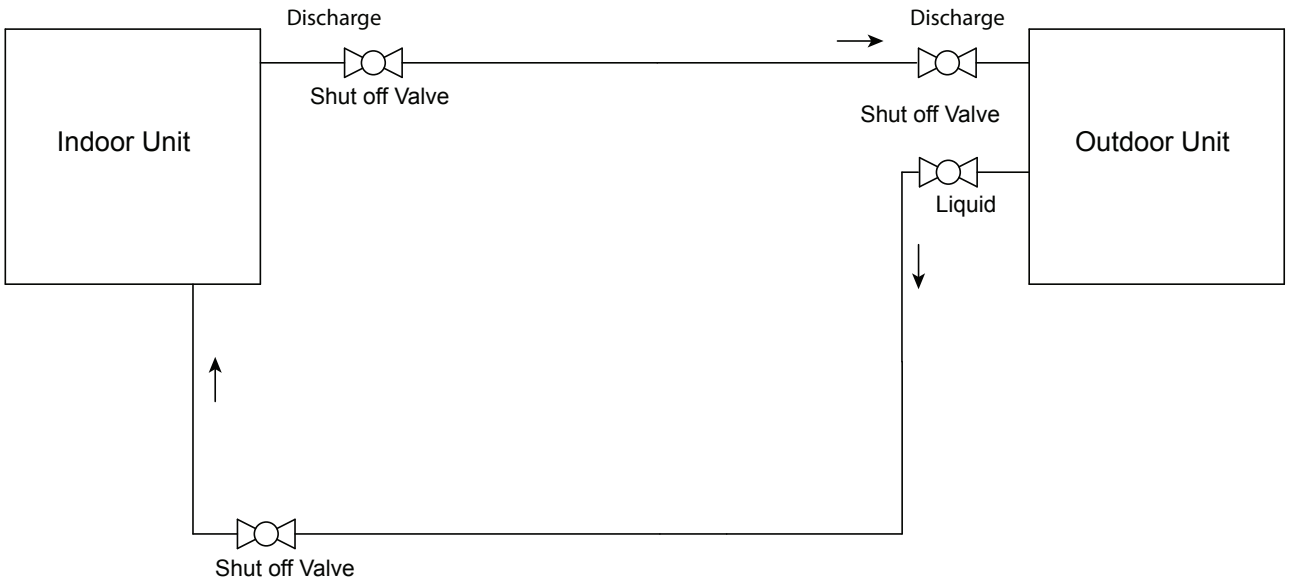
Pipework Schematics

SC31D 069 - 35D127 - 2W20

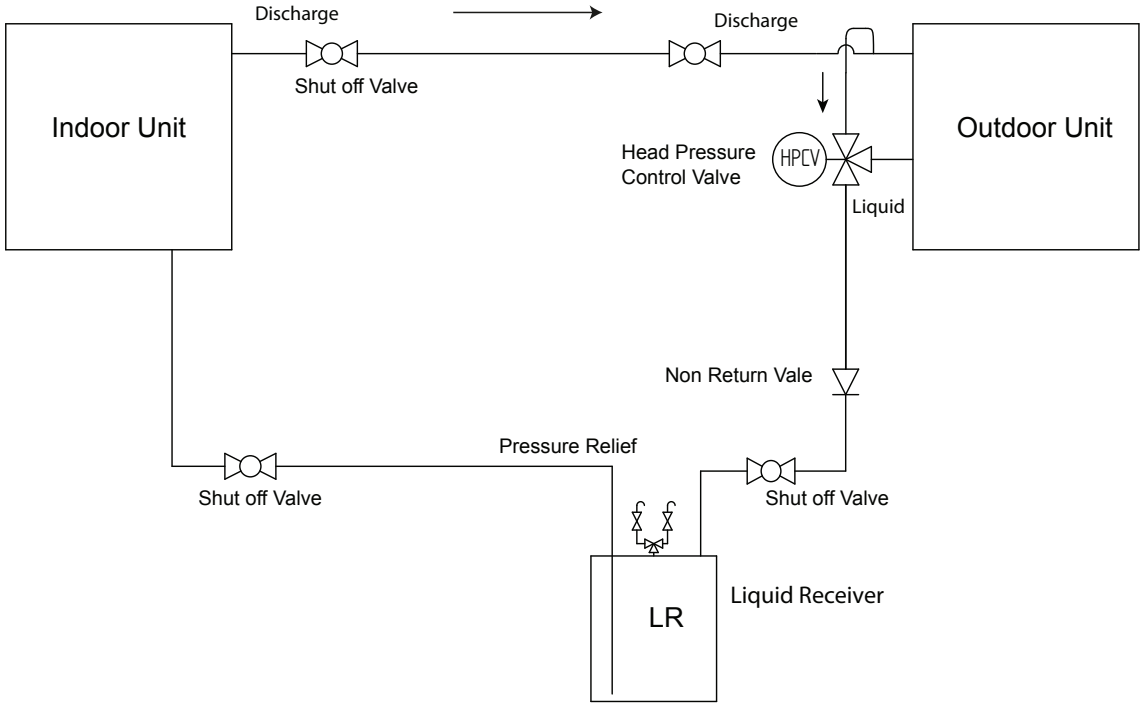


Installation Data

LAK (-32°C)



ELAK (-40°C)



Installation Data

System Pressure Strength Test

The system must be pressure tested to ensure that the pipework is installed satisfactory.
Nitrogen (Oxygen free) should only be used.
Strength pressure test is the pressure applied to a refrigeration system for its integral strength and it is usually defined as maximum working pressure (MWP) x factor of 1.43.
The pressure test ideally should be carried out for a period of one hour.

IMPORTANT ⚠	Low pressure transducers and switches must be removed whilst the high pressure strength test is carried out.

CAUTION ⚠	Before carrying out the pressure test, precautions shall be taken to evacuate all personnel from the area of risk and post notices advising that the system or equipment is under pressure. The test pressure in the system should be held for at least one hour. A longer period may be appropriate for larger systems or a fall in pressure due to leaks may not be detected. Any fall in pressure indicates a leak which should be traced.

System Leak Test

The system leak test is carried out with the low pressure transducers and switches fitted.
Leak pressure test is the pressure applied to a refrigeration system or part of a system to test for leakage. This test pressure is defined as Maximum Working Pressure of the particular system x factor of 1.1.

RECORD

Record on commissioning sheet provided once completed.

Filter Drier

The filter drier must be installed as close to the expansion valve as possible. It should be the last component within the system to be installed.

CAUTION ⚠	Failure to correctly fit a filter drier can cause malfunction of the system. They are however no substitute to good refrigeration practices with regard to system cleanlines

Installation Data

Evacuation

Evacuation for systems operating on R410A refrigerant should be carried out as follows:

1. The procedure should be carried out using a high vacuum pump. The pump should be connected to the high and low pressure sides of the system via a gauge manifold fitted with compound gauges. A high vacuum gauge should be fitted to the system at the furthest point from the vacuum pump.
2. Triple evacuation should be used to ensure that all contaminants are removed or at least reduced to significantly low proportions.
3. The vacuum pump should be operated until a pressure of 1.5 Torr (200 Pa) absolute pressure is reached, at which time the vacuum pump should be stopped and the vacuum broken with oxygen free nitrogen until the pressure rises above zero.
4. The above operation should be repeated a second time.
5. The system should then be evacuated a third time but this time to 0.5 Torr (absolute pressure and broken with the correct refrigerant, until pressures equalise between the charging bottle and the system.

Record

Record on commissioning sheet provided once completed.

It is important that solenoid valves are energised correctly to ensure that the hot gas reheat coil is fully evacuated. (The normally closed (NC) valve should be energised). The use of a magnetic coil lifter is recommended

CAUTION ⚠	Ensure that the evacuation gauge is isolated before introducing any pressure. The gauge may become dangerous when exposed to any positive pressure.

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 (inch)	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

IMPORTANT

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. Excess pressure drop on a system may require additional refrigerant charges to ensure correct unit operation.
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.

Calculation of Liquid Line Refrigerant Charge (kg)

The liquid line refrigerant charge can be calculated using the following equation:

LR = L x m Where:
LR = Total Liquid Line Refrigerant charge (kg)
L = Length of Interconnecting pipework (metres)
m = Liquid Line Refrigerant charge / metre. Refer to Liquid Line Refrigerant Charge (kg/m), above.

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. = SC22D050-2X20-0
Outdoor Unit Model Ref. = CR50 Condenser
Interconnecting Pipework = 10 metres

Selecting The Liquid Line Size From the Refrigerant Pipe Sizing Guide, the liquid line size given for pipework length of 10 metres is: Liquid Line Size = 5/8”

Liquid Line Refrigerant Charge

LR = L x m Where:
L = 10 metres
m = 0.15 kg/m
LR = 10 x 0.15

Liquid Line Charge = 1.5 kg

System Refrigerant Charge SR = LR + IR + OR
Where:
LR = 1.5 kg. (As calculated from above)
IR = 3.5 kg
OR = 4.5 kg
SR = 1.5 + 3.5 + 4.5

System Refrigerant Charge = 9.5kg / Circuit

Liquid Sub Cooling

Liquid Line

If the system is configured with the SmartCool higher than the condenser unit it may be required to increase the degree of sub cooling to prevent flashing gas. This flashing is caused by excess pressure drop caused by the static head of refrigerant and can cause poor operation of the evaporator and metering device.

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

- Given the following as an example:
- Refrigerant R410A
- Condensing temperature (54.4°C)
- Liquid lift 20m
- Piping friction loss 0.21 bar
- Losses through valves and fittings 0.5 Bar

1. Determine the pressure drop due to pipe friction = 0.21 Bar
2. Pressure drop due to valves and fittings = 0.5 Bar
3. Pressure loss due to liquid lift = height x 0.115 = 20 x 0.115 = 2.3 bar

Note:- At normal liquid temperatures the static pressure loss due to elevation at the top of a liquid lift 0.115 bar/m

Therefore:- Total pressure loss in liquid line = 3.01bar

Condensing pressure @ Condensing temperature (54.4°C) = 34 Bar

Total pressure loss in liquid line = 3.01 Bar

Nett pressure at Expansion valve = 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 at the Nett pressure at expansion valve
= 54.4 - 52 = 2.4°C
Therefore liquid sub cooling required to prevent liquid flashing = 2.4°C

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.

Installation Data

Pipesizing

Indoor Unit	Outdoor Unit	Indoor Unit Connection Size		Equivalent Pipe Lengths with R410A					
				0-15m	Discharge		**15-40m**	Discharge	
				Liquid	Horizontal	Vertical	Liquid	Horizontal	Vertical
		Liquid	Discharge	(3)	(1)	(2)	(3)	(1)	(2)
SC22D050-2X20-0	CR50	1/2"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC22D059-2X20-0	CR50	5/8"	7/8"	5/8"	7/8”	7/8”	5/8"	7/8”	3/4”
SC22D064-2X20-0	CR50	5/8"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC22D074-2X20-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC25D062-2X20-0	CR50	5/8"	7/8"	5/8"	7/8”	7/8”	5/8"	7/8”	3/4”
SC25D068-2X20-0	CR50	5/8"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC25D075-2X20-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC25D085-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC25D092-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC31D069-2X20-0	CR65	5/8"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC31D079-2X20-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC31D089-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC31D094-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC31D108-2X20-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC31D124-2X20-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC35D079-2X20-0	CR65	5/8"	1 1/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC35D091-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC35D098-2X20-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC35D111-2X20-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC35D127-2X20-0	CR105	5/8"	1 1/8"	3/4”	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC35D140-2X20-0	CR140	5/8"	1 1/8"	3/4”	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC22D050-2X2C-0	CR50	1/2"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC22D059-2X2C-0	CR50	5/8"	7/8"	5/8"	7/8”	7/8”	5/8"	7/8”	3/4”
SC22D064-2X2C-0	CR50	5/8"	7/8"	5/8"	7/8”	5/8"”	5/8"	7/8”	5/8"
SC22D074-2X2C-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC25D062-2X2C-0	CR50	5/8"	7/8"	5/8"	7/8”	7/8”	5/8"	7/8”	3/4”
SC25D068-2X2C-0	CR50	5/8"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC25D075-2X2C-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC25D085-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC25D092-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC31D069-2X2C-0	CR65	5/8"	7/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC31D079-2X2C-0	CR65	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	5/8"	1 1/8”	3/4”
SC31D089-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC31D094-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC31D108-2X2C-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC31D124-2X2C-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC35D079-2X2C-0	CR65	5/8"	1 1/8"	5/8"	7/8”	5/8"	5/8"	7/8”	5/8"
SC35D091-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	3/4”
SC35D098-2X2C-0	CR80	5/8"	1 1/8"	5/8"	1 1/8”	3/4”	3/4”	1 1/8”	7/8”
SC35D111-2X2C-0	CR105	5/8"	1 1/8"	5/8"	1 1/8”	7/8”	3/4”	1 1/8”	7/8”
SC35D127-2X2C-0	CR105	5/8"	1 1/8"	3/4”	1 1/8”	7/8”	3/4”	1 1/8”	7/8”

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

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

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

Installation Data

Refrigerant Charges

2X20, 2X2C

		Standard Condenser		Larger Condenser	
Indoor Unit	Refrigerant Charge per Circuit (kg)	Outdoor Unit	Refrigerant Charge per Circuit (kg)	Outdoor Unit	Refrigerant Charge per Circuit (kg)
SC22D050-2X20-0	3.5	2 x CR50	4.5	2 x CR65	9.0
SC22D059-2X20-0	4.0	2 x CR50	4.5	2 x CR65	9.0
SC22D064-2X20-0	4.0	2 x CR50	4.5	2 x CR65	9.0
SC22D074-2X20-0	4.0	2 x CR65	9.0	2 x CR80	7.7
SC25D062-2X20-0	4.6	2 x CR50	4.5	2 x CR65	9.0
SC25D068-2X20-0	4.6	2 x CR50	4.5	2 x CR65	9.0
SC25D075-2X20-0	4.6	2 x CR65	9.0	2 x CR80	7.7
SC25D085-2X20-0	5.0	2 x CR80	7.7	2 x CR105	15.3
SC25D092-2X20-0	5.0	2 x CR80	7.7	2 x CR105	15.3
SC31D069-2X20-0	5.7	2 x CR65	9.0	2 x CR80	7.7
SC31D079-2X20-0	5.8	2 x CR65	9.0	2 x CR80	9.0
SC31D089-2X20-0	6.2	2 x CR80	7.7	2 x CR105	15.3
SC31D094-2X20-0	6.2	2 x CR80	7.7	2 x CR105	15.3
SC31D108-2X20-0	6.2	2 x CR105	15.3	2 x CR140	20.2
SC31D124-2X20-0	6.2	2 x CR105	15.3	2 x CR140	20.2
SC35D079-2X20-0	6.2	2 x CR65	9.0	2 x CR80	7.7
SC35D091-2X20-0	6.6	2 x CR80	7.7	2 x CR105	15.3
SC35D098-2X20-0	6.6	2 x CR80	7.7	2 x CR105	15.3
SC35D111-2X20-0	6.7	2 x CR105	15.3	2 x CR140	20.2
SC35D127-2X20-0	6.7	2 x CR105	15.3	2 x CR140	20.2
SC35D140-2X20-0	6.7	2 x CR140	20.2	2 x CR165	20.2
SC22D050-2X2C-0	3.5	2 x CR50	4.5	2 x CR65	9.0
SC22D059-2X2C-0	4.0	2 xCR50	4.5	2 x CR65	9.0
SC22D064-2X2C-0	4.0	2 x CR50	4.5	2 x CR65	9.0
SC22D074-2X2C-0	4.0	2 x CR65	9.0	2 x CR80	7.7
SC25D062-2X2C-0	4.6	2 x CR50	4.5	2 x CR65	9.0
SC25D068-2X2C-0	4.6	2 x CR50	4.5	2 x CR65	9.0
SC25D075-2X2C-0	4.6	2 x CR65	9.0	2 x CR80	7.7
SC25D085-2X2C-0	5.0	2 x CR80	7.7	2 x CR105	15.3
SC25D092-2X2C-0	5.0	2 x CR80	7.7	2 x CR105	15.3
SC31D069-2X2C-0	5.7	2 x CR65	9.0	2 x CR80	7.7
SC31D079-2X2C-0	5.8	2 x CR65	9.0	2 x CR80	7.7
SC31D089-2X2C-0	6.2	2 x CR80	7.7	2 x CR105	15.3
SC31D094-2X2C-0	6.2	2 x CR80	7.7	2 x CR105	15.3
SC31D108-2X2C-0	6.2	2 x CR105	15.3	2 x CR140	20.2
SC31D124-2X2C-0	6.2	2 x CR105	15.3	2 x CR140	20.2
SC35D079-2X2C-0	6.2	2 x CR65	9.0	2 x CR80	7.7
SC35D091-2X2C-0	6.6	2 x CR80	7.7	2 x CR105	15.3
SC35D098-2X2C-0	6.6	2 x CR80	7.7	2 x CR105	15.3
SC35D111-2X2C-0	6.7	2 x CR105	15.3	2 x CR140	20.2
SC35D127-2X2C-0	6.7	2 x CR105	15.3	2 x CR140	20.2

Installation Data

Refrigerant Charges

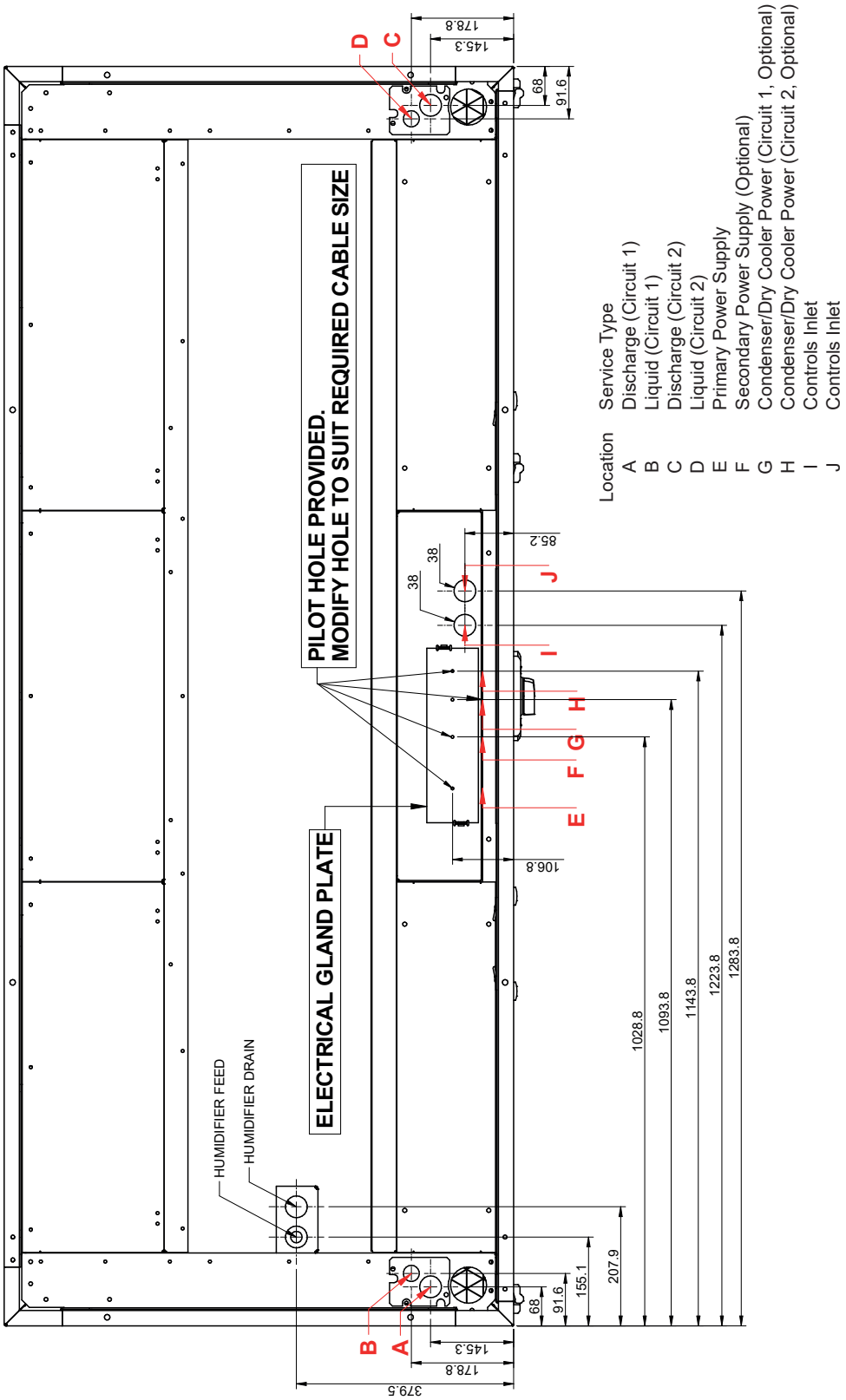
2W20, 2W2F

Indoor Unit	Refrigerant Charge per Circuit (kg)
SC22D050-2W20-0	4.1
SC22D059-2W20-0	4.6
SC22D064-2W20-0	4.9
SC22D074-2W20-0	4.9
SC25D062-2W20-0	5.2
SC25D068-2W20-0	5.5
SC25D075-2W20-0	5.5
SC25D085-2W20-0	6.1
SC25D092-2W20-0	6.1
SC31D069-2W20-0	6.6
SC31D079-2W20-0	6.6
SC31D089-2W20-0	7.3
SC31D094-2W20-0	7.3
SC31D108-2W20-0	7.5
SC31D124-2W20-0	8.0
SC35D079-2W20-0	7.0
SC35D091-2W20-0	7.8
SC35D098-2W20-0	7.8
SC35D111-2W20-0	8.0
SC35D127-2W20-0	8.4
SC22D050-2W2F-0	4.1
SC22D059-2W2F-0	4.6
SC22D064-2W2F-0	4.9
SC22D074-2W2F-0	4.9
SC25D062-2W2F-0	5.2
SC25D068-2W2F-0	5.5
SC25D075-2W2F-0	5.5
SC25D085-2W2F-0	6.1
SC25D092-2W2F-0	6.1
SC31D069-2W2F-0	6.6
SC31D079-2W2F-0	6.6
SC31D089-2W2F-0	7.3
SC31D094-2W2F-0	7.3
SC31D108-2W2F-0	7.5
SC31D124-2W2F-0	8.0
SC35D079-2W2F-0	7.0
SC35D091-2W2F-0	7.8
SC35D098-2W2F-0	7.8
SC35D111-2W2F-0	8.0
SC35D127-2W2F-0	8.4

Installation

Incoming Services

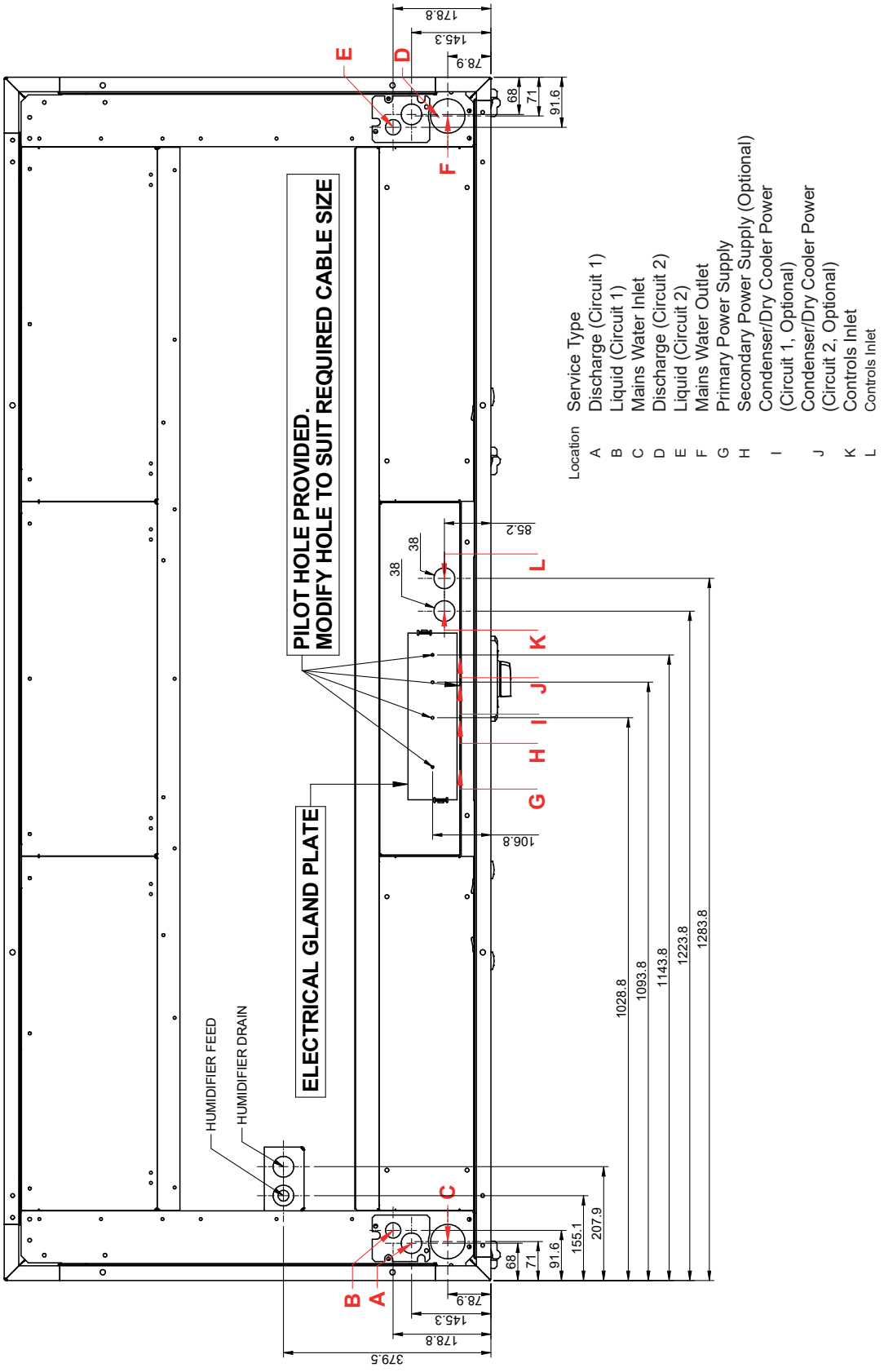
2X20



Installation

Incoming Services

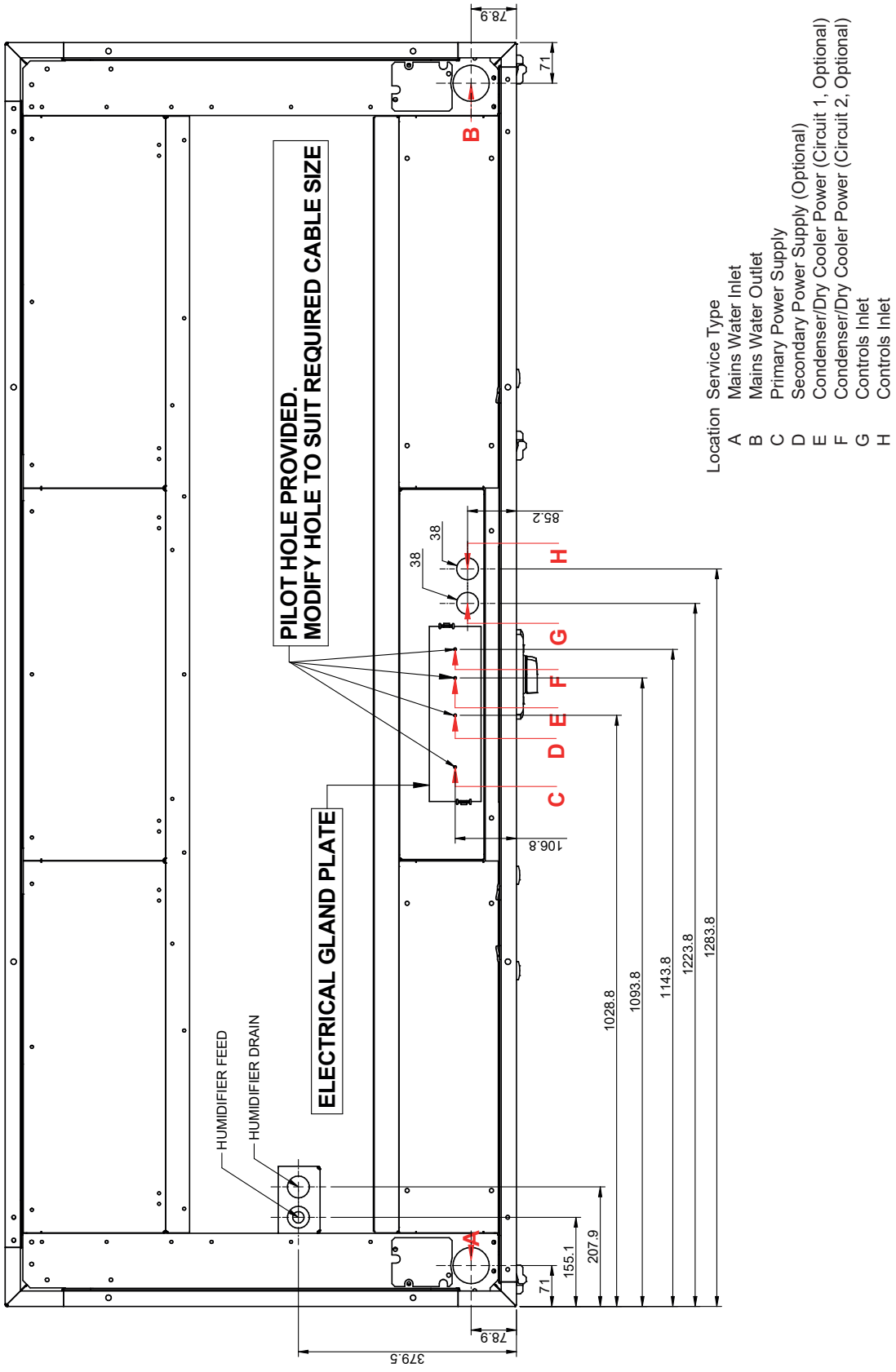
2X2C



Installation

Incoming Services

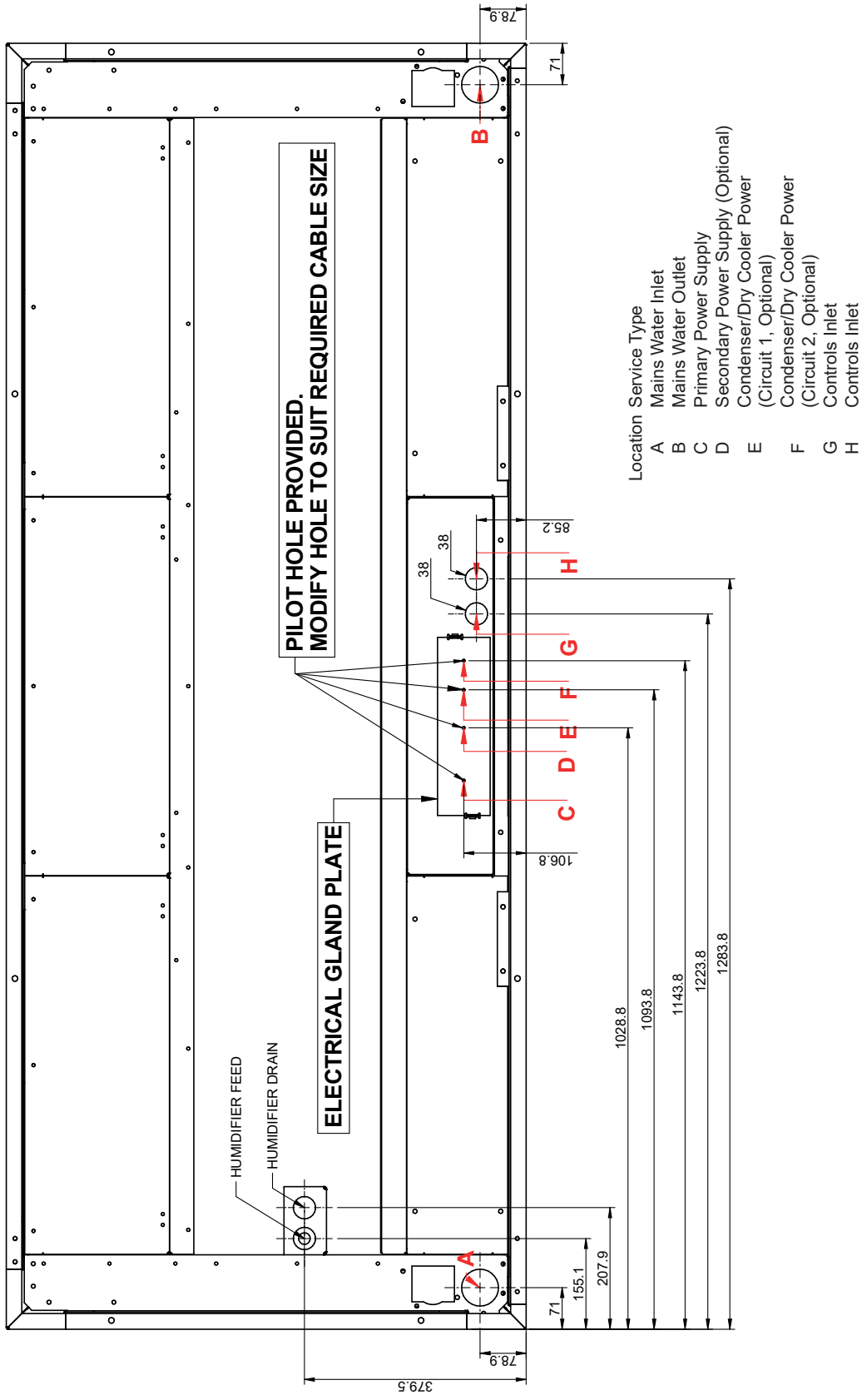
2W20



Installation

Incoming Services

2W2F



Design Data - Water Cooled & Free Cooling

Dry Cooler (kW)

The dry cooler design duty is equivalent to the Total Heat of Rejection (THR) from the indoor unit.
This value can be taken from the performance data in the technical manual using the following.
Parameters required are:

- Ambient conditions (°C dB) Airedale recommend a 10°C lower than the EWT.
- Glycol content (%)
- Entering & leaving water/glycol temperatures (°C) (EWT and LWT)
- Mean condensing temperature (°C) Based on 5°C above leaving water/glycol temperature

Calculation of Design Volumetric Flow Rate (l/s)
The maximum design volumetric flow rate can be calculated using the following equation:

$$\dot{V} = \frac{Q}{\rho \times Cp \times \Delta T}$$

Where:

Q	=	Total Heat Rejection (kW).
ΔT	=	Temperature Difference between Water/Glycol Entering/ Leaving (°C).
ρ	=	Density. Refer to table below.
Cp	=	Specific heat capacity. Refer to table below.

Calculation of Indoor Unit Pressure Drop (ΔPs)

The maximum indoor unit pressure drop can be calculated using the following equation:
$\Delta Ps = \Delta Pw \times \Delta x$
Using the volumetric flow rate calculated above, the pressure drop (ΔPw) can be taken from the relevant pressure drop graph.
Where:
ΔP_s = Maximum Water/Glycol Pressure Drop for the indoor unit (kPa).
ΔP_w = Equivalent Water Pressure Drop for indoor unit (kPa).
P_x = % Glycol Pressure Drop Correction Factor @ 20°C Water Temperature.

The resultant pressure drop (ΔPs) is the maximum pressure drop based on the indoor unit running at the prescribed conditions. This will typically occur when the water/glycol temperature is approximately 20°C and the water/ glycol is being circulated through the free cooling coil and through the water cooled condenser.
The indoor unit pressure drop will reduce at other operating conditions.

Installation

Glycol

Specific Heat Capacity (C_p) (kj/kg K)

Water/Glycol Temperature °C	Ethylene Glycol (Volume) / Freezing Point °C				
	0% / 0°C	10% / -4°C	20% / -9°C	30% / -15°C	40% / -23°C
	Cp	Cp	Cp	Cp	Cp
20	4.183	3.972	3.815	3.645	3.468
25	4.181	3.981	3.826	3.660	3.485
30	4.179	3.989	3.838	3.674	3.502
35	4.178	3.998	3.849	3.688	3.518
40	4.179	4.007	3.861	3.702	3.535
45	4.181	4.015	3.872	3.716	3.552

Density (ρ) (kg/m³)

Water/Glycol Temperature °C	Ethylene Glycol (Volume) / Freezing Point °C				
	0% / 0°C	10% / -4°C	20% / -9°C	30% / -15°C	40% / -23°C
	ρ	ρ	ρ	ρ	ρ
20	998	1013	1030	1045	1060
25	997	1012	1028	1043	1058
30	996	1010	1026	1041	1055
35	994	1008	1024	1039	1053
40	992	1006	1022	1036	1050
45	990	1003	1020	1035	1048

Pressure Drop Correction Factor (P_x)

Water/Glycol Temperature °C	Ethylene Glycol (Volume)				
	0%	10%	20%	30%	40%
	Px	Px	Px	Px	Px
20	0.983	1.013	1.054	1.096	1.15

(1) All data based upon ASHRAE fundamentals 2001.

Installation Data

Refrigerant Handling

Only certified personnel must charge the systems with refrigerant. Personal protective equipment must be worn when handling refrigerants.

Charging Gauges

The refrigerant Schrader connections on the SmartCool units are 5/16” to allow for the increase working pressures of R410A.

CAUTION ⚠	Gauges designed for R410A must only be used. The system must be charged with clean virgin refrigerant R410A only.

Refrigerant Charge

Weights

The exact refrigerant charge is dependant on site circumstances and operating temperatures. Pipework runs must be taken into consideration. The refrigerant charge must be weighed into the system and recorded within your F-Gas record.

RECORD

Record on commissioning sheet provided once completed.

The solenoid valve head must be put back on the body before unit operation.
Schrader caps must be replaced following connection of service gauges to the unit.

Final Leak Test

A final leak test must be carried out following removal of service gauges prior to leaving site ensuring that the system complies with F-Gas regulations.

Oil Charging Guide

The compressor(s) is supplied with oil for up to approximately 20m of interconnecting pipework.

Compressors

The compressor oil sight glass (where fitted) should indicate a level of between 1/3 and 2/3 to ensure correct operation.

Run the compressor(s) for a minimum of 1 hour to check oil return and motor function. For tandem or trio sets, checks should be performed in part load operation.

1. Use a temperature metering device on each circuit:
2. Check operation and superheat readings are within acceptable limits.
3. Check suction and discharge pressure are within acceptable limits.
4. Check there is NO foaming in the compressor sight glass. This would indicate the presence of liquid returning to the compressor.
5. Check sight glass following commissioning and top oil up if level has fallen below minimum.
6. If oil has been added to allow for long pipe runs, large number of oil traps, etc, and the level in the compressors keep decreasing; the oil return in the system is insufficient. A pipework design check is required.

IMPORTANT

It is possible to check the oil level of a compressor a few moments after it is turned off.

However the oil level must not be observed when the compressor is turned off. The refrigerant in the system can give a false indication of this level. In this case the oil level should be at about 1/3.

IMPORTANT

For applications with pipework in excess of 20m, long vertical runs, special operating conditions etc, ensure good oil return is guaranteed AND add sufficient oil to the system.

REMEMBER, TOO MUCH or TOO LITTLE OIL can cause compressor damage. As a rule NO MORE than 10% additional oil should be added to any system.

ALWAYS use the oil specified by the compressor manufacturer.

Polyol ester oil is extremely hygroscopic and will rapidly absorb moisture from the air. The oil must therefore not be left open to the atmosphere for long periods of time. The system must be correctly evacuated to ensure all moisture is removed.

High / Low Pressure Switch Settings

Pressure switch settings High pressure switch cut-out	40.5 bar
High pressure switch cut-in	30.0 bar
High pressure switch differential	10.3 bar
Low pressure switch cut-out	1.0 bar
Low pressure cut-in	3.0 bar
Low pressure differential	2.0 bar

Humidifier Bottle Information

Limit Values for the supply water with Medium to High conductivity in an immersed electrode humidifier..

			Min	Max
Hydrogen ions		pH	7	8.5
Specific conductivity at 20°C	σR 20°C	µS/cm	300	1250
Total dissolved solids	TDS	mg/l	(1)	(1)
Dry residue at 180 °C	R180	mg/l	(1)	(1)
Total hardness TH		mg/l CaCO3	100(2)	400
Temporary hardness		mg/l CaCO3	60(3)	300
Iron + Manganese		mg/l Fe + Mn	0	0.2
Chlorides-		ppm C l	0	30
Silica		mg/l SiO2	0	20
Residual chlorine		mg/l Cl	0	0.2
Calcium sulphate		mg/l CaSO4	0	100
Metallic impurities		mg/l	0	0
Solvents, diluents, soaps, lubricants		mg/l	0	0

(1) Values depending on specific conductivity; in general: TDS =0.93 * σ20; R180 ≡ 0.65 * σ20
(2) not lower than 200% of the chloride content in mg/l of Cl-
(3) not lower than 300% of the chloride content in mg/l of Cl-

Limit Values for the supply water with Medium to Low conductivity in an immersed electrode humidifier.

			Min	Max
Hydrogen ions		pH	7	8.5
Specific conductivity at 20 °C	σR, 20°C	µS/cm	125	500
Total dissolved solids	TDS	mg/l	(1)	(1)
Dry residue at 180 °C	R180	mg/l	(1)	(1)
Total hardness TH		mg/l CaCO3	50(2)	250
Temporary hardness		mg/l CaCO3	30(3)	150
Iron + Manganese		mg/l Fe + Mn	0	0.2
Chlorides		ppm- Cl	0	20
Silica mg/l		SiO2	0	20
Residual chlorine		mg/l Cl	0	0.2
Calcium sulphate		mg/l CaSO4	0	60
Metallic impurities		mg/l	0	0
Solvents, diluents, soaps, lubricants		mg/l	0	0

Warning: no relation can be demonstrated between water hardness and conductivity.

Important:

Do not treat water with softeners!
This could cause corrosion of the electrodes or the formation of foam, leading to potential operating problems or failures.
The water supply should conform to Local Water Regulations and within the following guidelines:
Supply water pressure between 1.0 barg to 8.0 barg, > 8.0 bar a pressure reducing valve should be fitted.
A minimum flow rate of 1.21 l/min is required.
The humidifier inlet is fitted with a braided flexible hose, having 3/4” BSPF connection.

Important

Ensure the union between the humidifier assembly and supply hose is fully tightened. Any looseness, misalignment or damage to the union can lead to water leakage.
It is recommended that a shut off valve and a mechanical strainer be fitted to the water supply prior to the humidifier assembly.

Water Conductivity

As standard the humidifier is fitted with the standard conductivity cylinder which covers the majority of water supplies. Low and high conductivity options can be specified at order.

CAUTION ⚠	Conductivity is a measure of the ability of water to pass an electric current, measured in micro Siemens/centimetre (µS/cm).

As standard the humidifier shall be fitted with the standard conductivity cylinder which shall cover 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.

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.

IMPORTANT ⚠	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

Installation Data

Condensate Drain Pipework

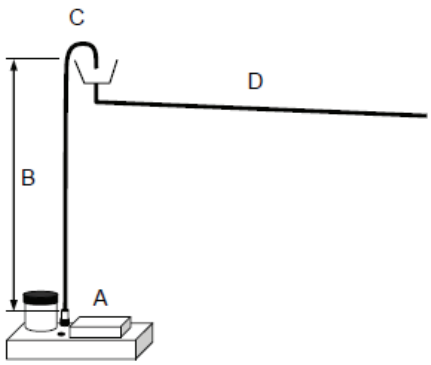
Condensate Pump

Important

Use only 10mm (3/8”) copper tube when connecting the discharge stub to the condensate pump. The discharge line from the pump should rise no more than 6m vertically and no more than 8m in total length before being interrupted with a swan neck air break and tundish.

When calculating the total head required and factor into the drain pipework design.

Suitable roding positions should be incorporated particularly if the run is long.



A Condensate Pump
B Condensate pump discharge line; 10mm (3/8”) copper tube; maximum vertical run 6m, maximum TOTAL run 8m
C Swan Neck with Tundish
D Drain line from Tundish, > 10mm (3/8”) tube (MUST BE copper tube when coupled with humidifier drain), minimum fall 1 : 20

Condensate & Humidifier (Optional Extra)

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.

Condensate Pump Performance

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

Water Detection 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 wire 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.

Installation

Interconnecting Wiring

Indoor Unit	L1	←	Mains Incoming Supply - Primary 400V / 3PH / + N / 50Hz
	L2	←	
	L3	←	
	N	←	
	PE	←	
	L1	←	Mains Incoming Supply - Secondary 400V / 3PH / + N / 50Hz (Dual Power Supply Option Only)
	L2	←	
	L3	←	
	N	←	
	PE	←	

1PH AC type outdoor units

Circuit 1	220	→	Mains Power to Oudoor Unit 1	→	200	Outdoor Unit 1
	N1	→		→	N	
	PE	→		→	PE	

Circuit 2	223	→	Mains Power to Oudoor Unit 2	→	200	Outdoor Unit 2
	N2	→		→	N	
	PE	→		→	PE	

1PH EC type outdoor units

Circuit 1	220	→	Mains Power to Oudoor Unit 1	→	200	Outdoor Unit 1
	N	→		→	N	
	PE	→		→	PE	

Circuit 2	223	→	Mains Power to Oudoor Unit 2	→	200	Outdoor Unit 2
	N	→		→	N	
	PE	→		→	PE	

3PH AC/EC type outdoor units

Installation

Interconnecting Wiring

Circuit 1	220	→	Mains Power to Oudoor Unit 1	→	L1	Outdoor Unit 1
	221	→		→	L2	
	222	→		→	L3	
	PE	→		→	PE	

Circuit 2	223	→	Mains Power to Oudoor Unit 2	→	L1	Outdoor Unit 2
	224	→		→	L2	
	225	→		→	L3	
	PE	→		→	PE	

Circuit 1		Mains Power to Oudoor Unit 1 (Non-Sub Fused)	→	200	Outdoor Unit 1
			→	N	
			→	PE	

Circuit 2		Mains Power to Oudoor Unit 2 (Non-Sub Fused)	→	200	Outdoor Unit 2
			→	N	
			→	PE	

3PH SCAF type outdoor units

Circuit 1		Mains Power to Oudoor Unit 1 (Non-Sub Fused)	→	L1	Outdoor Unit 1
			→	L2	
			→	L3	
			→	PE	

Circuit 2		Mains Power to Oudoor Unit 2 (Non-Sub Fused)	→	L1	Outdoor Unit 2
			→	L2	
			→	L3	
			→	PE	

Installation

Interconnecting Wiring

3PH AC, 1PH/3PH EC and 1PH/3PH SCAF based outdoor units only

Circuit 1	833	→	Fan Speed Control Signal to Outdoor Unit 1 (3PH AC and 1PH/3PH EC units only)	→	833	Outdoor Unit 1
	500	→		→	500	
	SCR	→		→	SCR	

Circuit 2	834	→	Fan Speed Control Signal to Outdoor Unit 2 (3PH AC and 1PH/3PH EC units only)	→	833	Outdoor Unit 2
	500	→		→	500	
	SCR	→		→	SCR	

Standard	502	→	Remote On/Off
	522	←	

Option	502	→	Fire Detection
	583	←	

Option	583	→	Smoke Detection
	584	←	

Option	609	→	Water Flood Detection
	610	←	

Option	2	←	Condensate Pump - Power Supply
	N	←	Condensate Pump - Power Supply
	502 / 534 / 536(1)	→	Condensate Pump - Alarm
	535	←	Condensate Pump - Alarm

(1) Condensate wire number dependant on other selected options

Option	502	→	Hydronics Kit - Unit Alarm Common +24V	→	561	Hydronics Kit
	595	←	Hydronics Kit - Unit Alarm Output	←	560	
	596	←	Hydronics Kit - Unit Enable Common 0V	←	570	
	597	→	Hydronics Kit - Unit Enable Output	→	571	

Standard	560	→	Non-Critical Alarm - N/O
	561	←	Non-Critical Alarm - Common

Standard	563	→	Critical Alarm - N/O
	564	←	Critical Alarm - Common
	565	→	Critical Alarm - N/C

Option	RX/TX-	→	Modbus Comms J23	→	RX/TX-	Hydronics Kit
	RX/TX+	→	Modbus Comms J23	→	RX/TX+	
	GND	→	Modbus Comms J23	→	GND	

Installation

Interconnecting Wiring

Standard	RX/TX-	←	Network In (pLAN)
	RX/TX+	←	
	GND	←	

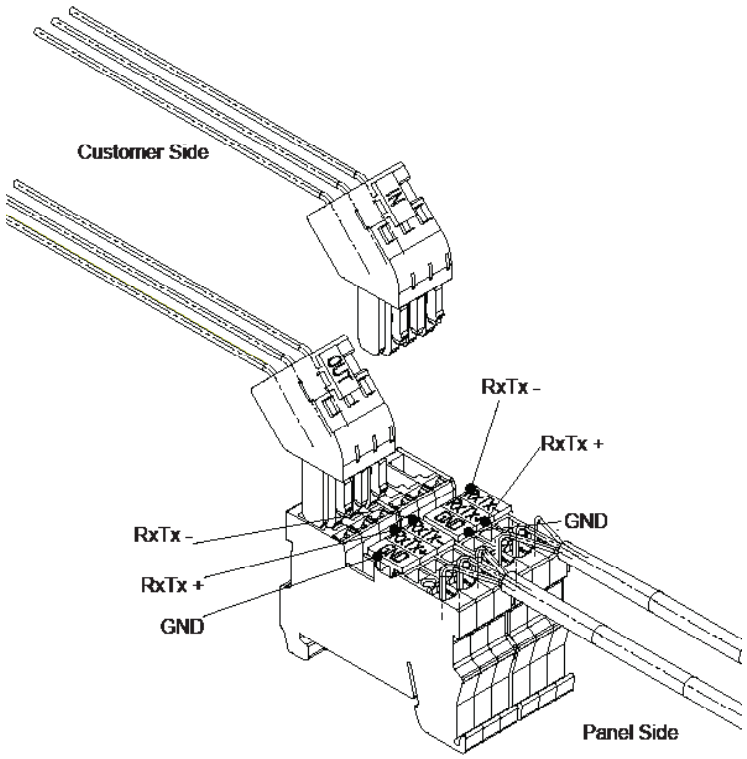
Standard	RX/TX-	→	Network Out (pLAN)
	RX/TX+	→	
	GND	→	

Option	BMS Interface (Ethernet)	←	BMS Interface (Ethernet)
Option	891	←	BMS Interface (3-wire)
	892	←	
	893	←	

(1) Condensate wire number dependant on other selected options

pLAN Termination

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



Technical Data 2X20 Units

Performance Data 2X20

Model	Air On Temp. / RH (°C) / (%)	25		30		35		40		46	
		TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
SC22D050-2X20-0	22 / 50	50.5	50.5	50.4	50.4	48.2	48.2	45.9	45.9	42.8	42.8
	24 / 45	52.6	52.6	52.4	52.4	50.2	50.2	47.8	47.8	44.7	44.7
	26 / 40	54.6	54.6	54.3	54.3	52.1	52.1	49.7	49.7	46.5	46.5
	28 / 35	56.5	56.5	56.0	56.0	53.8	53.8	51.4	51.4	48.2	48.2
SC22D059-2X20-0	22 / 50	61.6	61.6	60.5	60.5	57.8	57.8	54.9	54.9	51.2	51.2
	24 / 45	63.9	63.9	62.7	62.7	60.0	60.0	57.1	57.1	53.3	53.3
	26 / 40	66.1	66.1	64.7	64.7	62.0	62.0	59.1	59.1	55.2	55.2
	28 / 35	68.1	68.1	66.6	66.6	63.9	63.9	60.9	60.9	57.1	57.1
SC22D064-2X20-0	22 / 50	69.1	64.9	67.2	67.2	64.3	64.3	61.1	61.1	57.2	57.2
	24 / 45	71.4	71.4	69.4	69.4	66.5	66.5	63.4	63.4	59.4	59.4
	26 / 40	73.8	73.8	71.6	71.6	68.7	68.7	65.6	65.6	61.6	61.6
	28 / 35	75.9	75.9	73.6	73.6	70.7	70.7	67.6	67.6	63.6	63.6
SC22D074-2X20-0	22 / 50	77.0	69.5	74.4	68.3	71.2	66.6	67.7	67.7	63.5	63.5
	24 / 45	79.0	79.0	76.4	76.4	73.2	73.2	69.9	69.9	65.7	65.7
	26 / 40	81.2	81.2	78.5	78.5	75.4	75.4	72.1	72.1	68.0	68.0
	28 / 35	83.3	83.3	80.5	80.5	77.4	77.4	74.2	74.2	70.0	70.0
SC25D062-2X20-0	22 / 50	63.5	63.5	62.3	62.3	59.5	59.5	56.4	56.4	52.5	52.5
	24 / 45	66.1	66.1	64.6	64.6	61.8	61.8	58.7	58.7	54.7	54.7
	26 / 40	68.5	68.5	66.9	66.9	64.0	64.0	60.8	60.8	56.8	56.8
	28 / 35	70.8	70.8	69.0	69.0	66.0	66.0	62.8	62.8	58.7	58.7
SC25D068-2X20-0	22 / 50	71.1	71.1	69.0	69.0	66.0	66.0	62.7	62.7	58.6	58.6
	24 / 45	73.9	73.9	71.6	71.6	68.5	68.5	65.2	65.2	61.0	61.0
	26 / 40	76.5	76.5	74.0	74.0	70.9	70.9	67.6	67.6	63.3	63.3
	28 / 35	78.9	78.9	76.2	76.2	73.1	73.1	69.8	69.8	65.4	65.4
SC25D075-2X20-0	22 / 50	79.3	74.5	76.5	76.5	73.1	73.1	69.6	69.6	65.3	65.3
	24 / 45	81.9	81.9	79.0	79.0	75.7	75.7	72.2	72.2	67.8	67.8
	26 / 40	84.5	84.5	81.5	81.5	78.2	78.2	74.6	74.6	70.2	70.2
	28 / 35	86.8	86.8	83.7	83.7	80.4	80.4	76.9	76.9	72.4	72.4
SC25D085-2X20-0	22 / 50	88.6	80.3	87.7	79.9	84.2	78.2	80.4	80.4	75.9	75.9
	24 / 45	91.0	91.0	90.0	90.0	86.6	86.6	83.0	83.0	78.6	78.6
	26 / 40	93.6	93.6	92.5	92.5	89.2	89.2	85.7	85.7	81.3	81.3
	28 / 35	96.1	96.1	94.9	94.9	91.7	91.7	88.2	88.2	83.8	83.8
SC25D092-2X20-0	22 / 50	95.3	84.6	93.7	83.9	89.6	82.0	85.4	80.0	80.4	80.4
	24 / 45	97.6	97.6	95.9	95.9	92.0	92.0	87.9	87.9	83.0	83.0
	26 / 40	100.0	100.0	98.3	98.3	94.5	94.5	90.5	90.5	85.7	85.7
	28 / 35	102.5	102.5	100.7	100.7	97.0	97.0	93.1	93.1	88.2	88.2
SC31D069-2X20-0	22 / 50	74.3	74.3	72.2	72.2	69.0	69.0	65.6	65.6	61.5	61.5
	24 / 45	77.4	77.4	75.0	75.0	71.7	71.7	68.3	68.3	64.1	64.1
	26 / 40	80.3	80.3	77.7	77.7	74.4	74.4	70.9	70.9	66.6	66.6
	28 / 35	83.1	83.1	80.2	80.2	76.9	76.9	73.4	73.4	69.0	69.0
SC31D079-2X20-0	22 / 50	82.9	82.9	79.7	79.7	76.2	76.2	72.4	72.4	67.7	67.7
	24 / 45	85.9	85.9	82.6	82.6	79.0	79.0	75.2	75.2	70.4	70.4
	26 / 40	88.8	88.8	85.4	85.4	81.8	81.8	77.9	77.9	73.0	73.0
	28 / 35	91.4	91.4	88.0	88.0	84.4	84.4	80.5	80.5	75.5	75.5
SC31D089-2X20-0	22 / 50	92.5	92.5	91.4	91.4	87.8	87.8	83.9	83.9	79.2	79.2
	24 / 45	95.9	95.9	94.6	94.6	91.0	91.0	87.2	87.2	82.4	82.4
	26 / 40	99.3	99.3	97.8	97.8	94.2	94.2	90.3	90.3	85.5	85.5
	28 / 35	102.4	102.4	100.7	100.7	97.2	97.2	93.3	93.3	88.3	88.3
SC31D094-2X20-0	22 / 50	99.5	93.7	97.5	97.5	93.3	93.3	88.9	88.9	83.7	83.7
	24 / 45	102.9	102.9	100.8	100.8	96.6	96.6	92.3	92.3	87.0	87.0
	26 / 40	106.4	106.4	104.0	104.0	99.9	99.9	95.5	95.5	90.1	90.1
	28 / 35	109.6	109.6	107.0	107.0	102.8	102.8	98.4	98.4	93.0	93.0
SC31D108-2X20-0	22 / 50	112.1	101.6	109.3	100.3	104.5	98.0	99.5	99.5	93.6	93.6
	24 / 45	115.0	115.0	112.1	112.1	107.5	107.5	102.7	102.7	97.0	97.0
	26 / 40	118.4	118.4	115.3	115.3	110.8	110.8	106.0	106.0	100.2	100.2
	28 / 35	121.6	121.6	118.4	118.4	113.9	113.9	109.1	109.1	103.2	103.2

Technical Data 2X20 Units

Performance Data 2X20

Model	Air On Temp. / RH (°C) / (%)	25		30		35		40		46	
		TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)	TC (kW)	SC (kW)
SC31D124-2X20-0	22 / 50	126.8	108.2	122.3	106.2	116.8	103.7	110.8	101.0	102.9	96.5
	24 / 45	129.1	116.9	124.7	115.0	119.4	112.7	113.6	113.6	106.0	106.0
	26 / 40	131.6	131.6	127.2	127.2	122.1	122.1	116.5	116.5	109.2	109.2
	28 / 35	134.2	134.2	129.8	129.8	124.9	124.9	119.5	119.5	112.4	112.4
SC35D079-2X20-0	22 / 50	84.7	84.7	81.3	81.3	77.6	77.6	73.7	73.7	68.8	68.8
	24 / 45	88.0	88.0	84.5	84.5	80.8	80.8	76.8	76.8	71.7	71.7
	26 / 40	90.9	90.9	87.4	87.4	83.6	83.6	79.6	79.6	74.5	74.5
	28 / 35	93.8	93.8	90.2	90.2	86.4	86.4	82.3	82.3	77.1	77.1
SC35D091-2X20-0	22 / 50	95.0	95.0	93.7	93.7	90.0	90.0	86.0	86.0	81.0	81.0
	24 / 45	98.7	98.7	97.1	97.1	93.4	93.4	89.4	89.4	84.3	84.3
	26 / 40	102.2	102.2	100.5	100.5	96.8	96.8	92.7	92.7	87.6	87.6
	28 / 35	105.6	105.6	103.6	103.6	99.9	99.9	95.8	95.8	90.6	90.6
SC35D098-2X20-0	22 / 50	102.1	102.1	100.0	100.0	95.7	95.7	91.2	91.2	85.7	85.7
	24 / 45	106.0	106.0	103.6	103.6	99.3	99.3	94.7	94.7	89.1	89.1
	26 / 40	109.8	109.8	107.1	107.1	102.7	102.7	98.1	98.1	92.4	92.4
	28 / 35	113.3	113.3	110.3	110.3	105.9	105.9	101.2	101.2	95.5	95.5
SC35D111-2X20-0	22 / 50	115.0	108.2	111.9	111.9	107.0	107.0	102.0	102.0	96.0	96.0
	24 / 45	118.9	118.9	115.6	115.6	110.8	110.8	105.8	105.8	99.7	99.7
	26 / 40	122.9	122.9	119.3	119.3	114.5	114.5	109.5	109.5	103.2	103.2
	28 / 35	126.4	126.4	122.6	122.6	117.8	117.8	112.7	112.7	106.4	106.4
SC35D127-2X20-0	22 / 50	130.4	117.5	125.7	115.4	120.1	112.5	114.0	114.0	106.1	106.1
	24 / 45	133.8	133.8	129.0	129.0	123.6	123.6	117.7	117.7	110.0	110.0
	26 / 40	137.3	137.3	132.6	132.6	127.4	127.4	121.5	121.5	113.8	113.8
	28 / 35	140.7	140.7	136.1	136.1	130.9	130.9	125.1	125.1	117.3	117.3
SC35D140-2X20-0	22 / 50	144.0	125.3	141.0	124.0	135.0	121.3	128.4	118.4	120.1	120.1
	24 / 45	147.0	135.9	143.9	134.6	138.2	138.2	131.8	131.8	123.7	123.7
	26 / 40	150.3	150.3	147.2	147.2	141.6	141.6	135.5	135.5	127.7	127.7
	28 / 35	153.7	153.7	150.5	150.5	145.2	145.2	139.2	139.2	131.4	131.4

Technical Data 2X20 Units

SC22D050-2X20, SC22D059-2X20

Mechanical Data

			SC22D050-2X20-0	SC22D059-2X20-0
Standard Condenser Match			**2 x CR50**	**2 x CR50**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	51.5	61.6
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	870 / 877	883 / 891
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Standard Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1306 / 1640	1406 / 1640
Maximum ESP		Pa	451	346
Nominal Airflow		m^3/s	4.7	5.1
Fan Gain	(4)	kW	2.53	3.17
Compressor – Scroll				
Configuration – 2X20			Dual Circuit – Tandem Compressors	
Quantity – 2X20			4	4
Oil Charge Volume – 2X20		l	4 x 1.2	4 x 1.2
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	3.5	4.0
Connections				
Liquid (sweat)		in	1/2	5/8
Discharge (sweat)		in	7/8	7/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	3	3
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4” BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1946 / 2562	2098 / 2562
Maximum ESP		Pa	974	810
Fan Gain	(4)	kW	3.75	4.67

Technical Data 2X20 Units

SC22D050-2X20, SC22D059-2X20

Electrical Data

			SC22D050-2X20-0	SC22D059-2X20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	42.4	46.8
Maximum Start Amps		A	79.8	91.7
Recommended Mains Fuse Size		A	50	63
Unit Data Cooling Only - X				
Nominal Run Amps		A	37.5	43.46
Maximum Start Amps		A	74.9	88.37
Recommended Mains Fuse Size		A	50	50
Max Mains Incoming Cable Size		mm²	35	35
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 3.31	4 x 4.21
Nominal Run Amps		A	5.6	7.09
Locked Rotor Amps		A	43	52
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	2 x 0.6	2 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.7	21.7
Humidifier				
Capacity		kg/hr	3	3
Rating		kW	2.25	2.25
Full Load Amps		A	3.3	3.3
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 0.73	2 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	42.4	46.8
Maximum Start Amps		A	62.6	70.9
Recommended Mains Fuse		A	50	63

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC22D064-2X20, SC22D074-2X20

Mechanical Data

			SC22D064-2X20-0	SC22D074-2X20-0
Standard Condenser Match			**2 x CR50**	**2 x CR65**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	67.7	76.7
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	908 / 916	907 / 915
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1483 / 1640	1524 / 1640
Maximum ESP		Pa	256	204
Nominal Airflow		m^3/s	5.4	5.6
Fan Gain	(4)	kW	3.74	4.08
Compressor – Scroll				
Configuration – 2X20			Dual Circuit – Tandem Compressors	
Quantity – 2X20			4	4
Oil Charge Volume – 2X20		l	4 x 1.7	4 x 1.8
Oil Type				POE
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.0	4.0
Connections				
Liquid (sweat)		in	5/8	5/8
Discharge (sweat)		in	7/8	11/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2213 / 2562	2275 / 2562
Maximum ESP		Pa	653	558
Fan Gain	(4)	kW	5.48	5.96

Technical Data 2X20 Units

SC22D064-2X20, SC22D074-2X20

Electrical Data

			SC22D064-2X20-0	SC22D074-2X20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	57.0	70.2
Maximum Start Amps		A	112.7	135.5
Recommended Mains Fuse Size		A	80	80
Unit Data Cooling Only - X				
Nominal Run Amps		A	48.26	54
Maximum Start Amps		A	103.97	119.3
Recommended Mains Fuse Size		A	63	63
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65
Nominal Run Amps		A	8.29	9.72
Locked Rotor Amps		A	67.1	75
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	2 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.7	21.7
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 0.73	2 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	57.0	72.8
Maximum Start Amps		A	87.1	108.1
Recommended Mains Fuse		A	80	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC25D062-2X20, SC25D068-2X20, SC25D075-2X20

Mechanical Data

			SC25D062-2X20-0	SC25D068-2X20-0	SC25D075-2X20-0
Standard Condenser Match			**2 x CR50**	**2 x CR50**	**2 x CR65**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	63.4	69.8	79.3
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	955 / 964	1003 / 1012	1002 / 1011
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1271 / 1640	1271 / 1640	1320 / 1640
Maximum ESP		Pa	463	463	415
Nominal Airflow		m^3/s	5.9	5.9	6.2
Fan Gain	(4)	kW	3.48	3.48	3.91
Compressor – Scroll					
Configuration – 2X20			Dual Circuit – Tandem Compressors		
Quantity – 2X20			4	4	4
Oil Charge Volume – 2X20		l	4 x 1.2	4 x 1.7	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	4.6	4.6	4.6
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	7/8	7/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			10	10	10
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	3	3	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1775 / 2253	1775 / 2253	1842 / 2253
Maximum ESP		Pa	665	665	600
Fan Gain	(4)	kW	4.74	4.74	5.29

Technical Data 2X20 Units

SC25D062-2X20, SC25D068-2X20, SC25D075-2X20

Electrical Data

			SC25D062-2X20-0	SC25D068-2X20-0	SC25D075-2X20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	51.2	60.3	67.1
Maximum Start Amps		A	96.1	116.0	132.4
Recommended Mains Fuse Size		A	63	80	80
Unit Data Cooling Only - X					
Nominal Run Amps		A	47.89	52.69	58.4
Maximum Start Amps		A	92.8	108.4	123.7
Recommended Mains Fuse Size		A	63	63	80
Max Mains Incoming Cable Size		mm²	35	35	70
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.21	4 x 4.75	4 x 5.65
Nominal Run Amps		A	7.09	8.29	9.72
Locked Rotor Amps		A	52	67.1	75
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	2 x 0.6	2 x 0.6	2 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			2	3	3
Number of Elements			6	9	9
Rating		kW	15	22.5	22.5
Current per Phase		A	21.7	32.5	32.5
Humidifier					
Capacity		kg/hr	3	3	8
Rating		kW	2.25	2.25	6
Full Load Amps		A	3.3	3.3	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	2 x 0.73	2 x 0.73	2 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	51	60	70
Maximum Start Amps		A	75	90	105
Recommended Mains Fuse		A	63	80	80

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC25D085-2X20, SC25D092-2X20

Mechanical Data

			SC25D085-2X20-0	SC25D092-2X20-0
Standard Condenser Match			**2 x CR80**	**2 x CR80**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	89.1	94.6
Capacity Steps			4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1001 / 1011	1016 / 1026
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1371 / 1640	1422 / 1640
Maximum ESP		Pa	361	304
Nominal Airflow		m³/s	6.4	6.7
Fan Gain	(4)	kW	4.40	4.93
Compressor – Scroll				
Configuration – 2X20			Dual Circuit – Tandem Compressors	
Quantity – 2X20			4	4
Oil Charge Volume – 2X20		l	4 x 1.8	4 x 1.8
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	5.0	5.0
Connections				
Liquid (sweat)		in	5/8	5/8
Discharge (sweat)		in	11/8	11/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			10	10
Electric Heating (Total)		kW	22.5	22.5
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1912 / 2253	1981 / 2253
Maximum ESP		Pa	525	442
Fan Gain	(4)	kW	5.91	6.59

Technical Data 2X20 Units

SC25D085-2X20, SC25D092-2X20

Electrical Data

			SC25D085-2X20-0	SC25D092-2X20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	77.8	87.7
Maximum Start Amps		A	167.1	176.3
Recommended Mains Fuse Size		A	100	100
Unit Data Cooling Only - X				
Nominal Run Amps		A	69	71
Maximum Start Amps		A	158	160
Recommended Mains Fuse Size		A	80	80
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 6.42	4 x 6.79
Nominal Run Amps		A	11.74	12.33
Locked Rotor Amps		A	101	101
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			3	3
Number of Elements			9	9
Rating		kW	22.5	22.5
Current per Phase		A	32.5	32.5
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	77.8	87.7
Maximum Start Amps		A	126.7	135.9
Recommended Mains Fuse		A	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC31D069-2X20, SC31D079-2X20, SC31D089-2X20

Mechanical Data

			SC31D069-2X20-0	SC31D079-2X20-0	SC31D089-2X20-0
Standard Condenser Match			**2 x CR65**	**2 x CR65**	**2 x CR80**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	74.3	83.0	93.7
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1212 / 1223	1211 / 1223	1210 / 1222
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1307 / 1640	1364 / 1640	1419 / 1640
Maximum ESP		Pa	443	385	324
Nominal Airflow		m³/s	6.9	7.2	7.5
Fan Gain	(4)	kW	3.83	4.36	4.92
Compressor – Scroll					
Configuration – 2X20			Dual Circuit – Tandem Compressors		
Quantity – 2X20			4	4	4
Oil Charge Volume – 2X20		l	4 x 1.7	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	5.7	5.8	6.2
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	7/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	3	3	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4” BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1926 / 2562	2011 / 2562	2093 / 2562
Maximum ESP		Pa	979	897	805
Fan Gain	(4)	kW	5.56	6.30	7.09

Technical Data 2X20 Units

SC31D069-2X20, SC31D079-2X20, SC31D089-2X20

Electrical Data

			SC31D069-2X20-0	SC31D079-2X20-0	SC31D089-2X20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	60.3	64.4	77.8
Maximum Start Amps		A	116.0	129.6	167.1
Recommended Mains Fuse Size		A	80	80	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	53	61	69
Maximum Start Amps		A	108	126	158
Recommended Mains Fuse Size		A	63	80	80
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65	4 x 6.42
Nominal Run Amps		A	8.3	9.7	11.7
Locked Rotor Amps		A	67.1	75	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	2 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.5	32.5	32.5
Humidifier					
Capacity		kg/hr	3	3	8
Rating		kW	2.25	2.25	6
Full Load Amps		A	3.3	3.3	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	2 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	63	64	78
Maximum Start Amps		A	93	100	127
Recommended Mains Fuse		A	80	80	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC31D094-2X20, SC31D108-2X20, SC31D124-2X20

Mechanical Data

			SC31D094-2X20-0	SC31D108-2X20-0	SC31D124-2X20-0
Standard Condenser Match			**2 x CR80**	**2 x CR105**	**2 x CR105**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	99.5	112.6	125.5
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1216 / 1228	1296 / 1308	1298 / 1310
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1470 / 1640	1523 / 1640	1523 / 1640
Maximum ESP		Pa	264	198	198
Nominal Airflow		m³/s	7.8	8.1	8.1
Fan Gain	(4)	kW	5.50	6.16	6.16
Compressor – Scroll					
Configuration – 2X20			Dual Circuit – Tandem Compressors		
Quantity – 2X20			4	4	4
Oil Charge Volume – 2X20		l	4 x 1.8	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.2	6.2	6.2
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	11/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	15	15
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2169 / 2562	2248 / 2562	2248 / 2562
Maximum ESP		Pa	708	595	595
Fan Gain	(4)	kW	7.90	8.81	8.81

Technical Data 2X20 Units

SC31D094-2X20, SC31D108-2X20, SC31D124-2X20

Electrical Data

			SC31D094-2X20-0	SC31D108-2X20-0	SC31D124-2X20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	80.2	95.8	104.7
Maximum Start Amps		A	168.8	192.5	206.1
Recommended Mains Fuse Size		A	100	125	125
Unit Data Cooling Only - X					
Nominal Run Amps		A	71.47	79.6	88.5
Maximum Start Amps		A	160.14	176.3	189.9
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 6.79	4 x 7.82	4 x 9.11
Nominal Run Amps		A	12.3	14.4	16.6
Locked Rotor Amps		A	101	111	118
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.5	32.5	32.5
Humidifier					
Capacity		kg/hr	8	15	15
Rating		kW	6	11.25	11.25
Full Load Amps		A	8.7	16.2	16.2
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	80.2	98.5	107.3
Maximum Start Amps		A	128	151	162
Recommended Mains Fuse		A	100	125	125

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC35D079-2X20, SC35D091-2X20, SC35D098-2X20

Mechanical Data

			SC31D094-2X20-0	SC31D108-2X20-0	SC31D124-2X20-0
Standard Condenser Match			**2 x CR80**	**2 x CR105**	**2 x CR105**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	99.5	112.6	125.5
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1216 / 1228	1296 / 1308	1298 / 1310
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1470 / 1640	1523 / 1640	1523 / 1640
Maximum ESP		Pa	264	198	198
Nominal Airflow		m³/s	7.8	8.1	8.1
Fan Gain	(4)	kW	5.50	6.16	6.16
Compressor – Scroll					
Configuration – 2X20			Dual Circuit – Tandem Compressors		
Quantity – 2X20			4	4	4
Oil Charge Volume – 2X20		l	4 x 1.8	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.2	6.2	6.2
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	11/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	15	15
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2169 / 2562	2248 / 2562	2248 / 2562
Maximum ESP		Pa	708	595	595
Fan Gain	(4)	kW	7.90	8.81	8.81

Technical Data 2X20 Units

SC35D079-2X20, SC35D091-2X20, SC35D098-2X20

Electrical Data

			SC35D079-2X20-0	SC35D091-2X20-0	SC35D098-2X20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	66.2	76.8	82.2
Maximum Start Amps		A	131.4	166.1	170.9
Recommended Mains Fuse Size		A	80	100	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	62.8	73.54	75.9
Maximum Start Amps		A	128.1	162.8	164.57
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9	4 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 5.65	4 x 6.42	4 x 6.79
Nominal Run Amps		A	9.7	11.7	12.3
Locked Rotor Amps		A	75	101	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	2 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	4
Number of Elements			9	9	12
Rating		kW	22.5	22.5	30
Current per Phase		A	32.48	32.48	43.3
Humidifier					
Capacity		kg/hr	3	3	3
Rating		kW	2.25	2.25	2.25
Full Load Amps		A	3.3	3.3	3.3
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	2 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	68.8	76.8	82.2
Maximum Start Amps		A	104	126	130
Recommended Mains Fuse		A	80	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

SC35D111-2X20, SC35D127-2X20, SC35D140-2X20

Mechanical Data

			SC35D111-2X20-0	SC35D127-2X20-0	SC35D140-2X20-0
Standard Condenser Match			**2 x CR105**	**2 x CR105**	**2 x CR140**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	116.2	130.0	144.4
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1422 / 1435	1424 / 1437	1429 / 1442
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1397 / 1640	1442 / 1640	1492 / 1640
Maximum ESP		Pa	335	284	223
Nominal Airflow		m³/s	9.0	9.3	9.6
Fan Gain	(4)	kW	6.24	6.89	7.68
Compressor – Scroll					
Configuration – 2X20			Dual Circuit – Tandem Compressors		
Quantity – 2X20			4	4	4
Oil Charge Volume – 2X20		l	4 x 3.3	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.7	6.7	6.7
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	11/8	11/8	1 1/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			14	14	14
Electric Heating (Total)		kW	30	30	30
Humidifier					
Capacity		kg/hr	8	23	30
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1971 / 2253	2032 / 2253	2101 / 2253
Maximum ESP		Pa	463	383	283
Fan Gain	(4)	kW	8.50	9.33	10.33

Technical Data 2X20 Units

SC35D111-2X20, SC35D127-2X20, SC35D140-2X20

Electrical Data

			SC35D111-2X20-0	SC35D127-2X20-0	SC35D140-2X20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	92.8	117.8	134.5
Maximum Start Amps		A	189.4	219.2	234.3
Recommended Mains Fuse Size		A	125	160	160
Unit Data Cooling Only - X					
Nominal Run Amps		A	84.1	92.9	102
Maximum Start Amps		A	180.7	194.3	201.8
Recommended Mains Fuse Size		A	100	125	125
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz		
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9	4 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 7.82	4 x 9.11	4 x 10.35
Nominal Run Amps		A	14.4	16.6	18.2
Locked Rotor Amps		A	111	118	118
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			4	4	4
Number of Elements			12	12	12
Rating		kW	30	30	30
Current per Phase		A	43.3	43.3	43.3
Humidifier					
Capacity		kg/hr	8	23	30
Rating		kW	6	17.25	22.5
Full Load Amps		A	8.7	24.9	32.5
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	95.38	120.42	134.5
Maximum Start Amps		A	148	175	187
Recommended Mains Fuse		A	125	160	160

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X20 Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC22D050-2X20-0	Discharge Air	87	87	87	85	85	82	76	72	69
	Return Air	86	90	91	90	84	77	70	70	65
	Case Breakout	67	68	71	64	63	62	60	57	55
	Sound Pressure @ 3m	56	57	60	53	52	51	49	46	44
SC22D059-2X20-0	Discharge Air	87	89	87	86	85	83	78	73	71
	Return Air	87	93	90	92	84	78	71	71	67
	Case Breakout	68	69	71	66	63	63	61	59	58
	Sound Pressure @ 3m	57	58	60	55	52	52	50	48	47
SC22D064-2X20-0	Discharge Air	92	91	93	88	90	87	81	76	72
	Return Air	91	94	98	93	90	83	76	76	68
	Case Breakout	72	71	77	68	68	67	65	61	58
	Sound Pressure @ 3m	61	60	66	57	57	56	54	50	47
SC22D074-2X20-0	Discharge Air	97	90	102	90	97	92	83	77	72
	Return Air	97	91	108	92	97	84	80	79	69
	Case Breakout	77	70	86	70	75	71	67	62	58
	Sound Pressure @ 3m	66	59	75	59	64	60	56	51	47
SC25D062-2X20-0	Discharge Air	86	87	87	84	83	82	75	70	67
	Return Air	85	91	90	90	83	77	69	69	62
	Case Breakout	66	67	71	63	61	61	59	56	53
	Sound Pressure @ 3m	55	56	60	52	50	50	48	45	42
SC25D068-2X20-0	Discharge Air	88	89	88	85	85	84	78	73	70
	Return Air	88	95	91	91	85	82	73	73	66
	Case Breakout	68	70	71	64	63	64	61	59	56
	Sound Pressure @ 3m	57	58	60	53	52	53	50	48	45
SC25D075-2X20-0	Discharge Air	88	89	88	86	85	84	78	75	73
	Return Air	87	94	92	92	84	80	73	75	69
	Case Breakout	69	69	72	65	63	63	62	60	59
	Sound Pressure @ 3m	58	58	61	54	52	52	51	49	48
SC25D085-2X20-0	Discharge Air	89	90	89	87	86	85	79	75	70
	Return Air	89	94	92	93	86	83	74	75	66
	Case Breakout	70	70	73	66	64	65	63	61	56
	Sound Pressure @ 3m	59	59	62	55	53	54	52	50	45
SC25D092-2X20-0	Discharge Air	89	91	90	87	87	85	80	76	70
	Return Air	89	96	93	93	87	82	75	76	66
	Case Breakout	70	71	73	67	65	65	64	61	57
	Sound Pressure @ 3m	59	60	62	56	54	54	53	50	46

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2X20 Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC31D069-2X20-0	Discharge Air	89	90	88	86	87	85	79	74	72
	Return Air	88	95	92	92	86	82	74	74	68
	Case Breakout	70	70	72	66	65	65	63	60	58
	Sound Pressure @ 3m	59	59	61	55	54	54	51	49	47
SC31D079-2X20-0	Discharge Air	89	90	88	87	86	85	79	76	74
	Return Air	88	94	92	93	86	80	74	76	70
	Case Breakout	70	70	72	66	64	64	63	61	60
	Sound Pressure @ 3m	59	59	61	55	53	53	52	50	49
SC31D089-2X20-0	Discharge Air	90	91	89	88	88	86	80	77	73
	Return Air	90	95	93	94	87	83	75	76	69
	Case Breakout	71	71	73	67	66	66	64	62	59
	Sound Pressure @ 3m	60	60	62	56	55	55	53	51	48
SC31D094-2X20-0	Discharge Air	92	91	92	89	90	88	82	77	72
	Return Air	91	95	97	94	90	83	77	77	68
	Case Breakout	73	72	76	68	68	67	65	63	58
	Sound Pressure @ 3m	61	61	65	57	57	56	54	52	47
SC31D108-2X20-0	Discharge Air	97	92	101	91	97	92	85	78	70
	Return Air	96	94	107	94	96	86	81	80	68
	Case Breakout	77	72	85	71	75	72	69	64	56
	Sound Pressure @ 3m	66	61	73	60	63	61	58	53	45
SC31D124-2X20-0	Discharge Air	97	92	101	91	97	92	85	78	70
	Return Air	96	94	107	94	96	86	81	79	67
	Case Breakout	77	72	85	70	75	72	69	63	56
	Sound Pressure @ 3m	66	61	73	59	64	61	58	52	45
SC35D079-2X20-0	Discharge Air	88	89	88	85	85	84	78	75	73
	Return Air	87	93	92	91	84	80	73	75	69
	Case Breakout	69	69	72	65	63	63	62	60	59
	Sound Pressure @ 3m	58	58	61	54	52	52	51	49	48
SC35D091-2X20-0	Discharge Air	89	89	89	86	86	85	79	75	70
	Return Air	89	94	93	92	86	83	75	75	66
	Case Breakout	70	69	73	66	64	65	63	61	56
	Sound Pressure @ 3m	59	58	62	55	53	54	52	50	45
SC35D098-2X20-0	Discharge Air	90	90	90	87	87	86	80	76	70
	Return Air	89	95	93	93	88	82	75	76	66
	Case Breakout	70	71	73	67	65	65	64	61	57
	Sound Pressure @ 3m	59	60	62	56	54	54	53	50	46
SC35D111-2X20-0	Discharge Air	91	92	90	88	88	86	82	77	72
	Return Air	90	97	94	94	89	83	78	77	68
	Case Breakout	72	72	74	68	66	66	66	62	58
	Sound Pressure @ 3m	61	61	63	57	55	55	55	51	47
SC35D127-2X20-0	Discharge Air	91	92	91	89	89	87	82	77	72
	Return Air	91	97	95	95	89	84	78	77	68
	Case Breakout	72	72	75	68	67	67	66	62	58
	Sound Pressure @ 3m	61	61	64	57	56	56	55	51	47
SC35D140-2X20-0	Discharge Air	93	93	94	90	91	89	84	78	74
	Return Air	92	98	98	95	90	85	80	78	69
	Case Breakout	74	73	78	69	69	69	68	64	60
	Sound Pressure @ 3m	63	62	67	58	58	58	57	52	49

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2X2C Units

Performance Data 2X2C DX

Model	Air On Temp. / RH	Ambient Temperature (°C)									
		25		30		35		40		46	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
	(°C) / (%)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)
SC22D050-2X2C-0	22 / 50	50.5	50.5	50.4	50.4	48.2	48.2	45.9	45.9	42.8	42.8
	24 / 45	52.6	52.6	52.4	52.4	50.2	50.2	47.8	47.8	44.7	44.7
	26 / 40	54.6	54.6	54.3	54.3	52.1	52.1	49.7	49.7	46.5	46.5
	28 / 35	56.5	56.5	56.0	56.0	53.8	53.8	51.4	51.4	48.2	48.2
SC22D059-2X2C-0	22 / 50	61.6	61.6	60.5	60.5	57.8	57.8	54.9	54.9	51.2	51.2
	24 / 45	63.9	63.9	62.7	62.7	60.0	60.0	57.1	57.1	53.3	53.3
	26 / 40	66.1	66.1	64.7	64.7	62.0	62.0	59.1	59.1	55.2	55.2
	28 / 35	68.1	68.1	66.6	66.6	63.9	63.9	60.9	60.9	57.1	57.1
SC22D064-2X2C-0	22 / 50	69.1	64.9	67.2	67.2	64.3	64.3	61.1	61.1	57.2	57.2
	24 / 45	71.4	71.4	69.4	69.4	66.5	66.5	63.4	63.4	59.4	59.4
	26 / 40	73.8	73.8	71.6	71.6	68.7	68.7	65.6	65.6	61.6	61.6
	28 / 35	75.9	75.9	73.6	73.6	70.7	70.7	67.6	67.6	63.6	63.6
SC22D074-2X2C-0	22 / 50	77.0	69.5	74.4	68.3	71.2	66.6	67.7	67.7	63.5	63.5
	24 / 45	79.0	79.0	76.4	76.4	73.2	73.2	69.9	69.9	65.7	65.7
	26 / 40	81.2	81.2	78.5	78.5	75.4	75.4	72.1	72.1	68.0	68.0
	28 / 35	83.3	83.3	80.5	80.5	77.4	77.4	74.2	74.2	70.0	70.0
SC25D062-2X2C-0	22 / 50	63.5	63.5	62.3	62.3	59.5	59.5	56.4	56.4	52.5	52.5
	24 / 45	66.1	66.1	64.6	64.6	61.8	61.8	58.7	58.7	54.7	54.7
	26 / 40	68.5	68.5	66.9	66.9	64.0	64.0	60.8	60.8	56.8	56.8
	28 / 35	70.8	70.8	69.0	69.0	66.0	66.0	62.8	62.8	58.7	58.7
SC25D068-2X2C-0	22 / 50	71.1	71.1	69.0	69.0	66.0	66.0	62.7	62.7	58.6	58.6
	24 / 45	73.9	73.9	71.6	71.6	68.5	68.5	65.2	65.2	61.0	61.0
	26 / 40	76.5	76.5	74.0	74.0	70.9	70.9	67.6	67.6	63.3	63.3
	28 / 35	78.9	78.9	76.2	76.2	73.1	73.1	69.8	69.8	65.4	65.4
SC25D075-2X2C-0	22 / 50	79.3	74.5	76.5	76.5	73.1	73.1	69.6	69.6	65.3	65.3
	24 / 45	81.9	81.9	79.0	79.0	75.7	75.7	72.2	72.2	67.8	67.8
	26 / 40	84.5	84.5	81.5	81.5	78.2	78.2	74.6	74.6	70.2	70.2
	28 / 35	86.8	86.8	83.7	83.7	80.4	80.4	76.9	76.9	72.4	72.4
SC25D085-2X2C-0	22 / 50	88.6	80.3	87.7	79.9	84.2	78.2	80.4	80.4	75.9	75.9
	24 / 45	91.0	91.0	90.0	90.0	86.6	86.6	83.0	83.0	78.6	78.6
	26 / 40	93.6	93.6	92.5	92.5	89.2	89.2	85.7	85.7	81.3	81.3
	28 / 35	96.1	96.1	94.9	94.9	91.7	91.7	88.2	88.2	83.8	83.8
SC25D092-2X2C-0	22 / 50	95.3	84.6	93.7	83.9	89.6	82.0	85.4	80.0	80.4	80.4
	24 / 45	97.6	97.6	95.9	95.9	92.0	92.0	87.9	87.9	83.0	83.0
	26 / 40	100.0	100.0	98.3	98.3	94.5	94.5	90.5	90.5	85.7	85.7
	28 / 35	102.5	102.5	100.7	100.7	97.0	97.0	93.1	93.1	88.2	88.2

Technical Data 2X2C Units

Performance Data 2X2C DX

Model	Air On Temp. / RH (°C) / (%)	Ambient Temperature (°C) 25 TC (kW)	25 SC (kW)	30 TC (kW)	30 SC (kW)	35 TC (kW)	35 SC (kW)	40 TC (kW)	40 SC (kW)	46 TC (kW)	46 SC (kW)
SC31D069-2X2C-0	22 / 50	74.3	74.3	72.2	72.2	69.0	69.0	65.6	65.6	61.5	61.5
	24 / 45	77.4	77.4	75.0	75.0	71.7	71.7	68.3	68.3	64.1	64.1
	26 / 40	80.3	80.3	77.7	77.7	74.4	74.4	70.9	70.9	66.6	66.6
	28 / 35	83.1	83.1	80.2	80.2	76.9	76.9	73.4	73.4	69.0	69.0
SC31D079-2X2C-0	22 / 50	82.9	82.9	79.7	79.7	76.2	76.2	72.4	72.4	67.7	67.7
	24 / 45	85.9	85.9	82.6	82.6	79.0	79.0	75.2	75.2	70.4	70.4
	26 / 40	88.8	88.8	85.4	85.4	81.8	81.8	77.9	77.9	73.0	73.0
	28 / 35	91.4	91.4	88.0	88.0	84.4	84.4	80.5	80.5	75.5	75.5
SC31D089-2X2C-0	22 / 50	92.5	92.5	91.4	91.4	87.8	87.8	83.9	83.9	79.2	79.2
	24 / 45	95.9	95.9	94.6	94.6	91.0	91.0	87.2	87.2	82.4	82.4
	26 / 40	99.3	99.3	97.8	97.8	94.2	94.2	90.3	90.3	85.5	85.5
	28 / 35	102.4	102.4	100.7	100.7	97.2	97.2	93.3	93.3	88.3	88.3
SC31D094-2X2C-0	22 / 50	99.5	93.7	97.5	97.5	93.3	93.3	88.9	88.9	83.7	83.7
	24 / 45	102.9	102.9	100.8	100.8	96.6	96.6	92.3	92.3	87.0	87.0
	26 / 40	106.4	106.4	104.0	104.0	99.9	99.9	95.5	95.5	90.1	90.1
	28 / 35	109.6	109.6	107.0	107.0	102.8	102.8	98.4	98.4	93.0	93.0
SC31D108-2X2C-0	22 / 50	112.1	101.6	109.3	100.3	104.5	98.0	99.5	99.5	93.6	93.6
	24 / 45	115.0	115.0	112.1	112.1	107.5	107.5	102.7	102.7	97.0	97.0
	26 / 40	118.4	118.4	115.3	115.3	110.8	110.8	106.0	106.0	100.2	100.2
	28 / 35	121.6	121.6	118.4	118.4	113.9	113.9	109.1	109.1	103.2	103.2
SC31D124-2X2C-0	22 / 50	126.8	108.2	122.3	106.2	116.8	103.7	110.8	101.0	102.9	96.5
	24 / 45	129.1	116.9	124.7	115.0	119.4	112.7	113.6	113.6	106.0	106.0
	26 / 40	131.6	131.6	127.2	127.2	122.1	122.1	116.5	116.5	109.2	109.2
	28 / 35	134.2	134.2	129.8	129.8	124.9	124.9	119.5	119.5	112.4	112.4

Technical Data 2X2C Units

Performance Data 2X2C DX

Model	Air On Temp. / RH	Ambient Temperature (°C)									
		25		30		35		40		46	
		TC	SC	TC	SC	TC	SC	TC	SC	TC	SC
	(°C) / (%)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)	(kW)
SC35D079-2X2C-0	22 / 50	84.7	84.7	81.3	81.3	77.6	77.6	73.7	73.7	68.8	68.8
	24 / 45	88.0	88.0	84.5	84.5	80.8	80.8	76.8	76.8	71.7	71.7
	26 / 40	90.9	90.9	87.4	87.4	83.6	83.6	79.6	79.6	74.5	74.5
	28 / 35	93.8	93.8	90.2	90.2	86.4	86.4	82.3	82.3	77.1	77.1
SC35D091-2X2C-0	22 / 50	95.0	95.0	93.7	93.7	90.0	90.0	86.0	86.0	81.0	81.0
	24 / 45	98.7	98.7	97.1	97.1	93.4	93.4	89.4	89.4	84.3	84.3
	26 / 40	102.2	102.2	100.5	100.5	96.8	96.8	92.7	92.7	87.6	87.6
	28 / 35	105.6	105.6	103.6	103.6	99.9	99.9	95.8	95.8	90.6	90.6
SC35D098-2X2C-0	22 / 50	102.1	102.1	100.0	100.0	95.7	95.7	91.2	91.2	85.7	85.7
	24 / 45	106.0	106.0	103.6	103.6	99.3	99.3	94.7	94.7	89.1	89.1
	26 / 40	109.8	109.8	107.1	107.1	102.7	102.7	98.1	98.1	92.4	92.4
	28 / 35	113.3	113.3	110.3	110.3	105.9	105.9	101.2	101.2	95.5	95.5
SC35D111-2X2C-0	22 / 50	115.0	108.2	111.9	111.9	107.0	107.0	102.0	102.0	96.0	96.0
	24 / 45	118.9	118.9	115.6	115.6	110.8	110.8	105.8	105.8	99.7	99.7
	26 / 40	122.9	122.9	119.3	119.3	114.5	114.5	109.5	109.5	103.2	103.2
	28 / 35	126.4	126.4	122.6	122.6	117.8	117.8	112.7	112.7	106.4	106.4
SC35D127-2X2C-0	22 / 50	130.4	117.5	125.7	115.4	120.1	112.5	114.0	114.0	106.1	106.1
	24 / 45	133.8	133.8	129.0	129.0	123.6	123.6	117.7	117.7	110.0	110.0
	26 / 40	137.3	137.3	132.6	132.6	127.4	127.4	121.5	121.5	113.8	113.8
	28 / 35	140.7	140.7	136.1	136.1	130.9	130.9	125.1	125.1	117.3	117.3

Technical Data 2X2C Units

Performance Data 2X2C Chilled Water

Model	Air On Temp. / RH (°C) / (%)	Chilled Water Temperatures (°C) 5/10 TC (kW)	5/10 SC (kW)	7/12 TC (kW)	7/12 SC (kW)	8/14 TC (kW)	8/14 SC (kW)	10/16 TC (kW)	10/16 SC (kW)	12/18 TC (kW)	12/18 SC (kW)	5.5/14.5 TC (kW)	5.5/14.5 SC (kW)
SC22D050-2X2C-0	22 / 50	75.0	60.5	53.6	51.1	42.1	42.1	32.4	32.4	22.8	22.8	46.7	46.7
	24 / 45	86.4	72.2	64.4	59.9	51.8	51.8	42.0	42.0	32.4	32.4	57.6	57.6
	26 / 40	96.7	82.7	74.5	66.5	61.8	61.8	51.8	51.8	42.0	42.0	68.4	68.4
	28 / 35	105.3	79.8	83.1	83.1	71.9	71.9	61.8	61.8	51.8	51.8	79.0	79.0
SC22D059-2X2C-0	22 / 50	79.0	64.4	55.1	55.1	44.6	44.6	34.3	34.3	24.2	24.2	49.6	49.6
	24 / 45	91.1	72.3	67.8	63.1	55.0	55.0	44.5	44.5	34.3	34.3	61.1	61.1
	26 / 40	101.9	87.8	78.5	71.5	65.5	65.5	54.9	54.9	44.5	44.5	72.5	72.5
	28 / 35	116.1	91.8	88.2	79.4	76.2	76.2	65.5	65.5	55.0	55.0	83.8	83.8
SC22D064-2X2C-0	22 / 50	81.8	67.3	57.5	57.5	46.4	46.4	35.7	35.7	25.2	25.2	51.6	51.6
	24 / 45	94.4	75.6	70.3	66.4	57.3	57.3	46.4	46.4	35.7	35.7	63.6	63.6
	26 / 40	105.7	82.9	80.3	76.0	68.3	68.3	57.2	57.2	46.4	46.4	75.5	75.5
	28 / 35	114.9	89.0	92.0	83.0	79.5	79.5	68.3	68.3	57.3	57.3	87.3	87.3
SC22D074-2X2C-0	22 / 50	84.2	70.1	61.2	61.2	47.4	47.4	36.5	36.5	25.7	25.7	52.7	52.7
	24 / 45	96.1	77.3	71.7	70.8	58.5	58.5	47.3	47.3	36.4	36.4	64.9	64.9
	26 / 40	107.6	84.8	82.0	77.7	69.7	69.7	58.4	58.4	47.3	47.3	77.1	77.1
	28 / 35	117.0	91.0	94.0	84.9	81.2	81.2	69.8	69.8	58.5	58.5	89.1	89.1
SC25D062-2X2C-0	22 / 50	87.9	72.0	61.6	61.6	49.7	49.7	38.1	38.1	26.7	26.7	54.8	54.8
	24 / 45	101.5	85.8	75.6	70.8	61.4	61.4	49.6	49.6	38.2	38.2	67.8	67.8
	26 / 40	113.7	88.6	86.2	81.3	73.3	73.3	61.4	61.4	49.7	49.7	80.7	80.7
	28 / 35	129.8	102.8	98.8	88.8	85.3	85.3	73.3	73.3	61.4	61.4	93.5	93.5
SC25D068-2X2C-0	22 / 50	90.4	74.4	63.6	63.6	51.3	51.3	39.3	39.3	27.5	27.5	56.5	56.5
	24 / 45	104.4	83.6	77.7	73.6	63.3	63.3	51.2	51.2	39.4	39.4	70.0	70.0
	26 / 40	116.9	91.7	89.0	84.0	75.6	75.6	63.3	63.3	51.2	51.2	83.3	83.3
	28 / 35	127.3	98.4	102.0	91.8	88.0	88.0	75.6	75.6	63.4	63.4	96.4	96.4
SC25D075-2X2C-0	22 / 50	93.7	78.2	65.4	65.4	52.7	52.7	40.4	40.4	28.3	28.3	58.2	58.2
	24 / 45	107.0	86.3	80.2	79.0	65.2	65.2	52.7	52.7	40.5	40.5	72.0	72.0
	26 / 40	119.8	94.6	91.6	86.6	77.8	77.8	65.1	65.1	52.7	52.7	85.7	85.7
	28 / 35	130.5	101.6	105.0	105.0	90.6	90.6	77.8	77.8	65.2	65.2	99.2	99.2
SC25D085-2X2C-0	22 / 50	94.8	79.2	67.3	67.3	54.2	54.2	41.6	41.6	29.1	29.1	59.8	59.8
	24 / 45	109.7	89.0	80.7	79.6	67.0	67.0	54.2	54.2	41.6	41.6	74.1	74.1
	26 / 40	122.9	97.5	94.3	89.3	80.0	80.0	67.0	67.0	54.2	54.2	88.1	88.1
	28 / 35	133.7	104.8	108.1	97.7	93.2	93.2	80.1	80.1	67.1	67.1	102.0	102.0
SC25D092-2X2C-0	22 / 50	97.0	81.5	69.1	69.1	55.7	55.7	42.7	42.7	29.9	29.9	61.4	61.4
	24 / 45	112.2	96.5	85.8	84.9	68.8	68.8	55.6	55.6	42.7	42.7	76.0	76.0
	26 / 40	125.7	100.5	96.9	92.0	82.2	82.2	68.8	68.8	55.6	55.6	90.4	90.4
	28 / 35	136.8	107.9	111.1	100.6	95.8	95.8	82.2	82.2	68.9	68.9	104.8	104.8
SC31D069-2X2C-0	22 / 50	109.7	88.5	78.4	74.7	61.5	61.5	47.4	47.4	33.4	33.4	68.4	68.4
	24 / 45	126.5	99.3	94.2	85.8	75.8	75.8	61.4	61.4	47.4	47.4	84.3	84.3
	26 / 40	141.4	108.8	108.9	97.1	90.3	90.3	75.7	75.7	61.4	61.4	100.0	100.0
	28 / 35	154.0	116.7	121.5	109.1	105.1	105.1	90.3	90.3	75.8	75.8	115.6	115.6
SC31D079-2X2C-0	22 / 50	113.0	91.7	80.8	77.8	63.6	63.6	49.0	49.0	34.5	34.5	70.8	70.8
	24 / 45	130.3	102.9	97.1	89.3	78.4	78.4	63.5	63.5	49.0	49.0	87.2	87.2
	26 / 40	145.7	112.8	112.3	101.2	93.4	93.4	78.3	78.3	63.5	63.5	103.4	103.4
	28 / 35	158.7	121.0	125.7	113.0	108.7	108.7	93.5	93.5	78.4	78.4	119.5	119.5
SC31D089-2X2C-0	22 / 50	116.1	94.7	81.1	81.1	65.6	65.6	50.5	50.5	35.6	35.6	73.0	73.0
	24 / 45	133.9	106.4	99.8	92.8	80.9	80.9	65.5	65.5	50.5	50.5	89.9	89.9
	26 / 40	149.8	116.6	115.4	105.1	96.4	96.4	80.8	80.8	65.5	65.5	106.6	106.6
	28 / 35	170.8	135.0	129.8	116.8	112.1	112.1	96.4	96.4	80.8	80.8	123.3	123.3
SC31D094-2X2C-0	22 / 50	118.9	97.6	85.7	85.7	67.4	67.4	51.8	51.8	36.6	36.6	75.0	75.0
	24 / 45	137.2	109.5	102.2	96.0	83.1	83.1	67.3	67.3	51.8	51.8	92.4	92.4
	26 / 40	153.5	120.0	116.5	110.2	99.1	99.1	83.0	83.0	67.3	67.3	109.6	109.6
	28 / 35	167.0	128.9	133.4	120.3	115.3	115.3	99.1	99.1	83.1	83.1	126.7	126.7

Technical Data 2X2C Units

Performance Data 2X2C Chilled Water

Model	Air On Temp. / RH (°C) / (%)	Chilled Water Temperatures (°C) 5/10 TC (kW)	5/10 SC (kW)	7/12 TC (kW)	7/12 SC (kW)	8/14 TC (kW)	8/14 SC (kW)	10/16 TC (kW)	10/16 SC (kW)	12/18 TC (kW)	12/18 SC (kW)	5.5/14.5 TC (kW)	5.5/14.5 SC (kW)
SC31D108-2X2C-0	22 / 50	121.6	100.4	85.6	85.6	69.2	69.2	53.2	53.2	37.5	37.5	77.0	77.0
	24 / 45	140.4	112.8	104.8	103.4	85.4	85.4	69.1	69.1	53.2	53.2	94.8	94.8
	26 / 40	157.1	123.6	119.7	113.4	101.7	101.7	85.3	85.3	69.1	69.1	112.5	112.5
	28 / 35	170.9	132.7	137.1	123.9	118.4	118.4	101.8	101.8	85.3	85.3	130.1	130.1
SC31D124-2X2C-0	22 / 50	121.6	100.4	85.6	85.6	69.2	69.2	53.2	53.2	37.5	37.5	77.0	77.0
	24 / 45	140.4	112.8	104.8	103.4	85.4	85.4	69.1	69.1	53.2	53.2	94.8	94.8
	26 / 40	157.1	123.6	119.7	113.4	101.7	101.7	85.3	85.3	69.1	69.1	112.5	112.5
	28 / 35	170.9	132.7	137.1	123.9	118.4	118.4	101.8	101.8	85.3	85.3	130.1	130.1
SC35D079-2X2C-0	22 / 50	125.7	101.1	89.9	85.1	70.4	70.4	54.2	54.2	38.3	38.3	78.5	78.5
	24 / 45	144.8	113.4	107.8	97.7	86.7	86.7	70.3	70.3	54.2	54.2	96.6	96.6
	26 / 40	161.9	124.3	124.7	110.7	103.2	103.2	86.6	86.6	70.2	70.2	114.4	114.4
	28 / 35	176.3	133.3	138.7	124.6	120.0	120.0	103.2	103.2	86.6	86.6	132.2	132.2
SC35D091-2X2C-0	22 / 50	129.4	104.7	92.6	88.5	72.8	72.8	56.0	56.0	39.6	39.6	81.2	81.2
	24 / 45	149.1	117.5	111.1	101.7	89.6	89.6	72.6	72.6	56.1	56.1	99.8	99.8
	26 / 40	174.4	137.9	128.5	115.2	106.7	106.7	89.5	89.5	72.6	72.6	118.3	118.3
	28 / 35	181.6	138.1	143.5	129.1	124.1	124.1	106.8	106.8	89.6	89.6	136.7	136.7
SC35D098-2X2C-0	22 / 50	133.0	108.2	95.2	92.0	75.1	75.1	57.8	57.8	40.8	40.8	83.7	83.7
	24 / 45	153.3	121.5	114.3	105.7	92.5	92.5	74.9	74.9	57.8	57.8	103.0	103.0
	26 / 40	171.5	133.1	132.1	119.8	110.2	110.2	92.4	92.4	74.9	74.9	122.0	122.0
	28 / 35	186.6	142.9	148.2	133.4	128.1	128.1	110.2	110.2	92.4	92.4	141.0	141.0
SC35D111-2X2C-0	22 / 50	137.1	112.4	98.9	98.9	77.7	77.7	59.8	59.8	42.3	42.3	86.7	86.7
	24 / 45	158.2	126.2	117.9	110.5	95.8	95.8	77.6	77.6	59.8	59.8	106.7	106.7
	26 / 40	177.0	138.3	134.2	126.9	114.2	114.2	95.7	95.7	77.6	77.6	126.4	126.4
	28 / 35	192.5	148.5	153.7	138.6	132.8	132.8	114.2	114.2	95.7	95.7	146.1	146.1
SC35D127-2X2C-0	22 / 50	139.9	115.3	98.3	98.3	79.5	79.5	61.2	61.2	43.3	43.3	88.7	88.7
	24 / 45	161.5	129.5	120.3	118.7	98.0	98.0	79.4	79.4	61.2	61.2	109.1	109.1
	26 / 40	180.6	141.9	137.4	130.1	116.8	116.8	98.0	98.0	79.4	79.4	129.3	129.3
	28 / 35	196.5	152.3	157.4	142.2	136.0	136.0	116.9	116.9	98.0	98.0	149.5	149.5

Intentionally Blank

Technical Data 2X2C Units

SC22D050-2X2C, SC22D059-2X2C

Mechanical Data

			SC22D050-2X2C-0	SC22D059-2X2C-0
Standard Condenser Match			**2 x CR50**	**2 x CR50**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	51.5	61.6
Nom Cooling (Gross) - C	(2)	kW	66.3	69.9
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	934 / 968	947 / 982
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	26.0	26.0
Glycol Flow		l/s	3.25	3.43
Pressure Drop		kPa	55.0	60.1
Unit				
Water Volume		l	32.2	32.2
Water Flow		l/s	3.25	3.43
Pressure Drop	(3)	kPa	94.0	103.6
Standard Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1381 / 1640	1489 / 1640
Maximum ESP		Pa	359	234
Nominal Airflow		m³/s	4.7	5.1
Fan Gain	(4)	kW	3.03	3.83
Compressor – Scroll				
Configuration – 2X2C			Dual Circuit – Tandem Compressors	
Quantity – 2X2C			4	4
Oil Charge Volume – 2X2C		l	4 x 1.2	4 x 1.2
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	3.5	4.0
Connections				
Liquid (sweat)		in	1/2	5/8
Discharge (sweat)		in	7/8	7/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	8
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2010 / 2562	2168 / 2562
Maximum ESP		Pa	882	698
Fan Gain	(4)	kW	4.28	5.38

Technical Data 2X2C Units

SC22D050-2X2C, SC22D059-2X2C

Electrical Data

			SC22D050-2X2C-0	SC22D059-2X2C-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	46.2	52.2
Maximum Start Amps		A	83.6	97.1
Recommended Mains Fuse Size		A	63	63
Unit Data Cooling Only - X				
Nominal Run Amps		A	37.5	43.5
Maximum Start Amps		A	74.9	88.4
Recommended Mains Fuse Size		A	50	50
Max Mains Incoming Cable Size		mm²	35	35
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 3.31	4 x 4.21
Nominal Run Amps		A	5.6	7.09
Locked Rotor Amps		A	43	52
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	2 x 0.6	2 x 0.6
Full Load Amps		A	2.6	2.6
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	8	8
Rating		kW	6.0	6.0
Full Load Amps		A	8.7	8.7
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 0.73	2 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	46	52
Maximum Start Amps		A	66	76
Recommended Mains Fuse		A	63	63

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC22D064-2X2C, SC22D074-2X2C

Mechanical Data

			SC22D064-2X2C-0	SC22D074-2X2C-0
Standard Condenser Match			**2 x CR50**	**2 x CR65**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	67.7	76.7
Nom Cooling (Gross) - C	(2)	kW	72.4	73.9
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	974 / 1009	973 / 1008
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	26.0	26.0
Glycol Flow		l/s	3.57	3.65
Pressure Drop		kPa	64.2	66.7
Unit				
Water Volume		l	36.3	36.3
Water Flow		l/s	3.57	3.65
Pressure Drop	(3)	kPa	101.8	105.8
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1572 / 1640	1616 / 1640
Maximum ESP		Pa	126	63
Nominal Airflow		m³/s	5.4	5.6
Fan Gain	(4)	kW	4.56	5.00
Compressor – Scroll				
Configuration – 2X2C			Dual Circuit – Tandem Compressors	
Quantity – 2X2C			4	4
Oil Charge Volume – 2X2C		l	4 x 1.7	4 x 1.8
Oil Type				POE
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.0	4.0
Connections				
Liquid (sweat)		in	5/8	5/8
Discharge (sweat)		in	7/8	11/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2290 / 2562	2354 / 2562
Maximum ESP		Pa	523	417
Fan Gain	(4)	kW	6.36	6.94

Technical Data 2X2C Units

SC22D064-2X2C, SC22D074-2X2C

Electrical Data

			SC22D064-2X2C-0	SC22D074-2X2C-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	57.0	72.8
Maximum Start Amps		A	112.7	138.1
Recommended Mains Fuse Size		A	80	100
Unit Data Cooling Only - X				
Nominal Run Amps		A	48.3	56.6
Maximum Start Amps		A	104.0	121.9
Recommended Mains Fuse Size		A	63	63
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65
Nominal Run Amps		A	8.29	9.72
Locked Rotor Amps		A	67.1	75
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	2 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	57	73
Maximum Start Amps		A	87	108
Recommended Mains Fuse		A	80	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC25D062-2X2C, SC25D068-2X2C, SC25D075-2X2C

Mechanical Data

			SC25D062-2X2C-0	SC25D068-2X2C-0	SC25D075-2X2C-0
Standard Condenser Match			**2 x CR50**	**2 x CR50**	**2 x CR65**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	63.4	69.8	79.3
Nom Cooling (Gross) - C	(2)	kW	77.8	80	86.2
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1030 / 1070	1078 / 1118	1077 / 1117
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator					
Cooling/Dehum Stages			4/1	4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	29.6	29.6	29.6
Glycol Flow		l/s	3.82	3.93	4.07
Pressure Drop		kPa	47.5	49.8	52.8
Unit					
Water Volume		l	40.4	40.4	40.4
Water Flow		l/s	3.82	3.93	4.07
Pressure Drop	(3)	kPa	65.7	69.1	73.4
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1324 / 1640	1381 / 1640	1436 / 1640
Maximum ESP		Pa	403	344	283
Nominal Airflow		m^3/s	5.7	5.9	6.2
Fan Gain	(4)	kW	3.92	4.48	5.07
Compressor – Scroll					
Configuration – 2X2C			Dual Circuit – Tandem Compressors		
Quantity – 2X2C			4	4	4
Oil Charge Volume – 2X2C		l	4 x 1.2	4 x 1.7	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	4.6	4.6	4.6
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	7/8	7/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			10	10	10
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1791 / 2253	1866 / 2253	1938 / 2253
Maximum ESP		Pa	621	546	468
Fan Gain	(4)	kW	5.05	5.72	6.42

Technical Data 2X2C Units

SC25D062-2X2C, SC25D068-2X2C, SC25D075-2X2C

Electrical Data

			SC25D062-2X2C-0	SC25D068-2X2C-0	SC25D075-2X2C-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	56.6	61.4	69.7
Maximum Start Amps		A	101.5	117.1	135.0
Recommended Mains Fuse Size		A	63	80	80
Unit Data Cooling Only - X					
Nominal Run Amps		A	47.9	52.7	61.0
Maximum Start Amps		A	92.8	108.4	126.3
Recommended Mains Fuse Size		A	63	63	80
Max Mains Incoming Cable Size		mm²	35	70	70
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.43
Locked Rotor Amps		A	4.4	4.4	4.43
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.21	4 x 4.75	4 x 5.65
Nominal Run Amps		A	7.09	8.29	9.72
Locked Rotor Amps		A	52	67.1	75
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	2 x 0.6	2 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			2	3	3
Number of Elements			6	9	9
Rating		kW	15	22.5	22.5
Current per Phase		A	21.65	32.48	32.48
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	2 x 0.73	2 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	57	61	70
Maximum Start Amps		A	81	92	105
Recommended Mains Fuse		A	63	80	80

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC25D085-2X2C, SC25D092-2X2C

Mechanical Data

			SC25D085-2X2C-0	SC25D092-2X2C-0
Standard Condenser Match			**2 x CR80**	**2 x CR80**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	89.1	94.6
Nom Cooling (Gross) - C	(2)	kW	83.1	88.4
Capacity Steps			4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1076 / 1117	1081 / 1122
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	29.6	29.6
Glycol Flow		l/s	4.11	4.25
Pressure Drop		kPa	53.7	59.8
Unit				
Water Flow		l/s		
Pressure Drop	(3)	kPa		
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1493 / 1640	1550 / 1640
Maximum ESP		Pa	215	142
Nominal Airflow		m³/s	6.4	6.7
Fan Gain	(4)	kW	5.75	6.50
Compressor – Scroll				
Configuration – 2X2C			Dual Circuit – Tandem Compressors	
Quantity – 2X2C			4	4
Oil Charge Volume – 2X2C		l	4 x 1.8	4 x 1.8
Oil Type				
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	5.0	5.0
Connections				
Liquid (sweat)		in	5/8	5/8
Discharge (sweat)		in	11/8	11/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			10	10
Electric Heating (Total)		kW	22.5	22.5
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	2013 / 2253	2087 / 2253
Maximum ESP		Pa	378	280
Fan Gain	(4)	kW	7.23	8.10

Technical Data 2X2C Units

SC25D085-2X2C, SC25D092-2X2C

Electrical Data

			SC25D085-2X2C-0	SC25D092-2X2C-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	77.8	87.7
Maximum Start Amps		A	167.1	176.3
Recommended Mains Fuse Size		A	100	100
Unit Data Cooling Only - X				
Nominal Run Amps		A	69.1	71.5
Maximum Start Amps		A	158.4	160.1
Recommended Mains Fuse Size		A	80	80
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 6.42	4 x 6.79
Nominal Run Amps		A	11.74	12.33
Locked Rotor Amps		A	101	101
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			3	3
Number of Elements			9	9
Rating		kW	22.5	22.5
Current per Phase		A	32.48	32.48
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	78	88
Maximum Start Amps		A	127	136
Recommended Mains Fuse		A	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC31D069-2X2C, SC31D079-2X2C, SC31D089-2X2C

Mechanical Data

			SC31D069-2X2C-0	SC31D079-2X2C-0	SC31D089-2X2C-0
Standard Condenser Match			**2 x CR65**	**2 x CR65**	**2 x CR80**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	74.3	83.0	93.7
Nom Cooling (Gross) - C	(2)	kW	97	100	102.8
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1306 / 1355	1305 / 1355	1304 / 1354
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	36.8	36.8	36.8
Glycol Flow		l/s	4.75	4.90	5.05
Pressure Drop		kPa	54.8	57.8	60.8
Unit					
Water Volume		l	48.6	48.6	48.6
Water Flow		l/s	4.75	4.90	5.05
Pressure Drop	(3)	kPa	84.8	89.7	94.5
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1392 / 1640	1454 / 1640	1513 / 1640
Maximum ESP		Pa	343	272	199
Nominal Airflow		m^3/s	6.9	7.2	7.5
Fan Gain	(4)	kW	4.64	5.32	6.05
Compressor – Scroll					
Configuration – 2X2C			Dual Circuit – Tandem Compressors		
Quantity – 2X2C			4	4	4
Oil Charge Volume – 2X2C		l	4 x 1.7	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	5.7	5.8	6.2
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	7/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1996 / 2562	2085 / 2562	2171 / 2562
Maximum ESP		Pa	879	784	680
Fan Gain	(4)	kW	6.43	7.33	8.29

Technical Data 2X2C Units

SC31D069-2X2C, SC31D079-2X2C, SC31D089-2X2C

Electrical Data

			SC31D069-2X2C-0	SC31D079-2X2C-0	SC31D089-2X2C-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	64.0	69.7	77.8
Maximum Start Amps		A	119.7	135.0	167.1
Recommended Mains Fuse Size		A	80	80	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	55.3	61.0	69.1
Maximum Start Amps		A	111.0	126.3	158.4
Recommended Mains Fuse Size		A	63	80	80
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz		
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.43
Locked Rotor Amps		A	4.4	4.4	4.43
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65	4 x 6.42
Nominal Run Amps		A	8.3	9.7	11.7
Locked Rotor Amps		A	67.1	75	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.48	32.48	32.48
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	64	70	78
Maximum Start Amps		A	94	105	127
Recommended Mains Fuse		A	80	80	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC31D094-2X2C, SC31D108-2X2C, SC31D124-2X2C

Mechanical Data

			SC31D094-2X2C-0	SC31D108-2X2C-0	SC31D124-2X2C-0
Standard Condenser Match			**2 x CR80**	**2 x CR105**	**2 x CR105**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	99.5	112.6	125.5
Nom Cooling (Gross) - C	(2)	kW	105.3	108	108
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1309 / 1359	1390 / 1440	1391 / 1441
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	36.8	36.8	36.8
Glycol Flow		l/s	5.18	5.33	5.33
Pressure Drop		kPa	63.6	66.8	66.8
Unit					
Water Flow		l/s			
Pressure Drop	(3)	kPa			
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1569 / 1640	1626 / 1640	1626 / 1640
Maximum ESP		Pa	125	44	44
Nominal Airflow		m³/s	7.8	8.1	8.1
Fan Gain	(4)	kW	6.80	7.65	7.65
Compressor – Scroll					
Configuration – 2X2C			Dual Circuit – Tandem Compressors		
Quantity – 2X2C			4	4	4
Oil Charge Volume – 2X2C		l	4 x 1.8	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.2	6.2	6.2
Connections					
Liquid (sweat)		in	5/8	5/8	7/8
Discharge (sweat)		in	11/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	15	15
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2252 / 2562	2335 / 2562	2335 / 2562
Maximum ESP		Pa	570	442	442
Fan Gain	(4)	kW	9.28	10.40	10.40

Technical Data 2X2C Units

SC31D094-2X2C, SC31D108-2X2C, SC31D124-2X2C

Electrical Data

			SC31D094-2X2C-0	SC31D108-2X2C-0	SC31D124-2X2C-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	80.2	95.8	104.7
Maximum Start Amps		A	168.8	192.5	206.1
Recommended Mains Fuse Size		A	100	125	125
Unit Data Cooling Only - X					
Nominal Run Amps		A	71.5	79.6	88.5
Maximum Start Amps		A	160.1	176.3	189.9
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.43
Locked Rotor Amps		A	4.4	4.4	4.43
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 6.79	4 x 7.82	4 x 9.11
Nominal Run Amps		A	12.3	14.4	16.6
Locked Rotor Amps		A	101	111	118
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.5	32.5	32.5
Humidifier					
Capacity		kg/hr	8	15	15
Rating		kW	6	11.3	11.3
Full Load Amps		A	8.7	16.2	16.2
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	80	98	107
Maximum Start Amps		A	128	151	162
Recommended Mains Fuse		A	100	125	125

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC35D079-2X2C, SC35D091-2X2C, SC35D098-2X2C

Mechanical Data

			SC35D079-2X2C-0	SC35D091-2X2C-0	SC35D098-2X2C-0
Standard Condenser Match			**2 x CR65**	**2 x CR80**	**2 x CR80**
Capacity					
Nom Cooling (Gross) - X	(1)	kW	84.9	96.1	102.2
Nom Cooling (Gross) - C	(2)	kW	111.1	114.5	117.7
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1443 / 1498	1442 / 1498	1447 / 1503
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	41.6	41.6	41.6
Glycol Flow		l/s	5.44	5.61	5.78
Pressure Drop		kPa	58.3	61.5	64.8
Unit					
Water Volume		l	54.1	54.1	54.1
Water Flow		l/s	5.44	5.61	5.78
Pressure Drop	(3)	kPa	99.2	105.0	110.8
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1327 / 1640	1386 / 1640	1445 / 1640
Maximum ESP		Pa	404	342	275
Nominal Airflow		m^3/s	7.9	8.2	8.6
Fan Gain	(4)	kW	5.27	6.03	6.89
Compressor – Scroll					
Configuration – 2X2C			Dual Circuit – Tandem Compressors		
Quantity – 2X2C			4	4	4
Oil Charge Volume – 2X2C		l	4 x 1.8	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.2	6.6	6.6
Connections					
Liquid (sweat)		in	5/8	5/8	5/8
Discharge (sweat)		in	7/8	11/8	11/8
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to BS EN 779-G4		
Quantity			14	14	14
Electric Heating (Total)		kW	30	30	30
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1816 / 2253	1894 / 2253	1973 / 2253
Maximum ESP		Pa	608	527	437
Fan Gain	(4)	kW	6.91	7.86	8.91

Technical Data 2X2C Units

SC35D079-2X2C, SC35D091-2X2C, SC35D098-2X2C

Electrical Data

			SC35D079-2X2C-0	SC35D091-2X2C-0	SC35D098-2X2C-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	71.5	82.2	84.6
Maximum Start Amps		A	136.8	171.5	173.3
Recommended Mains Fuse Size		A	80	100	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	62.8	73.5	75.9
Maximum Start Amps		A	128.1	162.8	164.6
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9	4 x 2.9
Full Load Amps		A	4.4	4.4	4.43
Locked Rotor Amps		A	4.4	4.4	4.43
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 5.65	4 x 6.42	4 x 6.79
Nominal Run Amps		A	9.7	11.7	12.3
Locked Rotor Amps		A	75	101	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	2 x 0.6	3 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	4
Number of Elements			9	9	12
Rating		kW	22.5	22.5	30
Current per Phase		A	32.5	32.5	43.3
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	2 x 0.73	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	74	82	85
Maximum Start Amps		A	109	131	133
Recommended Mains Fuse		A	100	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

SC35D111-2X2C, SC35D127-2X2C

Mechanical Data

			SC35D111-2X2C-0	SC35D127-2X2C-0
Standard Condenser Match			**2 x CR140**	**2 x CR140**
Capacity				
Nom Cooling (Gross) - X	(1)	kW	116.2	130.0
Nom Cooling (Gross) - C	(2)	kW	121.4	123.9
Capacity Steps			4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1528 / 1584	1529 / 1585
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Cooling Coil - C	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	41.6	41.6
Glycol Flow		l/s	5.98	6.12
Pressure Drop		kPa	68.7	71.6
Unit				
Water Volume		l	54.1	54.1
Water Flow		l/s	5.98	6.12
Pressure Drop	(3)	kPa	117.8	122.6
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1515 / 1640	1565 / 1640
Maximum ESP		Pa	188	123
Nominal Airflow		m³/s	9.0	9.3
Fan Gain	(4)	kW	8.05	8.95
Compressor – Scroll				
Configuration – 2X2C			Dual Circuit – Tandem Compressors	
Quantity – 2X2C			4	4
Oil Charge Volume – 2X2C		l	4 x 3.3	4 x 3.3
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	6.7	6.7
Connections				
Liquid (sweat)		in	5/8	7/8
Discharge (sweat)		in	11/8	11/8
Condensate Drain Hose		mm	22	22
Filtration			Disposable to BS EN 779-G4	
Quantity			14	14
Electric Heating (Total)		kW	30	30
Humidifier				
Capacity		kg/hr	8	23
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	2066 / 2253	2131 / 2253
Maximum ESP		Pa	316	222
Fan Gain	(4)	kW	10.29	11.35

Technical Data 2X2C Units

SC35D111-2X2C, SC35D127-2X2C

Electrical Data

			SC35D111-2X2C-0	SC35D127-2X2C-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	92.8	117.8
Maximum Start Amps		A	189.4	219.2
Recommended Mains Fuse Size		A	125	160
Unit Data Cooling Only - X				
Nominal Run Amps		A	84.1	92.9
Maximum Start Amps		A	180.7	194.3
Recommended Mains Fuse Size		A	100	125
Max Mains Incoming Cable Size		mm²	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 7.82	4 x 9.11
Nominal Run Amps		A	14.4	16.6
Locked Rotor Amps		A	111	118
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			4	4
Number of Elements			12	12
Rating		kW	30	30
Current per Phase		A	43.3	43.3
Humidifier				
Capacity		kg/hr	8	23
Rating		kW	6	17.25
Full Load Amps		A	8.7	24.9
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	95	120
Maximum Start Amps		A	148	175
Recommended Mains Fuse		A	125	160

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

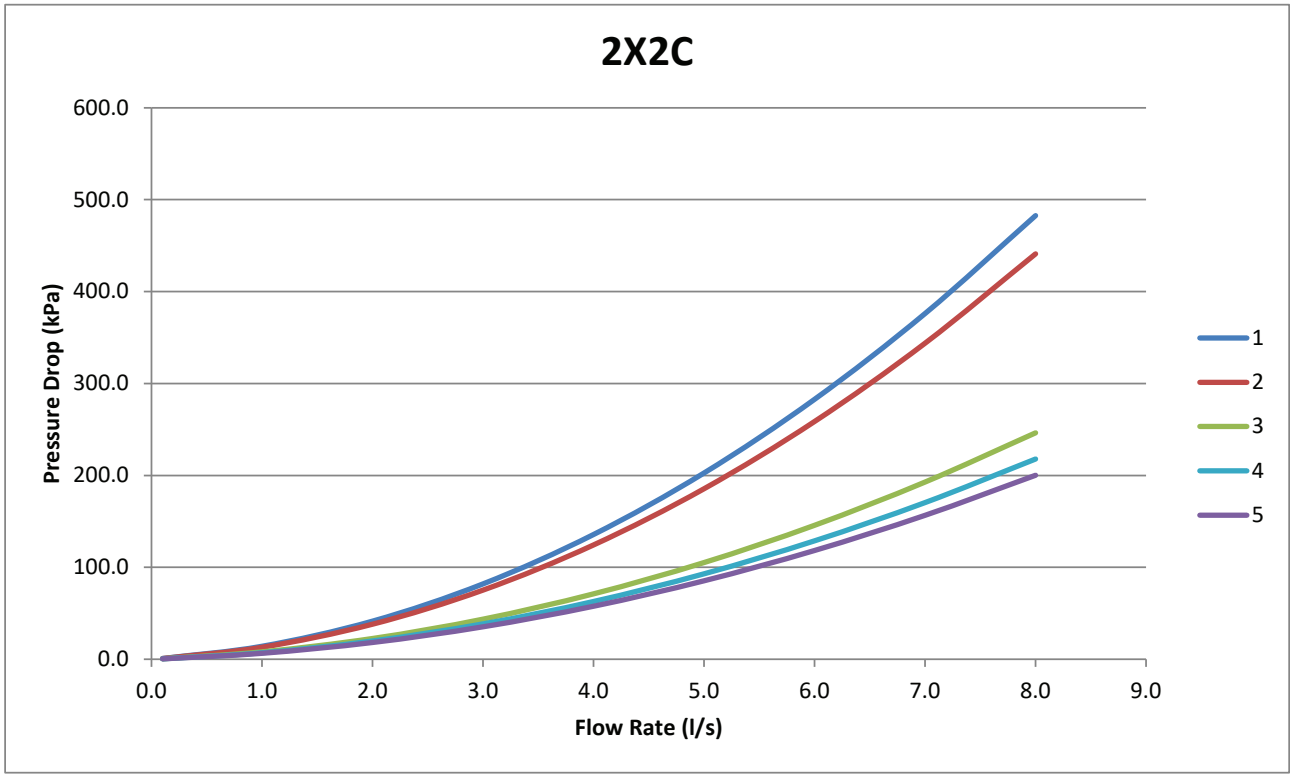
Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2X2C Units

Waterside Pressure Drop Data



SC22D050-2X2C-0	1
SC22D059-2X2C-0	1
SC22D064-2X2C-0	2
SC22D074-2X2C-0	2
SC25D062-2X2C-0	3
SC25D068-2X2C-0	3
SC25D075-2X2C-0	3
SC25D085-2X2C-0	3
SC25D092-2X2C-0	3
SC31D069-2X2C-0	4
SC31D079-2X2C-0	4
SC31D089-2X2C-0	4
SC31D094-2X2C-0	4
SC31D108-2X2C-0	4
SC31D124-2X2C-0	4
SC35D079-2X2C-0	5
SC35D091-2X2C-0	5
SC35D098-2X2C-0	5
SC35D111-2X2C-0	5
SC35D127-2X2C-0	5

Includes coil, 2 port valve and pipework.

To calculate 2 port valve pressure drop:

ΔP valve = $\left(\frac{Q}{M}\right)^2$

where

ΔP = Pressure Drop in kPa,

Q = Water Flow Rate in l/s and M = $\left(\frac{Kv}{36}\right)$

Fluid 100% water.

	Valve Kv	M
1	25.0	0.69
2	25.0	0.69
3	40.0	1.11
4	40.0	1.11
5	40.0	1.11

Technical Data 2X2C Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC22D050-2X2C-0	Discharge Air	87	88	87	85	85	83	77	72	69
	Return Air	86	91	90	91	84	77	70	70	64
	Case Breakout	67	68	71	64	63	62	60	57	55
	Sound Pressure @ 3m	56	57	60	53	52	51	49	46	44
SC22D059-2X2C-0	Discharge Air	90	89	92	87	89	86	79	74	69
	Return Air	89	91	96	92	88	80	73	73	65
	Case Breakout	71	69	76	66	67	66	63	59	55
	Sound Pressure @ 3m	60	58	65	55	56	55	52	48	44
SC22D064-2X2C-0	Discharge Air	99	91	106	91	100	94	85	77	70
	Return Air	100	93	113	93	99	87	82	80	67
	Case Breakout	79	71	89	71	78	74	69	62	56
	Sound Pressure @ 3m	68	60	78	60	67	63	58	51	45
SC22D074-2X2C-0	Discharge Air	103	93	111	95	104	98	89	80	73
	Return Air	105	91	118	96	104	89	87	84	70
	Case Breakout	84	74	95	74	82	77	73	66	59
	Sound Pressure @ 3m	73	63	84	63	71	66	62	55	48
SC25D062-2X2C-0	Discharge Air	87	90	89	87	85	83	77	71	68
	Return Air	87	95	93	93	84	78	70	69	63
	Case Breakout	68	71	73	66	63	63	61	57	54
	Sound Pressure @ 3m	57	60	62	55	52	52	50	46	43
SC25D068-2X2C-0	Discharge Air	89	92	90	88	86	85	79	74	71
	Return Air	89	97	93	94	86	83	74	73	67
	Case Breakout	70	72	74	67	64	65	63	59	57
	Sound Pressure @ 3m	59	61	63	56	53	54	52	48	46
SC25D075-2X2C-0	Discharge Air	89	92	91	88	86	85	80	76	73
	Return Air	89	97	94	95	86	81	74	75	69
	Case Breakout	70	73	75	68	64	65	63	61	59
	Sound Pressure @ 3m	59	62	64	57	53	54	52	50	48
SC25D085-2X2C-0	Discharge Air	91	93	92	89	88	87	81	76	72
	Return Air	91	97	96	95	88	84	76	76	67
	Case Breakout	72	73	76	69	66	67	65	62	58
	Sound Pressure @ 3m	61	62	65	58	55	56	54	51	47
SC25D092-2X2C-0	Discharge Air	93	94	95	91	91	89	83	78	73
	Return Air	93	98	99	97	91	85	78	78	68
	Case Breakout	74	75	79	70	69	69	67	64	59
	Sound Pressure @ 3m	63	64	68	59	58	58	56	53	48

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2X2C Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC31D069-2X2C-0	Discharge Air	89	90	89	87	87	85	79	75	72
	Return Air	89	96	92	93	86	83	74	74	68
	Case Breakout	70	71	73	66	65	65	63	60	58
	Sound Pressure @ 3m	59	60	62	55	54	54	52	49	47
SC31D079-2X2C-0	Discharge Air	90	90	90	88	88	86	80	76	74
	Return Air	89	94	94	94	87	81	75	76	70
	Case Breakout	71	71	74	67	66	66	64	62	60
	Sound Pressure @ 3m	60	60	63	56	55	55	53	51	49
SC31D089-2X2C-0	Discharge Air	93	91	95	89	92	89	82	77	71
	Return Air	92	93	100	94	91	85	77	77	67
	Case Breakout	74	71	79	69	70	69	66	63	57
	Sound Pressure @ 3m	63	60	68	58	59	58	55	52	46
SC31D094-2X2C-0	Discharge Air	98	92	103	92	98	94	86	79	70
	Return Air	98	93	109	95	97	87	82	80	67
	Case Breakout	78	73	87	72	76	74	70	64	56
	Sound Pressure @ 3m	67	62	76	60	65	63	59	53	45
SC31D108-2X2C-0	Discharge Air	102	97	108	97	102	98	90	83	74
	Return Air	102	96	114	99	102	90	88	85	73
	Case Breakout	83	78	92	76	80	77	74	69	61
	Sound Pressure @ 3m	72	67	81	65	69	66	63	58	49
SC31D124-2X2C-0	Discharge Air	102	97	108	97	102	98	90	83	74
	Return Air	102	96	114	99	102	91	88	85	73
	Case Breakout	83	78	92	76	80	77	74	68	60
	Sound Pressure @ 3m	72	67	81	65	69	66	63	57	49
SC35D079-2X2C-0	Discharge Air	89	91	90	88	86	85	79	75	73
	Return Air	89	96	93	94	85	81	74	75	69
	Case Breakout	70	71	74	67	64	65	63	61	59
	Sound Pressure @ 3m	59	60	63	56	53	54	52	50	48
SC35D091-2X2C-0	Discharge Air	90	92	91	88	87	86	80	76	71
	Return Air	90	97	94	95	87	83	75	76	66
	Case Breakout	71	72	75	68	65	66	64	61	57
	Sound Pressure @ 3m	60	61	64	57	54	55	53	50	46
SC35D098-2X2C-0	Discharge Air	91	93	92	89	88	87	81	77	71
	Return Air	91	98	95	95	88	83	76	76	66
	Case Breakout	72	73	76	69	66	67	65	62	57
	Sound Pressure @ 3m	61	62	65	58	55	56	54	51	46
SC35D111-2X2C-0	Discharge Air	93	94	94	91	91	89	84	78	73
	Return Air	93	98	98	97	91	85	79	78	68
	Case Breakout	74	74	78	70	69	69	68	64	59
	Sound Pressure @ 3m	63	63	67	59	58	58	57	53	48
SC35D127-2X2C-0	Discharge Air	96	95	98	92	93	92	86	80	74
	Return Air	95	98	102	98	93	87	81	79	70
	Case Breakout	76	76	82	72	71	71	69	65	60
	Sound Pressure @ 3m	65	65	71	61	60	60	58	54	49

(1) dB(A) is the overall sound level, measured on the A scale
(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Intentionally Blank

Technical Data 2W20 Units

Performance Data 2W20

Model	Air On Temp. / RH (°C) / (%)	Plate Condenser Water Temperatures (°C) 25/30 TC (kW)	25/30 SC (kW)	25/30 THR (kW)	30/35 TC (kW)	30/35 SC (kW)	30/35 THR (kW)	35/40 TC (kW)	35/40 SC (kW)	35/40 THR (kW)	40/45 TC (kW)	40/45 SC (kW)	40/45 THR (kW)
SC22D050-2W20-0	22 / 50	50.5	50.5	59.6	49.4	49.4	59.1	47.1	47.1	58.2	44.6	44.6	57.3
	24 / 45	52.6	52.6	61.7	51.4	51.4	61.2	49.1	49.1	60.3	46.6	46.6	59.3
	26 / 40	54.6	54.6	63.7	53.4	53.4	63.1	51.0	51.0	62.2	48.5	48.5	61.2
	28 / 35	56.5	56.5	65.5	55.2	55.2	64.9	52.8	52.8	64.0	50.3	50.3	63.0
SC22D059-2W20-0	22 / 50	61.6	61.6	73.0	60.2	60.2	72.4	57.4	57.4	71.4	54.4	54.4	70.4
	24 / 45	63.9	63.9	75.3	62.5	62.5	74.7	59.7	59.7	73.6	56.7	56.7	72.6
	26 / 40	66.1	66.1	77.4	64.6	64.6	76.8	61.8	61.8	75.7	58.8	58.8	74.7
	28 / 35	68.2	68.2	79.4	66.6	66.6	78.8	63.8	63.8	77.7	60.7	60.7	76.6
SC22D064-2W20-0	22 / 50	69.2	64.9	82.4	68.1	64.2	82.0	65.1	65.1	81.3	62.0	62.0	80.6
	24 / 45	71.5	71.5	84.8	70.4	70.4	84.5	67.5	67.5	83.7	64.3	64.3	83.0
	26 / 40	73.8	73.8	87.1	72.7	72.7	86.8	69.8	69.8	86.0	66.7	66.7	85.3
	28 / 35	76.0	76.0	89.3	74.8	74.8	88.9	71.9	71.9	88.2	68.8	68.8	87.5
SC22D074-2W20-0	22 / 50	77.1	69.6	93.1	75.6	68.8	92.5	72.2	67.2	91.1	68.7	68.7	89.9
	24 / 45	79.1	79.1	95.0	77.6	77.6	94.4	74.4	74.4	93.3	70.9	70.9	92.4
	26 / 40	81.3	81.3	97.3	79.8	79.8	96.7	76.7	76.7	95.7	73.3	73.3	94.8
	28 / 35	83.3	83.3	99.3	81.8	81.8	98.8	78.8	78.8	97.9	75.4	75.4	97.0
SC25D062-2W20-0	22 / 50	63.6	63.6	74.9	62.1	62.1	74.2	59.1	59.1	73.1	56.0	56.0	71.9
	24 / 45	66.1	66.1	77.4	64.5	64.5	76.7	61.6	61.6	75.5	58.3	58.3	74.2
	26 / 40	68.5	68.5	79.8	66.8	66.8	79.0	63.8	63.8	77.7	60.6	60.6	76.5
	28 / 35	70.8	70.8	82.0	69.0	69.0	81.2	66.0	66.0	79.9	62.7	62.7	78.6
SC25D068-2W20-0	22 / 50	71.2	71.2	84.5	70.0	70.0	84.1	67.0	67.0	83.2	63.7	63.7	82.3
	24 / 45	73.9	73.9	87.3	72.7	72.7	86.8	69.7	69.7	85.9	66.4	66.4	85.0
	26 / 40	76.5	76.5	89.9	75.3	75.3	89.4	72.2	72.2	88.4	68.9	68.9	87.5
	28 / 35	78.9	78.9	92.3	77.6	77.6	91.9	74.5	74.5	90.8	71.2	71.2	89.9
SC25D075-2W20-0	22 / 50	79.4	74.5	95.3	77.8	73.4	94.6	74.3	74.3	93.3	70.7	70.7	92.2
	24 / 45	82.0	82.0	98.0	80.4	80.4	97.4	77.0	77.0	96.1	73.4	73.4	94.9
	26 / 40	84.6	84.6	100.7	83.0	83.0	100.0	79.7	79.7	98.8	76.1	76.1	97.6
	28 / 35	87.1	87.1	103.1	85.4	85.4	102.5	82.1	82.1	101.3	78.5	78.5	100.1
SC25D085-2W20-0	22 / 50	88.7	80.3	107.4	87.4	79.7	106.8	83.8	78.0	105.3	79.9	79.9	104.1
	24 / 45	91.1	91.1	109.6	89.7	89.7	109.1	86.3	86.3	108.1	82.5	82.5	107.1
	26 / 40	93.6	93.6	112.3	92.3	92.3	111.9	89.0	89.0	110.9	85.4	85.4	110.0
	28 / 35	96.1	96.1	114.9	94.8	94.8	114.4	91.5	91.5	113.5	87.9	87.9	112.6
SC25D092-2W20-0	22 / 50	95.4	84.7	115.3	93.6	83.8	114.5	89.4	81.9	112.8	85.1	79.8	111.1
	24 / 45	97.7	97.7	117.4	95.9	95.9	116.6	91.9	91.9	115.2	87.6	87.6	114.0
	26 / 40	100.0	100.0	119.8	98.3	98.3	119.2	94.5	94.5	118.0	90.4	90.4	116.8
	28 / 35	102.6	102.6	122.3	100.8	100.8	121.7	97.1	97.1	120.6	93.1	93.1	119.4
SC31D069-2W20-0	22 / 50	74.3	74.3	87.7	73.0	73.0	87.1	69.8	69.8	86.0	66.2	66.2	84.8
	24 / 45	77.4	77.4	90.8	76.0	76.0	90.2	72.7	72.7	89.0	69.1	69.1	87.7
	26 / 40	80.4	80.4	93.7	78.9	78.9	93.1	75.5	75.5	91.8	71.9	71.9	90.6
	28 / 35	83.2	83.2	96.5	81.6	81.6	95.9	78.2	78.2	94.6	74.5	74.5	93.3
SC31D079-2W20-0	22 / 50	83.0	83.0	99.0	81.2	81.2	98.2	77.7	77.7	96.7	73.8	73.8	95.2
	24 / 45	86.2	86.2	102.2	84.3	84.3	101.4	80.7	80.7	99.9	76.8	76.8	98.4
	26 / 40	89.3	89.3	105.4	87.4	87.4	104.5	83.7	83.7	102.9	79.7	79.7	101.3
	28 / 35	92.2	92.2	108.3	90.2	90.2	107.3	86.5	86.5	105.7	82.5	82.5	104.2
SC31D089-2W20-0	22 / 50	92.6	92.6	111.3	91.2	91.2	110.7	87.5	87.5	109.4	83.5	83.5	108.1
	24 / 45	95.9	95.9	114.7	94.4	94.4	114.1	90.8	90.8	112.8	86.8	86.8	111.5
	26 / 40	99.3	99.3	118.2	97.8	97.8	117.6	94.2	94.2	116.2	90.2	90.2	114.8
	28 / 35	102.5	102.5	121.4	100.8	100.8	120.8	97.2	97.2	119.4	93.2	93.2	118.1

Technical Data 2W20 Units

Performance Data 2W20

Model	Air On Temp. / RH (°C) / (%)	Plate Condenser Water Temperatures (°C) 25/30 TC (kW)	25/30 SC (kW)	25/30 THR (kW)	30/35 TC (kW)	30/35 SC (kW)	30/35 THR (kW)	35/40 TC (kW)	35/40 SC (kW)	35/40 THR (kW)	40/45 TC (kW)	40/45 SC (kW)	40/45 THR (kW)
SC31D094-2W20-0	22 / 50	99.5	93.7	119.1	97.6	97.6	118.4	93.2	93.2	116.8	88.7	88.7	115.3
	24 / 45	102.9	102.9	122.7	100.9	100.9	121.9	96.7	96.7	120.3	92.2	92.2	118.7
	26 / 40	106.4	106.4	126.1	104.4	104.4	125.3	100.1	100.1	123.7	95.6	95.6	122.1
	28 / 35	109.6	109.6	129.2	107.5	107.5	128.4	103.2	103.2	126.9	98.7	98.7	125.2
SC31D108-2W20-0	22 / 50	112.2	101.6	135.1	110.1	100.7	134.1	105.2	98.5	131.9	100.1	100.1	130.2
	24 / 45	115.1	115.1	138.0	113.1	113.1	137.1	108.3	108.3	135.5	103.4	103.4	133.9
	26 / 40	118.4	118.4	141.5	116.4	116.4	140.7	111.8	111.8	139.1	106.9	106.9	137.5
	28 / 35	121.7	121.7	144.8	119.6	119.6	144.0	115.0	115.0	142.4	110.2	110.2	140.9
SC31D124-2W20-0	22 / 50	126.8	108.2	153.3	125.4	107.6	152.7	120.1	105.2	150.5	114.1	102.5	148.1
	24 / 45	129.3	116.9	155.8	127.7	116.3	155.1	122.6	114.1	153.0	116.9	116.9	150.7
	26 / 40	131.7	131.7	158.0	130.3	130.3	157.4	125.4	125.4	155.7	120.0	120.0	154.2
	28 / 35	134.3	134.3	160.5	132.8	132.8	160.1	128.2	128.2	158.8	123.0	123.0	157.5
SC35D079-2W20-0	22 / 50	84.9	84.9	100.9	83.0	83.0	100.1	79.3	79.3	98.4	75.3	75.3	96.7
	24 / 45	88.4	88.4	104.5	86.5	86.5	103.6	82.7	82.7	101.9	78.6	78.6	100.1
	26 / 40	91.7	91.7	107.8	89.6	89.6	106.8	85.8	85.8	105.0	81.6	81.6	103.2
	28 / 35	94.8	94.8	110.9	92.6	92.6	109.8	88.8	88.8	108.0	84.5	84.5	106.2
SC35D091-2W20-0	22 / 50	95.0	95.0	113.8	93.5	93.5	113.1	89.7	89.7	111.7	85.6	85.6	110.2
	24 / 45	98.7	98.7	117.5	97.1	97.1	116.9	93.3	93.3	115.4	89.1	89.1	113.9
	26 / 40	102.3	102.3	121.2	100.6	100.6	120.5	96.8	96.8	119.0	92.6	92.6	117.5
	28 / 35	105.7	105.7	124.7	103.9	103.9	123.9	100.0	100.0	122.4	95.8	95.8	120.8
SC35D098-2W20-0	22 / 50	102.2	102.2	121.9	100.1	100.1	121.1	95.7	95.7	119.3	91.1	91.1	117.6
	24 / 45	106.1	106.1	125.8	103.9	103.9	124.8	99.5	99.5	123.1	94.8	94.8	121.3
	26 / 40	109.8	109.8	129.5	107.6	107.6	128.5	103.1	103.1	126.7	98.3	98.3	124.8
	28 / 35	113.3	113.3	132.9	110.9	110.9	131.9	106.4	106.4	130.0	101.6	101.6	128.2
SC35D111-2W20-0	22 / 50	115.1	108.3	137.8	112.9	112.9	136.9	107.9	107.9	135.1	102.8	102.8	133.3
	24 / 45	118.9	118.9	142.0	116.8	116.8	141.1	111.9	111.9	139.2	106.8	106.8	137.4
	26 / 40	122.9	122.9	146.2	120.6	120.6	145.2	115.8	115.8	143.2	110.6	110.6	141.3
	28 / 35	126.5	126.5	149.9	124.1	124.1	148.8	119.2	119.2	146.9	114.1	114.1	144.9
SC35D127-2W20-0	22 / 50	130.6	117.5	157.0	129.0	116.8	156.3	123.6	114.4	153.8	117.6	110.7	151.5
	24 / 45	133.9	133.9	160.1	132.3	132.3	159.5	127.2	127.2	157.7	121.4	121.4	155.8
	26 / 40	137.6	137.6	164.0	136.0	136.0	163.5	131.1	131.1	161.8	125.5	125.5	160.0
	28 / 35	141.2	141.2	167.7	139.6	139.6	167.1	134.8	134.8	165.5	129.3	129.3	163.8

Technical Data 2W20 Units

SC22D050-2W20, SC22D059-2W20

Mechanical Data

			SC22D050-2W20-0	SC22D059-2W20-0
Standard Dry Cooler Match			**1 x DR70**	**1 x DR70**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	49.1	59.7
Total Heat of Rejection - W		kW	60.3	73.6
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	941 / 954	955 / 969
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless Steel Brazed Plate	
Water Volume		l	2 x 1.6	2 x 1.9
Glycol Flow		l/s	2 x 1.45	2 x 1.78
Pressure Drop Condenser		kPa	42.5	46.5
Unit				
Water Volume			10.8	11.4
Water Flow		l/s	2.90	3.55
Pressure Drop	(3)	kPa	99.8	121.9
Dry Cooler				
Water Volume		l	55.9	55.9
Flow rate		l/s	2.90	3.55
Pressure Drop		kPa	46.9	63.8
Standard Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1306 / 1640	1406 / 1640
Maximum ESP		Pa	451	346
Nominal Airflow		m^3/s	4.7	5.1
Fan Gain	(4)	kW	2.53	3.17
Compressor – Scroll				
Configuration – 2W20			Dual Circuit – Tandem Compressors	
Quantity – 2W20			4	4
Oil Charge Volume – 2W20		l	4 x 1.2	4 x 1.2
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.1	4.6
CO2 Tonnes Equivalent		tCO_2e	8.56	9.6
Connections				
Water in	(5)	mm	42	42
Water out	(5)	mm	42	42
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	3	3
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1946 / 2562	2098 / 2562
Maximum ESP		Pa	974	810
Fan Gain	(4)	kW	3.75	4.67

Technical Data 2W20 Units

SC22D050-2W20, SC22D059-2W20

Electrical Data

			SC22D050-2W20-0	SC22D059-2W20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	47.6	52.0
Maximum Start Amps		A	85.0	96.9
Recommended Mains Fuse Size		A	63	63
Unit Data Cooling Only - X				
Nominal Run Amps		A	42.7	48.7
Maximum Start Amps		A	80.1	93.6
Recommended Mains Fuse Size		A	50	63
Max Mains Incoming Cable Size		mm²	35	35
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 3.31	4 x 4.21
Nominal Run Amps		A	5.6	7.09
Locked Rotor Amps		A	43	52
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.6	4 x 0.6
Full Load Amps		A	2.6	2.6
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	3	3
Rating		kW	2.25	2.25
Full Load Amps		A	3.3	3.3
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	48	52
Maximum Start Amps		A	68	76
Recommended Mains Fuse		A	63	63

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC22D064-2W20, SC25D074-2W20

Mechanical Data

			SC22D064-2W20-0	SC22D074-2W20-0
Standard Dry Cooler Match			**1 x DR95**	**1 x DR95**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	67.5	74.4
Total Heat of Rejection - W		kW	83.7	93.4
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	982 / 998	985 / 1001
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless Steel Brazed Plate	
Water Volume		l	2 x 2.5	2 x 2.5
Glycol Flow		l/s	2 x 1.99	2 x 2.25
Pressure Drop Condenser		kPa	37.7	47.5
Unit				
Water Volume			17.5	17.5
Water Flow		l/s	3.97	4.49
Pressure Drop	(3)	kPa	90.8	114.4
Dry Cooler				
Water Volume		l	55.9	55.9
Flow rate		l/s	3.97	4.49
Pressure Drop		kPa	76.3	93.0
Standard Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1483 / 1640	1524 / 1640
Maximum ESP		Pa	256	204
Nominal Airflow		m³/s	5.4	5.6
Fan Gain	(4)	kW	3.74	4.08
Compressor – Scroll				
Configuration – 2W20			Dual Circuit – Tandem Compressors	
Quantity – 2W20			4	4
Oil Charge Volume – 2W20		l	4 x 1.7	4 x 1.8
Oil Type				
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.9	4.9
CO2 Tonnes Equivalent		tCO_2e	10.2	10.2
Connections				
Water in	(5)	mm	54	54
Water out	(5)	mm	54	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2213 / 2562	2275 / 2562
Maximum ESP		Pa	653	558
Fan Gain	(4)	kW	5.48	5.96

Technical Data 2W20 Units

SC22D064-2W20, SC25D074-2W20

Electrical Data

			SC22D064-2W20-0	SC22D074-2W20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	58.3	71.5
Maximum Start Amps		A	114.0	136.8
Recommended Mains Fuse Size		A	80	80
Unit Data Cooling Only - X				
Nominal Run Amps		A	49.6	55.3
Maximum Start Amps		A	105.3	120.6
Recommended Mains Fuse Size		A	63	63
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65
Nominal Run Amps		A	8.29	9.72
Locked Rotor Amps		A	67.1	75
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.88	4 x 0.88
Full Load Amps		A	1.7	1.7
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 1.68	4 x 1.68
Full Load Amps		A	2.6	2.6
Electronic Soft-start				
Nominal Run Amps		A	58	72
Maximum Start Amps		A	88	107
Recommended Mains Fuse		A	80	80

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC25D062-2W20, SC25D068-2W20, SC25D075-2W20

Mechanical Data

			SC25D062-2W20-0	SC25D068-2W20-0	SC25D075-2W20-0
Standard Dry Cooler Match			**1 x DR70**	**1 x DR95**	**1 x DR95**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	61.6	69.7	77.0
Total Heat of Rejection - W		kW	75.5	85.9	96.1
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1053 / 1069	1105 / 1123	1104 / 1122
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 1.9	2 x 2.5	2 x 2.5
Glycol Flow		l/s	2 x 1.82	2 x 2.03	2 x 2.32
Pressure Drop Condenser		kPa	48.5	38.4	50.3
Unit					
Water Volume		l	17.2	18.4	18.4
Water Flow		l/s	3.63	4.07	4.63
Pressure Drop	(3)	kPa	127.8	95.1	120.9
Dry Cooler					
Water Volume		l	55.9	55.9	55.9
Flow rate		l/s	3.63	4.07	4.63
Pressure Drop		kPa	66.4	79.4	97.5
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1220 / 1640	1271 / 1640	1320 / 1640
Maximum ESP		Pa	509	463	415
Nominal Airflow		m³/s	5.7	5.9	6.2
Fan Gain	(4)	kW	3.08	3.48	3.91
Compressor – Scroll					
Configuration – 2W20			Dual Circuit – Tandem Compressors		
Quantity – 2W20			4	4	4
Oil Charge Volume – 2W20		l	4 x 1.2	4 x 1.7	4 x 1.8
Oil Type					
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	5.2	5.5	5.5
CO2 Tonnes Equivalent		tCO_2e	10.86	11.48	11.48
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			10	10	10
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	3	3	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4” BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1705 / 2253	1775 / 2253	1842 / 2253
Maximum ESP		Pa	727	665	600
Fan Gain	(4)	kW	4.21	4.74	5.29

Technical Data 2W20 Units

SC25D062-2W20, SC25D068-2W20, SC25D075-2W20

Electrical Data

			SC25D062-2W20-0	SC25D068-2W20-0	SC25D075-2W20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	56.4	61.7	68.5
Maximum Start Amps		A	101.3	117.4	133.8
Recommended Mains Fuse Size		A	63	80	80
Unit Data Cooling Only - X					
Nominal Run Amps		A	53.1	54.1	59.8
Maximum Start Amps		A	98.0	109.8	125.1
Recommended Mains Fuse Size		A	63	63	80
Max Mains Incoming Cable Size		mm²	35	35	70
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.21	4 x 4.75	4 x 5.65
Nominal Run Amps		A	7.09	8.29	9.72
Locked Rotor Amps		A	52	67.1	75
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.6	4 x 0.88	4 x 0.88
Full Load Amps		A	2.6	1.7	1.7
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			2	3	3
Number of Elements			6	9	9
Rating		kW	15	22.5	22.5
Current per Phase		A	21.65	32.48	32.48
Humidifier					
Capacity		kg/hr	3	3	8
Rating		kW	2.25	2.25	6
Full Load Amps		A	3.3	3.3	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 1.68	4 x 1.68
Full Load Amps		A	3.3	2.6	2.6
Electronic Soft-start					
Nominal Run Amps		A	56	62	68
Maximum Start Amps		A	81	92	104
Recommended Mains Fuse		A	63	80	80

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC25D085-2W20, SC25D092-2W20

Mechanical Data

			SC25D085-2W20-0	SC25D092-2W20-0
Standard Dry Cooler Match			**2 x DR55**	**2 x DR55**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	86.3	91.9
Total Heat of Rejection - W		kW	108.1	115.2
Capacity Steps			4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1108 / 1128	1113 / 1133
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)			
Water Volume		l	2 x 3.1	2 x 3.1
Glycol Flow		l/s	2 x 2.60	2 x 2.78
Pressure Drop Condenser		kPa	36.5	41.2
Unit				
Water Volume		l	19.6	19.6
Water Flow		l/s	5.20	5.55
Pressure Drop	(3)	kPa	99.0	111.8
Dry Cooler				
Water Volume		l	2 x 43.2	2 x 43.2
Flow rate		l/s	2 x 2.60	2 x 2.77
Pressure Drop		kPa	33.7	37.2
Fan Motor				
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1371 / 1640	1422 / 1640
Maximum ESP		Pa	361	304
Nominal Airflow		m^3/s	6.4	6.7
Fan Gain	(4)	kW	4.40	4.93
Compressor – Scroll				
Configuration – 2W20			Dual Circuit – Tandem Compressors	
Quantity – 2W20			4	4
Oil Charge Volume – 2W20		l	4 x 1.8	4 x 1.8
Oil Type				
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	6.1	6.1
CO2 Tonnes Equivalent		tCO_2e	12.74	12.74
Connections				
Water in	(5)	mm	54	54
Water out	(5)	mm	54	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			10	10
Electric Heating (Total)		kW	22.5	22.5
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1912 / 2253	1981 / 2253
Maximum ESP		Pa	525	442
Fan Gain	(4)	kW	5.91	6.59

Technical Data 2W20 Units

SC25D085-2W20, SC25D092-2W20

Electrical Data

			SC25D085-2W20-0	SC25D092-2W20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	77.8	87.7
Maximum Start Amps		A	167.1	176.3
Recommended Mains Fuse Size		A	100	100
Unit Data Cooling Only - X				
Nominal Run Amps		A	69.1	71.5
Maximum Start Amps		A	158.4	160.1
Recommended Mains Fuse Size		A	80	80
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 6.42	4 x 6.79
Nominal Run Amps		A	11.74	12.33
Locked Rotor Amps		A	101	101
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6
Full Load Amps		A	2.6	2.6
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			3	3
Number of Elements			9	9
Rating		kW	22.5	22.5
Current per Phase		A	32.5	32.5
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	78	88
Maximum Start Amps		A	127	136
Recommended Mains Fuse		A	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC31D069-2W20, SC31D079-2W20, SC31D089-2W20

Mechanical Data

			SC31D069-2W20-0	SC31D079-2W20-0	SC31D089-2W20-0
Standard Dry Cooler Match			**1 x DR95**	**1 x DR95**	**2 x DR55**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	72.7	80.7	90.8
Total Heat of Rejection - W		kW	89	99.9	112.8
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1331 / 1351	1330 / 1350	1336 / 1359
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 2.5	2 x 2.5	2 x 3.1
Glycol Flow		l/s	2 x 2.11	2 x 2.41	2 x 2.72
Pressure Drop Condenser		kPa	42.1	54.0	39.5
Unit					
Water Volume		l	20.2	20.2	21.4
Water Flow		l/s	4.21	4.81	5.43
Pressure Drop	(3)	kPa	93.1	119.6	107.4
Dry Cooler					
Water Volume		l	55.9	55.9	2 x 43.2
Flow rate		l/s	4.21	4.81	2 x 2.72
Pressure Drop		kPa	83.9	103.9	36.0
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1307 / 1640	1364 / 1640	1419 / 1640
Maximum ESP		Pa	443	385	324
Nominal Airflow		m^3/s	6.9	7.2	7.5
Fan Gain	(4)	kW	3.83	4.36	4.92
Compressor – Scroll					
Configuration – 2W20			Dual Circuit – Tandem Compressors		
Quantity – 2W20			4	4	4
Oil Charge Volume – 2W20		l	4 x 1.7	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.6	6.6	7.3
CO2 Tonnes Equivalent		tCO_2e	13.78	13.78	15.24
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	3	3	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1926 / 2562	2011 / 2562	2093 / 2562
Maximum ESP		Pa	979	897	805
Fan Gain	(4)	kW	5.56	6.3	7.09

Technical Data 2W20 Units

SC31D069-2W20, SC31D079-2W20, SC31D089-2W20

Electrical Data

			SC31D069-2W20-0	SC31D079-2W20-0	SC31D089-2W20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	61.7	63.1	77.8
Maximum Start Amps		A	117.4	128.4	167.1
Recommended Mains Fuse Size		A	80	80	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	54.1	59.8	69.1
Maximum Start Amps		A	109.8	125.1	158.4
Recommended Mains Fuse Size		A	63	80	80
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65	4 x 6.42
Nominal Run Amps		A	8.3	9.7	11.7
Locked Rotor Amps		A	67.1	75	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.88	4 x 0.88	3 x 0.6
Full Load Amps		A	1.65	1.65	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.5	32.5	32.5
Humidifier					
Capacity		kg/hr	3	3	8
Rating		kW	2.25	2.25	6
Full Load Amps		A	3.3	3.3	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 1.68	4 x 1.68	3 x 0.73
Full Load Amps		A	2.6	2.6	3.3
Electronic Soft-start					
Nominal Run Amps		A	62	63	78
Maximum Start Amps		A	92	98	127
Recommended Mains Fuse		A	80	80	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC31D094-2W20, SC31D108-2W20, SC31D124-2W20

Mechanical Data

			SC31D094-2W20-0	SC31D108-2W20-0	SC31D124-2W20-0
Standard Dry Cooler Match			**2 x DR70**	**2 x DR70**	**2 x DR95**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	96.7	108.3	122.6
Total Heat of Rejection - W		kW	120.3	135.5	153.0
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1338 / 1361	1423 / 1447	1432 / 1459
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 3.1	2 x 3.6	2 x 4.7
Glycol Flow		l/s	2 x 2.90	2 x 3.26	2 x 3.69
Pressure Drop Condenser		kPa	44.6	44.1	38.9
Unit					
Water Volume		l	21.4	22.4	24.6
Water Flow		l/s	5.79	6.51	7.37
Pressure Drop	(3)	kPa	121.1	103.0	104.3
Dry Cooler					
Water Volume		l	2 x 55.9	2 x 55.9	2 x 55.9
Flow rate		l/s	2 x 2.89	2 x 3.26	2 x 3.68
Pressure Drop		kPa	46.8	56.0	67.8
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1470 / 1640	1523 / 1640	1523 / 1640
Maximum ESP		Pa	264	198	198
Nominal Airflow		m^3/s	7.8	8.1	8.1
Fan Gain	(4)	kW	5.50	6.16	6.16
Compressor – Scroll					
Configuration – 2W20			Dual Circuit – Tandem Compressors		
Quantity – 2W20			4	4	4
Oil Charge Volume – 2W20		l	4 x 1.8	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	7.3	7.5	8
CO2 Tonnes Equivalent		tCO_2e	15.24	15.6	16.7
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	15	15
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2169 / 2562	2248 / 2562	2248 / 2562
Maximum ESP		Pa	708	595	595
Fan Gain	(4)	kW	7.9	8.81	8.81

Technical Data 2W20 Units

SC31D094-2W20, SC31D108-2W20, SC31D124-2W20

Electrical Data

			SC31D094-2W20-0	SC31D108-2W20-0	SC31D124-2W20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	82.8	98.5	107.3
Maximum Start Amps		A	171.5	195.1	208.7
Recommended Mains Fuse Size		A	100	125	125
Unit Data Cooling Only - X					
Nominal Run Amps		A	74.1	82.3	91.1
Maximum Start Amps		A	162.8	178.9	192.5
Recommended Mains Fuse Size		A	100	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 6.79	4 x 7.82	4 x 9.11
Nominal Run Amps		A	12.3	14.4	16.6
Locked Rotor Amps		A	101	111	118
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.6	4 x 0.6	4 x 0.6
Full Load Amps		A	2.6	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.5	32.5	32.5
Humidifier					
Capacity		kg/hr	8	15	15
Rating		kW	6	11.25	11.25
Full Load Amps		A	8.7	16.2	16.2
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 0.73	4 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	83	98	107
Maximum Start Amps		A	131	151	162
Recommended Mains Fuse		A	100	125	125

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC35D079-2W20, SC35D091-2W20, SC35D098-2W20

Mechanical Data

			SC35D079-2W20-0	SC35D091-2W20-0	SC35D098-2W20-0
Standard Dry Cooler Match			**1 x DR95**	**2 x DR55**	**2 x DR70**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	82.7	93.3	99.5
Total Heat of Rejection - W		kW	102.0	115.4	123.0
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1448 / 1469	1451 / 1475	1456 / 1480
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 2.5	2 x 3.1	2 x 3.1
Glycol Flow		l/s	2 x 2.46	2 x 2.78	2 x 2.96
Pressure Drop Condenser		kPa	56.2	41.3	46.4
Unit					
Water Volume		l	21.4	22.6	22.6
Water Flow		l/s	4.91	5.56	5.92
Pressure Drop	(3)	kPa	124.2	112.1	126.6
Dry Cooler					
Water Volume		l	55.9	2 x 43.2	2 x 55.9
Flow rate		l/s	4.91	2 x 2.78	2 x 2.96
Pressure Drop		kPa	107.3	37.3	48.4
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1227 / 1640	1280 / 1640	1333 / 1640
Maximum ESP		Pa	507	457	404
Nominal Airflow		m^3/s	7.9	8.2	8.6
Fan Gain	(4)	kW	4.20	4.77	5.40
Compressor – Scroll					
Configuration – 2W20			Dual Circuit – Tandem Compressors		
Quantity – 2W20			4	4	4
Oil Charge Volume – 2W20		l	4 x 1.8	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	7	7.8	7.8
CO2 Tonnes Equivalent		tCO_2e	14.62	16.28	16.28
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			14	14	14
Electric Heating (Total)		kW	30	30	30
Humidifier					
Capacity		kg/hr	3	3	3
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1736 / 2253	1810 / 2253	1884 / 2253
Maximum ESP		Pa	712	643	567
Fan Gain	(4)	kW	5.83	6.58	7.41

Technical Data 2W20 Units

SC35D079-2W20, SC35D091-2W20, SC35D098-2W20

Electrical Data

			SC35D079-2W20-0	SC35D091-2W20-0	SC35D098-2W20-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	67.5	76.8	84.8
Maximum Start Amps		A	132.8	166.1	173.5
Recommended Mains Fuse Size		A	80	100	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	64.2	73.5	78.5
Maximum Start Amps		A	129.5	162.8	167.2
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9	4 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 5.65	4 x 6.42	4 x 6.79
Nominal Run Amps		A	9.7	11.7	12.3
Locked Rotor Amps		A	75	101	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.88	3 x 0.6	4 x 0.6
Full Load Amps		A	1.7	2.6	2.6
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	4
Number of Elements			9	9	12
Rating		kW	22.5	22.5	30
Current per Phase		A	32.5	32.5	43.3
Humidifier					
Capacity		kg/hr	3	3	3
Rating		kW	2.25	2.25	2.25
Full Load Amps		A	3.3	3.3	3.3
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 1.68	3 x 0.73	4 x 0.73
Full Load Amps		A	2.6	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	68	77	85
Maximum Start Amps		A	103	126	133
Recommended Mains Fuse		A	80	100	100

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

SC35D111-2W20, SC35D127-2W20

Mechanical Data

			SC35D111-2W20-0	SC35D127-2W20-0
Standard Dry Cooler Match			**2 x DR70**	**2 x DR95**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	112	127.2
Total Heat of Rejection - W		kW	139.2	158.0
Capacity Steps			4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1540 / 1565	1550 / 1578
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate	
Water Volume		l	2 x 3.6	2 x 4.7
Glycol Flow		l/s	2 x 3.35	2 x 3.80
Pressure Drop Condenser		kPa	46.6	41.1
Unit				
Water Volume		l	23.6	25.8
Water Flow		l/s	6.70	7.59
Pressure Drop	(3)	kPa	108.4	110.4
Dry Cooler				
Water Volume		l	2 x 55.9	2 x 55.9
Flow rate		l/s	2 x 3.35	2 x 3.80
Pressure Drop		kPa	58.4	71.1
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1397 / 1640	1442 / 1640
Maximum ESP		Pa	335	284
Nominal Airflow		m^3/s	9.0	9.3
Fan Gain	(4)	kW	6.24	6.89
Compressor – Scroll				
Configuration – 2W20			Dual Circuit – Tandem Compressors	
Quantity – 2W20			4	4
Oil Charge Volume – 2W20		l	4 x 3.3	4 x 3.3
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)			8	8.4
CO2 Tonnes Equivalent		kg	16.7	17.54
Connections				
Water in	(5)	mm	54	54
Water out	(5)	mm	54	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			14	14
Electric Heating (Total)		kW	30	30
Humidifier				
Capacity		kg/hr	8	23
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided flexible hose / 19mm hose connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1971 / 2253	2032 / 2253
Maximum ESP		Pa	463	383
Fan Gain	(4)	kW	8.50	9.33

Technical Data 2W20 Units

SC35D0111-2W20, SC35D127-2W20

Electrical Data

			SC35D111-2W20-0	SC35D127-2W20-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	95.4	123.1
Maximum Start Amps		A	192.0	224.6
Recommended Mains Fuse Size		A	125	160
Unit Data Cooling Only - X				
Nominal Run Amps		A	86.7	98.2
Maximum Start Amps		A	183.3	199.7
Recommended Mains Fuse Size		A	100	125
Max Mains Incoming Cable Size		mm²		
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 7.82	4 x 9.11
Nominal Run Amps		A	14.4	16.6
Locked Rotor Amps		A	111	118
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.6	4 x 0.88
Full Load Amps		A	2.62	1.65
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			4	4
Number of Elements			12	12
Rating		kW	30	30
Current per Phase		A	43.3	43.3
Humidifier				
Capacity		kg/hr	8	23
Rating		kW	6	17.25
Full Load Amps		A	8.7	24.9
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 1.68
Full Load Amps		A	3.3	2.6
Electronic Soft-start				
Nominal Run Amps		A	95	123
Maximum Start Amps		A	148	177
Recommended Mains Fuse		A	125	160

Mechanical

(1) Entering air 24°C /45% RH 35°C Ambient All performance data is supplied in accordance with BS EN 14511-1:2013

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

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

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

(5) Brazed connection as standard, optional threaded or flanged.

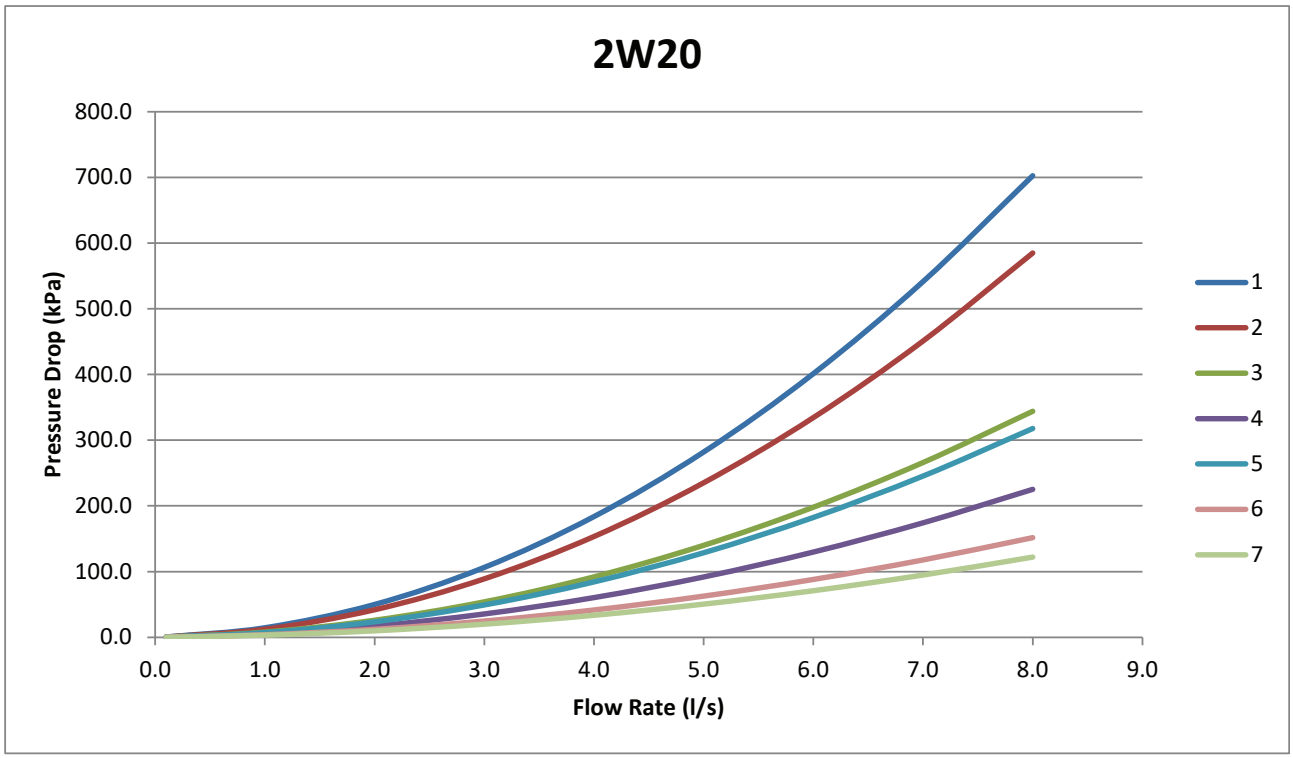
Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W20 Units

Waterside Pressure Drop Data



SC22D050-2W20-0	1
SC22D059-2W20-0	2
SC22D064-2W20-0	3
SC22D074-2W20-0	3
SC25D062-2W20-0	2
SC25D068-2W20-0	3
SC25D075-2W20-0	3
SC25D085-2W20-0	4
SC25D092-2W20-0	4
SC31D069-2W20-0	5
SC31D079-2W20-0	5
SC31D089-2W20-0	4
SC31D094-2W20-0	4
SC31D108-2W20-0	6
SC31D124-2W20-0	7
SC35D079-2W20-0	5
SC35D091-2W20-0	4
SC35D098-2W20-0	4
SC35D111-2W20-0	6
SC35D127-2W20-0	7

Includes coil, 2 port valve and pipework.

To calculate 2 port valve pressure drop:

ΔP valve = $\left(\frac{Q}{M}\right)^2$

where ΔP = Pressure Drop in kPa,

Q = Water Flow Rate in l/s and M = $\left(\frac{Kv}{36}\right)$

Fluid 100% water.

Unit	Valve Kv	M
1	25.0	0.69
2	25.0	0.69
3	40.0	1.11
4	40.0	1.11

Unit	Valve Kv	M
5	40.0	1.11
6	63	1.75
7	63	1.75

Technical Data 2W20 Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC22D050-2W20-0	Discharge Air	87	87	87	85	85	82	76	72	69
	Return Air	86	90	91	90	84	77	70	70	65
	Case Breakout	67	68	71	64	63	62	60	57	55
	Sound Pressure @ 3m	56	57	60	53	52	51	49	46	44
SC22D059-2W20-0	Discharge Air	87	89	87	86	85	83	78	73	71
	Return Air	87	93	90	92	84	78	71	71	67
	Case Breakout	68	69	71	66	63	63	61	59	58
	Sound Pressure @ 3m	57	58	60	55	52	52	50	48	47
SC22D064-2W20-0	Discharge Air	92	91	93	88	90	87	81	76	72
	Return Air	91	94	98	93	90	83	76	76	68
	Case Breakout	72	71	77	68	68	67	65	61	58
	Sound Pressure @ 3m	61	60	66	57	57	56	54	50	47
SC22D074-2W20-0	Discharge Air	97	90	102	90	97	92	83	77	72
	Return Air	97	91	108	92	97	84	80	79	69
	Case Breakout	77	70	86	70	75	71	67	62	58
	Sound Pressure @ 3m	66	59	75	59	64	60	56	51	47
SC25D062-2W20-0	Discharge Air	86	87	87	84	83	82	75	70	67
	Return Air	85	91	90	90	83	77	69	69	62
	Case Breakout	66	67	71	63	61	61	59	56	53
	Sound Pressure @ 3m	55	56	60	52	50	50	48	45	42
SC25D068-2W20-0	Discharge Air	88	89	88	85	85	84	78	73	70
	Return Air	88	95	91	91	85	82	73	73	66
	Case Breakout	68	70	71	64	63	64	61	59	56
	Sound Pressure @ 3m	57	58	60	53	52	53	50	48	45
SC25D075-2W20-0	Discharge Air	88	89	88	86	85	84	78	75	73
	Return Air	87	94	92	92	84	80	73	75	69
	Case Breakout	69	69	72	65	63	63	62	60	59
	Sound Pressure @ 3m	58	58	61	54	52	52	51	49	48
SC25D085-2W20-0	Discharge Air	89	90	89	87	86	85	79	75	70
	Return Air	89	94	92	93	86	83	74	75	66
	Case Breakout	70	70	73	66	64	65	63	61	56
	Sound Pressure @ 3m	59	59	62	55	53	54	52	50	45
SC25D092-2W20-0	Discharge Air	89	91	90	87	87	85	80	76	70
	Return Air	89	96	93	93	87	82	75	76	66
	Case Breakout	70	71	73	67	65	65	64	61	57
	Sound Pressure @ 3m	59	60	62	56	54	54	53	50	46

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2W20 Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC31D069-2W20-0	Discharge Air	89	90	88	86	87	85	79	74	72
	Return Air	88	95	92	92	86	82	74	74	68
	Case Breakout	70	70	72	66	65	65	63	60	58
	Sound Pressure @ 3m	59	59	61	55	54	54	51	49	47
SC31D079-2W20-0	Discharge Air	89	90	88	87	86	85	79	76	74
	Return Air	88	94	92	93	86	80	74	76	70
	Case Breakout	70	70	72	66	64	64	63	61	60
	Sound Pressure @ 3m	59	59	61	55	53	53	52	50	49
SC31D089-2W20-0	Discharge Air	90	91	89	88	88	86	80	77	73
	Return Air	90	95	93	94	87	83	75	76	69
	Case Breakout	71	71	73	67	66	66	64	62	59
	Sound Pressure @ 3m	60	60	62	56	55	55	53	51	48
SC31D094-2W20-0	Discharge Air	92	91	92	89	90	88	82	77	72
	Return Air	91	95	97	94	90	83	77	77	68
	Case Breakout	73	72	76	68	68	67	65	63	58
	Sound Pressure @ 3m	61	61	65	57	57	56	54	52	47
SC31D108-2W20-0	Discharge Air	97	92	101	91	97	92	85	78	70
	Return Air	96	94	107	94	96	86	81	80	68
	Case Breakout	77	72	85	71	75	72	69	64	56
	Sound Pressure @ 3m	66	61	73	60	63	61	58	53	45
SC31D124-2W20-0	Discharge Air	97	92	101	91	97	92	85	78	70
	Return Air	96	94	107	94	96	86	81	79	67
	Case Breakout	77	72	85	70	75	72	69	63	56
	Sound Pressure @ 3m	66	61	73	59	64	61	58	52	45
SC35D079-2W20-0	Discharge Air	88	89	88	85	85	84	78	75	73
	Return Air	87	93	92	91	84	80	73	75	69
	Case Breakout	69	69	72	65	63	63	62	60	59
	Sound Pressure @ 3m	58	58	61	54	52	52	51	49	48
SC35D091-2W20-0	Discharge Air	89	89	89	86	86	85	79	75	70
	Return Air	89	94	93	92	86	83	75	75	66
	Case Breakout	70	69	73	66	64	65	63	61	56
	Sound Pressure @ 3m	59	58	62	55	53	54	52	50	45
SC35D098-2W20-0	Discharge Air	90	90	90	87	87	86	80	76	70
	Return Air	89	95	93	93	88	82	75	76	66
	Case Breakout	70	71	73	67	65	65	64	61	57
	Sound Pressure @ 3m	59	60	62	56	54	54	53	50	46
SC35D111-2W20-0	Discharge Air	91	92	90	88	88	86	82	77	72
	Return Air	90	97	94	94	89	83	78	77	68
	Case Breakout	72	72	74	68	66	66	66	62	58
	Sound Pressure @ 3m	61	61	63	57	55	55	55	51	47
SC35D127-2W20-0	Discharge Air	91	92	91	89	89	87	82	77	72
	Return Air	91	97	95	95	89	84	78	77	68
	Case Breakout	72	72	75	68	67	67	66	62	58
	Sound Pressure @ 3m	61	61	64	57	56	56	55	51	47

(1) dB(A) is the overall sound level, measured on the A scale
(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2W2F Units

Performance Data 2W2F

Model	Air On Temp. / RH (°C) / (%)	Plate Condenser Water Temperatures (°C) 25/30 TC (kW)	25/30 SC (kW)	25/30 THR (kW)	30/35 TC (kW)	30/35 SC (kW)	30/35 THR (kW)	35/40 TC (kW)	35/40 SC (kW)	35/40 THR (kW)	40/45 TC (kW)	40/45 SC (kW)	40/45 THR (kW)
SC22D050-2W2F-0	22 / 50	50.6	50.6	59.6	49.4	49.4	59.1	47.1	47.1	58.2	44.6	44.6	57.3
	24 / 45	52.6	52.6	61.7	51.4	51.4	61.2	49.1	49.1	60.3	46.6	46.6	59.3
	26 / 40	54.6	54.6	63.7	53.4	53.4	63.1	51.0	51.0	62.2	48.5	48.5	61.2
	28 / 35	56.5	56.5	65.5	55.2	55.2	64.9	52.8	52.8	64.0	50.3	50.3	63.0
SC22D059-2W2F-0	22 / 50	61.6	61.6	73.0	60.2	60.2	72.4	57.4	57.4	71.4	54.4	54.4	70.4
	24 / 45	63.9	63.9	75.3	62.5	62.5	74.7	59.7	59.7	73.6	56.7	56.7	72.6
	26 / 40	66.1	66.1	77.4	64.6	64.6	76.8	61.8	61.8	75.7	58.8	58.8	74.7
	28 / 35	68.2	68.2	79.4	66.6	66.6	78.8	63.8	63.8	77.7	60.7	60.7	76.6
SC22D064-2W2F-0	22 / 50	69.2	64.9	82.4	68.1	64.2	82.0	65.1	65.1	81.3	62.0	62.0	80.6
	24 / 45	71.5	71.5	84.8	70.4	70.4	84.5	67.5	67.5	83.7	64.3	64.3	83.0
	26 / 40	73.8	73.8	87.1	72.7	72.7	86.8	69.8	69.8	86.0	66.7	66.7	85.3
	28 / 35	76.0	76.0	89.3	74.8	74.8	88.9	71.9	71.9	88.2	68.8	68.8	87.5
SC22D074-2W2F-0	22 / 50	77.1	69.6	93.1	75.6	68.8	92.5	72.2	67.2	91.1	68.7	68.7	89.9
	24 / 45	79.1	79.1	95.0	77.6	77.6	94.4	74.4	74.4	93.3	70.9	70.9	92.4
	26 / 40	81.3	81.3	97.3	79.8	79.8	96.7	76.7	76.7	95.7	73.3	73.3	94.8
	28 / 35	83.3	83.3	99.3	81.8	81.8	98.8	78.8	78.8	97.9	75.4	75.4	97.0
SC25D062-2W2F-0	22 / 50	63.6	63.6	74.9	62.1	62.1	74.2	59.1	59.1	73.1	56.0	56.0	71.9
	24 / 45	66.1	66.1	77.4	64.5	64.5	76.7	61.6	61.6	75.5	58.3	58.3	74.2
	26 / 40	68.5	68.5	79.8	66.8	66.8	79.0	63.8	63.8	77.7	60.6	60.6	76.5
	28 / 35	70.8	70.8	82.0	69.0	69.0	81.2	66.0	66.0	79.9	62.7	62.7	78.6
SC25D068-2W2F-0	22 / 50	71.2	71.2	84.5	70.0	70.0	84.1	67.0	67.0	83.2	63.7	63.7	82.3
	24 / 45	73.9	73.9	87.3	72.7	72.7	86.8	69.7	69.7	85.9	66.4	66.4	85.0
	26 / 40	76.5	76.5	89.9	75.3	75.3	89.4	72.2	72.2	88.4	68.9	68.9	87.5
	28 / 35	78.9	78.9	92.3	77.6	77.6	91.9	74.5	74.5	90.8	71.2	71.2	89.9
SC25D075-2W2F-0	22 / 50	79.4	74.5	95.3	77.8	73.4	94.6	74.3	74.3	93.3	70.7	70.7	92.2
	24 / 45	82.0	82.0	98.0	80.4	80.4	97.4	77.0	77.0	96.1	73.4	73.4	94.9
	26 / 40	84.6	84.6	100.7	83.0	83.0	100.0	79.7	79.7	98.8	76.1	76.1	97.6
	28 / 35	87.1	87.1	103.1	85.4	85.4	102.5	82.1	82.1	101.3	78.5	78.5	100.1
SC25D085-2W2F-0	22 / 50	88.7	80.3	107.4	87.4	79.7	106.8	83.8	78.0	105.3	79.9	79.9	104.1
	24 / 45	91.1	91.1	109.6	89.7	89.7	109.1	86.3	86.3	108.1	82.5	82.5	107.1
	26 / 40	93.6	93.6	112.3	92.3	92.3	111.9	89.0	89.0	110.9	85.4	85.4	110.0
	28 / 35	96.1	96.1	114.9	94.8	94.8	114.4	91.5	91.5	113.5	87.9	87.9	112.6
SC25D092-2W2F-0	22 / 50	95.4	84.7	115.3	93.6	83.8	114.5	89.4	81.9	112.8	85.1	79.8	111.1
	24 / 45	97.7	97.7	117.4	95.9	95.9	116.6	91.9	91.9	115.2	87.6	87.6	114.0
	26 / 40	100.0	100.0	119.8	98.3	98.3	119.2	94.5	94.5	118.0	90.4	90.4	116.8
	28 / 35	102.6	102.6	122.3	100.8	100.8	121.7	97.1	97.1	120.6	93.1	93.1	119.4
SC31D069-2W2F-0	22 / 50	74.3	74.3	87.7	73.0	73.0	87.1	69.8	69.8	86.0	66.2	66.2	84.8
	24 / 45	77.4	77.4	90.8	76.0	76.0	90.2	72.7	72.7	89.0	69.1	69.1	87.7
	26 / 40	80.4	80.4	93.7	78.9	78.9	93.1	75.5	75.5	91.8	71.9	71.9	90.6
	28 / 35	83.2	83.2	96.5	81.6	81.6	95.9	78.2	78.2	94.6	74.5	74.5	93.3
SC31D079-2W2F-0	22 / 50	83.0	83.0	99.0	81.2	81.2	98.2	77.7	77.7	96.7	73.8	73.8	95.2
	24 / 45	86.2	86.2	102.2	84.3	84.3	101.4	80.7	80.7	99.9	76.8	76.8	98.4
	26 / 40	89.3	89.3	105.4	87.4	87.4	104.5	83.7	83.7	102.9	79.8	79.8	101.3
	28 / 35	92.2	92.2	108.3	90.2	90.2	107.3	86.5	86.5	105.7	82.5	82.5	104.2
SC31D089-2W2F-0	22 / 50	92.6	92.6	111.3	91.2	91.2	110.7	87.5	87.5	109.4	83.5	83.5	108.1
	24 / 45	95.9	95.9	114.7	94.4	94.4	114.1	90.8	90.8	112.8	86.8	86.8	111.5
	26 / 40	99.3	99.3	118.2	97.8	97.8	117.6	94.2	94.2	116.2	90.2	90.2	114.8
	28 / 35	102.5	102.5	121.4	100.8	100.8	120.8	97.2	97.2	119.4	93.2	93.2	118.1
SC31D094-2W2F-0	22 / 50	99.5	93.7	119.1	97.6	97.6	118.4	93.2	93.2	116.8	88.7	88.7	115.3
	24 / 45	102.9	102.9	122.7	100.9	100.9	121.9	96.7	96.7	120.3	92.2	92.2	118.7
	26 / 40	106.4	106.4	126.1	104.4	104.4	125.3	100.1	100.1	123.7	95.6	95.6	122.1
	28 / 35	109.6	109.6	129.2	107.5	107.5	128.4	103.2	103.2	126.9	98.7	98.7	125.2

Technical Data 2W2F Units

Performance Data 2W2F

Model	Air On Temp. / RH (°C) / (%)	Plate Condenser Water Temperatures (°C) 25/30 TC (kW)	25/30 SC (kW)	25/30 THR (kW)	30/35 TC (kW)	30/35 SC (kW)	30/35 THR (kW)	35/40 TC (kW)	35/40 SC (kW)	35/40 THR (kW)	40/45 TC (kW)	40/45 SC (kW)	40/45 THR (kW)
SC31D108-2W2F-0	22 / 50	112.2	101.6	135.1	110.1	100.7	134.1	105.2	98.5	131.9	100.1	100.1	130.2
	24 / 45	115.1	115.1	138.0	113.1	113.1	137.1	108.3	108.3	135.5	103.4	103.4	133.9
	26 / 40	118.4	118.4	141.5	116.4	116.4	140.7	111.8	111.8	139.1	106.9	106.9	137.5
	28 / 35	121.7	121.7	144.8	119.6	119.6	144.0	115.0	115.0	142.4	110.2	110.2	140.9
SC31D124-2W2F-0	22 / 50	126.8	108.2	153.3	125.4	107.6	152.7	120.1	105.2	150.5	114.1	102.5	148.1
	24 / 45	129.3	116.9	155.8	127.7	116.3	155.1	122.6	114.1	153.0	116.9	116.9	150.7
	26 / 40	131.7	131.7	158.0	130.3	130.3	157.4	125.4	125.4	155.7	120.0	120.0	154.2
	28 / 35	134.3	134.3	160.5	132.8	132.8	160.1	128.2	128.2	158.8	123.0	123.0	157.5
SC35D079-2W2F-0	22 / 50	84.9	84.9	100.9	83.0	83.0	100.1	79.3	79.3	98.4	75.3	75.3	96.7
	24 / 45	88.4	88.4	104.5	86.5	86.5	103.6	82.7	82.7	101.9	78.6	78.6	100.1
	26 / 40	91.7	91.7	107.8	89.6	89.6	106.7	85.8	85.8	105.0	81.7	81.7	103.3
	28 / 35	94.8	94.8	110.9	92.6	92.6	109.8	88.8	88.8	108.0	84.5	84.5	106.2
SC35D091-2W2F-0	22 / 50	95.0	95.0	113.8	93.5	93.5	113.1	89.7	89.7	111.7	85.6	85.6	110.2
	24 / 45	98.7	98.7	117.5	97.1	97.1	116.9	93.3	93.3	115.4	89.1	89.1	113.9
	26 / 40	102.3	102.3	121.2	100.6	100.6	120.5	96.8	96.8	119.0	92.6	92.6	117.5
	28 / 35	105.7	105.7	124.7	103.9	103.9	123.9	100.0	100.0	122.4	95.8	95.8	120.8
SC35D098-2W2F-0	22 / 50	102.2	102.2	121.9	100.1	100.1	121.1	95.7	95.7	119.3	91.1	91.1	117.6
	24 / 45	106.1	106.1	125.8	103.9	103.9	124.8	99.5	99.5	123.1	94.8	94.8	121.3
	26 / 40	109.8	109.8	129.5	107.6	107.6	128.5	103.1	103.1	126.7	98.3	98.3	124.8
	28 / 35	113.3	113.3	132.9	110.9	110.9	131.9	106.4	106.4	130.0	101.6	101.6	128.2
SC35D111-2W2F-0	22 / 50	115.1	108.3	137.8	112.9	112.9	136.9	107.9	107.9	135.1	102.8	102.8	133.3
	24 / 45	118.9	118.9	142.0	116.8	116.8	141.1	111.9	111.9	139.2	106.8	106.8	137.4
	26 / 40	122.9	122.9	146.2	120.6	120.6	145.2	115.8	115.8	143.2	110.6	110.6	141.3
	28 / 35	126.5	126.5	149.9	124.1	124.1	148.8	119.2	119.2	146.9	114.1	114.1	144.9
SC35D127-2W2F-0	22 / 50	130.6	117.5	157.0	129.0	116.8	156.3	123.6	114.4	153.8	117.6	110.7	151.5
	24 / 45	133.9	133.9	160.1	132.3	132.3	159.5	127.2	127.2	157.7	121.4	121.4	155.8
	26 / 40	137.6	137.6	164.0	136.0	136.0	163.5	131.1	131.1	161.8	125.5	125.5	160.0
	28 / 35	141.2	141.2	167.7	139.6	139.6	167.1	134.8	134.8	165.5	129.3	129.3	163.8

Technical Data 2W2F Units

Performance Data 2W2F Free Cooling Mode

Model	Air On Temp. / RH (°C) / (%)	Free-Cool Water Temperatures (°C) 5/10 TC (kW)	5/10 SC (kW)	7/12 TC (kW)	7/12 SC (kW)	8/14 TC (kW)	8/14 SC (kW)	10/16 TC (kW)	10/16 SC (kW)	12/18 TC (kW)	12/18 SC (kW)
SC22D050-2W2F-0	22 / 50	63.5	58.3	50.1	50.1	43.7	43.7	35.9	35.9	28.5	28.5
	24 / 45	70.2	66.8	58.8	58.8	51.9	51.9	43.8	43.8	36.1	36.1
	26 / 40	76.6	76.6	67.8	67.8	60.4	60.4	52.0	52.0	44.1	44.1
	28 / 35	85.7	85.7	77.0	77.0	69.1	69.1	60.7	60.7	52.5	52.5
SC22D059-2W2F-0	22 / 50	69.1	62.8	54.8	54.8	47.8	47.8	39.3	39.3	31.2	31.2
	24 / 45	78.2	72.7	64.2	64.2	56.7	56.7	47.9	47.9	39.4	39.4
	26 / 40	85.5	80.4	73.9	73.9	65.9	65.9	56.8	56.8	48.1	48.1
	28 / 35	93.3	93.3	83.8	83.8	75.3	75.3	66.1	66.1	57.2	57.2
SC22D064-2W2F-0	22 / 50	73.9	66.4	58.1	58.1	50.7	50.7	41.7	41.7	33.1	33.1
	24 / 45	83.4	76.8	68.0	68.0	60.1	60.1	50.7	50.7	41.8	41.8
	26 / 40	92.0	87.5	78.2	78.2	69.7	69.7	60.2	60.2	50.9	50.9
	28 / 35	98.6	98.6	88.6	88.6	79.6	79.6	70.0	70.0	60.5	60.5
SC22D074-2W2F-0	22 / 50	77.8	68.9	60.3	60.3	52.7	52.7	43.3	43.3	34.4	34.4
	24 / 45	87.6	79.5	70.5	70.5	62.3	62.3	52.6	52.6	43.3	43.3
	26 / 40	96.5	90.5	81.0	81.0	72.3	72.3	62.3	62.3	52.7	52.7
	28 / 35	102.0	102.0	91.7	91.7	82.4	82.4	72.4	72.4	62.6	62.6
SC25D062-2W2F-0	22 / 50	72.3	67.5	58.5	58.5	51.0	51.0	41.9	41.9	33.3	33.3
	24 / 45	81.8	78.1	68.6	68.6	60.5	60.5	51.1	51.1	42.1	42.1
	26 / 40	89.3	89.3	79.0	79.0	70.4	70.4	60.7	60.7	51.3	51.3
	28 / 35	99.9	99.9	89.7	89.7	80.5	80.5	70.6	70.6	61.1	61.1
SC25D068-2W2F-0	22 / 50	80.8	73.0	63.8	63.8	55.7	55.7	45.8	45.8	36.4	36.4
	24 / 45	91.4	84.5	74.8	74.8	66.0	66.0	55.8	55.8	46.0	46.0
	26 / 40	101.0	96.4	86.1	86.1	76.7	76.7	66.2	66.2	56.0	56.0
	28 / 35	108.7	108.7	97.6	97.6	87.7	87.7	77.1	77.1	66.6	66.6
SC25D075-2W2F-0	22 / 50	85.7	76.3	66.8	66.8	58.3	58.3	47.9	47.9	38.1	38.1
	24 / 45	96.7	88.2	78.2	78.2	69.0	69.0	58.3	58.3	48.0	48.0
	26 / 40	106.7	100.6	89.9	89.9	80.1	80.1	69.1	69.1	58.5	58.5
	28 / 35	113.4	113.4	101.9	101.9	91.5	91.5	80.4	80.4	69.5	69.5
SC25D085-2W2F-0	22 / 50	90.5	79.6	69.8	69.8	60.9	60.9	50.1	50.1	39.8	39.8
	24 / 45	101.9	91.9	81.6	81.6	72.1	72.1	60.9	60.9	50.1	50.1
	26 / 40	112.2	104.7	93.7	93.7	83.6	83.6	72.2	72.2	61.1	61.1
	28 / 35	118.1	118.1	106.2	106.2	95.4	95.4	83.9	83.9	72.5	72.5
SC25D092-2W2F-0	22 / 50	93.9	82.4	72.2	72.2	63.0	63.0	51.8	51.8	41.1	41.1
	24 / 45	105.6	95.0	84.5	84.5	74.5	74.5	62.9	62.9	51.7	51.7
	26 / 40	116.1	108.1	96.8	96.8	86.3	86.3	74.5	74.5	63.0	63.0
	28 / 35	122.0	122.0	109.6	109.6	98.5	98.5	86.5	86.5	74.8	74.8
SC31D069-2W2F-0	22 / 50	97.3	85.5	75.3	75.3	65.7	65.7	54.0	54.0	42.9	42.9
	24 / 45	110.3	99.1	88.3	88.3	77.9	77.9	65.8	65.8	54.2	54.2
	26 / 40	122.2	113.3	101.7	101.7	90.6	90.6	78.2	78.2	66.1	66.1
	28 / 35	131.2	124.9	115.4	115.4	103.6	103.6	91.0	91.0	78.6	78.6
SC31D079-2W2F-0	22 / 50	103.4	89.9	79.3	79.3	69.1	69.1	56.8	56.8	45.1	45.1
	24 / 45	117.0	104.1	92.8	92.8	81.9	81.9	69.1	69.1	56.9	56.9
	26 / 40	129.4	118.8	106.8	106.8	95.1	95.1	82.2	82.2	69.6	69.6
	28 / 35	138.3	129.9	121.1	121.1	108.7	108.7	95.4	95.4	82.4	82.4
SC31D089-2W2F-0	22 / 50	109.3	94.1	85.4	80.0	72.5	72.5	59.6	59.6	47.3	47.3
	24 / 45	123.4	108.8	98.8	95.2	85.8	85.8	72.5	72.5	59.6	59.6
	26 / 40	136.4	124.2	111.7	111.7	99.6	99.6	86.0	86.0	72.7	72.7
	28 / 35	145.3	134.8	126.6	126.6	113.7	113.7	99.9	99.9	86.3	86.3
SC31D094-2W2F-0	22 / 50	113.5	97.5	88.2	82.7	75.0	75.0	61.6	61.6	48.9	48.9
	24 / 45	128.0	112.6	102.3	98.3	88.7	88.7	74.9	74.9	61.6	61.6
	26 / 40	141.3	128.4	115.5	115.5	102.9	102.9	88.8	88.8	75.1	75.1
	28 / 35	150.2	139.2	130.9	130.9	117.5	117.5	103.2	103.2	89.1	89.1
SC31D108-2W2F-0	22 / 50	115.2	99.8	92.6	85.3	78.2	78.2	64.2	64.2	51.0	51.0
	24 / 45	134.6	117.2	107.2	101.4	92.5	92.5	78.0	78.0	64.2	64.2
	26 / 40	148.3	133.6	120.2	120.2	107.2	107.2	92.4	92.4	78.2	78.2
	28 / 35	157.0	143.7	136.1	136.1	122.2	122.2	107.4	107.4	92.8	92.8

Technical Data 2W2F Units

Performance Data 2W2F Free Cooling Mode

Model	Air On Temp. / RH (°C) / (%)	Free-Cool Water Temperatures (°C) 5/10 TC (kW)	5/10 SC (kW)	7/12 TC (kW)	7/12 SC (kW)	8/14 TC (kW)	8/14 SC (kW)	10/16 TC (kW)	10/16 SC (kW)	12/18 TC (kW)	12/18 SC (kW)
SC31D124-2W2F-0	22 / 50	123.8	103.3	97.6	90.4	79.7	79.7	65.5	65.5	52.0	52.0
	24 / 45	139.0	119.0	110.2	101.3	94.0	94.0	79.4	79.4	65.3	65.3
	26 / 40	152.7	135.3	124.3	119.5	108.8	108.8	93.9	93.9	79.4	79.4
	28 / 35	164.3	152.2	138.0	138.0	124.0	124.0	109.0	109.0	94.1	94.1
SC35D079-2W2F-0	22 / 50	114.3	98.3	89.5	83.7	75.8	75.8	62.2	62.2	49.4	49.4
	24 / 45	129.6	113.9	103.7	99.6	89.9	89.9	75.8	75.8	62.4	62.4
	26 / 40	143.5	130.2	117.3	117.3	104.5	104.5	90.3	90.3	76.4	76.4
	28 / 35	153.0	141.1	133.0	133.0	119.3	119.3	104.7	104.7	90.5	90.5
SC35D091-2W2F-0	22 / 50	121.1	103.2	94.2	87.1	79.8	79.8	65.5	65.5	52.0	52.0
	24 / 45	137.0	119.5	109.5	103.6	94.5	94.5	79.8	79.8	65.6	65.6
	26 / 40	151.6	136.4	123.1	123.1	109.7	109.7	94.6	94.6	80.0	80.0
	28 / 35	164.1	153.9	139.5	139.5	125.3	125.3	110.0	110.0	95.1	95.1
SC35D098-2W2F-0	22 / 50	126.1	107.3	97.9	90.5	82.8	82.8	68.0	68.0	54.0	54.0
	24 / 45	142.4	124.1	113.7	107.5	98.0	98.0	82.7	82.7	68.1	68.1
	26 / 40	157.4	141.7	127.7	127.7	113.8	113.8	98.1	98.1	82.9	82.9
	28 / 35	170.2	159.8	144.7	144.7	129.9	129.9	114.0	114.0	98.5	98.5
SC35D111-2W2F-0	22 / 50	133.6	112.8	103.4	94.4	87.0	87.0	71.5	71.5	56.8	56.8
	24 / 45	150.7	130.3	119.9	112.2	103.0	103.0	86.9	86.9	71.9	71.9
	26 / 40	166.4	148.6	134.1	134.1	119.4	119.4	103.0	103.0	87.1	87.1
	28 / 35	179.7	167.6	151.8	151.8	136.3	136.3	119.7	119.7	103.4	103.4
SC35D127-2W2F-0	22 / 50	140.4	117.3	110.8	102.7	110.8	102.7	74.4	74.4	59.1	59.1
	24 / 45	157.9	135.2	125.3	115.4	107.0	107.0	90.3	90.3	74.3	74.3
	26 / 40	173.9	154.0	141.6	136.0	123.9	123.9	106.9	106.9	90.4	90.4
	28 / 35	187.6	173.5	157.3	157.3	141.3	141.3	124.2	124.2	107.2	107.2

Intentionally Blank

Technical Data 2W2F Units

SC22D050-2W2F, SC22D059-2W2F

Mechanical Data

			SC22D050-2W2F-0	SC22D059-2W2F-0
Standard Dry Cooler Match			**1 x DR70**	**1 x DR70**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	49.1	59.7
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	60.3	73.6
Total Heat of Rejection - W		kW	58.8	64.2
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	998 / 1037	1013 / 1053
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless Steel Brazed Plate	
Water Volume		l	2 x 1.6	2 x 1.9
Glycol Flow		l/s	2 x 1.45	2 x 1.78
Pressure Drop Condenser		kPa	42.5	46.5
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	26.0	26.0
Glycol Flow		l/s	2.9	3.55
Pressure Drop F		kPa	16.9	23.4
Unit				
Water Volume		l	37.7	38.3
Water Flow		l/s	2.9	3.55
Pressure Drop	(3)	kPa	99.8	121.9
Dry Cooler				
Water Volume		l	55.9	55.9
Flow rate		l/s	2.90	3.55
Pressure Drop		kPa	46.90	63.80
Standard Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1381 / 1640	1489 / 1640
Maximum ESP		Pa	359	234
Nominal Airflow		m³/s	4.7	5.1
Fan Gain	(4)	kW	3.03	3.83
Compressor – Scroll				
Configuration – 2W2F			Dual Circuit – Tandem Compressors	
Quantity – 2W2F			4	4
Oil Charge Volume – 2W2F		l	4 x 1.2	4 x 1.2
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.1	4.6
CO2 Tonnes Equivalent		tCO_2e	8.6	9.6
Connections				
Water in	(5)	mm	42	42
Water out	(5)	mm	42	42
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	8
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2010 / 2562	2168 / 2562
Maximum ESP		Pa	882	698
Fan Gain	(4)	kW	4.28	5.38

Technical Data 2W2F Units

SC22D050-2W2F, SC22D059-2W2F

Electrical Data

			SC22D050-2W2F-0	SC22D059-2W2F-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	51.4	57.4
Maximum Start Amps		A	88.8	102.3
Recommended Mains Fuse Size		A	63	80
Unit Data Cooling Only - X				
Nominal Run Amps		A	42.7	48.7
Maximum Start Amps		A	80.1	93.6
Recommended Mains Fuse Size		A	50	63
Max Mains Incoming Cable Size		mm²	35	35
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 3.31	4 x 4.21
Nominal Run Amps		A	5.6	7.1
Locked Rotor Amps		A	43	52
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.6	4 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	8	8
Rating		kW	6	6
Full Load Amps		A	8.7	8.7
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	51.4	57.4
Maximum Start Amps		A	71.6	81.5
Recommended Mains Fuse		A	63	80

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC22D064-2W2F, SC22D074-2W20

Mechanical Data

			SC22D064-2W2F-0	SC22D074-2W2F-0
Standard Dry Cooler Match			**1 x DR95**	**1 x DR95**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	67.5	74.4
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	68	70.5
Total Heat of Rejection - W		kW	83.7	93.4
Capacity Steps			4	4
Dimensions – W x D x H		mm	2200 x 890 x 1980	2200 x 890 x 1980
Weight – Machine / Operating		kg	1040 / 1082	1043 / 1085
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate	
Water Volume		l	2 x 2.5	2 x 2.5
Glycol Flow		l/s	2 x 1.99	2 x 2.25
Pressure Drop Condenser		kPa	37.7	47.5
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	26.0	26.0
Glycol Flow		l/s	3.97	4.49
Pressure Drop F		kPa	28.1	34.6
Unit				
Water Volume		l	44.8	44.8
Water Flow		l/s	3.97	4.49
Pressure Drop	(3)	kPa	90.8	114.4
Dry Cooler				
Water Volume		l	55.9	55.9
Flow rate		l/s	3.97	4.49
Pressure Drop		kPa	76.3	93
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 2.9	2 x 2.9
Speed @25Pa / Maximum ESP		rpm	1572 / 1640	1616 / 1640
Maximum ESP		Pa	126	63
Nominal Airflow		m³/s	5.4	5.6
Fan Gain	(4)	kW	4.56	5.00
Compressor – Scroll				
Configuration – 2W2F			Dual Circuit – Tandem Compressors	
Quantity – 2W2F			4	4
Oil Charge Volume – 2W2F		l	4 x 1.7	4 x 1.8
Oil Type				POE
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	4.9	4.9
CO2 Tonnes Equivalent		tCO_2e	10.2	10.2
Connections				
Water in	(5)	mm	42	54
Water out	(5)	mm	42	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			8	8
Electric Heating (Total)		kW	15	15
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	2 x 5.2	2 x 5.2
Speed @ 25Pa / Maximum ESP		rpm		2354 / 2562
Maximum ESP		Pa		417
Fan Gain	(4)	kW		6.94

Technical Data 2W2F Units

SC22D064-2W2F, SC22D074-2W2F

Electrical Data

			SC22D064-2W2F-0	SC22D074-2W2F-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	58.3	71.5
Maximum Start Amps		A	114.0	136.8
Recommended Mains Fuse Size		A	80	80
Unit Data Cooling Only - X				
Nominal Run Amps		A	49.6	55.3
Maximum Start Amps		A	105.3	120.6
Recommended Mains Fuse Size		A	63	63
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	2 x 2.9	2 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65
Nominal Run Amps		A	8.3	9.7
Locked Rotor Amps		A	67.1	75
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.88	4 x 0.88
Full Load Amps		A	1.65	1.65
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			2	2
Number of Elements			6	6
Rating		kW	15	15
Current per Phase		A	21.65	21.65
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	2 x 5.2	2 x 5.2
Full Load Amps		A	8.4	8.4
Locked Rotor Amps		A	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 1.68	4 x 1.68
Full Load Amps		A	2.6	2.6
Electronic Soft-start				
Nominal Run Amps		A	58.3	71.5
Maximum Start Amps		A	88.4	106.8
Recommended Mains Fuse		A	80	80

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC25D062-2W2F, SC25D068-2W2F, SC25D075-2W2F

Mechanical Data

			SC25D062-2W2F-0	SC25D068-2W2F-0	SC25D075-2W2F-0
Standard Dry Cooler Match			**1 x DR70**	**1 x DR95**	**1 x DR95**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	61.6	69.7	77
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	68.6	74.8	78.2
Total Heat of Rejection - W		kW	75.5	85.9	96.2
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1118 / 1163	1170 / 1217	1169 / 1216
Construction					
Material/Colour					
Evaporator					
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)				
Water Volume		l	2 x 1.9	2 x 2.5	2.5
Glycol Flow		l/s	2 x 1.82	2 x 2.03	2 x 2.32
Pressure Drop Condenser		kPa	48.5	38.4	50.3
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	29.6	29.6	29.6
Glycol Flow		l/s	3.63	4.07	4.63
Pressure Drop F		kPa	20.5	24.2	30.7
Unit					
Water Volume		l	48.1	49.3	49.3
Water Flow		l/s	3.63	4.07	4.63
Pressure Drop	(3)	kPa	127.8	95.1	120.9
Dry Cooler					
Water Volume		l	55.9	55.9	55.9
Flow rate		l/s	3.63	4.07	4.63
Pressure Drop		kPa	66.4	79.4	97.5
Fan Motor					
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1324 / 1640	1381 / 1640	1436 / 1640
Maximum ESP		Pa	403	344	283
Nominal Airflow		m³/s	5.7	5.9	6.2
Fan Gain	(4)	kW	3.92	4.48	5.07
Compressor – Scroll					
Configuration – 2W2F			Dual Circuit – Tandem Compressors		
Quantity – 2W2F			4	4	4
Oil Charge Volume – 2W2F		l	4 x 1.2	4 x 1.7	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	5.2	5.5	5.5
CO2 Tonnes Equivalent		tCO_2e	10.9	11.5	11.5
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			10	10	10
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain					
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1791 / 2253	1866 / 2253	1938 / 2253
Maximum ESP		Pa	621	546	468
Fan Gain	(4)	kW	5.05	5.72	6.42

Technical Data 2W2F Units

SC25D062-2W2F, SC25D068-2W2F, SC25D075-2W2F

Electrical Data

			SC25D062-2W2F-0	SC25D068-2W2F-0	SC25D075-2W2F-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	61.8	62.8	68.5
Maximum Start Amps		A	106.7	118.5	133.8
Recommended Mains Fuse Size		A	80	80	80
Unit Data Cooling Only - X					
Nominal Run Amps		A	53.1	54.1	59.8
Maximum Start Amps		A	98.0	109.8	125.1
Recommended Mains Fuse Size		A	63	63	80
Max Mains Incoming Cable Size		mm²	35	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz		
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.43
Locked Rotor Amps		A	4.4	4.4	4.43
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.21	4 x 4.75	4 x 5.65
Nominal Run Amps		A	7.1	8.3	9.7
Locked Rotor Amps		A	52	67.1	75
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.6	4 x 0.88	4 x 0.88
Full Load Amps		A	2.62	1.65	1.65
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			2	3	3
Number of Elements			6	9	9
Rating		kW	15	22.5	22.5
Current per Phase		A	21.65	32.48	32.48
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 1.68	4 x 1.68
Full Load Amps		A	3.3	2.6	2.6
Electronic Soft-start					
Nominal Run Amps		A	61.8	62.8	68.5
Maximum Start Amps		A	85.9	92.9	103.8
Recommended Mains Fuse		A	80	80	80

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC25D085-2W2F, SC25D092-2W2F

Mechanical Data

			SC25D085-2W2F-0	SC25D092-2W2F-0
Standard Dry Cooler Match			**2 x DR55**	**2 x DR55**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	86.3	91.9
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	81.6	84.5
Total Heat of Rejection - W		kW	108.1	115.2
Capacity Steps			4	4
Dimensions – W x D x H		mm	2500 x 890 x 1980	2500 x 890 x 1980
Weight – Machine / Operating		kg	1175 / 1224	1179 / 1229
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate	
Water Volume		l	2 x 3.1	2 x 3.1
Glycol Flow		l/s	2 x 2.60	2 x 2.78
Pressure Drop Condenser		kPa	36.5	41.2
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	29.6	29.6
Glycol Flow		l/s	5.20	5.55
Pressure Drop F		kPa	37.5	41.9
Unit				
Water Volume		l	50.5	50.5
Water Flow		l/s	5.20	5.55
Pressure Drop	(3)	kPa	99.0	111.8
Dry Cooler				
Water Volume		l	2 x 43.2	2 x 43.2
Flow rate		l/s	2 x 2.60	2 x 2.77
Pressure Drop		kPa	33.7	37.2
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1493 / 1640	1550 / 1640
Maximum ESP		Pa	215	142
Nominal Airflow		m³/s	6.4	6.7
Fan Gain	(4)	kW	5.75	6.50
Compressor – Scroll				
Configuration – 2W2F			Dual Circuit – Tandem Compressors	
Quantity – 2W2F			4	4
Oil Charge Volume – 2W2F		l	4 x 1.8	4 x 1.8
Oil Type				
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	6.1	6.1
CO2 Tonnes Equivalent		tCO_2e	12.7	12.7
Connections				
Water in	(5)	mm	54	54
Water out	(5)	mm	54	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			10	10
Electric Heating (Total)		kW	22.5	22.5
Humidifier				
Capacity		kg/hr	8	15
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	3 x 3.6	3 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	2013 / 2253	2087 / 2253
Maximum ESP		Pa	378	280
Fan Gain	(4)	kW	7.23	8.1

Technical Data 2W2F Units

SC25D085-2W2F, SC25D092-2W2F

Electrical Data

			SC25D085-2W2F-0	SC25D092-2W2F-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	77.8	87.7
Maximum Start Amps		A	167.1	176.3
Recommended Mains Fuse Size		A	100	100
Unit Data Cooling Only - X				
Nominal Run Amps		A	69.1	71.5
Maximum Start Amps		A	158.4	160.1
Recommended Mains Fuse Size		A	80	80
Max Mains Incoming Cable Size		mm²	70	70
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4
Locked Rotor Amps		A	4.4	4.4
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 6.42	4 x 6.79
Nominal Run Amps		A	11.7	12.3
Locked Rotor Amps		A	101	101
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	3 x 0.6	3 x 0.6
Full Load Amps		A	2.62	2.62
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			3	3
Number of Elements			9	9
Rating		kW	22.5	22.5
Current per Phase		A	32.48	32.48
Humidifier				
Capacity		kg/hr	8	15
Rating		kW	6	11.25
Full Load Amps		A	8.7	16.2
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 3.6	3 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	3 x 0.73	3 x 0.73
Full Load Amps		A	3.3	3.3
Electronic Soft-start				
Nominal Run Amps		A	78	88
Maximum Start Amps		A	127	136
Recommended Mains Fuse		A	100	100

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC31D069-2W2F, SC31D079-2W2F, SC31D089-2W2F

Mechanical Data

			SC31D069-2W2F-0	SC31D079-2W2F-0	SC31D089-2W2F-0
Standard Dry Cooler Match			**1 x DR95**	**1 x DR95**	**2 x DR55**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	72.7	80.7	90.8
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	88.3	92.8	98.8
Total Heat of Rejection - W		kW	89	99.9	112.8
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1414 / 1471	1413 / 1470	1416 / 1476
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 2.5	2 x 2.5	2 x 3.1
Glycol Flow		l/s	2 x 2.11	2 x 2.41	2 x 2.72
Pressure Drop Condenser		kPa	42.1	54.0	39.5
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	36.8	36.8	36.8
Glycol Flow		l/s	4.21	4.81	5.43
Pressure Drop F		kPa	33.1	41.5	51.0
Unit					
Water Volume		l	58.3	58.3	59.5
Water Flow		l/s	4.21	4.81	5.43
Pressure Drop	(3)	kPa	93.1	119.6	107.4
Dry Cooler					
Water Volume		l	55.9	55.9	2 x 43.2
Flow rate		l/s	4.21	4.81	2 x 2.72
Pressure Drop		kPa	83.9	103.9	36.0
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1392 / 1640	1454 / 1640	1513 / 1640
Maximum ESP		Pa	343	272	199
Nominal Airflow		m³/s	6.9	7.2	7.5
Fan Gain	(4)	kW	4.64	5.32	6.05
Compressor – Scroll					
Configuration – 2W2F			Dual Circuit – Tandem Compressors		
Quantity – 2W2F			4	4	4
Oil Charge Volume – 2W2F		l	4 x 1.7	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP					
Holding Charge			Inert Gas		
Charge (per circuit)		kg	6.6	6.6	7.3
CO2 Tonnes Equivalent		tCO_2e	13.8	13.8	15.2
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	1996 / 2562	2085 / 2562	2171 / 2562
Maximum ESP		Pa	879	784	680
Fan Gain	(4)	kW	6.43	7.33	8.29

Technical Data 2W2F Units

SC31D069-2W2F, SC31D079-2W2F, SC31D089-2W2F

Electrical Data

			SC31D069-2W2F-0	SC31D079-2W2F-0	SC31D089-2W2F-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	62.8	68.5	77.8
Maximum Start Amps		A	118.5	133.8	167.1
Recommended Mains Fuse Size		A	80	80	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	54.1	59.8	69.1
Maximum Start Amps		A	109.8	125.1	158.4
Recommended Mains Fuse Size		A	63	80	80
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz		
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 4.75	4 x 5.65	4 x 6.42
Nominal Run Amps		A	8.29	9.72	11.74
Locked Rotor Amps		A	67.1	75	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.88	4 x 0.88	3 x 0.6
Full Load Amps		A	1.65	1.65	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.48	32.48	32.48
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 1.68	4 x 1.68	3 x 0.73
Full Load Amps		A	2.6	2.6	3.3
Electronic Soft-start					
Nominal Run Amps		A	63	68	78
Maximum Start Amps		A	93	104	127
Recommended Mains Fuse		A	80	80	100

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C

(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)

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

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

(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

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

(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC31D094-2W2F, SC31D108-2W2F, SC31D124-2W2F

Mechanical Data

			SC31D094-2W2F-0	SC31D108-2W2F-0	SC31D124-2W2F-0
Standard Dry Cooler Match			**2 x DR70**	**2 x DR70**	**2 x DR95**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	96.7	108.3	122.6
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	102.3	107.2	110.2
Total Heat of Rejection - W		kW	120.3	135.5	153
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3100 x 890 1980	3100 x 890 1980	3100 x 890 1980
Weight – Machine / Operating		kg	1421 / 1481	1506 / 1567	1515 / 1579
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 3.1	2 x 3.6	2 x 4.7
Glycol Flow		l/s	2 x 2.90	2 x 3.26	2 x 3.69
Pressure Drop Condenser		kPa	44.6	44.1	38.9
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	36.8	36.8	36.8
Glycol Flow		l/s	5.79	6.51	7.37
Pressure Drop F		kPa	57.0	70.0	87.2
Unit					
Water Volume		l	59.5	60.5	62.7
Water Flow		l/s	5.79	6.51	7.37
Pressure Drop	(3)	kPa	121.1	130.4	163.3
Dry Cooler					
Water Volume		l	2 x 55.9	2 x 55.9	2 x 55.9
Flow rate		l/s	2 x 2.89	2 x 3.26	2 x 3.68
Pressure Drop		kPa	46.8	56.0	67.8
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 2.9	3 x 2.9	3 x 2.9
Speed @25Pa / Maximum ESP		rpm	1569 / 1640	1626 / 1640	1626 / 1640
Maximum ESP		Pa	125	44	44
Nominal Airflow		m³/s	7.8	8.1	8.1
Fan Gain	(4)	kW	6.80	7.65	7.65
Compressor – Scroll					
Configuration – 2W2F			Dual Circuit – Tandem Compressors		
Quantity – 2W2F			4	4	4
Oil Charge Volume – 2W2F		l	4 x 1.8	4 x 3.3	4 x 3.3
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	7.3	7.5	8
CO2 Tonnes Equivalent		tCO_2e	15.2	15.7	16.7
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			12	12	12
Electric Heating (Total)		kW	22.5	22.5	22.5
Humidifier					
Capacity		kg/hr	8	15	15
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	3 x 5.2	3 x 5.2	3 x 5.2
Speed @ 25Pa / Maximum ESP		rpm	2252 / 2562	2335 / 2562	2335 / 2562
Maximum ESP		Pa	570	442	442
Fan Gain	(4)	kW	9.28	10.4	10.4

Technical Data 2W2F Units

SC31D094-2W2F, SC31D108-2W2F, SC31D124-2W2F

Electrical Data

			SC31D094-2W2F-0	SC31D108-2W2F-0	SC31D124-2W2F-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	82.8	98.5	107.3
Maximum Start Amps		A	171.5	195.1	208.7
Recommended Mains Fuse Size		A	100	125	125
Unit Data Cooling Only - X					
Nominal Run Amps		A	74.1	82.3	91.1
Maximum Start Amps		A	162.8	178.9	192.5
Recommended Mains Fuse Size		A	100	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V		400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	3 x 2.9	3 x 2.9	3 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 6.79	4 x 7.82	4 x 9.11
Nominal Run Amps		A	12.3	14.4	16.6
Locked Rotor Amps		A	101	111	118
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.6	4 x 0.6	4 x 0.6
Full Load Amps		A	2.62	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	3
Number of Elements			9	9	9
Rating		kW	22.5	22.5	22.5
Current per Phase		A	32.48	32.48	32.48
Humidifier					
Capacity		kg/hr	8	15	15
Rating		kW	6	11.25	11.25
Full Load Amps		A	8.7	16.2	16.2
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	3 x 5.2	3 x 5.2	3 x 5.2
Full Load Amps		A	8.4	8.4	8.4
Locked Rotor Amps		A	8.4	8.4	8.4
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 0.73	4 x 0.73
Full Load Amps		A	3.3	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	83	98	107
Maximum Start Amps		A	131	151	162
Recommended Mains Fuse		A	100	125	125

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC35D079-2W2F, SC35D091-2W2F, SC35D098-2W2F

Mechanical Data

			SC35D079-2W2F-0	SC35D091-2W2F-0	SC35D098-2W2F-0
Standard Dry Cooler Match			**1 x DR95**	**2 x DR55**	**2 x DR70**
Capacity					
Nom Cooling (Gross) – W	(1)	kW	82.7	93.3	99.5
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	103.7	109.5	113.7
Total Heat of Rejection - W		kW	101.9	115.4	123.1
Capacity Steps			4	4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1542 / 1605	1545 / 1611	1550 / 1616
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)		
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins		
Cooling/Dehum Stages			4/1	4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate		
Water Volume		l	2 x 2.5	2 x 3.1	2 x 3.1
Glycol Flow		l/s	2 x 2.46	2 x 2.78	2 x 2.96
Pressure Drop Condenser		kPa	56.2	41.3	46.4
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins		
Water Volume		l	41.6	41.6	41.6
Glycol Flow		l/s	4.91	5.56	5.92
Pressure Drop F		kPa	48.9	60.6	67.5
Unit					
Water Volume		l	64.2	65.4	65.4
Water Flow		l/s	4.91	5.56	5.92
Pressure Drop	(3)	kPa	124.2	112.1	126.6
Dry Cooler					
Water Volume		l	55.9	2 x 43.2	2 x 55.9
Flow rate		l/s	4.91	2 x 2.78	2 x 2.96
Pressure Drop		kPa	107.3	37.3	48.4
Fan Motor			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1327 / 1640	1386 / 1640	1445 / 1640
Maximum ESP		Pa	404	342	275
Nominal Airflow		m^3/s	7.9	8.2	8.6
Fan Gain	(4)	kW	5.27	6.03	6.89
Compressor – Scroll					
Configuration – 2W2F			Dual Circuit – Tandem Compressors		
Quantity – 2W2F			4	4	4
Oil Charge Volume – 2W2F		l	4 x 1.8	4 x 1.8	4 x 1.8
Oil Type			POE		
Refrigeration			Dual Circuit		
Refrigerant control and type			Electronic Expansion Valve		
Refrigerant type			R410A		
GWP			2088		
Holding Charge			Inert Gas		
Charge (per circuit)		kg	7	7.8	7.8
CO2 Tonnes Equivalent		tCO_2e	14.6	16.3	16.3
Connections					
Water in	(5)	mm	54	54	54
Water out	(5)	mm	54	54	54
Condensate Drain Hose		mm	22	22	22
Filtration			Disposable to ISO-C-80		
Quantity			14	14	14
Electric Heating (Total)		kW	30	30	30
Humidifier					
Capacity		kg/hr	8	8	8
Drain pump flow rate		l/m	7	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection		
Upgraded Fan			Backward Curved, Centrifugal Direct Drive		
Motor Type			EC	EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	1816 / 2253	1894 / 2253	1973 / 2253
Maximum ESP		Pa	608	527	437
Fan Gain	(4)	kW	6.91	7.86	8.91

Technical Data 2W2F Units

SC35D079-2W2F, SC35D091-2W2F, SC35D098-2W2F

Electrical Data

			SC35D079-2W2F-0	SC35D091-2W2F-0	SC35D098-2W2F-0
Unit Data Full Function - X	(1)				
Nominal Run Amps		A	72.9	82.2	87.2
Maximum Start Amps		A	138.2	171.5	175.9
Recommended Mains Fuse Size		A	100	100	100
Unit Data Cooling Only - X					
Nominal Run Amps		A	64.2	73.5	78.5
Maximum Start Amps		A	129.5	162.8	167.2
Recommended Mains Fuse Size		A	80	100	100
Max Mains Incoming Cable Size		mm²	95	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz		
Control Circuit		VAC	24	24	24
Evaporator Fan - Motor Per Fan					
Motor Type			EC	EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9	4 x 2.9
Full Load Amps		A	4.4	4.4	4.4
Locked Rotor Amps		A	4.4	4.4	4.4
Compressor - Per Compressor					
Quantity x Motor Size		kW	4 x 5.65	4 x 6.42	4 x 6.79
Nominal Run Amps		A	9.7	11.7	12.3
Locked Rotor Amps		A	75	101	101
Type of Start				Direct On Line	
Standard Condenser Match - AC Motor - Per Fan					
Quantity x Motor Size		kW	4 x 0.88	3 x 0.6	4 x 0.6
Full Load Amps		A	1.65	2.62	2.62
OPTIONAL EXTRAS					
Electric Heating					
Stage of Reheat			3	3	4
Number of Elements			9	9	12
Rating		kW	22.5	22.5	30
Current per Phase		A	32.48	32.48	43.3
Humidifier					
Capacity		kg/hr	8	8	8
Rating		kW	6	6	6
Full Load Amps		A	8.7	8.7	8.7
First upgrade EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8	5.8
Locked Rotor Amps		A	5.8	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan					
Quantity x Motor Size	(2)	kW	4 x 1.68	3 x 0.73	4 x 0.73
Full Load Amps		A	2.6	3.3	3.3
Electronic Soft-start					
Nominal Run Amps		A	73	82	87
Maximum Start Amps		A	108	131	135
Recommended Mains Fuse		A	100	100	100

Mechanical

(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

SC35D0111-2W2F, SC35D127-2W2F

Mechanical Data

			SC35D111-2W2F-0	SC35D127-2W2F-0
Standard Dry Cooler Match			**2 x DR70**	**2 x DR95**
Capacity				
Nom Cooling (Gross) – W	(1)	kW	111.9	127.2
Nom Cooling (Gross) – F (Free Cooling)	(2)	kW	120	125.3
Total Heat of Rejection - W		kW	139.2	157.7
Capacity Steps			4	4
Dimensions – W x D x H		mm	3500 x 890 x 1980	3500 x 890 x 1980
Weight – Machine / Operating		kg	1635 / 1702	1644 / 1714
Construction			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Material/Colour			Welded Frame: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Black Grey (RAL 7021)	
Evaporator			Rifled Copper Tube/Turbulated Hydrophilic Coated Aluminium Fins	
Cooling/Dehum Stages			4/1	4/1
Condenser	(1)		Stainless steel Brazed Plate	
Water Volume		l	2 x 3.6	2 x 4.7
Glycol Flow		l/s	2 x 3.35	2 x 3.80
Pressure Drop Condenser		kPa	46.6	41.1
Glycol Coil	(2)		Copper Tube/Turbulated Hydrophilic Coated Aluminium fins	
Water Volume		l	41.6	41.6
Glycol Flow		l/s	6.70	7.59
Pressure Drop F		kPa	83.9	104.7
Unit				
Water Volume		l	66.4	68.6
Water Flow		l/s	6.70	7.59
Pressure Drop	(3)	kPa	144.5	181.9
Dry Cooler				
Water Volume		l	2 x 55.9	2 x 55.9
Flow rate		l/s	2 x 3.35	2 x 3.80
Pressure Drop		kPa	58.4	71.1
Fan Motor			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 2.9	4 x 2.9
Speed @25Pa / Maximum ESP		rpm	1515 / 1640	1565 / 1640
Maximum ESP		Pa	188	123
Nominal Airflow		m³/s	9.0	9.3
Fan Gain	(4)	kW	8.05	8.95
Compressor – Scroll				
Configuration – 2W2F			Dual Circuit – Tandem Compressors	
Quantity – 2W2F			4	4
Oil Charge Volume – 2W2F		l	4 x 3.3	4 x 3.3
Oil Type			POE	
Refrigeration			Dual Circuit	
Refrigerant control and type			Electronic Expansion Valve	
Refrigerant type			R410A	
GWP			2088	
Holding Charge			Inert Gas	
Charge (per circuit)		kg	8	8.4
CO2 Tonnes Equivalent		tCO_2e	16.7	17.5
Connections				
Water in	(5)	mm	54	54
Water out	(5)	mm	54	54
Condensate Drain Hose		mm	22	22
Filtration			Disposable to ISO-C-80	
Quantity			14	14
Electric Heating (Total)		kW	30	30
Humidifier				
Capacity		kg/hr	8	23
Drain pump flow rate		l/m	7	7
Feed/Drain			3/4" BSPF Braided Flexible Hose / 19mm Hose Connection	
Upgraded Fan			Backward Curved, Centrifugal Direct Drive	
Motor Type			EC	EC
Quantity x Motor Size		kW	4 x 3.6	4 x 3.6
Speed @ 25Pa / Maximum ESP		rpm	2066 / 2253	2131 / 2253
Maximum ESP		Pa	316	222
Fan Gain	(4)	kW	10.29	11.35

Technical Data 2W2F Units

SC35D111-2W2F, SC35D127-2W2F

Electrical Data

			SC35D111-2W2F-0	SC35D127-2W2F-0
Unit Data Full Function - X	(1)			
Nominal Run Amps		A	95.4	123.1
Maximum Start Amps		A	192.0	224.6
Recommended Mains Fuse Size		A	125	160
Unit Data Cooling Only - X				
Nominal Run Amps		A	86.7	98.2
Maximum Start Amps		A	183.3	199.7
Recommended Mains Fuse Size		A	100	125
Max Mains Incoming Cable Size		mm²	95	95
Mains Supply		V	400 / 3PH / + N / 50Hz	
Control Circuit		VAC	24	24
Evaporator Fan - Motor Per Fan				
Motor Type			EC	EC
Quantity x Motor Size	(2)	kW	4 x 2.9	4 x 2.9
Full Load Amps		A	4.43	4.43
Locked Rotor Amps		A	4.43	4.43
Compressor - Per Compressor				
Quantity x Motor Size		kW	4 x 7.82	4 x 9.11
Nominal Run Amps		A	14.37	16.58
Locked Rotor Amps		A	111	118
Type of Start			Direct On Line	
Standard Condenser Match - AC Motor - Per Fan				
Quantity x Motor Size		kW	4 x 0.6	4 x 0.88
Full Load Amps		A	2.62	1.65
OPTIONAL EXTRAS				
Electric Heating				
Stage of Reheat			4	4
Number of Elements			12	12
Rating		kW	30	30
Current per Phase		A	43.3	43.3
Humidifier				
Capacity		kg/hr	8	23
Rating		kW	6	17.25
Full Load Amps		A	8.7	24.9
First upgrade EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 3.6	4 x 3.6
Full Load Amps		A	5.8	5.8
Locked Rotor Amps		A	5.8	5.8
Standard Condenser Motor - EC Motor - Per Fan				
Quantity x Motor Size	(2)	kW	4 x 0.73	4 x 1.68
Full Load Amps		A	3.3	2.6
Electronic Soft-start				
Nominal Run Amps		A	95	123
Maximum Start Amps		A	148	177
Recommended Mains Fuse		A	125	160

Mechanical

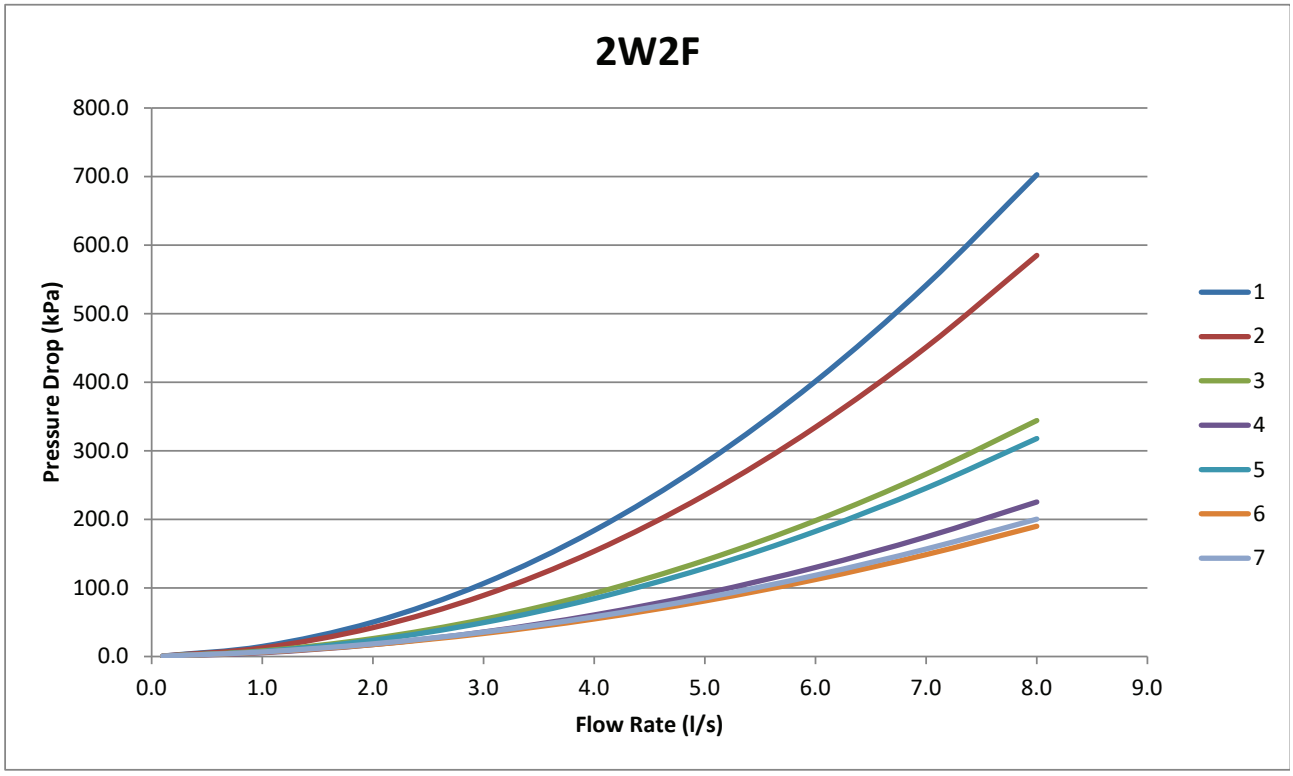
(1) Entering air 24°C /45% RH condenser water in / out 35 / 40°C
(2) Entering air 24°C / 45% RH water inlet 7°C at design flow rate (based on water)
(3) Pressure drop through heat exchanger, control valve and unit pipe work
(4) Fan gain based on 25Pa ESP @ Nominal air volume. Fan gain figure will change as airflow and ESP change
(5) Brazed connection as standard, optional threaded or grooved connections

Electrical

(1) Values given for full function units with standard selections for heating, humidification, supply air fans.
(2) Stated motor power is based on maximum electrical power absorbed

Technical Data 2W2F Units

Waterside Pressure Drop Data



SC22D050-2W2F-0	1
SC22D059-2W2F-0	2
SC22D064-2W2F-0	3
SC22D074-2W2F-0	3
SC25D062-2W2F-0	2
SC25D068-2W2F-0	3
SC25D075-2W2F-0	3
SC25D085-2W2F-0	4
SC25D092-2W2F-0	4
SC31D069-2W2F-0	5
SC31D079-2W2F-0	5
SC31D089-2W2F-0	6

SC31D094-2W2F-0	6
SC31D108-2W2F-0	6
SC31D124-2W2F-0	6
SC35D079-2W2F-0	7
SC35D091-2W2F-0	7
SC35D098-2W2F-0	7
SC35D111-2W2F-0	7
SC35D127-2W2F-0	7

Includes coil, 2 port valve and pipework.

To calculate 2 port valve pressure drop:

ΔP valve = $\left(\frac{Q}{M}\right)^2$

where ΔP = Pressure Drop in kPa,

Q = Water Flow Rate in l/s and M = $\left(\frac{Kv}{36}\right)$

Fluid 100% water.

	Valve Kv	M
1	25.0	0.69
2	25.0	0.69
3	40.0	1.11
4	40.0	1.11
5	40.0	1.11
6	63	1.75
7	63	1.75

Technical Data 2W2F Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC22D050-2W2F-0	Discharge Air	87	88	87	85	85	83	77	72	69
	Return Air	86	91	90	91	84	77	70	70	64
	Case Breakout	67	68	71	64	63	62	60	57	55
	Sound Pressure @ 3m	56	57	60	53	52	51	49	46	44
SC22D059-2W2F-0	Discharge Air	90	89	92	87	89	86	79	74	69
	Return Air	89	91	96	92	88	80	73	73	65
	Case Breakout	71	69	76	67	67	66	63	59	55
	Sound Pressure @ 3m	60	58	65	55	56	55	52	48	44
SC22D064-2W2F-0	Discharge Air	100	91	106	92	100	94	85	77	70
	Return Air	100	93	113	93	99	87	82	80	67
	Case Breakout	80	71	89	71	78	74	69	62	56
	Sound Pressure @ 3m	69	60	78	60	67	63	58	51	45
SC22D074-2W2F-0	Discharge Air	103	93	111	95	104	98	89	80	73
	Return Air	105	91	118	96	104	89	87	84	71
	Case Breakout	84	74	95	74	82	77	73	66	59
	Sound Pressure @ 3m	73	63	84	63	71	66	62	55	48
SC25D062-2W2F-0	Discharge Air	87	91	89	87	85	83	77	72	68
	Return Air	87	95	93	93	84	78	70	69	63
	Case Breakout	68	71	73	66	63	63	61	57	54
	Sound Pressure @ 3m	57	60	62	55	52	52	50	46	43
SC25D068-2W2F-0	Discharge Air	89	92	90	88	86	85	79	74	71
	Return Air	89	98	93	94	86	83	74	73	67
	Case Breakout	70	72	74	67	64	65	63	59	57
	Sound Pressure @ 3m	59	61	63	56	53	54	52	48	46
SC25D075-2W2F-0	Discharge Air	89	92	91	88	86	85	80	76	73
	Return Air	89	97	94	95	86	81	74	75	69
	Case Breakout	70	73	75	68	64	65	63	61	59
	Sound Pressure @ 3m	59	62	64	57	53	54	52	50	48
SC25D085-2W2F-0	Discharge Air	91	93	92	89	88	87	81	77	72
	Return Air	91	97	96	95	88	84	76	76	67
	Case Breakout	72	73	76	69	66	67	65	62	58
	Sound Pressure @ 3m	61	62	65	58	55	56	54	51	47
SC25D092-2W2F-0	Discharge Air	93	94	95	91	91	89	83	78	73
	Return Air	93	98	99	97	91	85	78	78	68
	Case Breakout	74	75	79	70	69	69	67	64	59
	Sound Pressure @ 3m	63	64	68	59	58	58	56	53	48

(1) dB(A) is the overall sound level, measured on the A scale

(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

Technical Data 2W2F Units

Sound Data

Unit	Sound Measurement	dBA Overall	dB 63	125	250	500	1000	2000	4000	8000
SC31D069-2W2F-0	Discharge Air	89	90	89	87	87	85	79	75	72
	Return Air	89	96	92	93	86	83	74	74	68
	Case Breakout	70	71	73	66	65	65	63	60	58
	Sound Pressure @ 3m	59	60	62	55	54	54	52	49	47
SC31D079-2W2F-0	Discharge Air	90	91	90	88	88	86	80	76	74
	Return Air	89	94	94	94	87	81	75	76	70
	Case Breakout	71	71	74	67	66	66	64	62	60
	Sound Pressure @ 3m	60	60	63	56	55	55	53	51	49
SC31D089-2W2F-0	Discharge Air	93	91	95	89	92	89	82	77	71
	Return Air	92	93	100	94	91	85	77	77	67
	Case Breakout	74	71	79	69	70	69	66	63	57
	Sound Pressure @ 3m	63	60	68	58	59	58	55	52	46
SC31D094-2W2F-0	Discharge Air	98	92	103	92	98	94	86	79	70
	Return Air	98	93	109	95	97	87	82	80	67
	Case Breakout	79	73	87	72	76	74	70	64	56
	Sound Pressure @ 3m	67	62	76	61	65	63	59	53	45
SC31D108-2W2F-0	Discharge Air	102	98	108	97	102	98	90	83	74
	Return Air	102	96	114	99	102	91	88	85	73
	Case Breakout	83	78	92	76	80	77	74	69	61
	Sound Pressure @ 3m	72	67	81	65	69	66	63	58	50
SC31D124-2W2F-0	Discharge Air	102	98	108	97	102	98	90	83	74
	Return Air	102	96	114	99	102	91	88	85	73
	Case Breakout	83	78	92	76	80	77	74	68	60
	Sound Pressure @ 3m	72	67	81	65	69	66	63	57	49
SC35D079-2W2F-0	Discharge Air	89	91	90	88	86	85	79	75	73
	Return Air	89	96	94	94	86	81	74	75	69
	Case Breakout	70	71	74	67	64	65	63	61	59
	Sound Pressure @ 3m	59	60	63	56	53	54	52	50	48
SC35D091-2W2F-0	Discharge Air	90	92	91	89	87	86	80	76	71
	Return Air	90	97	94	95	87	83	75	76	66
	Case Breakout	71	72	75	68	65	66	64	61	57
	Sound Pressure @ 3m	60	61	64	57	54	55	53	50	46
SC35D098-2W2F-0	Discharge Air	91	93	92	89	88	87	81	77	71
	Return Air	91	98	95	96	89	83	76	76	66
	Case Breakout	72	73	76	69	66	67	65	62	58
	Sound Pressure @ 3m	61	62	65	58	55	56	54	51	47
SC35D111-2W2F-0	Discharge Air	93	94	95	91	91	89	84	78	73
	Return Air	93	98	98	97	91	85	79	78	68
	Case Breakout	74	74	78	70	69	69	68	64	59
	Sound Pressure @ 3m	63	63	67	59	58	58	57	53	48
SC35D127-2W2F-0	Discharge Air	96	96	98	93	93	92	86	80	74
	Return Air	95	98	102	98	93	87	81	79	70
	Case Breakout	76	76	82	72	71	71	69	65	60
	Sound Pressure @ 3m	65	65	71	61	60	60	58	54	49

(1) dB(A) is the overall sound level, measured on the A scale
(2) All sound data measured at nominal conditions, Discharge Air, Return air and case breakout is sound power.

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Commissioning Data

Humidifier (Optional Extra)

General Description

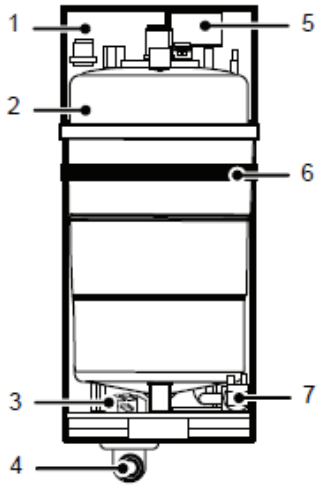
Humidification is provided by an electrode boiler. The sealed humidifier design ensures that only clean sterile steam is supplied to the conditioned area and corrosive salts and minerals are held in the disposable bottle. The steam is distributed through a sparge pipe fitted to the coil assembly.

Featuring modulating capacity output control as standard, the system provides ontinuous 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%, 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)



1 Bearing Frame
2 Cylinder
3 Drain solenoid valve
4 Drain connection
5 Fill tank & conductivity meter
6 Rubber Securing Belt
7 Fill solenoid valve

Humidifier Bottle

Reconnection

A) Firmly push the humidifier bottle into place and fasten the rubber belt round waist until secure.

B) Reconnect the sparge pipe, ensuring the Jubilee clips and plastic connection are tight.

Humidifier Initial Start-up

Initially the humidifier cylinder will be empty. The cylinder will then fill with water from the tundish until sufficient current is passed between the electrodes, at which point the feed solenoid valve will close.

During the start up phase, the current will remain low until either; there is a sufficient concentration of conductive salts built up within the bottle Or the immersion level of the electrodes is enough to pass the required current.

As a guide, 1 amp of current passed between the electrodes will generate approximately 1kg/hr of steam.

The desired operating current is reached; the process taking a few minutes or several hours according to the hardness of the water. This time period may take several hours in soft water areas or a matter of minutes in hard water areas. The water conductivity levels (hardness/softness) can be viewed from the display keypad.

It is important to have the correct bottle conductivity range selected in the controller. Mismatched information may cause the humidifier to malfunction.

Normal Operation
Once the start-up period has been completed, the cylinder will operate automatically, ensuring the correct quantity of steam is delivered.

CAUTION
All humidifiers provide variable steam production as standard.

Once this current value is exceeded with a cylinder in normal operation, the drain solenoid energises to allow the high salt content water to drain. During this process the power supply to the bottle is cut.

After this pre-set time the drain solenoid will close and the feed valve will open until the correct water operating level is reached. The water being below its boiling point will then re-heat and continue to produce steam at the correct output.

The humidifier will then operate to the humidifier setpoint.

As the electrodes become scaled the electronic sensing device allows the conductivity (mineral content of the water in the cylinder) to gradually rise keeping the current reasonably static at the desired value.

Once the electrodes become badly corroded or there is sufficient build up of scale, an alarm (bottle change) will be initiated to the microprocessor necessitating a bottle change.

When this has been carried out the initial start-up sequence is repeated and normal running resumed.

Humidifier (Optional Extra)

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, this should be specified at the time of order.

Humidifier Pre Start Checks

1 Ensure a water supply is available to the humidifier at the correct pressure and quality.

IMPORTANT

2 Ensure security and tightness of connections.

3 Ensure the drain line is connected and that water flows away freely. This can be carried out by first checking free draining from the tundish, prior to filling then draining the cylinder.

4 Ensure that the steam distribution pipe is connected securely at both the distribution nd cylinder ends and is not kinked or damaged.

Commissioning

1 Open the (customer supplied) water supply valve adjacent to the unit.

2 With the bottle in operation and the feed solenoid valve (Yellow) activated, ensure the water is feeding via the tundish to the humidifier. Watch the initial start-up procedure commence. Fit clamp on ammeter onto 1 of the wires feeding the electrodes and observe the current.

3 The current can also be viewed through the microprocessor display keypad.

Compare the clamp on ammeter with the display reading to ensure they concur (0.5 amp tolerance).

4 The steam output can be reduced by changing the output demand through the microprocessor display menu.

IMPORTANT

5 Record humidifier bottle type, supply water conductivity and supply water pressure on the commissioning sheet provided.

Condensate Pump Priming

Prior to unit start up the condensate pump reservoir should be slowly filled with clean tap water, until the pump activates. Keep filling the pump and check that the discharge is properly pumping through. This will prime the system for normal operation.

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 keypad.

Low Noise Feature for Condenser Fan (Optional Extra) (X Models)

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

Initiated by setting the microprocessor programmable time clock (optional), the head pressure set point changes from the standard 26 barg (377 psig) (TEV) or 22 barg (319 psig) (optional EEV) to 34 barg (493 psig), reducing the outdoor unit fan speed and corresponding operating sound levels.

Head Pressure Control

Head Pressure Control - Intelligent Modulation (X Models)

The system is fitted with a voltage regulating fan speed controller which allows set point adjustment and system monitoring via the indoor unit microprocessor controller.

A pressure transducer is fitted to the liquid 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.

Head Pressure Control (WX Models)

The head pressure is controlled by a combination of 3 way regulating valve and dry cooler fan speed over two varying stages of control.

The 3 way valve operates at the first stage of head pressure control; allowing water to flow to the condenser, bypass or both, to maintain correct refrigerant head pressure.

As the pressure increases the 3 way valve opens further rejecting the heat from the condenser to the dry cooler.

The valve reaches the maximum position for stage one of head pressure control at which point the Dry cooler fan speeds up to assist in heat rejection by means of further free cooling from the ambient temperature.

The 3 way valve then continues to open fully with the control based upon the dry cooler fan speed.

The dry-cooler fan modulates to maintain a constant outlet water temperature. The head pressure control valve controls head pressure. This makes the dry cooler capable of varying heat rejection capacities.

A pressure transducer is fitted to the liquid line which enables the head pressure to be monitored via the display keypad.

Dry coolers do not have any legionnaires risk as they are dry systems unlike cooling towers.

Factory Setting Units fitted with thermostatic expansion valves (TEV) have the head pressure factory set to 26 barg (377 psig). nits fitted with optional electronic expansion valves (EEV) have the head pressure factory set to 22 barg (319 psig).

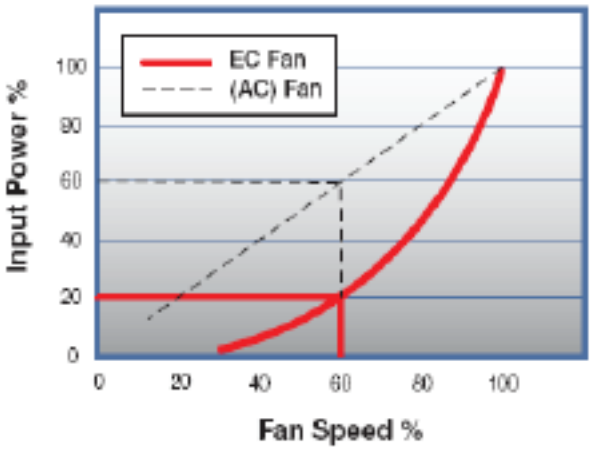
Commissioning Data

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 lcomposite plastic 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 40-100% 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 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



EC Fan interrogation

The EC fans can be interrogated by connecting a hardware interface kit to the fan and PC. The kit comprises of a USB to RS232 9-pin “D-type” adapter. This should be installed on the PC with the software supplied with the kit. The “COM” port of the USB to RS232 adapter should be assigned to a free COM port between COM 1 and COM 4 via the system device manager.

Connect the RS232 to RS485 interface converter to the USB port of your PC via the USB to RS232 serial interface lead and connect the RS485 output to the Fan.

- Tx += RS A
- Tx - = RS B

The switch on the RS232 to RS485 should be set to RS485.

Commissioning procedure

General

To be read in conjunction with the commissioning sheets provided.

CAUTION ⚠	Please ensure all documents have been completed correctly and return to Airedale Technical Support immediately to validate warranty.

Commissioning Checklist

ALL work MUST be carried out by technically trained competent personnel.

CAUTION ⚠	The equipment contains live electrical and moving parts, ISOLATE prior to maintenance or repair work.

Pre Commissioning checks

Pressure test

Ensure that the system has been pressure tested for pipework soundness and leaks. This not only ensures a correctly operating system but also reduces potential leaks in the future.

Triple evacuation

A good evacuated system will reduce the potential of breakdown. Any moisture within refrigeration systems can affect the oil within the unit, causing acid to form.

If the triple evacuation is proving to be difficult, where the evacuation levels keep changing try changing the liquid line filter drier. Filter driers can trap and then release moisture back into the system. Don't forget to check pipework integrity with a pressure test.

Electrical Connections

Prior to turning on the power supply to the unit ensure that all electrical connections are tight and correctly terminated.

Solenoid Valve Heads

Ensure that any solenoid valve heads are re-attached if removed for evacuation purposes. Failure to do so could cause the coils to burn out.

External Fuses/MCBs

Check that the correct electrical supply rating is available to the unit.

Electrical Continuity

Before electrical power is applied to the unit, electrical continuity must be carried out on the 3 phase power.

Phase Rotation

Check that the phase rotation is correct. Components in the unit will malfunction with incorrect phase rotation. Check with a phase rotation meter.

Electrical Earthing

Check that the earth is correctly bonded.

Remote ON/OFF

To ensure that the unit does not start doing the pre-commissioning checks the remote on/off should be in the OFF state.

- Voltage Measure the voltage at the following points and record on the commissioning sheet
- Voltage at main incoming
- Dedicated power supply
- Voltage at permanent supply
- Control voltage at transformer (min 22.5V, max 25V)

Commissioning procedure

Fan Section

AHU fan motor

Record the following information on the commissioning sheet.

- Fan motor size
- Drive type
- Is the rotation correct
- Motor currents (L1, L2 and L3)
- Fan speed
- Overload settings
- Phase voltage

Airflow Failure Switch

As standard the air flow fail switch is set for the fans to operate at the standard design airflow and external static. However in instances where the operating conditions are to be varied from the standard then the following procedure to set up the switch(s) must be followed:

1. Set airflow to required airflow (dehumidification mode) with the use of microprocessor.
2. Open only doors to the control panel section ensure blanking plate is in place.
3. Turn air flow switch to maximum setting causing failure at the design air flow.
4. Adjust switch downwards until the control circuit is reactivated.
5. Switch off fan(s), input to the controller should switch off.
6. Turn on fan and reset unit.

Filter Change Switch

Ensure that the filter change switch is operating. Check that at reduced air volume (dehumidification) the filter alarm does not cause nuisance alarms. If the air flow failure switch is not set up in dehumidification mode (reduced air volume) nuisance alarms can be generated.

Commissioning procedure

Chiller/Glycol units

Glycol Type/Concentration

Check and record the glycol type and strength. Low levels of glycol can cause freeze up problems when operating at low temperatures or during the unit off state during cold ambient conditions.

Glycol concentration is measured by use of a Refractometer.

High concentrations of glycol can increase the system pressure drop and impair heat exchanger performance.

Water Flow Rate; Record on the commissioning sheet the water flow rate.

Water Pressure Drop: Record the water solution pressure drop at full flow to the coil. Binder insertion points are fitted to the unit for this purpose.

Water Bypass Valve

Change the valve position to full bypass; record the waterside pressure drop of the unit.

Using the balancing valve (if fitted) ensure that the waterside pressure drop is the same as the coil pressure drop.

This will ensure correct water flow throughout your system irrespective of valve position.

Heating

Electric

- Record the following information regarding the electric heat.
- Total heater rating.
- Thyristor size (if fitted).
- Current/ phase.

Check that the overheat cut-out operates satisfactory.

The procedure for this is to enable the unit with electric heat enabled. With full heating active turn off the MCB for the fans. The unit should go into alarm disabling the electric heat. If the overheat cut-out does not cause an alarm within 3 minutes slight adjustment to the position of the OHCO capillary must be carried out.

The Auto reset cut-out must trip before the manual reset.

Auto trip time 2.5 minutes.

Manual reset 3 minutes.

Care must be taken to ensure that the overheat cut-out does not become active when the unit is at reduced airflow (such as in dehumidification).

CAUTION ⚠	Failure to replace the solenoid head can cause component failure (overheating and deforming)

Commissioning Procedure

Humidification

Water Supply Feed

Indicate on the commissioning sheet how the water is fed to the unit.

- Mains
- Feed tank
- Supply water pressure

Water System

Indicate what features are fitted to the installation.

- Water strainer
- Shut off valve

Bottle

Indicate on the commissioning sheet information regarding the humidifier bottle.

- Type
- Size
- Code (e.g. BL0T3A00H0)

Measured Measure the following information whilst the humidifier is operating.

- Conductivity
- Current L1,L2 and L3

1 Amp current approximates to about 1kg/hr of steam output.

Valve Operation

Ensure that the humidifier solenoid valve operates in the following states. Record on commissioning sheet.

- Fill
- Drain

Drain Installation

Check that the humidifier drain is operating satisfactory and that there are no leaks.

Condenser

Check the fan operation on the condenser or dry cooler is correct. Record on the commissioning sheet the following information.

- Correct rotation
- Motor current L1, L2 and L3 (AC Fans only)
- Fan Speed

Water cooled condenser

Record on the commissioning sheet the following

- Flow rate
- Pressure drop

Commissioning Procedure

Refrigeration Circuit

Expansion Valve

Record on the commissioning sheet the type of expansion valve fitted to the unit. i.e.

- Electronic expansion valve (EEV)
- Thermostatic expansion valve (TEV)

Pressure Switch Settings

Record the design pressure switch settings.

- High pressure out
- Low pressure in
- Low pressure differential

System Pressure Readings

Record on the actual system operating pressures.(Barg)

- Suction pressure
- Discharge pressure
- Liquid pressure

Superheat/Sub cooling

Record the superheat and sub cooling readings, typically 6°C superheat and 3°C Subcooling.

Superheat protects the compressor from liquid flood back and the amount of sub cooling ensures enough liquid refrigerant to enter the expansion device.

Long pipe runs may require additional sub cooling to overcome the pressure drop of these lines. This could cause the unit to operate at a reduced capacity.

Compressor currents: Record on the commissioning sheet the operating currents of the compressor. The current reading is to be taken when the unit is running at full load.

Sight Glass

Check the condition of the sight glass. References on the commissioning sheet are

- Wet or dry
- Clear or bubbles

The sight glass is used to indicate:

- the condition of the refrigerant in the system
- lack of sub-cooling
- refrigerant deficiency
- Moisture content of the refrigerant.

The colour of the sight glass depends on the moisture content of the refrigerant. The recommended moisture levels of a system should be between 30 and 75ppm.

An indication of green/dry are to be considered as perfect conditions meaning full protection by the filter drier against effects from moisture. If the green colour starts to fade, the colour change from green to yellow has begun and the indicator should therefore be watched carefully. If the colour changes to yellow it is a clear signal that the capacity of the filer drier is exceeded and should be replaced as soon as possible.

Be aware that Polyolester (POE) oil for HFC refrigerants (R134a, R404A, R407C and R410A) reacts with moisture in a hydrolysis generating acid. Polyolvinyl ether (PVE) oil does not have the same problem with acid but still requires good refrigeration practice.

Filter Drier

The filter drier ensures that any moisture/debris are captured. The drier should be installed last in any system prior to evacuation. It should be installed as close to the expansion valve as possible. If the drier is allowed to be in contact with moisture it can be difficult to evacuate the system; making the installation time longer.

CAUTION ⚠	Airedale recommends that a quality filter drier is used to ensure that the performance of the system is not reduced.

Commissioning Procedure

Compressor Oil Level

(Full and part load)

Check the compressor oil level at full load. (Record oil level). The oil level should be checked after 1 hour of operation and must be between 1/3 rd and 2/3 rd.

Circuit 1 Circuit 2

Additional Oil Added

Additional oil to refrigeration systems is extremely critical. Too much can be as crucial as too little.

A compressors oil charge will migrate to other parts of the system and may be unable to return, depending on pipework design. The velocity of the refrigerant in the pipework may be reduced causing the oil not to return.

As a guideline around 2% of a system refrigerant charge is required as the oil quantity.

The oil in a system will coat all internal components (pipework and oil traps) making the need for additional oil in the compressor. Additional features within the SmartCool can also inhibit oil return to the compressors.

Poor superheat control (liquid flood back) can also wash oil out of a compressor so the importance of correct installation/ commissioning is paramount. Record any additional oil added to the system.

Oil Separator

Specify whether there Is an oil separator fitted to the unit.

RECORD

Don’t forget to record refrigeration charges in your F-Gas record.

Indoor unit optional extras

Condensate Pump

Ensure that the condensate pump operates. Manually add water to the condensate drain to prime the pump. Ensure that the pump is not full of debris.

Firestat

Check that the firestat operates correctly.
The firestat is set to 110°C. (Range 0 – 150°C)
To test the device, lower the setpoint (towards 0°C) until the alarm is generated. Once satisfied with the operation return the setpoint to the original position. Record on commissioning sheet.

Water/Flood Detector

The water detector can be tested by applying a small controlled water leak.

Smoke Detector

The smoke detector is tested by simply pressing the smoke alarm “test” button. An alarm will be generated on the unit controls.

Controls

Record the following final control variables.

- Controller type
- Controller address
- Boot version
- Bios version
- Display address
- Display type
- Strategy reference
- Room setpoint
- Room limits (Temperature/ Humidity – High/ low)
- Proportional band
- Dead band
- Compressor off time

IMPORTANT

Ensure that the controls are reset back to auto. Acknowledge this on the commissioning sheet.

Maintenance

ALL work MUST be carried out by technically trained competent personnel.

CAUTION ⚠	The equipment contains live electrical and moving parts, ISOLATE remotely prior to maintenance or repair work. Ensure electrical lock-off procedures are carried out.

IMPORTANT

Ensure relevant F-Gas Regulation checks are carried out at the appropriate period.

General Maintenance

The maintenance schedule indicates the time period between maintenance operations.

Access to the various components is via the doors to the front of the unit.

Service Indicator A visual indication of the service status of major components is provided for convenience.

Filters

It is good practice to check filters at each maintenance visit. Unit filter condition is monitored via the microprocessor. The operational time is indicated along with the operational setpoint. This can be obtained through the maintenance sub menu of the controller.

Maintenance

General Inspections

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
General Inspections	Check for visible mechanical damage to unit.	•		
	Visually inspect the unit for general wear and tear, treat metalwork.	•		
	Rust should be inhibited, primed and touched up with matching paint.			
	Check for excess vibration from other rotating equipment.	•		

Service Tools / Test Equipment
- Touch up paint
- Stiff Brush

Safety Equipment
- Safety Glasses / Goggles

Maintenance

Electrical Inspection

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Electrical Inspection	Check main power supply voltages		●	
	Check electrical terminals are tight.		●	
	Check for signs of hot spots/ discolouration on power cables.		●	
	Check amperages are as per design.	●		

Service Tools / Test Equipment
- Voltmeter
- Screwdrivers / Allen Keys
- Ammeter

Safety Equipment
- Safety Glasses / Goggles

Procedures

Electrical Connections

Ensure all electrical connections are tight and correctly terminated.

Electrical Earthing

Check that the unit is correctly earthed.

Voltage

Measure the voltage at the following points and record on the maintenance sheet:
- Voltage at busbar
- Dedicated power supply
- Voltage at permanent supply
- Control voltage at transformer (min 22.5V, max 25V)

The voltage measurements should be carried out with the unit MCB's turned off.

EC Fan Interrogation

The EC fans can be interrogated by connecting a hardware interface kit to the fan and PC. The kit comprises of a USB to RS232 9-pin "D-type" adapter. This should be installed on the PC with the software supplied with the kit. The "COM" port of the USB to RS232 adapter should be assigned to a free COM port between COM 1 and COM 4 via the system device manager.

Connect the RS232 to RS485 interface converter to the USB port of your PC via the USB to RS232 serial interface lead and connect the RS485 output to the fan.

Tx += RS A Tx - = RS B

Maintenance

Refrigeration

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Refrigeration	Compare the following and compare results with commissioning records.			
	Suction, Liquid and Discharge pressures.	●		
	Refrigeration system temperatures, Suction, Liquid and Discharge. Record superheat and sub cooling temperatures.	●		
	Check each circuit sight glass for dryness and bubbles for indication of leaks.	●		
	Head pressure control is maintained.	●		
	Record details on F-Gas record.	●		
	Check compressor oil level.	●		

Service Tools / Test Equipment
- Refrigerant Manifold gauges
- Spanners
- Voltmeter

Safety Equipment
- Safety Glasses / Goggles
- Gloves
- Overalls

Procedures

HP/LP Safety Pressure Switch Settings

Check operating of HP/LP cut-out,

Settings

LP cut-out – (Auto reset for 3 times when the Low Pressure is detected over a period of 1 hour)
Has a 2 minute delay on start-up (similar to a Low ambient kit)
Low pressure cut-out 0.5 +/- 0.2 Barg
HP switch (manual reset): High pressure switch 40.25 bar +/- 1 Barg
HP limiting function 35 barg / 2 barg differential (this reduces the number of compressors operating i.e. 2 comp and down to 1 comp.

Compressor Oil Level (Full load)

Check the compressor oil level at full load. (record oil level)

Maintenance

Waterside

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Waterside	Check pressure drop of water strainer. If excessive clean the strainer.		•	
	Visually inspect pipe and pipework insulation. Pipework clamps are secure.		•	
	Inspect for water leakage.	•		
	Check pressure drop of evaporator. Clean evaporator if excessive.	•		
	Check condition of Water/ Glycol solution to ensure that the system is protected against corrosion, scale and microbiological fouling, ensuring maximum heat transfer efficiency.	•		

Service Tools / Test Equipment
- Spanners
- Manometer
- Thermometer
- Refractometer

Safety Equipment
- Safety Glasses / Goggles
- Gloves
- Overalls

Procedures

Binder Points

Binder points should be fitted to both the flow and return pipe work adjacent to the evaporator.

Water Strainer

A water strainer must be fitted to the inlet side of the evaporator.
Failure to do so may result in severe damage and will void the AIREDALE warranty.

Water Flow Rate

Check that the design water flow rate is available to the unit. If not available do not turn unit on.

Waterside Pressure Drop

Measure the waterside pressure drop of the unit ensuring that the pump (if fitted) is operating.

Glycol Strength

Check and record the glycol type and strength. Low levels of glycol can cause freeze up problems when operating at low temperatures or during the unit off state during cold ambient conditions. Glycol concentration is measured by use of a refractometer.

Maintenance

Controls

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
Controls	Change controller battery.		●	
	The controller will keep the strategy for a short period of time with no battery.			

Service Tools / Test Equipment
- Small Terminal Screwdriver

Safety equipment
- Electrostatic Wristband

Procedures

The following controller settings are to be recorded on the maintenance sheet.
- Head pressure differential (bar)
- Minimum suction pressure (bar)
- Supply water set point (Summer / Day) (°C)
- Supply water set point (Winter / Night) (°C)
- Minimum supply water temperature (°C)

Maintenance

System

	Task	Frequency		
		3 Mths	12 Mths	60 Mths
System	Check the following against the commissioning records.			
	Record operating conditions.			
	Water on/ off temperatures.	●		
	Water pressure drop.	●		

Unit Operation Checks

Record the following operating conditions of the unit at stable conditions.

- Suction pressure (bar)
- Liquid pressure (Bar)
- Discharge pressure (Bar)
- Suction temperature (°C)
- Liquid temperature (°C)
- Discharge temperature (°C)
- Superheat (K)
- Sub cooling (K)
- Water return temperature (°C)
- Water supply temperature (°C)

Liquid line sight glass

Record the status of the liquid line sight glass

- Clear / Flashing
- Wet / Dry

The sight glass is used to indicate

- The condition of the refrigerant in the system
- Lack of Refrigerant
- Moisture content of the refrigerant

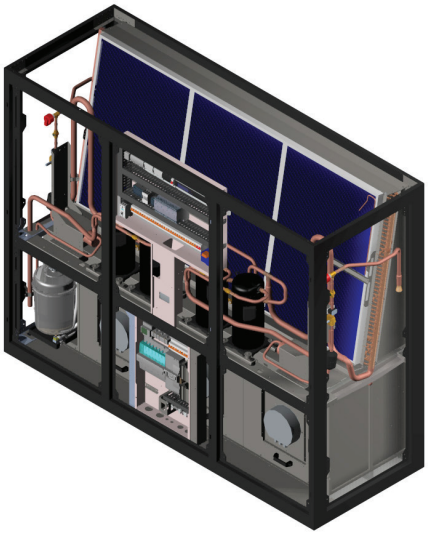
The colour of the sight glass depends on the moisture content of the refrigerant. The recommended moisture levels of a system should be below 75ppm. An indication of green / dry are to be considered as perfect conditions meaning full protection by the filter drier against effects from moisture. If the green colour starts to fade, the colour change from green to yellow has begun and the indicator should therefore be watched carefully. If the colour changes to yellow it is a clear signal that the capacity of the filter drier is exceeded and should be replaced as soon as possible.

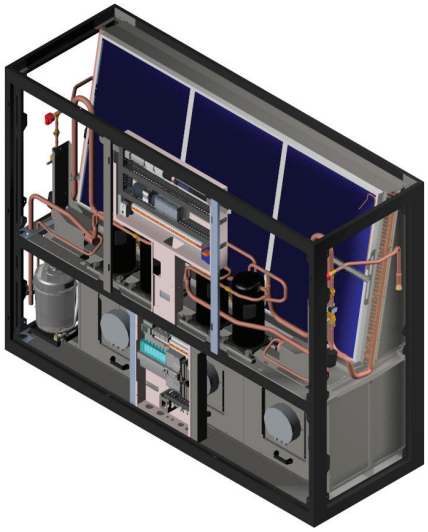
F-Gas Leak Detection Checks

Perform an F-Gas refrigerant leak detection on the unit and ensure no refrigerant leaks are visible.

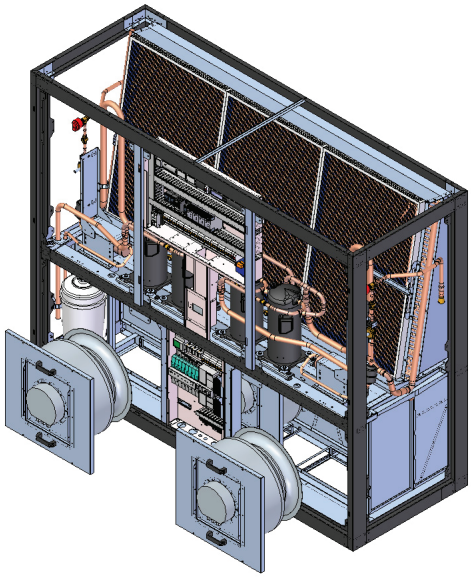
Maintenance

Evaporator Fan Removal

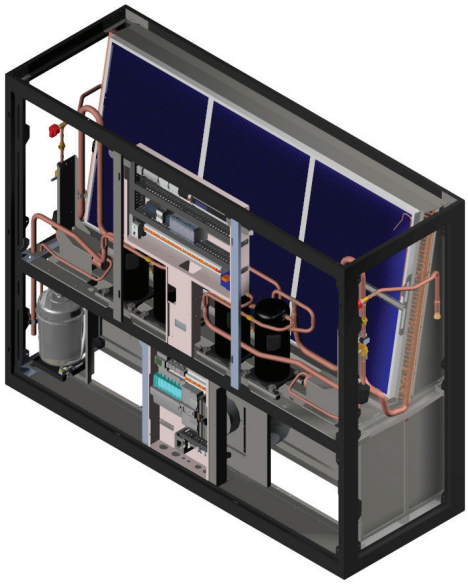




Remove front rails



Lift Fans through fan opening



Slide the fans to the right hand side of the unit

Troubleshooting

CAUTION ⚠	ALL work MUST be carried out by technically trained and competent personnel. The equipment contains live electrical and moving parts, ISOLATE prior to maintenance or repair work. Ensure electrical lock-off procedures are conducted

FAULT	POSSIBLE CAUSE REMEDY	ACTION
Compressor not operating	No power to compressor.	Check isolator, fuses, MCBs, contactor and control circuit wiring.
	Seized compressor, possibly due to lack of oil, broken valve. and general installation.	Replace compressor - investigate oil trapping
	Defective compressor motor.	Check winding resistances - replacecompressor. If burnt out follow burn out procedure using suction line burn-out drier.
	Compressor phase loss.	Check 3 phase supply to compressor.
		Klixon out and does not reset. Sometimes it takes up to 4 hours to reset. Replace compressor if necessary.
	Low pressure switch operated (large or complete loss of refrigerant charge).	Repair leak and recharge system - if completely out evacuate before charging.
	Condenser fan motor thermal trip open circuit Investigate and correct.	
Noisy compressor	Lack of oil	Repair leaks if any, add oil if required but not too much - remember too much is as bad as too little. Investigate pipe system and trapping. Best method to pump down to see if oil can be encouraged back. If no oil still, drain compressor and measure in correct quantity.
	Expansion valve stuck in open position (abnormally cold suction line).	Ensure bulb is tight on suction and superheat is correct (normally 5 to 6°C). Replace power assembly or valve as necessary.
	Damaged or worn compressor bearing (excessive knocking).	Replace compressor.
Head pressure too high	Condenser coil clogged or dirty. Clean condenser coil	
	Air or other non-condensable gas in system. Evacuate system and re-charge with new refrigerant.	
	Overcharge of refrigerant. Always install new drier before evacuating.	Reclaim excess refrigerant from system (liquid only).
	Head pressure controller faulty.	Check fan speed controller - if faulty - replace.

Troubleshooting

FAULT	POSSIBLE CAUSE REMEDY	ACTION
Head pressure too low	Fan not operating or operating inefficiently. Check motor - if faulty - replace.	Fan operating too fast in low ambient conditions. Check fan speed controller adjustment - if faulty - replace.
	Compressor short cycles or LP cut-out operated	
	Dirty filters.	Replace.
		Dirty or icing evaporator (reduced airflow). Defrost and/or clean. Check gas charge and expansion valve.
	Lack of refrigerant (bubbles in sight glass only as indication).	Check for leaks - repair and recharge system.
	Clogged filter drier (pressure / temperature drop across it).	Replace.
	Condenser fan running at full speed in winter (full airflow).	Check fan speed controller setting - if faulty -replace.
	Start up problems in very low ambient.	Check for low suction pressures on start-up and fit a low ambient start kit if required, or check operation of system if already fitted.

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL003	Probe 1 - Humidity Probe Alarm	•			•		•	Indicates that there is a fault with the corresponding probe, possible causes are the sensor going open circuit or there is a wiring fault. All sensor alarms are auto reset once the fault has been rectified.	Humidity control will be disabled until the sensor fault is rectified.
AL004	Probe 2 - Differential Pressure Sensor Alarm			•	•		•		Constant Air Volume will be disabled and fan speed will revert to fixed speed set point
AL004	Probe 2 - Floor Void Differential Pressure Sensor	•			•		•		Constant Pressure Control will be disabled and fan will revert back to fixed fan seep set point
AL005	Probe 3 - Liquid Pressure Circuit 1 Probe Alarm	•			•		•		Head Pressure Control is disabled on circuit 1 and the condenser fans are increased to 100%
AL005	Probe 3 - Inlet Chilled Water Temperature Probe Alarm	•			•		•		Alarm will be generated
AL006	Probe 4 - Return Air Temperature Sensor Alarm	•			•		•		Cooling and Heating control is disabled until the sensor is fixed
AL007	Probe 5 - Supply Air Temperature Probe Alarm	•			•		•		Supply air control is disabled and unit controls to return air control
AL008	Probe 6 - Circuit 1 Discharge Temp Probe Alarm	•			•		•		Alarm will be generated
AL008	Probe 6 - Circuit 1 Liquid Line Temp Probe Alarm	•			•		•		Alarm will be generated
AL009	Probe 7 - Liquid Pressure Circuit 2 Probe Alarm	•			•		•		Head Pressure Control is disabled on circuit 2 and the condenser fans are increased to 100%
AL009	Probe 7 - Supply Water Temperature Alarm	•			•		•		Alarm is generated
AL010	Probe 8 - Coil Temperature Probe Alarm	•			•		•		Alarm is generated
AL010	Probe 8 - Circuit 2 Discharge Temp Probe Alarm	•			•		•		Alarm is generated
AL010	Probe 8 - Circuit 2 Liquid Line Temp Probe Alarm	•			•		•		Alarm is generated
AL011	Probe 9 - Circuit 1 Supply Water Temp Probe Alarm	•			•		•		Freecooling is disabled
AL012	Probe 10 - Circuit 2 Supply Water Temp Probe Alarm	•			•		•		Alarm is generated
AL012	Probe 10 - Ambient Temperature Probe Alarm	•			•		•		Freecooling is disabled
AL013	Air Flow Fail			•	•	•	•	Indicates the air flow switch has not detected any airflow for 60 seconds once the main fan is switched on.	The alarm will auto reset 3 times and lock out to a manual reset
AL014	Circuit 1 Compressor 1 Status	•			•		•	This alarm indicates the status of compressor.	The Alarm will de-activate the corresponding compressor.
AL015	Circuit 1 Compressor 2 Status	•			•		•		
AL016	Circuit 1 Inverter Compressor Status	•			•		•	The alarm is generated if the controller output is active but the feed back from the contactor has not changed.	
AL017	Circuit 2 Compressor 3 Status	•			•		•		
AL018	Circuit 2 Compressor 4 Status	•			•		•		
AL019	Circuit 2 Inverter Compressor Status	•			•		•		

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL020	Filter Change Alarm	•			•			Indicates that the filters on the unit possibly need changing.	Alarm will need to be manually reset once the filter has been changed.
AL021	Phase Failure Alarm			•	•	•	•	The power meter / phase failure relay has detected a phase rotation / fail loss	Alarm is automatically reset once the phase failure has cleared.
AL022	Water Flood / Condensate Pump / Drip Tray Level / Phase Rotation Alarm			•	•			Indicates that excess Water (or a leak) has been detected by the unit or drip tray is full.	Alarm is generated
AL023	Fire / Smoke Alarm			•	•	•	•	Indicates that Fire or smoke has been detected	Alarm is generated
AL024	Leak Detector Alarm	•			•		•	Indicates the unit has detected a refrigerant leak.	Once the refrigerant level in the air has fallen below set point the alarm will reset
AL025	Over Heat Cut Out Alarm	•			•		•	This indicates that the auto / manual overheat cut-out has tripped and has switched off all stages of electric heating	This alarm can be auto reset once temperatures have returned to a normal operating range. The manual reset is by a switch in the unit
AL026	Low Pressure Alarm Circuit 1	•			•		•	Indicates that the low pressure safety switch has been tripped and the controller has switched off circuit 1	The alarm will auto reset 5 times within 30 minutes and then lock out to a manual reset
AL027	Low Pressure Alarm Circuit 2	•			•		•	Indicates that the low pressure safety switch has been tripped and the controller has switched off circuit 2	
AL028	Circuit 1 Compressor 1 Maintenance Alarm	•			•			Indicates that the run hours for the particular component has exceeded the limit set for its maintenance alarm.	Once Maintenance has been performed, the hours run for the component can be reset, which will reset the alarm.
AL029	Circuit 1 Compressor 2 Maintenance Alarm	•			•				
AL030	Circuit 1 Inverter Compressor Maintenance Alarm	•			•				
AL031	Circuit 2 Compressor 3 Maintenance Alarm	•			•				
AL032	Circuit 2 Compressor 4 Maintenance Alarm	•			•				
AL033	Circuit 2 Inverter Compressor Maintenance Alarm	•			•				
AL034	Supply Fans Maintenance Alarm	•			•				
AL035	High Humidity Alarm	•			•			Indicates that the particular valve has exceeded the high / low limit. This alarm is delayed for 2 minutes on start-up to prevent nuisance alarms. The cooling or heat demand is disabled	Once the return air humidity returns below the high / low limit the alarm is automatically reset.
AL036	Low Humidity Alarm	•			•				
AL037	High Return Air Temperature	•			•	•	•		
AL038	Low Return Air Temperature	•			•	•	•		
AL039	High Supply Air Temperature	•			•	•	•		
AL040	Low Supply Air Temperature	•			•	•	•		
AL041	Circuit 1 High Pressure	•					•	Indicates that circuit 1 has been exposed to high pressure. Circuit 1 will be shut down.	Once the pressure within circuit 1 has decreased to a safe level the alarm can be manually reset

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL042	Circuit 2 High Pressure	•					•	Indicates that circuit 2 has been exposed to high pressure. Circuit 2 will be shut down.	Once the pressure within circuit 2 has decreased to a safe level the alarm can be manually reset
AL043	EEV Driver 1 Motor Error	•					•	Indicates a motor error within EEV diver 1. During this alarm circuit 1 is switched off.	This alarm can be manually reset once the problem with the EEV is resolved
AL044	EEV Driver 1 EEPROM Error	•					•	Indicates that there has been an error between the data stored within the EEPROM memory and the data stored in the controller. During the alarm the EEV is closed and compressor 1 is switched off.	This alarm can be manually reset once the problem with the EEV is resolved
AL045	EEV Driver 1 MOP Alarm	•					•	Indicates that the evaporating temperature has exceeded the MOP limit. During alarm the EEV modulates the valve closed to reduce the operating pressure whilst maintaining superheat.	This alarm can be manually reset once the system has brought the evaporating temperature below the MOP limit.
AL046	EEV Driver 1 LOP Alarm	•					•	Indicates that the evaporating temperature has exceeded the LOP limit. During alarm the EEV modulates the valve open to increase the operating pressure whilst maintaining superheat.	This alarm can be manually reset once the system has brought the evaporating temperature below the LOP limit.
AL047	EEV Driver 1 Low Superheat Alarm	•					•	Indicates the superheat has exceeded the low superheat limit. During the alarm compressor 1 is switched off.	This alarm can be manually reset once the system has brought the superheat above the low super heat limit.
AL048	EEV Driver 1 EEV Not Closed After Power Fail	•					•	Indicates that the EEV did not close once power was restored, during alarm compressor 1 is switched off.	This alarm is manually reset.
AL049	EEV Driver 1 High Superheat Alarm	•					•	Indicates the superheat has exceeded the high superheat limit. During the alarm compressor 1 is switched off.	This alarm can be manually reset once the system has brought the superheat below the high super heat limit.
AL050	EEV Driver 1 S1 Probe Error Evap. Pressure	•					•	Indicates an error with the evaporating pressure sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL051	EEV Driver 1 S2 Probe Suction Line Temp	•					•	Indicates an error with the suction line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL052	EEV Driver 1 S3 Probe Error Suction Line Temp	•					•	Indicates an error with the suction line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL053	EEV Driver 2 Motor Error	•					•	Indicates a motor error within EEV diver 2. During this alarm compressor 2 is switched off.	This alarm can be manually reset once the problem with the EEV is resolved

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL054	EEV Driver 2 EEPROM Error	•					•	Indicates that there has been an error between the data stored within the EEPROM memory and the data stored in the controller. During the alarm the EEV is closed and compressor 2 is switched off.	This alarm can be manually reset once the problem with the EEV is resolved
AL055	EEV Driver 2 MOP Alarm	•					•	Indicates that the evaporating temperature has exceeded the MOP limit. During alarm the EEV modulates the valve closed to reduce the operating pressure whilst maintaining superheat.	This alarm can be manually reset once the system has brought the evaporating temperature below the MOP limit.
AL056	EEV Driver 2 LOP Alarm	•					•	Indicates that the evaporating temperature has exceeded the LOP limit. During alarm the EEV modulates the valve open to increase the operating pressure whilst maintaining superheat.	This alarm can be manually reset once the system has brought the evaporating temperature below the LOP limit.
AL057	EEV Driver 2 Low Superheat Alarm	•					•	Indicates the superheat has exceeded the low superheat limit. During the alarm compressor 2 is switched off.	This alarm can be manually reset once the system has brought the superheat above the low super heat limit.
AL058	EEV Driver 2 EEV Not Closed After Power Fail	•					•	Indicates that the EEV did not close once power was restored. During the alarm compressor 2 is switched off.	This alarm is manually reset.
AL059	EEV Driver 2 High Superheat Alarm	•					•	Indicates the superheat has exceeded the high superheat limit. During the alarm compressor 2 is switched off.	This alarm can be manually reset once the system has brought the superheat below the high super heat limit.
AL060	EEV Driver 2 S1 Probe Error Evap. Pressure	•					•	Indicates an error with the evaporating pressure sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL061	EEV Driver 2 S2 Probe Error Suction Line Temp	•					•	Indicates an error with the suction line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL062	EEV Driver 2 S3 Probe Suction Line Temp	•					•	Indicates an error with the suction line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL063	EEV Driver 3 Motor Error	•					•	Indicates a motor error within EEV diver 3. During this alarm compressor 3 is switched off.	This alarm can be manually reset once the problem with the EEV is resolved
AL064	Not Used	•							
AL065	EEV Driver 3 EEV Not Closed After Power Fail	•					•	Indicates that the EEV did not close once power was restored. During alarm compressor 3 is switched off.	This alarm is manually reset.
AL066	Not Used	•							
AL067	Not Used	•							
AL068	Not Used	•							

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL069	EVD1 pLAN Communications Offline	•			•		•	Indicates an error with the pLAN connection which the controller communicates with EVD1. This alarm will shut circuit 1 down.	This alarm is automatically reset once the pLAN fault is rectified.
AL070	EVD2 pLAN Communications Offline	•			•		•	Indicates an error with the pLAN connection which the controller communicates with EVD2. This alarm will shut circuit 1 down.	This alarm is automatically reset once the pLAN fault is rectified.
AL071	Not Used	•							
AL072	Not Used	•							
AL073	Clock Alarm	•			•		•	Indicates an error with the real time clock on-board the controller. During alarm any time zones set up would be ignored.	Once the clock returns to functioning correctly the alarm will be automatically reset and any time zones set up will be restored.
AL074	Frost Protection Alarm	•			•		•	Indicates that the controller has disabled any freecoling/ chilled water to prevent damaging the DX coils from frost.	This alarm is automatically reset once any danger of damage is removed.
AL075	High Supply Water Temperature (Circuit 1)	•			•		•	Indicates that the supply water temperature is above the maximum value of supply water temperature permitted.	Alarm is automatically reset once the value of supply water temperature is lower than the maximum value. This enables a circuit change over on dual cool units
AL076	Power Meter Offline	•			•	•	•	Indicates the controller cannot communicate with the power meter leading it to believe the power meter is switched off.	The alarm is automatically reset once communications between the controller and the power meter have been re-established.
AL077	LAN Disconnected	•			•			Indicates that there is a network fault between the units. If the unit is configured as standby then the unit will become active until the network fault is corrected.	The alarm will automatically reset once the network fault is corrected.
AL098	CPY Offline	•			•		•	Indicates the controller cannot communicate with the cpy controller leading it to believe the cpy board is switched off.	The alarm is automatically reset once communications between the controller and the cpy board have been re-established.
AL099	Air Flow Calculation Internal Error	•			•		•	The airflow calculation has gone out of bounds	Constant air volume disabled
AL100	High Discharge Temperature Alarm (C1)	•			•		•	The discharge temperature on circuit 1 is over the threshold. Circuit 1 is disabled after 3 occurrences in 24 hours	Alarm will reset once the temperature is below threshold
AL101	High Discharge Temperature Alarm (C2)	•			•		•	The discharge temperature on circuit 2 is over the threshold. Circuit 2 is disabled after 3 occurrences in 24 hours	Alarm will reset once the temperature is below threshold
AL102	High Discharge Temp Warning (C1)	•			•			Discharge temperature has reached 100°C on circuit 1	Alarm will reset once the temperature is below threshold
AL103	High Discharge Temp Warning (C2)	•			•			Discharge temperature has reached 100°C on circuit 2	Alarm will reset once the temperature is below threshold

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL104	Dry Cooler Alarm (C1)		•		•		•	External dry cooler / pump fault on circuit 1	Alarm will reset once the temperature is below threshold
AL105	Dry Cooler Alarm (C2)		•		•		•	External dry cooler / pump fault on circuit 2	Alarm will reset once the temperature is below threshold
AL106	Low Inlet CW Alarm (Freecooling Disabled)	•			•			Indicates water temp is below limit	Alarm will reset once the temperature is above threshold
AL107	High Supply Water Temperature (C2)	•			•		•	Indicates that the supply water temperature is above the maximum value of supply water temperature permitted.	Alarm is automatically reset once the value of supply water temperature is lower than the maximum value. This enables a circuit change over on dual cool units
AL108	C1 Inverter Compressor Low Oil Level Alarm	•					•	Low oil level on compressor.	Circuit is disabled. Alarm must be manually reset.
AL109	C2 Inverter Compressor Low Oil Level Alarm	•					•	Low oil level on compressor.	Circuit is disabled. Alarm must be manually reset.
AL110	Compressor Oil Preheating Time Delay Active		•		•	•	•	Unit is disabled for oil preheating. Once time has elapsed, alarm will clear	Oil must be preheated before unit can start – wait for time to elapse
AL111	LPHW Frost Protection Alarm (ID8) Cooling Deactivated	•			•		•	Protects against frost	Cooling on both circuits is deactivated - auto reset
AL112	Unit Pumpdown		•		•	•	•	Indicates that pumpdown is active	Unit can be restarted from the alarm mask if required
AL113	C1 Inverter Max Evaporating Temperature Alarm	•			•		•	Maximum evaporating temperature reached.	Circuit is disabled – auto reset once evaporating temp. drops below threshold
AL114	C2 Inverter Max Evaporating Temperature Alarm	•			•		•	Maximum evaporating temperature reached.	Circuit is disabled – auto reset once evaporating temp. drops below threshold
AL115	C1 Compressor Differential Pressure Alarm	•			•		•	Differential pressure is outside low and high limits. Circuit 1 is disabled after 3 occurrences in 24 hours	Alarm will reset after 1 min and attempt to restart the circuit
AL116	C2 Compressor Differential Pressure Alarm	•			•		•	Differential pressure is outside low and high limits. Circuit 2 is disabled after 3 occurrences in 24 hours	Alarm will reset after 1 min and attempt to restart the circuit
AL117	EEV Driver 1 S4 Probe Error Discharge Temperature C1	•					•	Indicates an error with the discharge line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL118	EEV Driver 2 S4 Probe Error Discharge Temperature C2	•					•	Indicates an error with the discharge line temperature sensor. During alarm the controller will automatically switch off the compressor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL119	Unit Running On Backup Power Supply	•			•		•	Indicates unit is running on backup power. Heating and/or hum. May be disabled depending on selection.	Alarm will reset once main power supply is restored.
AL120	Gas Detector – Sensor Fault Gas Detection	•					•	Indicates an error with the Modbus refrigerant leak detector sensor.	This alarm can be manually reset once the sensor is proven to be working correctly.
AL121	Gas Detector – Gas Leakage Detection	•			•		•	Indicates the unit has detected a refrigerant leak.	Once the refrigerant level in the air has fallen below set point the alarm will reset.

Alarms

Code	Description	Non Critical	Critical	Critical shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL78	CPY1 – Mn – Bottle life timer expired	●						Life timer expired	Humidification stopped
AL79	CPY1 – Ec – High water conductivity	●						Conductivity of the water too high	If alarm relay is activated then humidification is stopped, however if relay does not become active then a signal is produced.
AL80	CPY1 – E1 – Configuration parameter error	●						The configuration parameters are corrupted	
AL81	CPY1 – E0 – Internal memory error	●					●	The software or the configuration parameters are corrupted	Humidification stopped
AL82	CPY1 – EH – Excess electrode current	●					●	Excess electrode current	
AL83	CPY1 – EP – Low steam flow-rateduring reduced production	●					●	Low steam flow-rate during reduced production	
AL84	CPY1 – EU – High water level without hum demand	●						High water level without humidification demand.	Signal only
AL85	CPY1 – E3 – External control 0-10V signal not connected	●					●	External control signal not connected correctly	Humidification stopped
AL86	CPY1 – Ef – No supply water	●					●	No supply water	Humidification stopped for 10 minutes
AL87	CPY1 – Ed – Drain problem	●					●	Drain problem	Humidification stopped
AL88	CPY1 – EH1 – Warning excess electrode current	●					●	Excess electrode current	Humidification stopped
AL89	CPY1 – EL1 – Warning low humidity	●						Low humidity	Signal only
AL90	CPY1 – Su – Serial disconnected	●					●	Cable broken / disconnected	Humidification stopped
AL91	CPY1 – CY – Cylinder maintenance required	●						Maintenance time expired.	Signal only
AL92	CPY1 – E2 – Internal memory error	●						Internal memory error	Signal only
AL93	CPY1 – Ea – Warning foaming	•						Foam	Signal only
AL94	CPY1 – CP – Lime scale limits steam production – Clean cylinder	•						The lime scale limits steam production	Signal only
AL95	CPY1 – CL – Warning cylinder full of flakes – Replace cylinder	•						The cylinder is full of Flakes.	Signal only
AL96	CPY1 – ID Device warning	•					•	Wrong configuration	Humidification stopped
AL97	CPY1 – Match digit warning	•					•	Wrong configuration	Humidification stopped

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL122	Gas Leakage Detector Offline	•			•		•	Indicates that the Modbus refrigerant leak detector is offline.	Alarm will reset once the detector comes back online.
AL123	Gas Detector – Sensor Operating For More Than 1 Year – Need for Service	•			•		•	Indicates that the Modbus refrigerant leak detector requires servicing.	Alarm requires manually resetting.
AL124	Indirect Leak Detection – C1	•			•		•	Indicates a possible refrigerant leak has been detected. Compressors may be turned off depending on selection. Circuit is disabled after 3 occurrences in 24 hours.	Once the levels are back within limits the alarm will reset.
AL125	Indirect Leak Detection – C2	•			•		•	Indicates a possible refrigerant leak has been detected. Compressors may be turned off depending on selection. Circuit is disabled after 3 occurrences in 24 hours.	Once the levels are back within limits the alarm will reset.
AL126	Modbus fan 1 - Alarm Phase fail	•			•		•	Fan has lost mains voltage	Alarm will reset once main power supply is restored
AL127	Modbus fan 1 - Alarm Output stage overheating	•			•		•	Output voltage stage is overheating	Alarm will reset once temperature drops
AL128	Modbus fan 1 - Alarm Internal communications error	•			•		•	Problem with communications internal to the fan	Alarm will reset once communications are restored
AL129	Modbus fan 1 - Alarm Motor overheating	•			•		•	Fan motor too hot	Alarm will reset once temperature drops
AL130	Modbus fan 1 - Alarm Hall sensor error	•			•			Error with motor hall sensor	Alarm will reset once sensor readings are restored
AL131	Modbus fan 1 - Alarm Motor locked	•			•		•	Motor rotor cannot turn	Alarm will reset once rotor is freed
AL132	Modbus fan 1 - Alarm Internal electronics overheating	•			•		•	Motor internal electronics are overheating	Alarm will reset once temperature drops
AL133	Modbus fan 1 - Alarm DC link over voltage	•			•		•	DC-link internal to motor is over voltage	Alarm will reset once DC power is restored to normal conditions
AL134	Modbus fan 1 - Alarm DC link under voltage	•			•		•	DC-link internal to motor is under voltage	Alarm will reset once DC power is restored to normal conditions

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL135	Modbus fan 1 - Alarm Mains under voltage	•			•		•	Mains voltage is too low	Alarm will reset once main power supply is restored to normal conditions
AL136	Modbus fan 1 - Alarm Mains over voltage	•			•		•	Mains voltage is too high	Alarm will reset once main power supply is restored to normal conditions
AL137	Modbus fan 1 - Alarm Generic error (fan alarm present)	•			•		•	Any alarm will also trigger the generic alarm	Alarm will reset once the alarm is cleared
AL138	Modbus fan 1 - Alarm IGBT Error	•			•		•	Error with IGBT circuit	Alarm will reset once error has cleared
AL139	Modbus fan 1 - Alarm Current peak	•			•		•	Current peak in motor	Alarm will reset once error has cleared
AL140	Modbus fan 1 - Alarm Ground error	•			•		•	Error with ground/earth connection	Alarm will reset once error has cleared
AL141	Modbus fan 1 - Alarm Fire alarm	•			•		•	Fire / motor too hot	Alarm will reset once error has cleared
AL142	Modbus fan 1 - Warning Limited mains current	•			•			Mains current too low – warning level reached	Alarm will reset once error has cleared
AL143	Modbus fan 1 - Warning Limited mains power	•			•			Mains power too low – warning level reached	Alarm will reset once error has cleared
AL144	Modbus fan 1 - Warning Output stage high temperature	•			•			Output stage temperature has reached warning level	Alarm will reset once error has cleared
AL145	Modbus fan 1 - Warning High motor temperature	•			•			Motor temperature has reached warning level	Alarm will reset once error has cleared
AL146	Modbus fan 1 - Warning High electronics temperature	•			•			Electronics temperature has reached warning level	Alarm will reset once temperature has dropped
AL147	Modbus fan 1 - Warning DC link voltage low	•			•			DC-link voltage has dropped to warning level	Alarm will reset once error has cleared
AL148	Modbus fan 1 - Warning Brake mode	•			•			Exterior drive is applied in opposite direction with high speed for a prolonged period	Alarm will reset once error has cleared
AL149	Modbus fan 1 - Warning Weak field	•			•			Induction field is too low and has reached warning level	Alarm will reset once error has cleared
AL150	Modbus fan 1 - Warning Wrong direction	•			•			Fan is running in the wrong direction	Alarm will reset once fan runs in the correct direction
AL151	Modbus fan 1 - Warning IGBT check	•			•			IGBT check warning has occurred	Alarm will reset once error has cleared
AL152	Modbus fan 1 - Warning DC high voltage	•			•			DC voltage is too high	Alarm will reset once error has cleared
AL153	Modbus fan 1 - Alarm Fan Modbus offline	•			•		•	Fan Modbus communication is offline	Alarm will reset once fan comes back online

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL154	Modbus fan 2 - Alarm Phase fail	•			•		•	Fan has lost mains voltage	Alarm will reset once main power supply is restored
AL155	Modbus fan 2 - Alarm Output stage overheating	•			•		•	Output voltage stage is overheating	Alarm will reset once temperature drops
AL156	Modbus fan 2 - Alarm Internal communications error	•			•		•	Problem with communications internal to the fan	Alarm will reset once communications are restored
AL157	Modbus fan 2 - Alarm Motor overheating	•			•		•	Fan motor too hot	Alarm will reset once temperature drops
AL158	Modbus fan 2 - Alarm Hall sensor error	•			•			Error with motor hall sensor	Alarm will reset once sensor readings are restored
AL159	Modbus fan 2 - Alarm Motor locked	•			•		•	Motor rotor cannot turn	Alarm will reset once rotor is freed
AL160	Modbus fan 2 - Alarm Internal electronics overheating	•			•		•	Motor internal electronics are overheating	Alarm will reset once temperature drops
AL161	Modbus fan 2 - Alarm DC link over voltage	•			•		•	DC-link internal to motor is over voltage	Alarm will reset once DC power is restored to normal conditions
AL162	Modbus fan 2 - Alarm DC link under voltage	•			•		•	DC-link internal to motor is under voltage	Alarm will reset once DC power is restored to normal conditions
AL163	Modbus fan 2 - Alarm Mains under voltage	•			•		•	Mains voltage is too low	Alarm will reset once main power supply is restored to normal conditions
AL164	Modbus fan 2 - Alarm Mains over voltage	•			•		•	Mains voltage is too high	Alarm will reset once main power supply is restored to normal conditions
AL165	Modbus fan 2 - Alarm Generic error (fan alarm present)	•			•		•	Any alarm will also trigger the generic alarm	Alarm will reset once the alarm is cleared
AL166	Modbus fan 2 - Alarm IGBT Error	•			•		•	Error with IGBT circuit	Alarm will reset once error has cleared
AL167	Modbus fan 2 - Alarm Current peak	•			•		•	Current peak in motor	Alarm will reset once error has cleared
AL168	Modbus fan 2 - Alarm Ground error	•			•		•	Error with ground/earth connection	Alarm will reset once error has cleared
AL169	Modbus fan 2 - Alarm Fire alarm	•			•		•	Fire / motor too hot	Alarm will reset once error has cleared
AL170	Modbus fan 2 - Warning Limited mains current	•			•			Mains current too low – warning level reached	Alarm will reset once error has cleared
AL171	Modbus fan 2 - Warning Limited mains power	•			•			Mains power too low – warning level reached	Alarm will reset once error has cleared
AL172	Modbus fan 2 - Warning Output stage high temperature	•			•			Output stage temperature has reached warning level	Alarm will reset once error has cleared

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL173	Modbus fan 2 - Warning High motor temperature	•			•			Motor temperature has reached warning level	Alarm will reset once error has cleared
AL174	Modbus fan 2 - Warning High electronics temperature	•			•			Electronics temperature has reached warning level	Alarm will reset once temperature has dropped
AL175	Modbus fan 2 - Warning DC link voltage low	•			•			DC-link voltage has dropped to warning level	Alarm will reset once error has cleared
AL176	Modbus fan 2 - Warning Brake mode	•			•			Exterior drive is applied in opposite direction with high speed for a prolonged period	Alarm will reset once error has cleared
AL177	Modbus fan 2 - Warning Weak field	•			•			Induction field is too low and has reached warning level	Alarm will reset once error has cleared
AL178	Modbus fan 2 - Warning Wrong direction	•			•			Fan is running in the wrong direction	Alarm will reset once fan runs in the correct direction
AL179	Modbus fan 2 - Warning IGBT check	•			•			IGBT check warning has occurred	Alarm will reset once error has cleared
AL180	Modbus fan 2 - Warning DC high voltage	•			•			DC voltage is too high	Alarm will reset once error has cleared
AL181	Modbus fan 2 - Alarm Fan Modbus offline	•			•		•	Fan Modbus communication is offline	Alarm will reset once fan comes back online
AL182	Modbus fan 3 - Alarm Phase fail	•			•		•	Fan has lost mains voltage	Alarm will reset once main power supply is restored
AL183	Modbus fan 3 - Alarm Output stage overheating	•			•		•	Output voltage stage is overheating	Alarm will reset once temperature drops
AL184	Modbus fan 3 - Alarm Internal communications error	•			•		•	Problem with communications internal to the fan	Alarm will reset once communications are restored
AL185	Modbus fan 3 - Alarm Motor overheating	•			•		•	Fan motor too hot	Alarm will reset once temperature drops
AL186	Modbus fan 3 - Alarm Hall sensor error	•			•			Error with motor hall sensor	Alarm will reset once sensor readings are restored
AL187	Modbus fan 3 - Alarm Motor locked	•			•		•	Motor rotor cannot turn	Alarm will reset once rotor is freed
AL188	Modbus fan 3 - Alarm Internal electronics overheating	•			•		•	Motor internal electronics are overheating	Alarm will reset once temperature drops
AL189	Modbus fan 3 - Alarm DC link over voltage	•			•		•	DC-link internal to motor is over voltage	Alarm will reset once DC power is restored to normal conditions
AL190	Modbus fan 3 - Alarm DC link under voltage	•			•		•	DC-link internal to motor is under voltage	Alarm will reset once DC power is restored to normal conditions
AL191	Modbus fan 3 - Alarm Mains under voltage	•			•		•	Mains voltage is too low	Alarm will reset once main power supply is restored to normal conditions

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL192	Modbus fan 3 - Alarm Mains over voltage	•			•		•	Mains voltage is too high	Alarm will reset once main power supply is restored to normal conditions
AL193	Modbus fan 3 - Alarm Generic error (fan alarm present)	•			•		•	Any alarm will also trigger the generic alarm	Alarm will reset once the alarm is cleared
AL194	Modbus fan 3 - Alarm IGBT Error	•			•		•	Error with IGBT circuit	Alarm will reset once error has cleared
AL195	Modbus fan 3 - Alarm Current peak	•			•		•	Current peak in motor	Alarm will reset once error has cleared
AL196	Modbus fan 3 - Alarm Ground error	•			•		•	Error with ground/earth connection	Alarm will reset once error has cleared
AL197	Modbus fan 3 - Alarm Fire alarm	•			•		•	Fire / motor too hot	Alarm will reset once error has cleared
AL198	Modbus fan 3 - Warning Limited mains current	•			•			Mains current too low – warning level reached	Alarm will reset once error has cleared
AL199	Modbus fan 3 - Warning Limited mains power	•			•			Mains power too low – warning level reached	Alarm will reset once error has cleared
AL200	Modbus fan 3 - Warning Output stage high temperature	•			•			Output stage temperature has reached warning level	Alarm will reset once error has cleared
AL201	Modbus fan 3 - Warning High motor temperature	•			•			Motor temperature has reached warning level	Alarm will reset once error has cleared
AL202	Modbus fan 3 - Warning High electronics temperature	•			•			Electronics temperature has reached warning level	Alarm will reset once temperature has dropped
AL203	Modbus fan 3 - Warning DC link voltage low	•			•			DC-link voltage has dropped to warning level	Alarm will reset once error has cleared
AL204	Modbus fan 3 - Warning Brake mode	•			•			Exterior drive is applied in opposite direction with high speed for a prolonged period	Alarm will reset once error has cleared
AL205	Modbus fan 3 - Warning Weak field	•			•			Induction field is too low and has reached warning level	Alarm will reset once error has cleared
AL206	Modbus fan 3 - Warning Wrong direction	•			•			Fan is running in the wrong direction	Alarm will reset once fan runs in the correct direction
AL207	Modbus fan 3 - Warning IGBT check	•			•			IGBT check warning has occurred	Alarm will reset once error has cleared
AL208	Modbus fan 3 - Warning DC high voltage	•			•			DC voltage is too high	Alarm will reset once error has cleared
AL209	Modbus fan 3 - Alarm Fan Modbus offline	•			•		•	Fan Modbus communication is offline	Alarm will reset once fan comes back online
AL210	Modbus fan 4 - Alarm Phase fail	•			•		•	Fan has lost mains voltage	Alarm will reset once main power supply is restored

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL211	Modbus fan 4 - Alarm Output stage overheating	•			•		•	Output voltage stage is overheating	Alarm will reset once temperature drops
AL212	Modbus fan 4 - Alarm Internal communications error	•			•		•	Problem with communications internal to the fan	Alarm will reset once communications are restored
AL213	Modbus fan 4 - Alarm Motor overheating	•			•		•	Fan motor too hot	Alarm will reset once temperature drops
AL214	Modbus fan 4 - Alarm Hall sensor error	•			•			Error with motor hall sensor	Alarm will reset once sensor readings are restored
AL215	Modbus fan 4 - Alarm Motor locked	•			•		•	Motor rotor cannot turn	Alarm will reset once rotor is freed
AL216	Modbus fan 4 - Alarm Internal electronics overheating	•			•		•	Motor internal electronics are overheating	Alarm will reset once temperature drops
AL217	Modbus fan 4 - Alarm DC link over voltage	•			•		•	DC-link internal to motor is over voltage	Alarm will reset once DC power is restored to normal conditions
AL218	Modbus fan 4 - Alarm DC link under voltage	•			•		•	DC-link internal to motor is under voltage	Alarm will reset once DC power is restored to normal conditions
AL219	Modbus fan 4 - Alarm Mains under voltage	•			•		•	Mains voltage is too low	Alarm will reset once main power supply is restored to normal conditions
AL220	Modbus fan 4 - Alarm Mains over voltage	•			•		•	Mains voltage is too high	Alarm will reset once main power supply is restored to normal conditions
AL221	Modbus fan 4 - Alarm Generic error (fan alarm present)	•			•		•	Any alarm will also trigger the generic alarm	Alarm will reset once the alarm is cleared
AL222	Modbus fan 4 - Alarm IGBT Error	•			•		•	Error with IGBT circuit	Alarm will reset once error has cleared
AL223	Modbus fan 4 - Alarm Current peak	•			•		•	Current peak in motor	Alarm will reset once error has cleared
AL224	Modbus fan 4 - Alarm Ground error	•			•		•	Error with ground/earth connection	Alarm will reset once error has cleared
AL225	Modbus fan 4 - Alarm Fire alarm	•			•		•	Fire / motor too hot	Alarm will reset once error has cleared
AL226	Modbus fan 4 - Warning Limited mains current	•			•			Mains current too low – warning level reached	Alarm will reset once error has cleared
AL227	Modbus fan 4 - Warning Limited mains power	•			•			Mains power too low – warning level reached	Alarm will reset once error has cleared
AL228	Modbus fan 4 - Warning Output stage high temperature	•			•			Output stage temperature has reached warning level	Alarm will reset once error has cleared
AL229	Modbus fan 4 - Warning High motor temperature	•			•			Motor temperature has reached warning level	Alarm will reset once error has cleared

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL230	Modbus fan 4 - Warning High electronics temperature	•			•			Electronics temperature has reached warning level	Alarm will reset once temperature has dropped
AL231	Modbus fan 4 - Warning DC link voltage low	•			•			DC-link voltage has dropped to warning level	Alarm will reset once error has cleared
AL232	Modbus fan 4 - Warning Brake mode	•			•			Exterior drive is applied in opposite direction with high speed for a prolonged period	Alarm will reset once error has cleared
AL233	Modbus fan 4 - Warning Weak field	•			•			Induction field is too low and has reached warning level	Alarm will reset once error has cleared
AL234	Modbus fan 4 - Warning Wrong direction	•			•			Fan is running in the wrong direction	Alarm will reset once fan runs in the correct direction
AL235	Modbus fan 4 - Warning IGBT check	•			•			IGBT check warning has occurred	Alarm will reset once error has cleared
AL236	Modbus fan 4 - Warning DC high voltage	•			•			DC voltage is too high	Alarm will reset once error has cleared
AL237	Modbus fan 4 - Alarm Fan Modbus offline	•			•		•	Fan Modbus communication is offline	Alarm will reset once fan comes back online
AL238	Modbus fans wrong address	•			•		•	Modbus fans are addressed incorrectly	Alarm will clear once fans are re-addressed correctly
Humidifier Alarms (board 2) numbers 239 to 259 are detailed further into the report inside the humidification chapter									
AL260	Modbus fan 1 failed (rpm low)	•			•			Fan speed (rpm) is below expected level – possible fan failure	Alarm will reset once fan speed increases to expected level
AL261	Modbus fan 2 failed (rpm low)	•			•			Fan speed (rpm) is below expected level – possible fan failure	Alarm will reset once fan speed increases to expected level
AL262	Modbus fan 3 failed (rpm low)	•			•			Fan speed (rpm) is below expected level – possible fan failure	Alarm will reset once fan speed increases to expected level
AL263	Modbus fan 4 failed (rpm low)	•			•			Fan speed (rpm) is below expected level – possible fan failure	Alarm will reset once fan speed increases to expected level
AL264	Over Heat Cut Out Alarm (Manual)	•					•	This indicates that the manual overheat cut-out has tripped and has switched off all stages of electric heating	This alarm can be manually reset once temperatures have returned to a normal operating range.
AL265	Low pressure circuit 1 (EVO Driver)	•			•		•	Low pressure condition indicated by EVO suction pressure probe	The alarm will auto reset 5 times within 30 minutes and then lock out to a manual reset
AL266	Low pressure circuit 2 (EVO Driver)	•			•		•		
AL267	Phase fail UltraCap			•	•	•	•	The main supply power to the unit has failed and the controller is running on the backup battery	Alarm will reset once power is restored
AL268	EVD 1 defaulting error			•	•	•	•	EVD EVO expansion valve driver has defaulted incorrectly	Default the driver again to correct any wrong parameters
AL269	EVD 2 defaulting error			•	•	•	•		
AL270	Possible bypass valve failure circuit 1	•			•		•	CW bypass valve high pressure – possible valve failure	Alarm is manual reset
AL271	Possible bypass valve failure circuit 2	•			•		•		

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL272	Modbus fan 1 High line impedance	•			•			Line impedance is too high	Alarm will reset once error has cleared
AL273	Modbus fan 1 Low fan speed	•			•			Fan speed is low	Alarm will reset once speed increases
AL274	Modbus fan 1 Cable break	•			•			Controls cable has broken	Alarm will reset once cable has been reinstated
AL275	Modbus fan 1 Heating: Motor stopped	•			•			Motor in heating mode	Alarm will reset once heating has finished
AL276	Modbus fan 1 High supply voltage	•			•			High mains supply voltage	Alarm will reset once voltage returns to normal levels
AL277	Modbus fan 1 Ice protection	•			•			Ice protection warning	Alarm will reset once condition has cleared
AL278	Modbus fan 2 High line impedance	•			•			Line impedance is too high	Alarm will reset once error has cleared
AL279	Modbus fan 2 Low fan speed	•			•			Fan speed is low	Alarm will reset once speed increases
AL280	Modbus fan 2 Cable break	•			•			Controls cable has broken	Alarm will reset once cable has been reinstated
AL281	Modbus fan 2 Heating: Motor stopped	•			•			Motor in heating mode	Alarm will reset once heating has finished
AL282	Modbus fan 2 High supply voltage	•			•			High mains supply voltage	Alarm will reset once voltage returns to normal levels
AL283	Modbus fan 2 Ice protection	•			•			Ice protection warning	Alarm will reset once condition has cleared
AL284	Modbus fan 3 High line impedance	•			•			Line impedance is too high	Alarm will reset once error has cleared
AL285	Modbus fan 3 Low fan speed	•			•			Fan speed is low	Alarm will reset once speed increases
AL286	Modbus fan 3 Cable break	•			•			Controls cable has broken	Alarm will reset once cable has been reinstated
AL287	Modbus fan 3 Heating: Motor stopped	•			•			Motor in heating mode	Alarm will reset once heating has finished
AL288	Modbus fan 3 High supply voltage	•			•			High mains supply voltage	Alarm will reset once voltage returns to normal levels
AL289	Modbus fan 3 Ice protection	•			•			Ice protection warning	Alarm will reset once condition has cleared
AL290	Modbus fan 4 High line impedance	•			•			Line impedance is too high	Alarm will reset once error has cleared
AL291	Modbus fan 4 Low fan speed	•			•			Fan speed is low	Alarm will reset once speed increases

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL292	Modbus fan 4 Cable break	•			•			Controls cable has broken	Alarm will reset once cable has been reinstated
AL293	Modbus fan 4 Heating: Motor stopped	•			•			Motor in heating mode	Alarm will reset once heating has finished
AL294	Modbus fan 4 High supply voltage	•			•			High mains supply voltage	Alarm will reset once voltage returns to normal levels
AL295	Modbus fan 4 Ice protection	•			•			Ice protection warning	Alarm will reset once condition has cleared
AL296	pCOe expansion board offline	•			•		•	Cable disconnected, wrong address or comms. Settings or pCOe board fault	Check pCOe address and cable connections. Alarm will reset once board is online
AL297	pCOe expansion board Analogue input 1 fault	•			•		•	Probe fault or disconnected	Alarm will reset once probe is reconnected
AL298	pCOe expansion board Analogue input 2 fault	•			•		•		
AL299	pCOe expansion board Analogue input 3 fault	•			•		•		
AL300	pCOe expansion board Analogue input 4 fault	•			•		•		
AL301	pCOe expansion board Analogue input mismatch	•			•		•	Probes are mismatched. Probes 1&2 must match and probes 3&4 must match	Alarm will reset once error has been fixed
AL302	Frost Protection Alarm Circuit 2	•			•		•	Indicates that the controller has disabled any freecoling/ chilled water to prevent damaging the DX coils from frost.	This alarm is automatically reset once any danger of damage is removed.
AL303	Low pressure equalisation - Circuit 1	•			•			Low pressure equalisation level reached	Unit will try to equalise pressures while compressors are off
AL304	LP equalisation critical - Circuit 1		•					LP EQ function tripped on low pressure critical number of times	LP EQ function disabled
AL305	LP equalisation failed - Circuit 1		•					LP EQ function failed to equalise pressures	LP EQ function disabled
AL306	Low pressure equalisation - Circuit 2	•			•			Low pressure equalisation level reached	Unit will try to equalise pressures while compressors are off
AL307	LP equalisation critical - Circuit 2		•					LP EQ function tripped on low pressure critical number of times	LP EQ function disabled
AL308	LP equalisation failed - Circuit 2		•					LP EQ function failed to equalise pressures	LP EQ function disabled
AL309	Hydronics pack offline		•		•		•	Modbus communications lost with hydronics pack	Alarm will reset once communications are re-established
AL310	Hydronics pump 1 fault		•		•		•	Hydronics pump 1 fault	Alarm will reset once error has been fixed
AL311	Hydronics pump 2 fault		•		•		•	Hydronics pump 2 fault	Alarm will reset once error has been fixed
AL312	Hydronics high flow warning	•			•			High water flow rate	Alarm will reset once flow returns to normal
AL313	Hydronics low flow warning	•			•			Low water flow rate	Alarm will reset once flow returns to normal

Alarms

Code	Description	Non Critical	Critical	Critical Shutdown	Auto Reset	Unit Disabled	Component Disabled	Cause	Action
AL314	Hydronics low glycol warning	•			•			Low water flow rate	Alarm will reset once flow returns to normal
AL315	Hydronics pressurisation unit		•		•		•	Fault on pressurisation unit	Alarm will reset once error has been fixed
AL316	Hydronics pump 1 maintenance	•						Hours run exceeded alarm level	Alarm will reset once maintenance hours are reset
AL317	Hydronics pump 2 maintenance	•						Hours run exceeded alarm level	Alarm will reset once maintenance hours are reset
AL318	Hydronics ambient probe fault	•			•			Ambient probe fault	Alarm will reset once error has been fixed
AL319	Hydronics high temperature	•			•			High temperature	Alarm will reset once temperature returns to normal
AL320	Hydronics low temperature	•			•			Low temperature	Alarm will reset once temperature returns to normal
	No Alarms Active				•			Indicates no alarms are currently active	-

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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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Head Office
Airedale International Air Conditioning Ltd
Leeds Road
Rawdon
Leeds LS19 6JY
Tel: +44 (0) 113 2391000
Fax:+44 (0) 113 2507219
E-mail enquiries@airedale.com
Web www.airedale.com

TM_SMARTCOOL_60_140kW_7968969_1.10_11_2019