NEW R410A!

AIREDALE
air conditioning for every environment

BluCube
Heat Pump Condensing Unit



Installation and Maintenance Manual

ISO 14001
EMS52086

ISO 9001
FM00542

About Airedale Products & 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 Service 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 Service 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.

Where applicable, effective removal of condensate is achieved by gradient drainage to outlets and where used, humidification systems produce sterile, non-toxic steam during normal operation.

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

CAUTION

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

Spares

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

Training

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

Customer Services

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

UK Sales Enquiries	+ 44 (0) 113 238 7789	***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	***marketing@airedale.com***

For information, visit us at our Web Site: ***www.airedale.com***

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Health and Safety

IMPORTANT

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

Safety

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

CAUTION

1 Installation, service and maintenance of Airedale equipment should only be carried out by technically trained competent personnel.

CAUTION

2 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.

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

4 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.

5 The refrigerant used in this range of products is classified under the COSHH regulations as an irritant, with set Workplace Exposure Levels (WEL) for consideration if this plant is installed in confined or poorly ventilated areas.

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

Protective Personal Equipment

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

Refrigerant Warning

The Airedale BluCube uses R410A refrigerant which is a high pressure refrigerant. It 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.

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

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

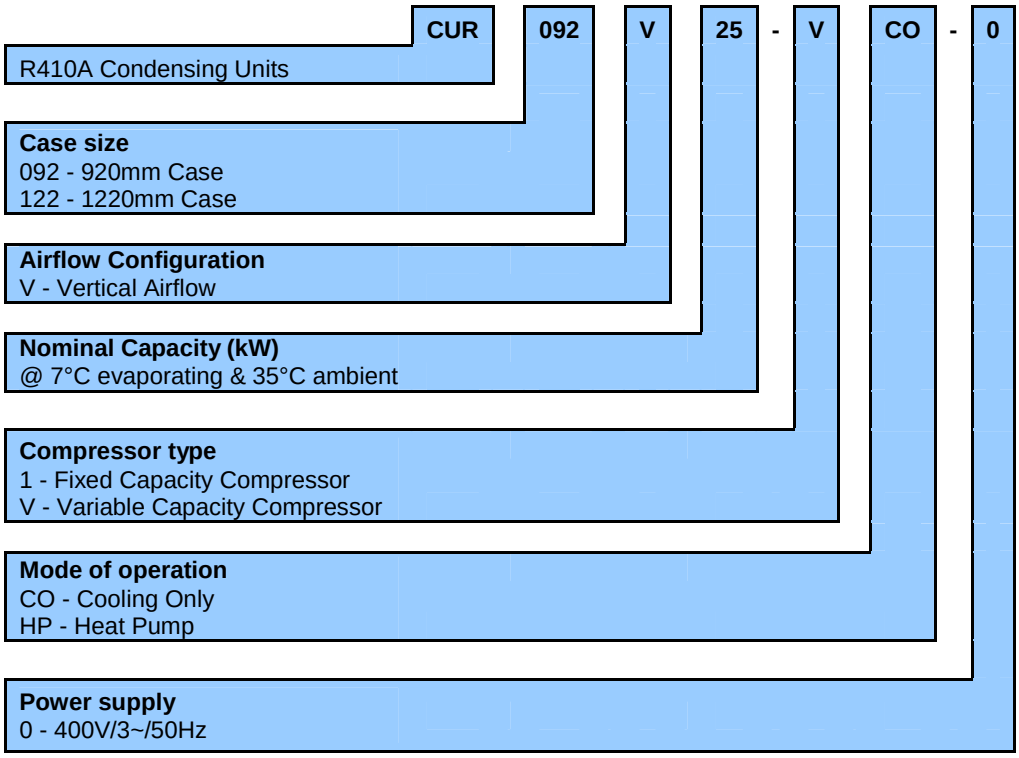
CE Airedale certify that the equipment detailed in this manual conforms with the following EC Directives:

Electromagnetic Compatibility Directive (EMC)	**2004/108/EC**
Low Voltage Directive (LVD)	**2006/95/EC**
Machinery Directive (MD)	**89/392/EEC version 2006/42/EC**
Pressure Equipment Directive (PED)	**97/23/EC**

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

General Specification

Nomenclature



Introduction

The BluCube is Airedale's high efficiency R410A condensing unit with heat pump variant that can be universally matched with a variety of industry standard air handling units.

Its latest technology features include EC fans, variable capacity control and modulating head pressure control.

Benefiting from an extremely compact and modular design, the BluCube will fit into a standard lift.

The BluCube's small footprint ensures minimal space claim on rooftops or in plant rooms.

Capacity range from

Cooling Only Unit
14 to 43kW (EER 2.9 to 3.4)

Heat Pump units
Cooling Mode
14 to 44kW (EER 2.6 to 3.4)

Heating Mode
14 to 40kW (EER 2.5 to 2.7)

Capacity Range Cooling Only Unit

Model No.	Nominal Cooling Capacity (kW)	Nominal Unit Input Power (kW)	EER	Dimensions (H x W x L) mm
CUR092V16-1CO-0	13.8	4.1	3.37	1750 x 764 x 922
CUR092V20-1CO-0	20.3	6.2	3.26	1750 x 764 x 922
CUR092V25-1CO-0	26.0	8.4	3.10	1750 x 764 x 922
CUR092V29-1CO-0	28.6	9.5	3.01	1750 x 764 x 922
CUR122V35-1CO-0	38.8	12.5	3.10	1750 x 764 x 1222
CUR122V40-1CO-0	43.4	14.5	3.00	1750 x 764 x 1222

CUR092V16-VCO-0	15.6	4.5	3.48	1750 x 764 x 922
CUR092V20-VCO-0	20.3	6.2	3.27	1750 x 764 x 922
CUR092V25-VCO-0	24.8	7.6	3.26	1750 x 764 x 922
CUR092V29-VCO-0	28.4	9.2	3.08	1750 x 764 x 922
CUR122V35-VCO-0	37.1	12.0	3.09	1750 x 764 x 1222
CUR122V40-VCO-0	42.6	14.3	2.98	1750 x 764 x 1222

Capacity Range Heat Pump Unit

Model No.	Nominal Cooling Capacity (kW)	Nominal Unit Input Power (kW)	EER	Nominal Heating Capacity (kW)	Nominal Unit Input Power (kW)	EER	Dimensions (H x W x L) mm
CUR092V16-1HP-0	14.6	4.4	3.32	13.7	5.1	2.69	1750 x 764 x 922
CUR092V20-1HP-0	21.1	6.7	3.15	19.4	7.2	2.69	1750 x 764 x 922
CUR092V25-1HP-0	26.5	9.3	2.85	24.2	9.1	2.66	1750 x 764 x 922
CUR092V29-1HP-0	28.7	10.6	2.71	26.4	10.2	2.59	1750 x 764 x 922
CUR122V35-1HP-0	39.7	13.7	2.90	35.5	14.3	2.48	1750 x 764 x 1222
CUR122V40-1HP-0	44.1	15.9	2.77	39.2	15.6	2.51	1750 x 764 x 1222

CUR092V16-VHP-0	16.4	4.9	3.35	15.0	5.5	2.73	1750 x 764 x 922
CUR092V20-VHP-0	21.0	6.8	3.09	19.4	7.2	2.69	1750 x 764 x 922
CUR092V25-VHP-0	25.3	8.4	3.01	23.2	8.8	2.64	1750 x 764 x 922
CUR092V29-VHP-0	28.4	10.4	2.73	26.5	10.3	2.57	1750 x 764 x 922
CUR122V35-VHP-0	38.1	13.1	2.91	34.4	13.6	2.53	1750 x 764 x 1222
CUR122V40-VHP-0	43.5	15.7	2.77	40.0	15.7	2.55	1750 x 764 x 1222

In cooling, 7°C evaporating, 35°C ambient (standard AC axial fan at maximum speed)
In heating, 50°C condensing, 5°C ambient (standard AC axial fan at maximum speed)
Input power includes compressor and fan

Installation Data

Lifting

Whenever a condensing unit is lifted, it should be from the base and, where possible, with all packing and protection in position. If slings are used care should be taken to ensure that the slings do not crush the casework or coil. The slings are to be located into the recess within the unit frame to ensure safe lifting.

Due note should also be made of the fact that the compressor is at one end of the unit, and therefore the centre of gravity will also be towards that end.

If the unit is dropped, it should immediately be checked for damage.

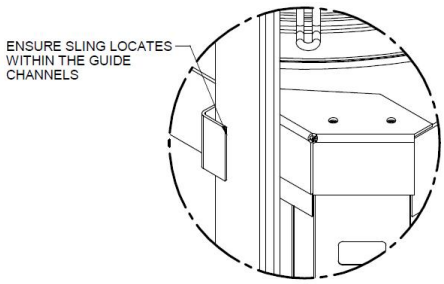
Employ lifting specialists
Local codes and regulations relating to the lifting of this type of equipment should be observed

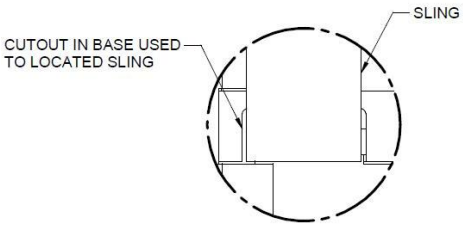
Use the appropriate spreader bars/lifting slings with the holes/lugs provided
Chains/slings MUST NOT interfere with the casing of fan assembly to avoid damage
Lift the unit slowly and evenly

IMPORTANT **If the unit is dropped, it should immediately be checked for damage and reported to Airedale.**

CAUTION **Only use lifting points provided.**

Ensure drip tray is removed before lifting (Heat Pump units only)





Cut-out size ???mm x ???mm

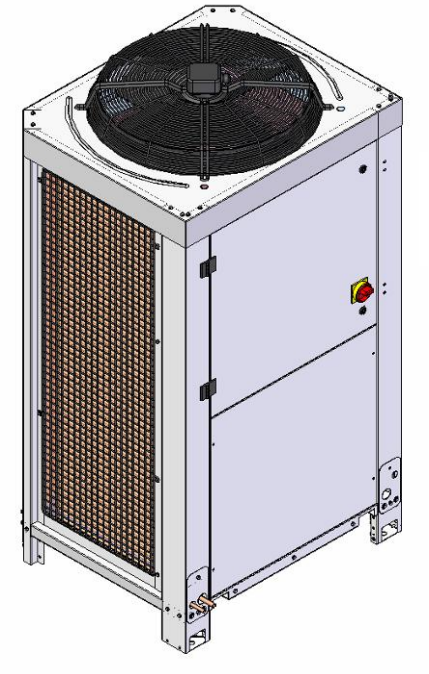


Minimum lifting chain length of 1500mm

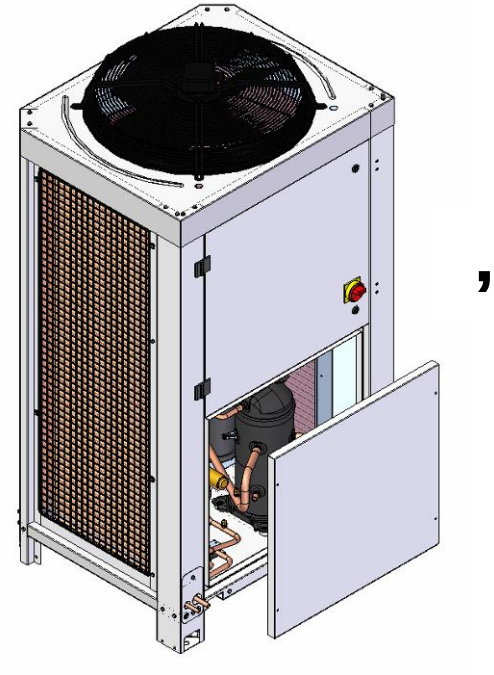
Sling Length 4500mm

Drip Tray Removal

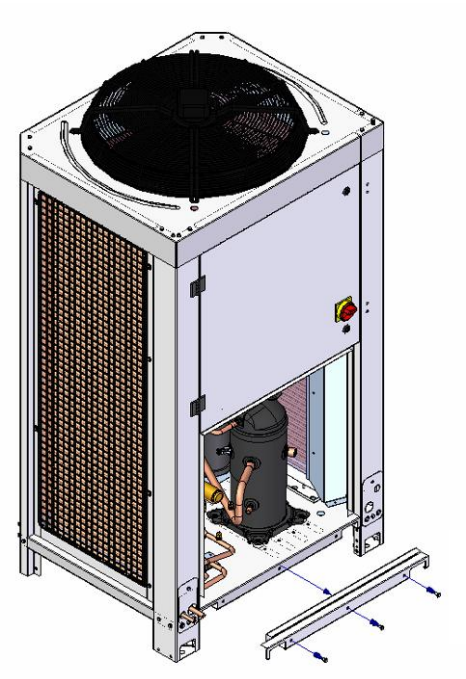
The drip tray is needed to be removed prior to lifting



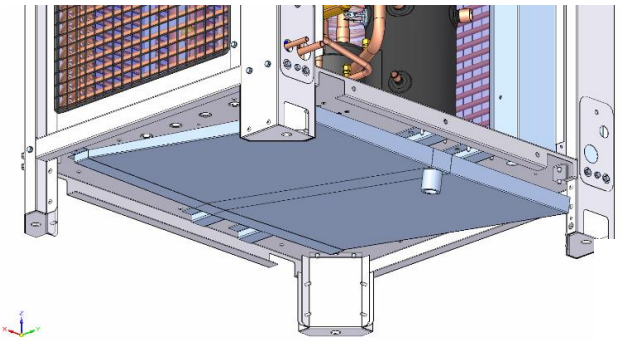
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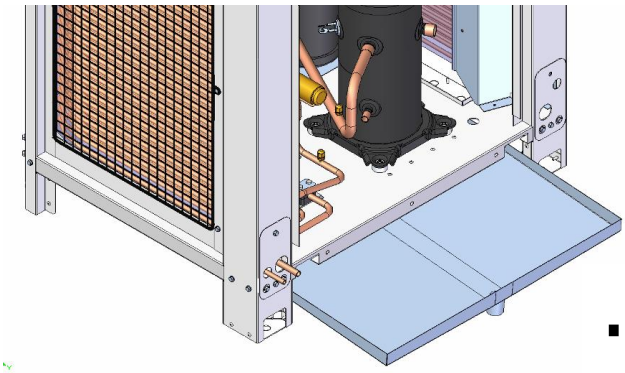
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Positioning

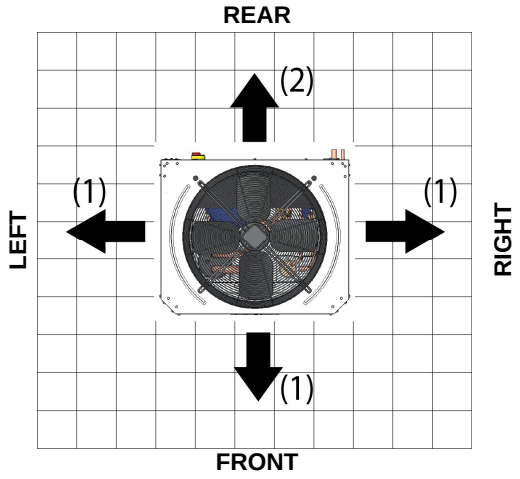
The installation position should be selected with the following points in mind:

- Position on a stable and even base, levelled to ensure that the compressor operates correctly.
- Levelling should be to +/- 5mm.
- Where vibration transmission to the building structure is possible, fit pad anti-vibration mounts.
- Observe airflow and maintenance clearances.
- Pipework and electrical connections are readily accessible.
- Where multiple units are installed, due care should be taken to avoid the discharge air from each unit adversely affecting other units in the vicinity.
- Within a side enclosed installation, the fan MUST be higher than the enclosing structure.
- Ensure there are no obstructions directly above the fans.
- Allow free space above the fans to prevent air recirculation.

CAUTION

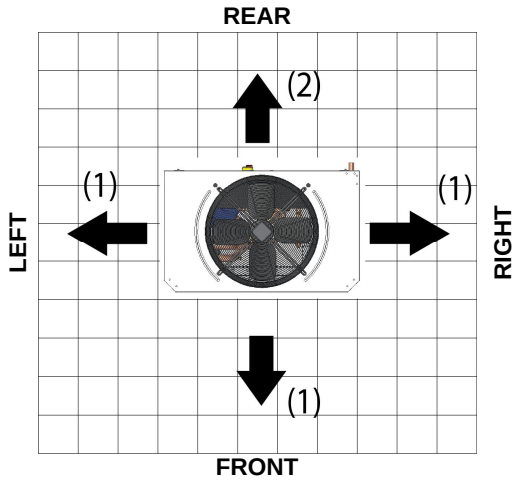
Prior to connecting services, ensure that the equipment is installed and completely level.

092 Models



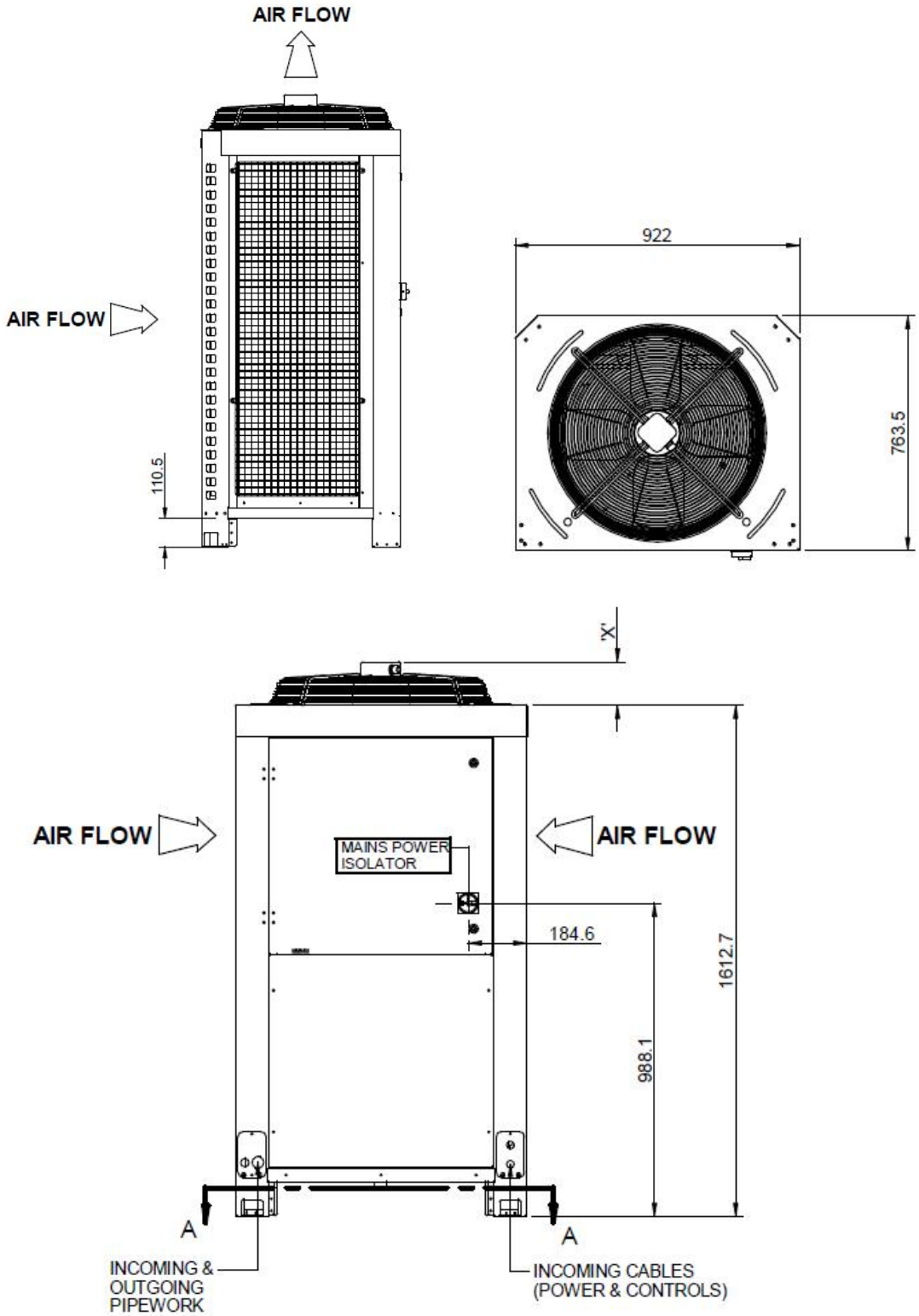
(1) Airflow clearance minimum 300 (mm),
(2) Maintenance clearance minimum:
Single unit minimum 750mm

122 Models

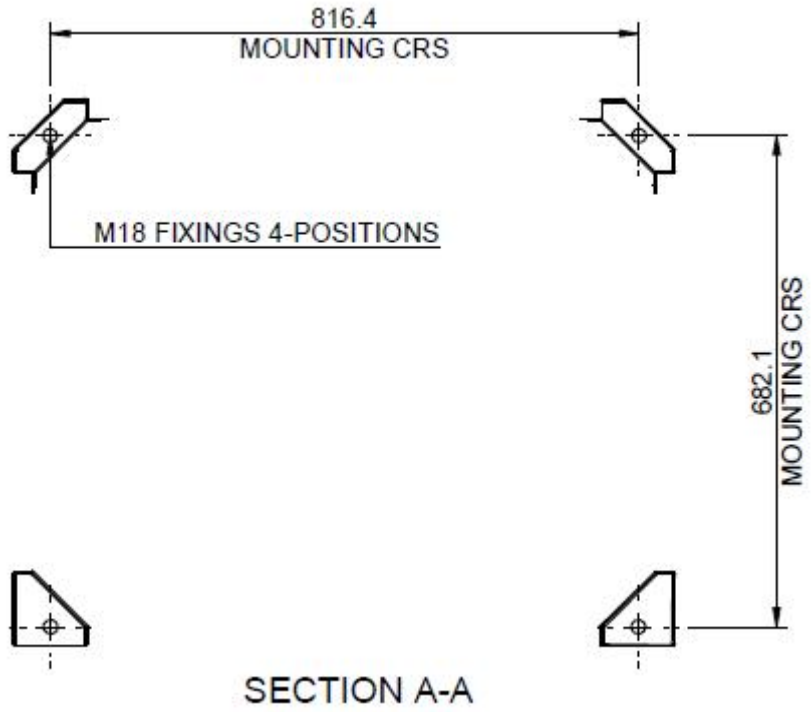


(1) Airflow clearance minimum 300 (mm),
(2) Maintenance clearance minimum:
Single unit minimum 750mm

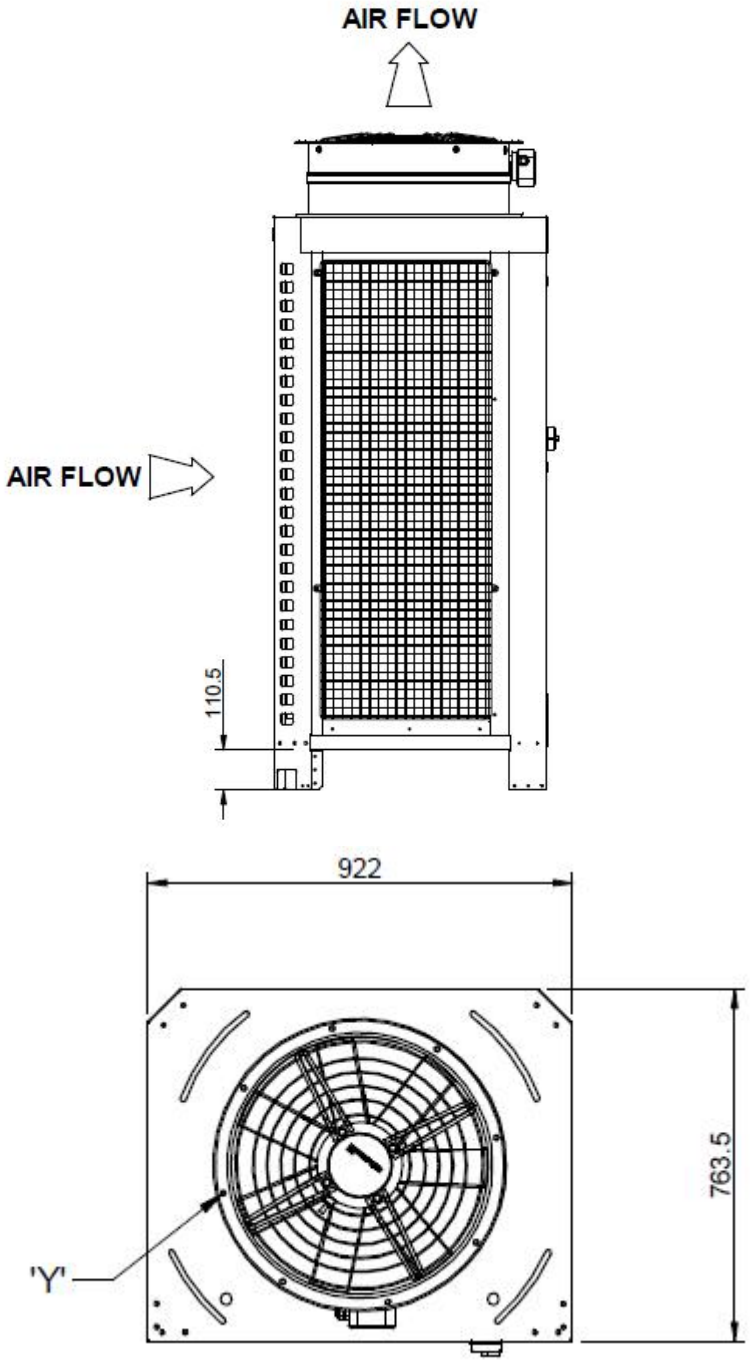
Dimensional Data
092 Models

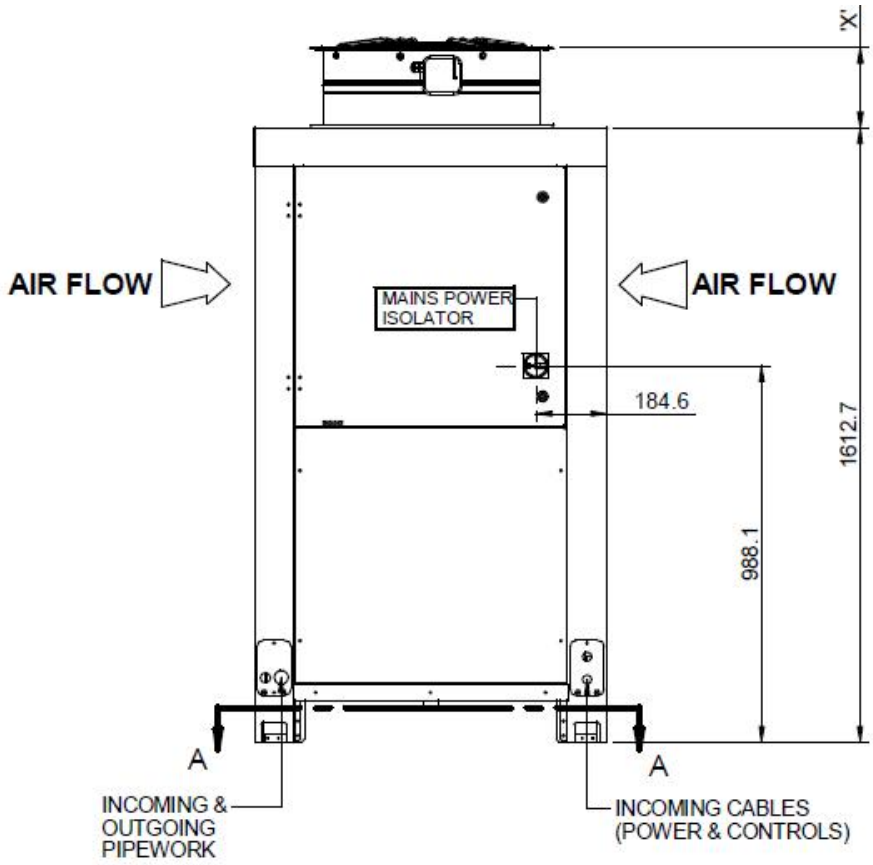


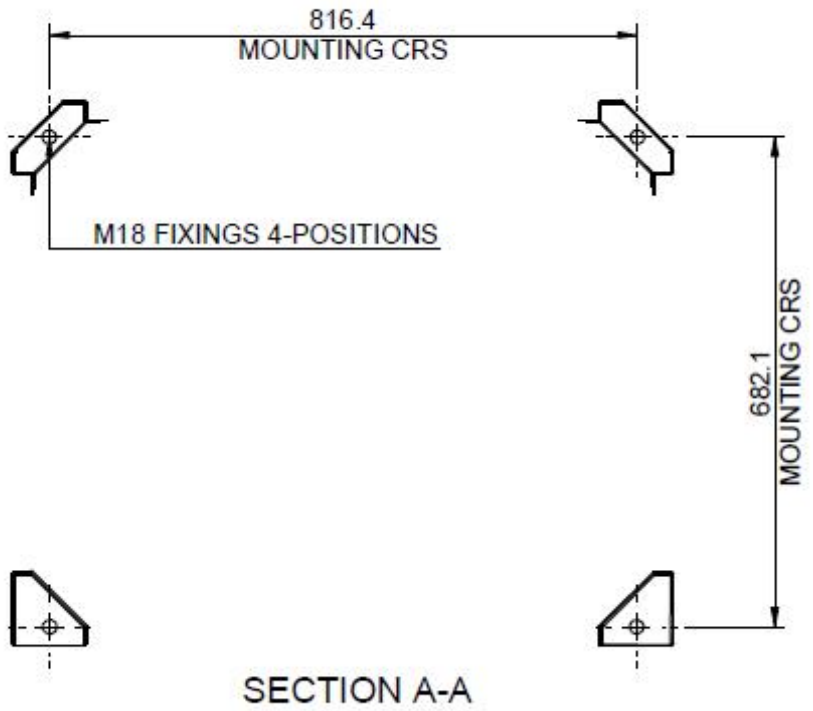
		AC Fans	EC Fans
X	mm	123.5	137.2


816.4
MOUNTING CRS
M18 FIXINGS 4-POSITIONS
682.1
MOUNTING CRS
SECTION A-A

092 Short Case Axial Fan

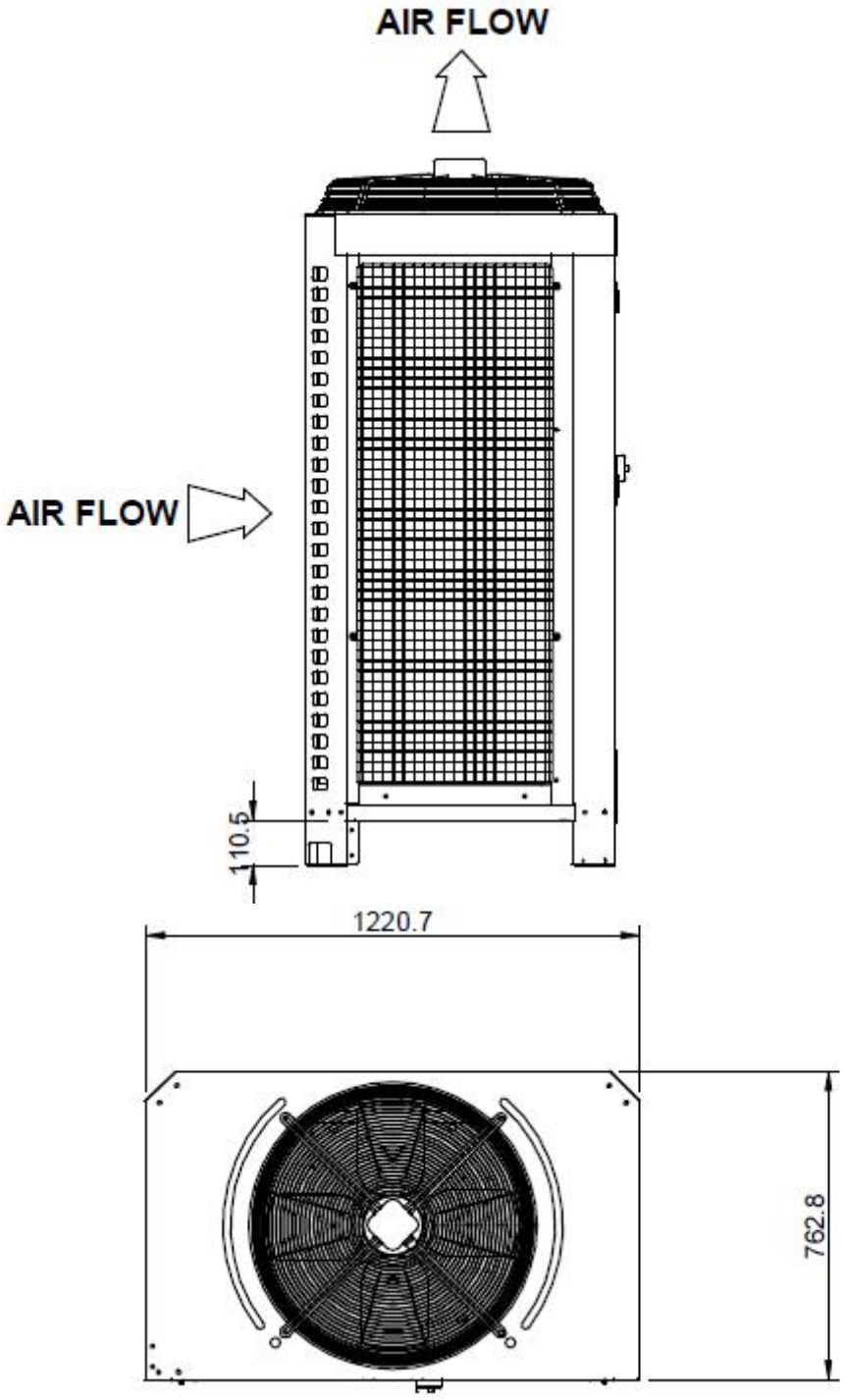


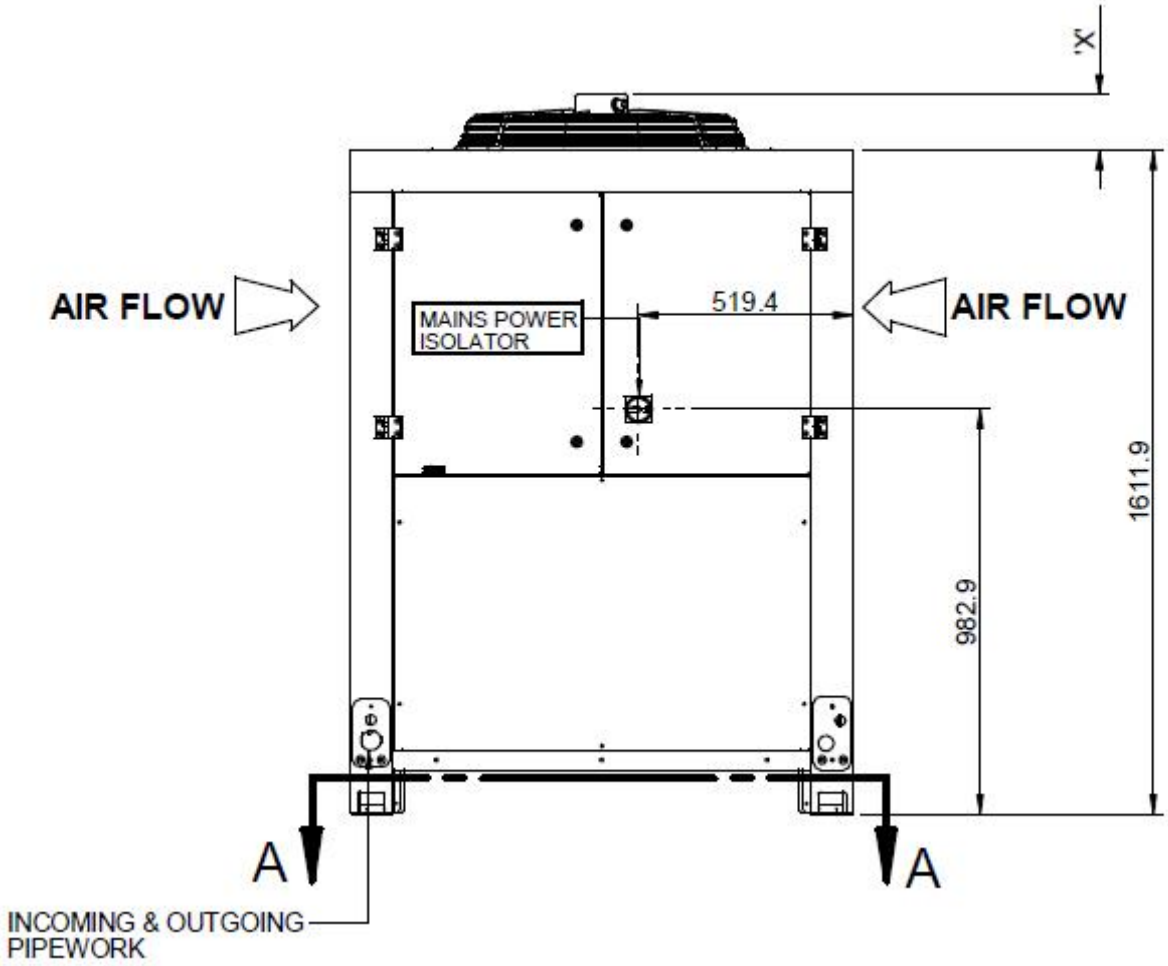


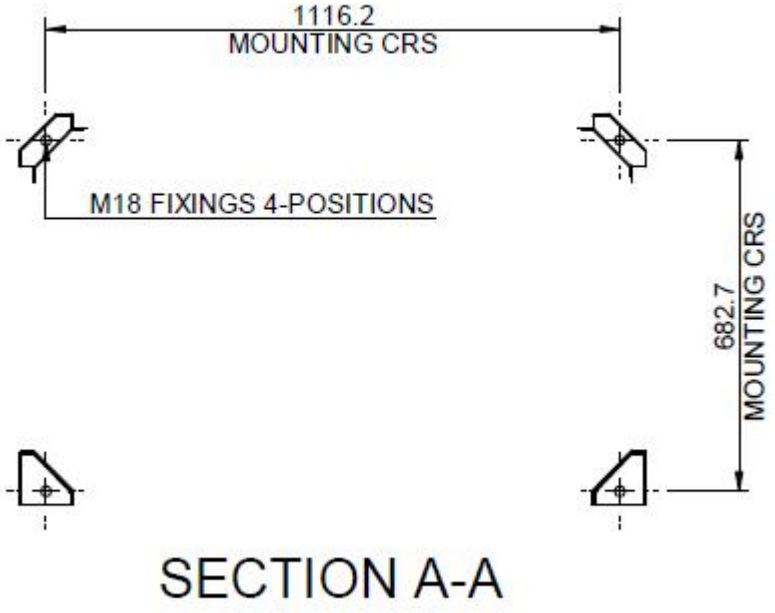


		SCAF Fans
X	mm	140.2
Y	mm	8 Hole 11.5mm diameter 605mm PCD

122 Models



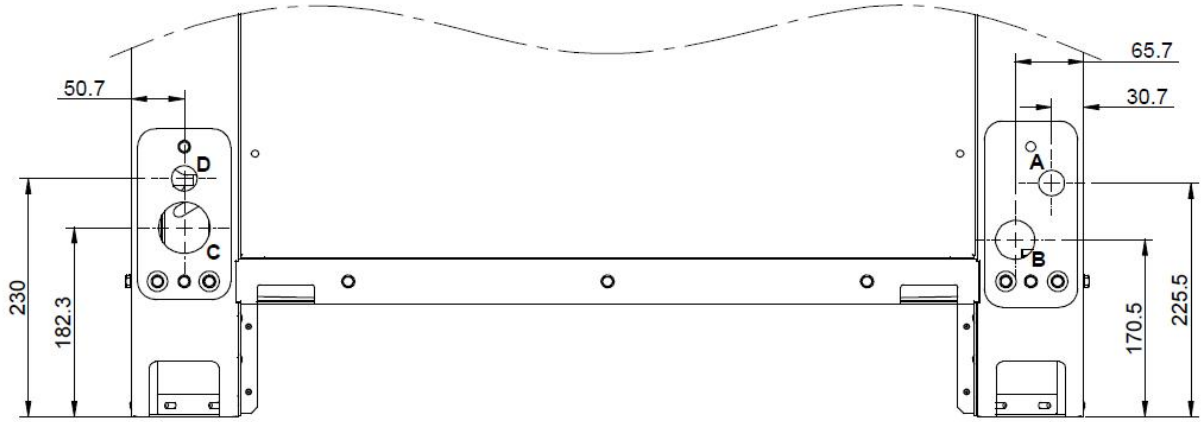




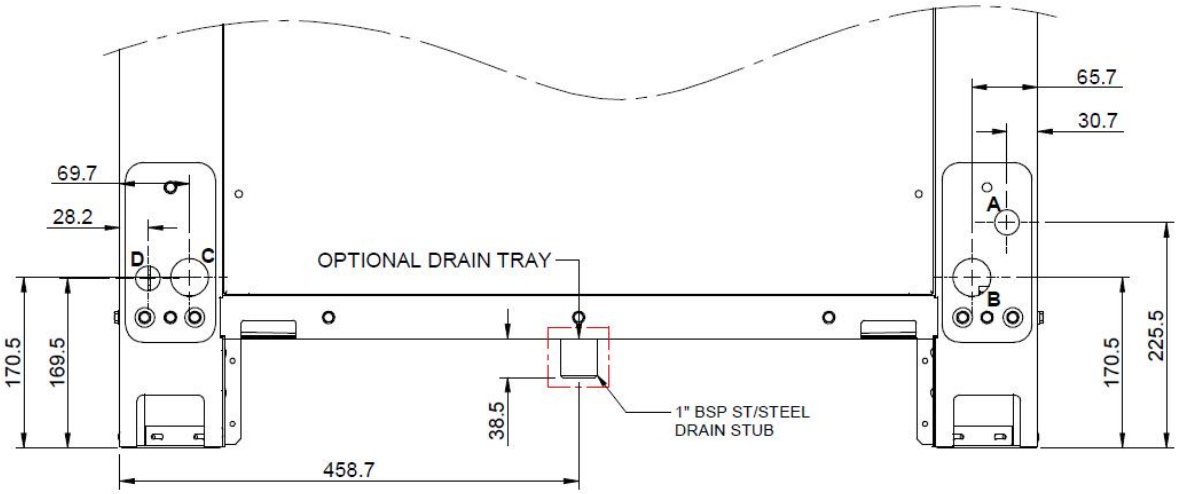
SECTION A-A

		AC Fans	EC Fans
X	mm	123.5	137.2

Incoming Services
Cooling only 092

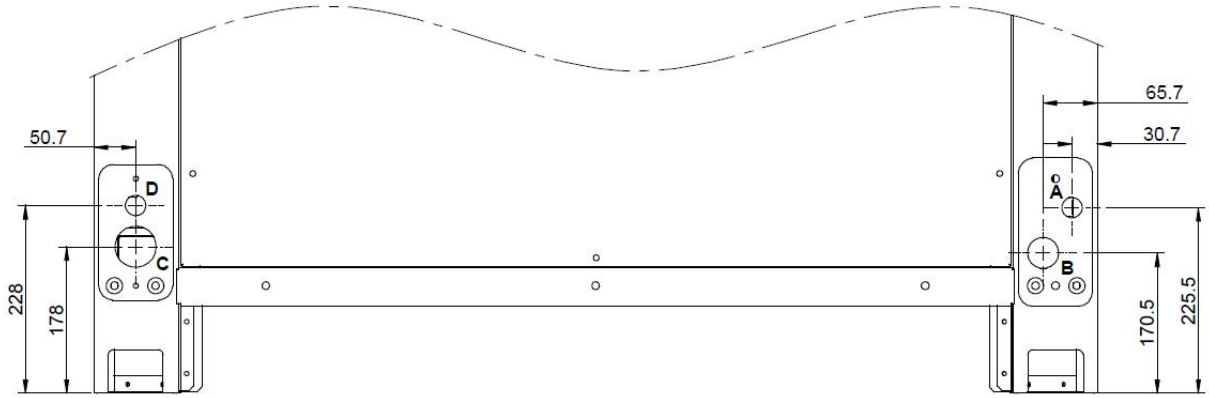


Heat Pump 092

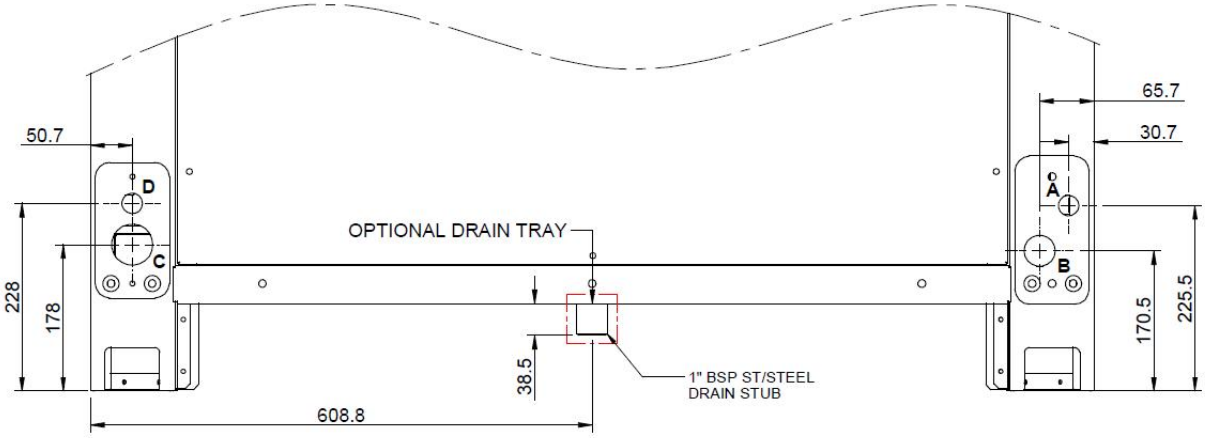


	Wiring Access Holes (mm)		Pipe Work Hole Sizes (mm)	
Cooling Only	A	B	C	D
CUR092V16	25	38	50	25
CUR092V20	25	38	50	25
CUR092V25	25	38	50	25
CUR092V29	25	38	50	25
Heat Pump				
CUR092V16	25	38	38	25
CUR092V20	25	38	38	25
CUR092V25	25	38	38	25
CUR092V29	25	38	38	25

Cooling Only 122



Heat Pump 122



	Wiring Access Holes (mm)		Pipe Work Hole Sizes (mm)	
Cooling Only	A	B	C	D
CUR122V35	25	38	50	25
CUR122V40	25	38	50	25
Heat Pump				
CUR122V35	25	38	50	25
CUR122V40	25	38	50	25

Refrigeration Information

Pipework Installation

General

Special consideration should be given to vertical pipe runs and heat pump installation.

When insulating refrigerant lines, cut approximately 30 - 50cm longer than the distance between the units to ensure the insulation goes right up to the unit. Leave connections uncovered for leak testing.

Remove burrs to the ends of the copper tube, holding the tube downward to avoid allowing dirt to contaminate the tube.

The installation of a sight glass close to the indoor unit is recommended.

Pressure Testing

When installation is complete, the system should be pressure tested.

Fill the system with dry nitrogen to a pressure of between 17 bar/250psig and 34bar/ 500 psig.

NOTE: The LP switch must be disconnected for pressures above 17bar/250 psig.

Record the pressure over a minimum of 60 minutes to detect major leaks (a 24 hour period should preferably be allowed).

If a reduction in pressure is detected, trace the leak and repair before conducting a further pressure test and charging.

Evacuation

Evacuation for systems operating with R410A refrigerant to be carried out as follows.

Use a high vacuum pump and connect 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.

Triple evacuation should be used to ensure that all contaminants are removed.

Operate the vacuum pump until a pressure of 1.5 torr (200 Pa) absolute pressure is reached, then stop the vacuum pump to break the vacuum using Nitrogen (Oxygen free) until the pressure rises above zero.

The above operation should be repeated a second time.

The system should then be evacuated a third time but this time to 0.5 torr absolute pressure.

Break with the correct refrigerant, until pressures equalise between the charging bottle and the system.

IMPORTANT

Ensure all valves within the system are open during pressure testing / evacuation.

Installation Data

Refrigeration Pipework Installation - Good Practices

Oil Traps

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

Pipe Supports

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

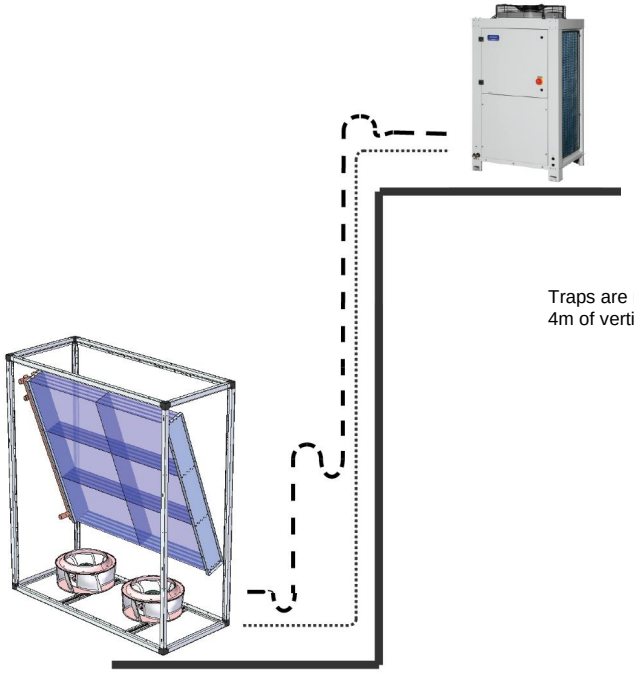
Pipe O/D (inches)	Support distance (m)
3/8 - 7/8	1.0
1 1/8 - 2 1/8	2.0

CAUTION **All pipework should be clamped prior to insulation being applied (Suction Line). Clamping over insulation is not acceptable.**

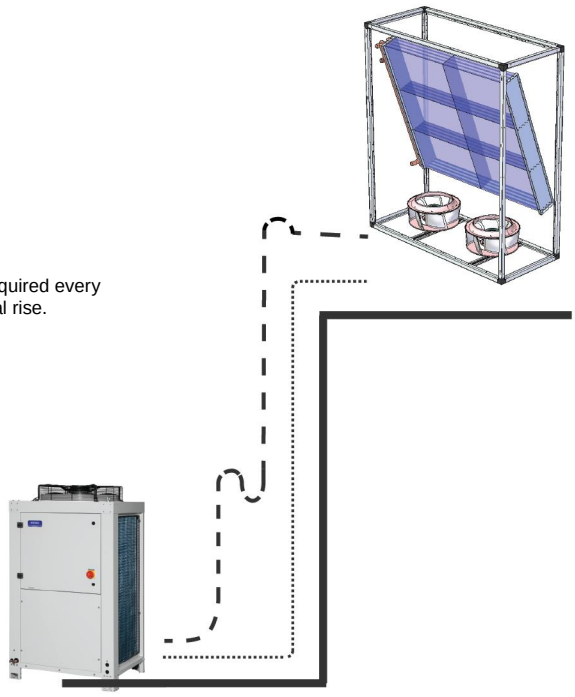
Horizontal Sections

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

Condensing Unit Above Air Handling Unit



Condensing Unit Below Air Handling Unit



- - - - -Suction Line ..... Liquid

Note the diagram above is for illustration only.

IMPORTANT

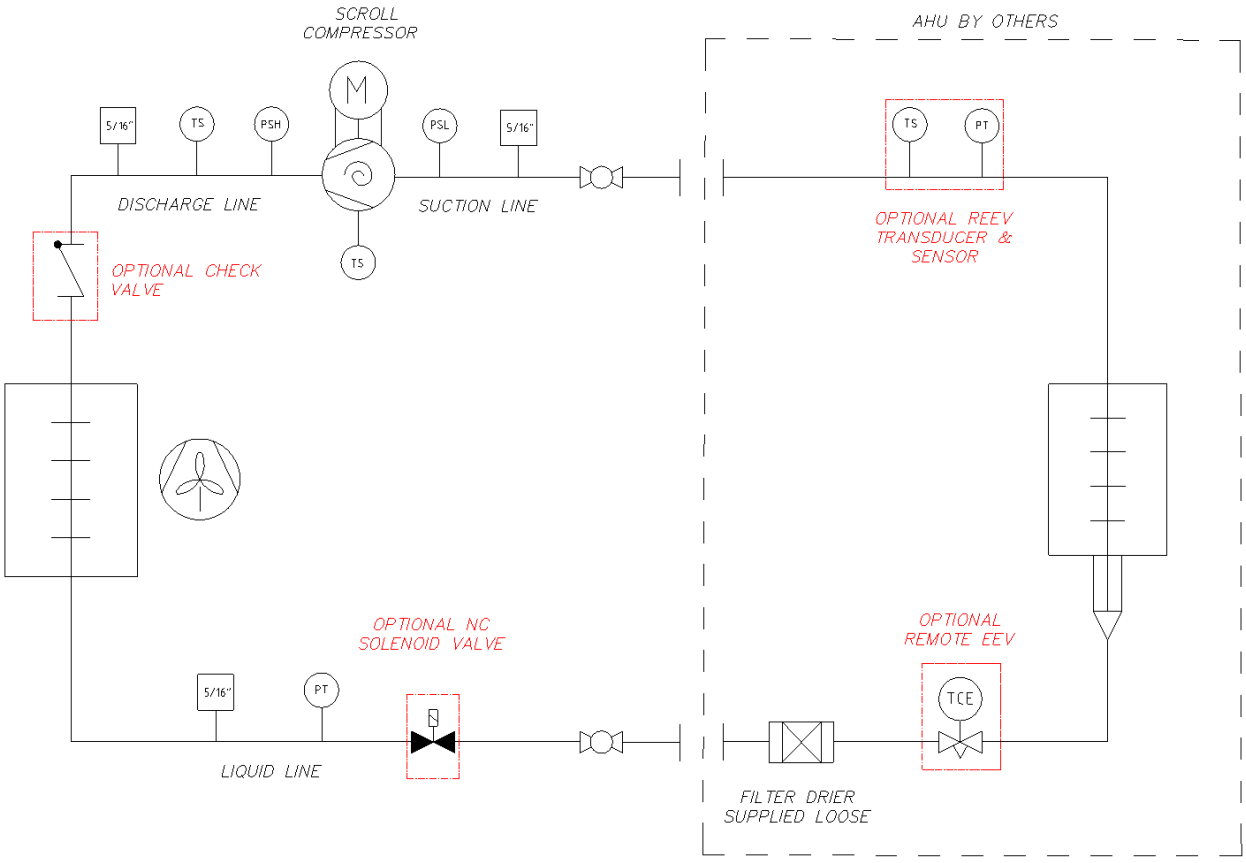
The pipe sizes and refrigerant charges quoted are for guidance only. It is the responsibility of the installing contractor/site engineer to check the pipe size/refrigerant charge is correct for each system installation and application.

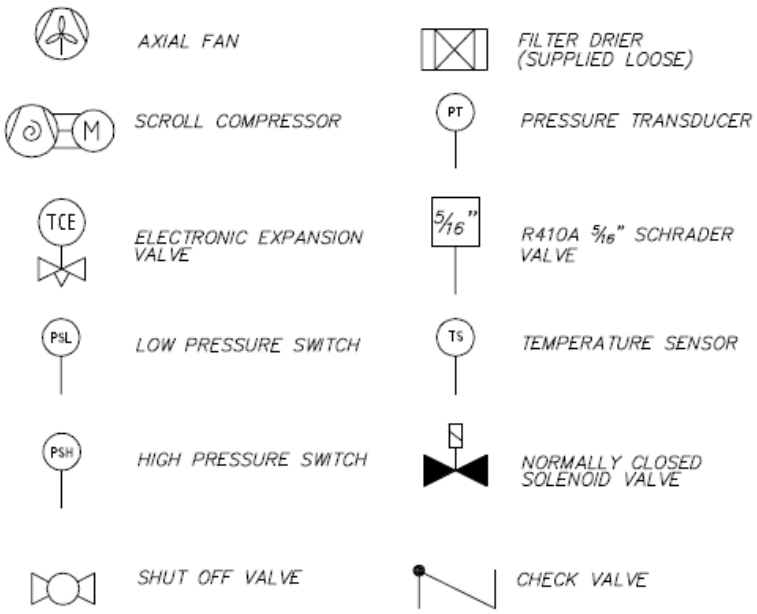
Split systems may require additional oil which should be added to the low pressure side of each compressor.

Design should be in accordance with accepted refrigeration practice to ensure good oil return to the compressor(s) under all normal operating conditions.

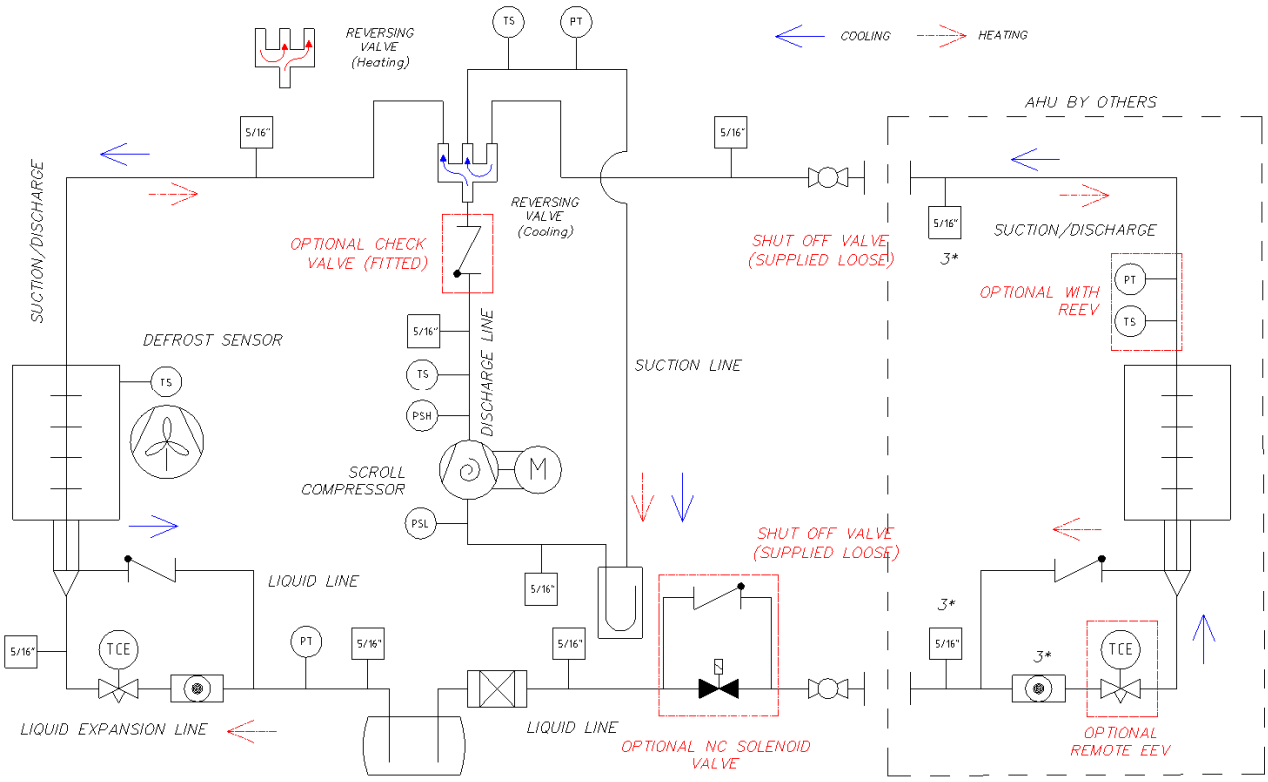
REMEMBER excessive pressure loss in interconnecting pipework will impair system performance; this should be factored in during the design of the system and where necessary oil traps employed.

Pipework Schematics
Cooling Only





Pipework Schematics
Heat Pump





Refrigeration Pipe Sizing Guide
Cooling Only

			Equivalent Pipe Lengths with R410A											
Outdoor Unit	Connection Size		0-20m	Suction		20-40m	Suction		40-60m	Suction		60-80m	Suction	
	Liquid	Suction	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)
CUR092V16-1CO-0	3/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8
CUR092V20-1CO-0	1/2	1 1/8	1/2	1 3/8	7/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8
CUR092V25-1CO-0	1/2	1 3/8	1/2	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8
CUR092V29-1CO-0	1/2	1 3/8	5/8	1 5/8	1 3/8	5/8	1 5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 3/8
CUR122V35-1CO-0	5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8
CUR122V40-1CO-0	5/8	1 5/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8
CUR092V16-VCO-0	3/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8	1/2	1 1/8	7/8
CUR092V20-VCO-0	1/2	1 1/8	1/2	1 3/8	1 1/8	1/2	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8
CUR092V25-VCO-0	1/2	1 3/8	1/2	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8	5/8	1 3/8	1 1/8
CUR092V29-VCO-0	1/2	1 3/8	5/8	1 5/8	1 3/8	5/8	1 5/8	1 3/8	5/8	1 5/8	1 3/8	5/8	1 5/8	1 3/8
CUR122V35-VCO-0	5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 3/8	3/4	1 5/8	1 3/8
CUR122V40-VCO-0	5/8	1 5/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8	3/4	1 5/8	1 5/8	7/8	1 5/8	1 5/8

Heat Pump

			Equivalent Pipe Lengths with R410A											
Outdoor Unit	Connection Size		0-20m	Suction / Disch		20-40m	Suction / Disch		40-60m	Suction / Disch		60-80m	Suction / Disch	
	Liquid	Suction Disch	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)	Liquid (3)	H (1)	V (2)
CUR092V16-1HP-0	3/8	1/2	1/2	3/4	1/2	1/2	3/4	5/8	1/2	3/4	5/8	1/2	3/4	5/8
CUR092V20-1HP-0	3/8	5/8	1/2	7/8	5/8	5/8	7/8	5/8	5/8	7/8	5/8	5/8	7/8	5/8
CUR092V25-1HP-0	1/2	7/8	1/2	1 1/8	5/8	5/8	1 1/8	3/4	5/8	1 1/8	3/4	5/8	1 1/8	3/4
CUR092V29-1HP-0	1/2	7/8	5/8	1 1/8	3/4	5/8	1 1/8	3/4	3/4	1 1/8	3/4	3/4	1 1/8	3/4
CUR122V35-1HP-0	1/2	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
CUR122V40-1HP-0	5/8	1 1/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8
CUR092V16-VHP-0	3/8	1/2	1/2	7/8	1/2	1/2	7/8	1/2	1/2	7/8	1/2	1/2	7/8	1/2
CUR092V20-VHP-0	3/8	5/8	1/2	7/8	5/8	1/2	7/8	5/8	5/8	7/8	5/8	5/8	7/8	5/8
CUR092V25-VHP-0	1/2	7/8	1/2	1 1/8	5/8	5/8	1 1/8	5/8	5/8	1 1/8	5/8	5/8	1 1/8	5/8
CUR092V29-VHP-0	1/2	7/8	5/8	1 1/8	3/4	5/8	1 1/8	3/4	5/8	1 1/8	3/4	5/8	1 1/8	3/4
CUR122V35-VHP-0	1/2	7/8	3/4	1 3/8	3/4	3/4	1 3/8	3/4	3/4	1 3/8	3/4	3/4	1 3/8	3/4
CUR122V40-VHP-0	5/8	1 1/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	3/4	1 3/8	7/8	7/8	1 3/8	7/8

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

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

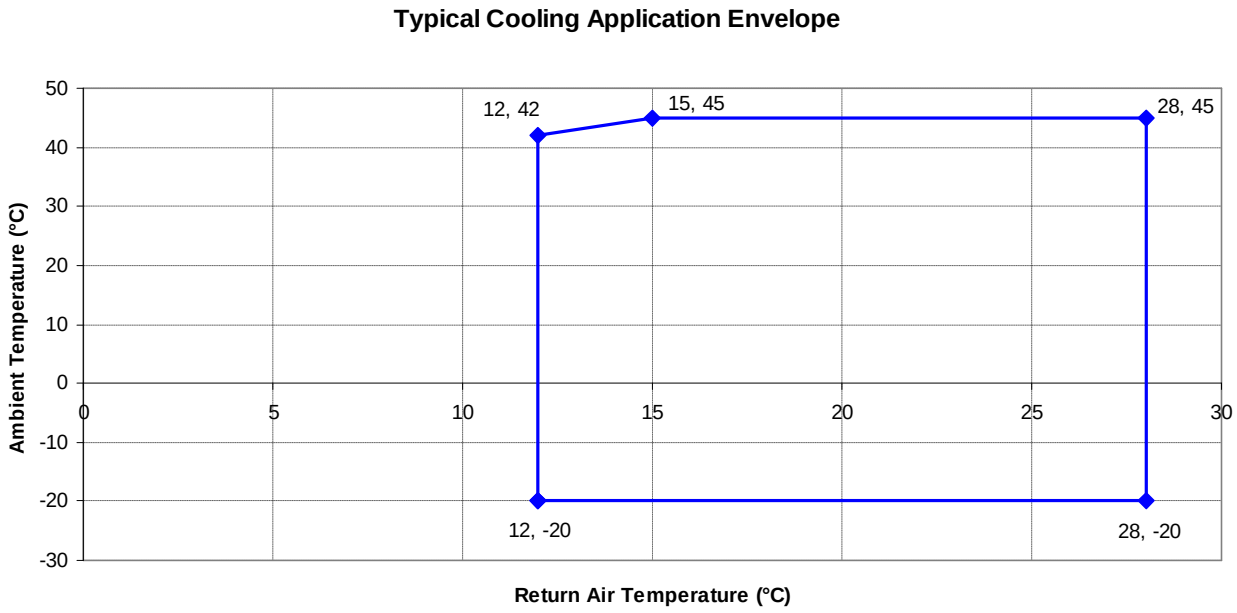
(3) Careful pipework selection must be done if the liquid line rises. Additional system sub cooling may be required to overcome friction losses.

All pipe sizes have been calculated based on a nominal condition 7°C evaporating and 50°C condensing

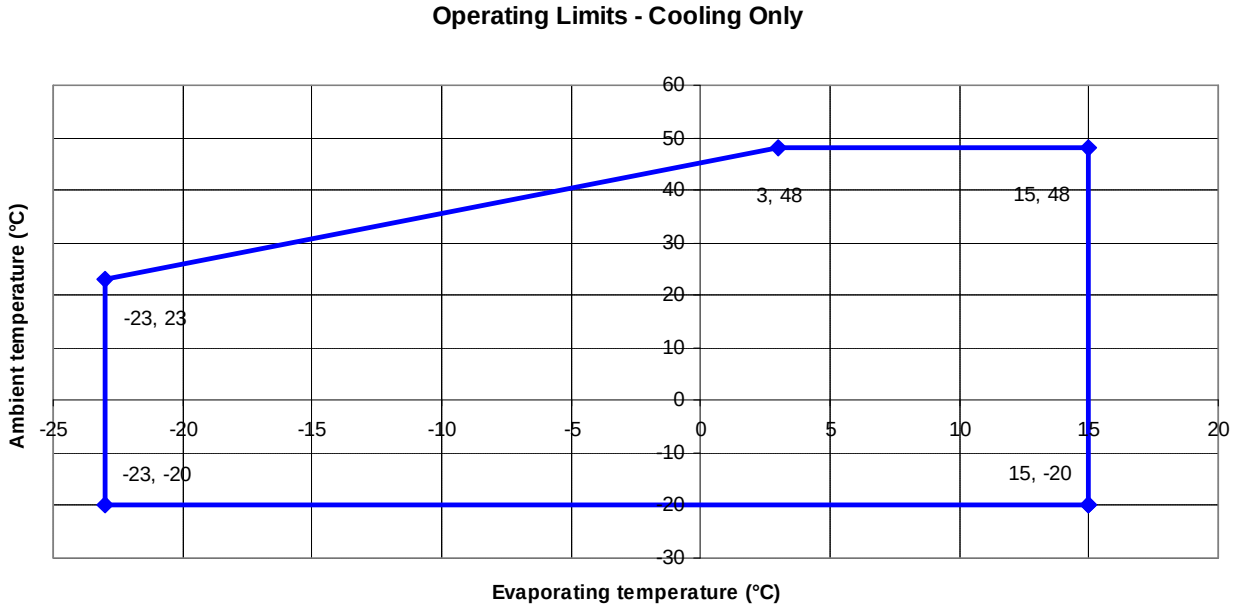
Suction and discharge double risers may be required for modulating capacity units at part load.

Technical Data Cooling Only

Operational Limits



Data based upon a 12°C ΔT across the indoor heat exchanger.



Cooling Only Fixed Capacities

		Ambient (°C)									
		25		30		35		40		45	
Unit	TEvap (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-1CO-0	-5	9.6	3.8	9.6	3.8	9.2	4.0	8.6	4.4	8.0	4.8
	0	11.5	3.8	11.5	3.8	11.0	4.0	10.3	4.4	9.6	4.9
	5	13.8	3.8	13.7	3.7	13.0	4.1	12.2	4.5	11.5	4.9
	7	14.8	3.8	14.7	3.7	13.8	4.1	13.0	4.5	12.2	4.9
	10	16.4	3.8	16.2	3.7	15.2	4.1	14.3	4.5	13.5	5.0
CUR092V20-1CO-0	-5	14.7	5.5	14.5	5.5	13.7	5.9	12.7	6.4	11.7	6.9
	0	17.6	5.4	17.2	5.6	16.2	6.0	15.2	6.5	14.1	7.0
	5	21.1	5.3	20.2	5.6	19.1	6.1	17.9	6.6	16.8	7.2
	7	22.6	5.3	21.5	5.7	20.3	6.2	19.1	6.7	17.9	7.2
	10	25.0	5.3	23.6	5.7	22.2	6.2	20.9	6.7	19.6	7.3
CUR092V25-1CO-0	-5	19.2	6.8	18.6	7.1	17.5	7.7	16.4	8.4	N/A	N/A
	0	23.2	6.9	22.1	7.4	20.9	8.0	19.5	8.7	18.0	9.5
	5	27.6	7.1	26.1	7.7	24.5	8.3	22.8	9.0	21.0	9.8
	7	29.4	7.2	27.7	7.8	26.0	8.4	24.2	9.1	22.3	9.9
	10	32.1	7.5	30.3	8.0	28.4	8.7	26.5	9.3	24.3	10.1
CUR092V29-1CO-0	-5	21.8	7.5	20.7	8.0	19.3	8.7	17.9	9.5	N/A	N/A
	0	26.1	7.6	24.5	8.3	22.9	9.0	21.2	9.9	19.4	10.8
	5	30.6	8.0	28.8	8.6	26.9	9.4	24.9	10.2	22.8	11.1
	7	32.5	8.1	30.6	8.8	28.6	9.5	26.5	10.4	24.3	11.3
	10	35.4	8.3	33.4	9.0	31.2	9.8	28.9	10.6	26.5	11.5
CUR122V35-1CO-0	-5	28.5	9.4	27.9	12.0	26.1	13.0	24.2	14.1	22.2	15.3
	0	34.3	9.8	33.1	12.3	31.0	13.3	28.8	14.4	26.4	15.6
	5	41.0	11.2	38.9	12.7	36.5	13.6	33.9	14.7	31.1	15.9
	7	43.7	11.9	41.3	12.8	38.8	13.8	36.1	14.8	33.1	16.1
	10	47.8	12.2	45.2	13.0	42.4	14.0	39.5	15.1	36.3	16.3
CUR122V40-1CO-0	-5	32.7	11.0	31.6	13.6	29.6	14.5	27.6	15.6	N/A	N/A
	0	39.3	12.5	37.3	14.0	35.0	15.0	32.6	16.1	30.0	17.3
	5	46.2	13.6	43.6	14.5	40.9	15.5	38.1	16.6	35.0	17.9
	7	49.0	13.8	46.3	14.8	43.4	15.7	40.4	16.9	37.2	18.1
	10	53.5	14.2	50.5	15.1	47.4	16.1	44.1	17.2	40.6	18.5

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Cooling Only Modulating Capacities

		Ambient (°C)									
		25		30		35		40		45	
Unit	TEvap (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-VCO-0	-5	10.9	4.0	10.9	4.1	10.4	4.2	9.7	4.7	9.0	5.1
	0	13.1	4.1	13.1	4.1	12.4	4.4	11.6	4.8	10.7	5.2
	5	15.7	4.2	15.6	4.1	14.7	4.5	13.7	4.9	12.7	5.4
	7	16.8	4.2	16.6	4.1	15.6	4.5	14.6	5.0	13.5	5.5
	10	18.6	4.2	18.3	4.2	17.2	4.6	16.0	5.1	14.8	5.6
CUR092V20-VCO-0	-5	14.9	5.3	14.8	5.2	13.9	5.8	12.9	6.3	12.0	6.9
	0	17.8	5.4	17.4	5.4	16.4	5.9	15.3	6.5	14.1	7.1
	5	21.1	5.4	20.3	5.6	19.1	6.1	17.8	6.7	16.5	7.4
	7	22.5	5.4	21.6	5.7	20.3	6.2	18.9	6.8	17.5	7.5
	10	24.7	5.4	23.5	5.8	22.1	6.4	20.6	7.0	19.1	7.6
CUR092V25-VCO-0	-5	18.5	6.2	18.0	6.4	16.9	7.1	15.6	7.9	N/A	N/A
	0	22.2	6.2	21.3	6.6	20.0	7.2	18.6	8.0	17.1	8.9
	5	26.3	6.2	24.9	6.8	23.4	7.5	21.8	8.2	20.0	9.1
	7	28.0	6.3	26.4	6.9	24.8	7.6	23.1	8.3	21.3	9.1
	10	30.5	6.5	28.7	7.1	27.0	7.7	25.1	8.5	23.2	9.3
CUR092V29-VCO-0	-5	21.9	7.2	20.8	7.7	19.4	8.6	17.8	9.6	N/A	N/A
	0	26.1	7.2	24.6	8.0	22.9	8.8	21.1	9.8	19.2	10.9
	5	30.4	7.5	28.7	8.2	26.8	9.1	24.7	10.0	22.5	11.1
	7	32.3	7.6	30.4	8.3	28.4	9.2	26.2	10.1	23.9	11.2
	10	35.1	7.8	33.1	8.5	30.9	9.4	28.5	10.3	26.0	11.4
CUR122V35-VCO-0	-5	27.5	9.0	27.0	11.5	25.5	12.4	23.8	13.4	21.9	14.6
	0	32.8	9.2	31.9	11.8	30.0	12.7	28.0	13.7	25.8	14.9
	5	39.0	10.2	37.2	12.2	35.0	13.1	32.6	14.1	30.0	15.2
	7	41.7	11.1	39.5	12.3	37.1	13.2	34.5	14.2	31.8	15.4
	10	45.7	11.7	43.1	12.6	40.5	13.5	37.6	14.5	34.6	15.6
CUR122V40-VCO-0	-5	32.9	10.9	31.9	13.5	30.2	14.5	28.3	15.7	N/A	N/A
	0	38.8	12.1	37.1	13.9	35.0	14.9	32.8	16.1	30.4	17.4
	5	45.2	13.4	42.8	14.3	40.3	15.4	37.7	16.5	34.8	17.8
	7	47.9	13.5	45.3	14.5	42.6	15.5	39.8	16.7	36.7	18.0
	10	52.1	13.8	49.2	14.8	46.2	15.8	43.0	17.0	39.7	18.3

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Mechanical Data Cooling Only Fixed Capacities

			CUR092V16-1CO-0	CUR092V20-1CO-0	CUR092V25-1CO-0
Capacity					
Nominal Cooling Capacity	(1)	kW	13.8	20.3	26.0
Capacity Steps			1	1	1
Dimensions – W x D x H	(2)	mm	922 x 764 x 1736	922 x 764 x 1736	922 x 764 x 1736
Masses – Machine / Operating	(3)	kg	212	213	241
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor			Axial		
Motor Type			AC 1ph	AC 1ph	AC 1ph
Quantity x Motor Size		kW	1 x 0.6	1 x 0.6	1 x 0.6
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	860	860
Maximum Airflow		m³/s	2.0	2.0	2.0
Compressor					
Compressor Type			Fixed Capacity Scroll		
Quantity			1	1	1
Oil Charge Volume		l	1.57	1.57	3.3
Oil Type			Polyolester		
Refrigeration			Single Circuit - 2 pipe configuration		
Refrigerant control and type			Optional REEV package		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Coil Volume		l	9.9	9.9	9.9
Refrigerant Charge	(4)	kg	5.7	5.8	5.8
Connections					
Liquid (sweat)		in	3/8	1/2	1/2
Suction (sweat)		in	7/8	1 1/8	1 3/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1000	1000
Maximum Airflow		m³/s	2.3	2.3	2.3
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	922 x 764 x 1750	922 x 764 x 1750
Masses – Machine / Operating	(3)	kg	204	205	232
Short Case Axial Fan			Designed to 75Pa ESP		
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Diameter		mm	560	560	560
Maximum Fan Speed		RPM	1330	1330	1330
Maximum Airflow		m³/s	2.8	2.8	2.8
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	922 x 764 x 1753	922 x 764 x 1753
Masses – Machine / Operating	(3)	kg	218	219	247
REEV Selection			E²V -24	E²V – 35	E²V - 35

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Overall dimensions for clearance
(3) Unit mass excludes a refrigerant charge
(4) For guidance only

Mechanical Data Cooling Only Fixed Capacities Continued

			CUR092V29-1CO-0	CUR122V35-1CO-0	CUR122V40-1CO-0
Capacity					
Nominal Cooling Capacity	(1)	kW	28.6	38.8	43.4
Capacity Steps			1	1	1
Dimensions – W x D x H	(2)	mm	922 x 764 x 1736	1222 x 764 x 1736	1222 x 764 x 1736
Masses – Machine / Operating	(3)	kg	241	292	296
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor				Axial	
Motor Type			AC 1ph	AC 3ph	AC 3ph
Quantity x Motor Size		kW	1 x 0.6	1 x 1.97	1 x 1.97
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	1330	1330
Maximum Airflow		m³/s	2.0	3.5	3.5
Compressor					
Compressor Type				Fixed Capacity Scroll	
Quantity			1	1	1
Oil Charge Volume		l	3.3	3.3	3.6
Oil Type				Polyolester	
Refrigeration				Single Circuit - 2 pipe configuration	
Refrigerant control and type				Optional REEV package	
Refrigerant type				R410A	
Holding Charge				Inert Gas	
Coil Volume		l	9.9	12.4	12.4
Refrigerant Charge	(4)	kg	5.8	7.3	7.4
Connections					
Liquid (sweat)		in	1/2	5/8	5/8
Suction (sweat)		in	1 3/8	1 3/8	1 5/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1230	1230
Maximum Airflow		m³/s	2.3	3.5	3.5
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	1222 x 764 x 1750	1222 x 764 x 1750
Masses – Machine / Operating	(3)	kg	233	284	287
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	N/A	N/A
Diameter		mm	560	N/A	N/A
Maximum Fan Speed		RPM	1330	N/A	N/A
Maximum Airflow		m³/s	2.8	N/A	N/A
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	N/A	N/A
Masses – Machine / Operating	(3)	kg	247	N/A	N/A
REEV Selection			E²V – 35	E²V - 45	E²V - 45

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Overall dimensions for clearance
(3) Unit mass excludes a refrigerant charge
(4) For guidance only

Mechanical Data Cooling Only Modulating Capacities

			CUR092V16-VCO-0	CUR092V20-VCO-0	CUR092V25-VCO-0
Capacity					
Nominal Cooling Capacity	(1)	kW	15.6	20.3	24.8
Capacity Steps			16-100%	16-100%	16-100%
Dimensions – W x D x H	(2)	mm	922 x 764 x 1736	922 x 764 x 1736	922 x 764 x 1736
Masses – Machine / Operating	(3)	kg	219	220	241
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor			Axial		
Motor Type			AC 1ph	AC 1ph	AC 1ph
Quantity x Motor Size		kW	1 x 0.6	1 x 0.6	1 x 0.6
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	860	860
Maximum Airflow		m³/s	2.0	2.0	2.0
Compressor					
Compressor Type			Modulating Capacity Scroll		
Quantity			1	1	1
Oil Charge Volume		l	1.9	1.9	3.2
Oil Type			Polyolester		
Refrigeration			Single Circuit - 2 pipe configuration		
Refrigerant control and type			Optional REEV package		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Coil Volume		l	9.9	9.9	9.9
Refrigerant Charge	(4)	kg	5.7	5.7	5.8
Connections					
Liquid (sweat)		in	3/8	1/2	1/2
Suction (sweat)		in	7/8	1 1/8	1 3/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1000	1000
Maximum Airflow		m³/s	2.3	2.3	2.3
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	922 x 764 x 1750	922 x 764 x 1750
Masses – Machine / Operating	(3)	kg	211	212	233
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Diameter		mm	560	560	560
Maximum Fan Speed		RPM	1330	1330	1330
Maximum Airflow		m³/s	2.8	2.8	2.8
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	922 x 764 x 1753	922 x 764 x 1753
Masses – Machine / Operating	(3)	kg	218	219	247
REEV Selection			E²V – 24	E²V - 35	E²V - 35

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Overall dimensions for clearance
(3) Unit mass excludes a refrigerant charge
(4) For guidance only

Mechanical Data Cooling Only Variable Capacities Continued

			CUR092V29-VCO-0	CUR122V35-VCO-0	CUR122V40-VCO-0
Capacity					
Nominal Cooling Capacity	(1)	kW	28.4	37.1	42.6
Capacity Steps			16-100%	16-100%	16-100%
Dimensions – W x D x H	(2)	mm	922 x 764 x 1736	1222 x 764 x 1736	1222 x 764 x 1736
Masses – Machine / Operating	(3)	kg	243	293	295
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor			Axial		
Motor Type			AC 1ph	AC 3ph	AC 3ph
Quantity x Motor Size		kW	1 x 0.6	1 x 1.97	1 x 1.97
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	1330	1330
Maximum Airflow		m³/s	2.0	3.5	3.5
Compressor					
Compressor Type			Modulating Capacity Scroll		
Quantity			1	1	1
Oil Charge Volume		l	3.2	3.2	3.2
Oil Type			Polyolester		
Refrigeration			Single Circuit - 2 pipe configuration		
Refrigerant control and type			Optional REEV package		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Coil Volume		l	9.9	12.4	12.4
Refrigerant Charge	(4)	kg	5.8	7.3	7.4
Connections					
Liquid (sweat)		in	1/2	5/8	5/8
Suction (sweat)		in	1 3/8	1 3/8	1 5/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1230	1230
Maximum Airflow		m³/s	2.3	3.5	3.5
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	1222 x 764 x 1750	1222 x 764 x 1750
Masses – Machine / Operating	(3)	kg	234	285	287
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	N/A	N/A
Diameter		mm	560	N/A	N/A
Maximum Fan Speed		RPM	1330	N/A	N/A
Maximum Airflow		m³/s	2.8	N/A	N/A
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	N/A	N/A
Masses – Machine / Operating	(3)	kg	247	N/A	N/A
REEV Selection			E²V – 35	E²V - 45	E²V - 45

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Overall dimensions for clearance
(3) Unit mass excludes a refrigerant charge
(4) For guidance only

Electrical Data – Cooling Only

		CUR092V16-1CO-0	CUR092V20-1CO-0	CUR092V25-1CO-0
Unit Data (1)				
Nominal Run Amps	A	11.5	16.9	19.4
Maximum Start Amps	A	73.7	103.7	145.7
Recommended Mains Fuse Size	A	20	32	32
Max Mains Incoming Cable Size	mm²	35	35	35
Mains Supply	V		400V / 3PH + N / 50Hz	
Control circuit	VAC	24	24	24
Condenser Fan - Motor				
Motor Type		AC	AC	AC
		1~	1~	1~
Quantity x Motor Size	kW	1 x 0.6	1 x 0.6	1 x 0.6
Full Load Amps	A	2.7	2.7	2.7
Locked Rotor Amps	A	9.2	9.2	9.2
Compressor				
Motor Size	kW	4.6	6.4	8.5
Nominal Run Amps	A	7.9	13.3	15.8
Locked Rotor Amps	A	70	100	142
Type of Start			Direct On Line	
OPTIONAL EXTRAS				
Electronic Soft-start				
Nominal Run Amps	A	11.5	16.9	19.4
Maximum Start Amps	A	45.7	63.7	88.9
Recommended Mains Fuse Size	A	16	25	32
Power Factor Correction				
Nominal Run Amps	A	11.2	16.5	18.6
Maximum Start Amps	A	73.7	103.7	145.7
Recommended Mains Fuse Size	A	20	32	32
Compressor Nominal Run Amps	A	7.5	12.8	14.9
First upgrade EC Motor				
		1~	1~	1~
Quantity x Motor Size	kW	1 x 0.72	1 x 0.72	1 x 0.72
Full Load Amps	A	3.3	3.3	3.3
Locked Rotor Amps	A	N/A	N/A	N/A
Second upgrade SCAF				
		1~	1~	1~
Quantity x Motor Size	kW	1 x 1.4	1 x 1.4	1 x 1.4
Full Load Amps	A	6	6	6
Locked Rotor Amps	A	18	18	18

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Cooling Only Continued

		CUR092V29-1CO-0	CUR122V35-1CO-0	CUR122V40-1CO-0
Unit Data (1)				
Nominal Run Amps	A	20.6	25.1	29
Maximum Start Amps	A	145.7	162.4	201.4
Recommended Mains Fuse Size	A	32	40	50
Max Mains Incoming Cable Size	mm²	35	35	35
Mains Supply	V		400V / 3PH + N / 50Hz	
Control circuit	VAC	24	24	24
Condenser Fan - Motor				
Motor Type		AC	AC	AC
		1~	3~	3~
Quantity x Motor Size	kW	1 x 0.6	1 x 1.97	1 x 1.97
Full Load Amps	A	2.7	3.4	3.4
Locked Rotor Amps	A	9.2	11.9	11.9
Compressor				
Motor Size	kW	9.5	12.2	13.8
Nominal Run Amps	A	17	20.7	24.6
Locked Rotor Amps	A	142	158	197
Type of Start			Direct On Line	
OPTIONAL EXTRAS				
Electronic Soft-start				
Nominal Run Amps	A	20.6	23.8	27.5
Maximum Start Amps	A	88.9	99.2	122.6
Recommended Mains Fuse Size	A	32	40	50
Power Factor Correction				
Nominal Run Amps	A	19.8	23.8	29
Maximum Start Amps	A	145.7	162.4	201.4
Recommended Mains Fuse Size	A	32	40	50
Compressor Nominal Run Amps	A	16.2	19.4	23.1
First upgrade EC Motor				
		1~	3~	3~
Quantity x Motor Size	kW	1 x 0.72	1 x 1.85	1 x 1.85
Full Load Amps	A	3.3	2.9	2.9
Locked Rotor Amps	A	N/A	N/A	N/A
Second upgrade SCAF				
		1~	N/A	N/A
Quantity x Motor Size	kW	1 x 1.4	N/A	N/A
Full Load Amps	A	6	N/A	N/A
Locked Rotor Amps	A	18	N/A	N/A

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Cooling Only Continued

		CUR092V16-VCO-0	CUR092V20-VCO-0	CUR092V25-VCO-0
Unit Data (1)				
Nominal Run Amps	A	12.2	15.7	18.2
Maximum Start Amps	A	67.7	104.7	114.7
Recommended Mains Fuse Size	A	20	25	25
Max Mains Incoming Cable Size	mm²	35	35	35
Mains Supply	V		400V / 3PH + N / 50Hz	
Control circuit	VAC	24	24	24
Condenser Fan - Motor				
Motor Type		AC	AC	AC
		1~	1~	1~
Quantity x Motor Size	kW	1 x 0.6	1 x 0.6	1 x 0.6
Full Load Amps	A	2.7	2.7	2.7
Locked Rotor Amps	A	9.2	9.2	9.2
Compressor				
Motor Size	kW	5	7	8
Nominal Run Amps	A	8.6	12.1	14.5
Locked Rotor Amps	A	64	101	111
Type of Start			Direct On Line	
OPTIONAL EXTRAS				
Electronic Soft-start				
Nominal Run Amps	A	12.2	15.7	18.2
Maximum Start Amps	A	42.1	64.3	70.3
Recommended Mains Fuse Size	A	20	25	32
Power Factor Correction		N/A	N/A	N/A
Nominal Run Amps	A	N/A	N/A	N/A
Maximum Start Amps	A	N/A	N/A	N/A
Recommended Mains Fuse Size	A	N/A	N/A	N/A
Compressor Nominal Run Amps	A	N/A	N/A	N/A
First upgrade EC Motor				
		1~	1~	1~
Quantity x Motor Size	kW	1 x 0.72	1 x 0.72	1 x 0.72
Full Load Amps	A	3.3	3.3	3.3
Locked Rotor Amps	A	N/A	N/A	N/A
Second upgrade SCAF				
		1~	1~	1~
Quantity x Motor Size	kW	1 x 1.4	1 x 1.4	1 x 1.4
Full Load Amps	A	6	6	6
Locked Rotor Amps	A	18	18	18

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Cooling Only Continued

		CUR092V29-VCO-0	CUR122V35-VCO-0	CUR122V40-VCO-0
Unit Data (1)				
Nominal Run Amps	A	20.4	25.5	30.8
Maximum Start Amps	A	121.7	144.4	177.4
Recommended Mains Fuse Size	A	32	40	50
Max Mains Incoming Cable Size	mm^2	35	35	35
Mains Supply	V		400V / 3PH + N / 50Hz	
Control circuit	VAC	24	24	24
Condenser Fan - Motor				
Motor Type		AC	AC	AC
		1~	3~	3~
Quantity x Motor Size	kW	1 x 0.6	1 x 1.97	1 x 1.97
Full Load Amps	A	2.7	3.4	3.4
Locked Rotor Amps	A	9.2	11.9	11.9
Compressor				
Motor Size	kW	9.4	11.8	13.9
Nominal Run Amps	A	16.8	21.1	26.4
Locked Rotor Amps	A	118	140	173
Type of Start			Direct On Line	
OPTIONAL EXTRAS				
Electronic Soft-start				
Nominal Run Amps	A	20.4	25.5	30.8
Maximum Start Amps	A	74.5	88.4	108.2
Recommended Mains Fuse Size	A	32	40	50
Power Factor Correction		N/A	N/A	N/A
Nominal Run Amps	A	N/A	N/A	N/A
Maximum Start Amps		N/A	N/A	N/A
Recommended Mains Fuse Size	A	N/A	N/A	N/A
Compressor Nominal Run Amps	A	N/A	N/A	N/A
First upgrade EC Motor				
		1~	3~	3~
Quantity x Motor Size	kW	1 x 0.72	1 x 1.85	1 x 1.85
Full Load Amps	A	3.3	2.9	2.9
Locked Rotor Amps	A	N/A	N/A	N/A
Second upgrade SCAF				
		1~	N/A	N/A
Quantity x Motor Size	kW	1 x 1.4	N/A	N/A
Full Load Amps	A	6.0	N/A	N/A
Locked Rotor Amps	A	18	N/A	N/A

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Interconnecting Wiring

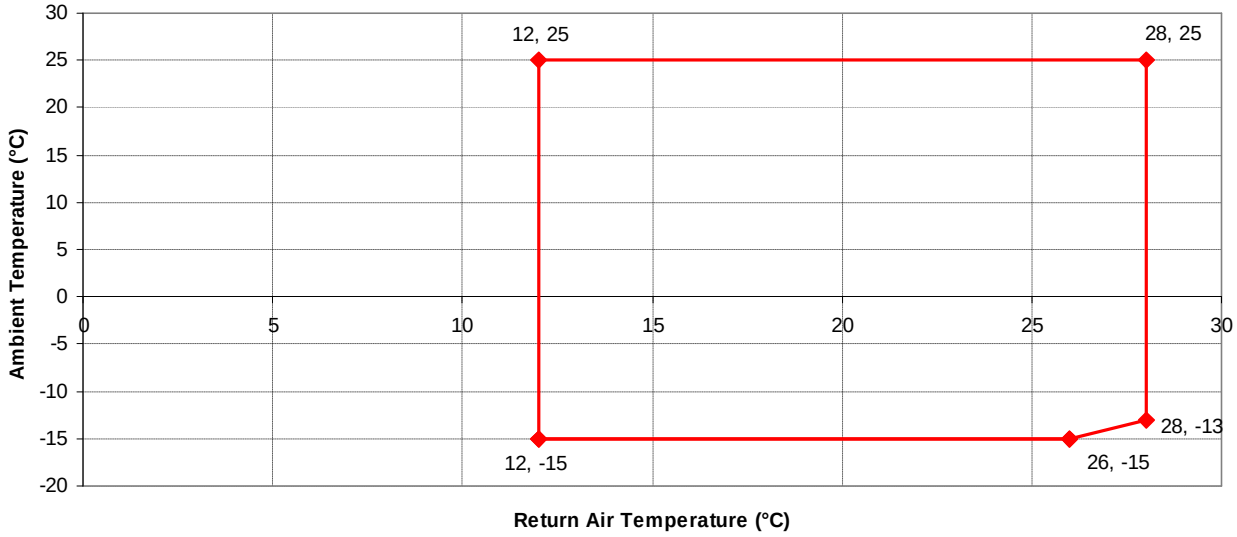
BluCube		L1	¡	ç		Mains incoming supply 400V/3PH/50Hz
		L2	¡	ç		
		L3	¡	ç		
		N	¡	ç		
		PE	¡	ç		
		502	¡	è		24 Volts AC
		551	¡	ç		Cooling Signal
		845	¡	ç	Variable Capacity Compressor Only	0-10Volts Compressor demand
		800	¡	è		0 Volts
		561	¡	è	NO	Critical alarm Normally Open
		562	¡	è	Common	GND
		563	¡	è	NC	Critical alarm Normally Closed

		Rx-Tx-	¡	ç	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Inward connection)
		Rx+Tx+	¡	ç		
		GND	¡	ç		
		Rx-Tx-	¡	è	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Outward connection)
		Rx+Tx+	¡	è		
		GND	¡	è		

Technical Data Heat Pump

Operational Limits

Typical Heating Application Envelope

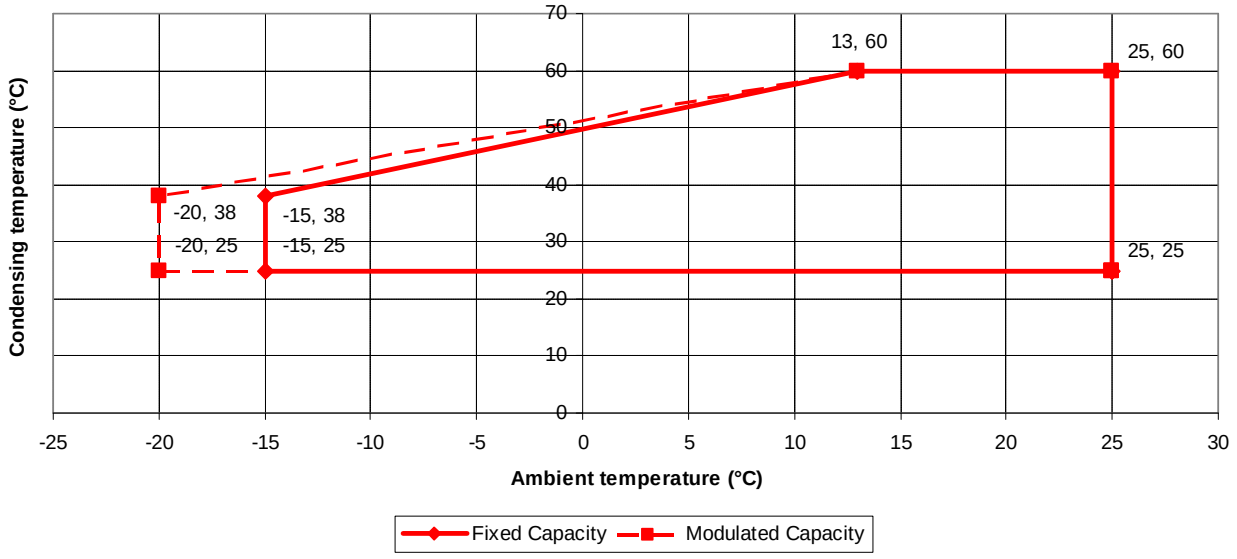


CAUTION

A minimum air on temperature limit of 12°C must be adhered to ensure correct unit operation.

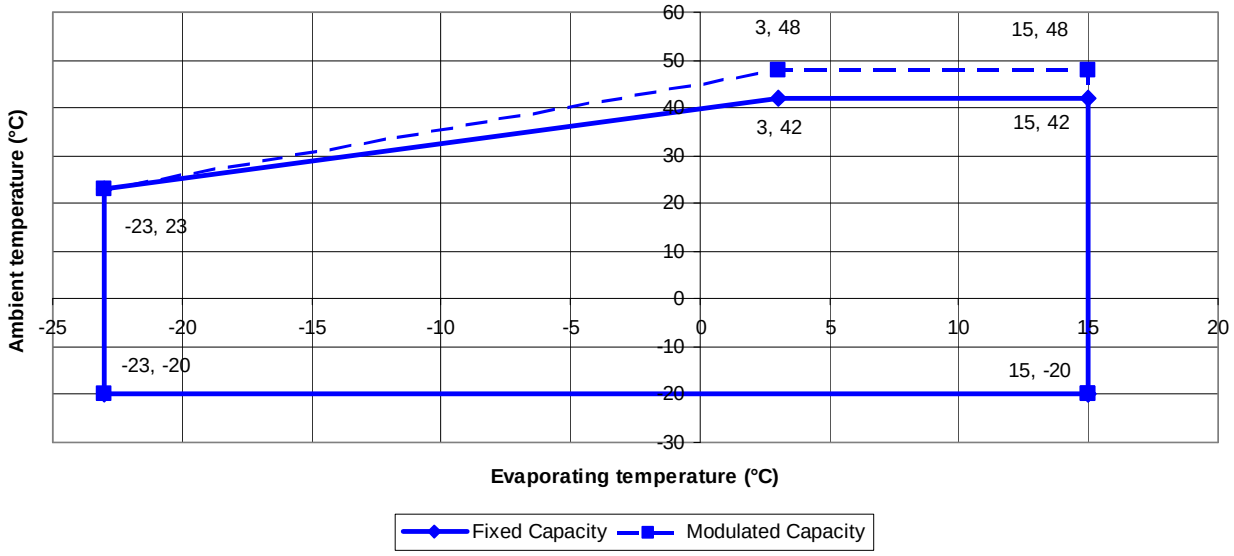
Any fresh air introduced to the unit must have pre-heaters to maintain this minimum temperature.

Operating Limits - Heat Pump Heating Cycle



Data Based on a 12°C ΔT across coil.

Operating Limits - Heat Pump Cooling Cycle



Heat Pump Cooling Fixed Capacities

		Summer Ambient (°C)									
		25		30		35		40		45	
Unit	Evap Temp (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-1HP-0	-5	10.3	3.9	10.3	3.8	9.8	4.2	9.2	4.6	8.5	5.0
	0	12.4	3.9	12.2	3.9	11.6	4.3	11.0	4.7	10.3	5.2
	5	14.8	3.9	14.4	4.0	13.7	4.4	13.0	4.8	12.2	5.3
	7	15.9	3.8	15.4	4.0	14.6	4.4	13.8	4.8	13.0	5.3
	10	17.6	3.7	16.9	4.0	16.0	4.4	15.2	4.9	14.3	5.3
CUR092V20-1HP-0	-5	15.8	5.5	15.1	5.8	14.3	6.3	13.3	6.8	N/A	N/A
	0	18.7	5.5	17.9	6.0	17.0	6.5	15.9	7.0	14.8	7.6
	5	21.9	5.7	20.9	6.1	19.8	6.6	18.7	7.2	17.5	7.7
	7	23.3	5.7	22.2	6.2	21.1	6.7	19.9	7.2	18.7	7.8
	10	25.4	5.8	24.2	6.3	23.0	6.8	21.8	7.3	21.1	6.7
CUR092V25-1HP-0	-5	20.3	7.0	19.3	7.7	18.3	8.4	17.1	9.1	N/A	N/A
	0	24.0	7.4	22.8	8.0	21.5	8.7	20.1	9.5	N/A	N/A
	5	28.1	7.8	26.6	8.4	25.0	9.1	23.3	9.9	N/A	N/A
	7	29.8	8.0	28.2	8.6	26.5	9.3	24.6	10.1	N/A	N/A
	10	32.4	8.2	30.6	8.9	28.8	9.6	26.7	10.3	N/A	N/A
CUR092V29-1HP-0	-5	22.5	8.0	21.2	8.7	19.9	9.5	28.7	10.6	N/A	N/A
	0	26.5	8.4	25.0	9.1	23.4	10.0	21.6	10.9	N/A	N/A
	5	30.8	8.9	29.0	9.6	27.1	10.4	25.1	11.4	N/A	N/A
	7	32.6	9.0	30.7	9.8	28.7	10.6	26.6	11.6	N/A	N/A
	10	35.4	9.3	33.3	10.1	31.1	11.0	28.7	10.6	N/A	N/A
CUR122V35-1HP-0	-5	30.5	11.8	29.0	12.9	27.2	13.9	25.3	15.1	N/A	N/A
	0	36.1	12.3	34.2	13.2	32.1	14.3	29.8	15.5	N/A	N/A
	5	42.1	12.7	39.9	13.7	37.4	14.8	34.8	15.9	31.9	17.3
	7	44.6	12.9	42.3	13.9	39.7	14.9	36.9	16.1	33.9	17.5
	10	48.6	13.2	46.0	14.2	43.2	15.3	40.2	16.4	39.7	14.9
CUR122V40-1HP-0	-5	34.5	13.5	32.7	14.5	30.7	15.6	28.6	16.8	N/A	N/A
	0	40.4	14.1	38.3	15.1	36.0	16.2	33.5	17.4	N/A	N/A
	5	46.9	14.8	44.4	15.7	41.7	16.8	38.8	18.1	N/A	N/A
	7	49.6	15.0	47.0	16.0	44.1	17.1	41.0	18.4	N/A	N/A
	10	53.9	15.4	51.0	16.5	47.8	17.6	44.5	18.8	N/A	N/A

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Heat Pump Cooling Modulating Capacities

		Summer Ambient (°C)									
		25		30		35		40		45	
Unit	Evap Temp (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-VHP-0	-5	11.7	4.2	11.7	4.1	11.1	4.5	10.4	4.9	9.7	5.4
	0	14.1	4.2	13.9	4.2	13.1	4.7	12.3	5.1	11.5	5.6
	5	16.9	4.2	16.3	4.4	15.4	4.8	14.5	5.3	13.4	5.8
	7	18.1	4.2	17.4	4.5	16.4	4.9	15.4	5.3	14.3	5.9
	10	20.0	4.2	19.0	4.6	18.0	5.0	16.8	5.5	15.6	6.0
CUR092V20-VHP-0	-5	16.0	5.4	15.4	5.6	14.6	6.2	13.7	6.7	N/A	N/A
	0	19.1	5.3	18.1	5.9	17.1	6.4	16.0	7.0	14.9	7.7
	5	22.2	5.6	21.0	6.1	19.8	6.7	18.6	7.3	17.2	8.0
	7	23.5	5.7	22.3	6.2	21.0	6.8	19.7	7.4	18.2	8.1
	10	25.5	5.8	24.2	6.4	22.8	7.0	21.4	7.6	19.8	8.4
CUR092V25-VHP-0	-5	19.7	6.3	18.7	7.0	17.5	7.8	16.2	8.6	N/A	N/A
	0	23.2	6.6	22.0	7.2	20.6	8.0	19.2	8.8	N/A	N/A
	5	26.9	6.9	25.5	7.5	24.0	8.3	22.3	9.1	N/A	N/A
	7	28.4	7.0	26.9	7.7	25.3	8.4	23.6	9.2	N/A	N/A
	10	30.8	7.2	29.2	7.9	27.4	8.6	25.6	9.5	N/A	N/A
CUR092V29-VHP-0	-5	22.7	7.7	21.3	8.6	19.8	9.5	28.4	10.4	N/A	N/A
	0	26.5	8.0	25.0	8.9	23.3	9.9	21.4	10.9	N/A	N/A
	5	30.7	8.4	28.9	9.3	26.9	10.2	24.8	11.3	N/A	N/A
	7	32.4	8.6	30.5	9.4	28.4	10.4	26.2	11.5	N/A	N/A
	10	35.1	8.8	33.0	9.7	30.8	10.6	28.3	11.7	N/A	N/A
CUR122V35-VHP-0	-5	29.5	10.6	28.2	12.2	26.7	13.2	24.9	14.3	N/A	N/A
	0	34.8	11.7	33.1	12.6	31.2	13.7	29.2	14.8	26.9	16.0
	5	40.4	12.2	38.3	13.1	36.1	14.1	33.6	15.2	31.0	16.4
	7	42.8	12.4	40.5	13.3	38.1	14.3	35.5	15.4	32.7	16.6
	10	46.5	12.7	44.0	13.6	41.3	14.6	38.5	15.7	35.3	16.9
CUR122V40-VHP-0	-5	34.7	13.5	33.1	14.5	31.4	15.7	29.5	17.0	N/A	N/A
	0	40.1	14.0	38.3	15.0	36.2	16.2	33.9	17.5	N/A	N/A
	5	46.1	14.5	43.8	15.6	41.3	16.7	38.6	18.0	N/A	N/A
	7	48.6	14.7	46.1	15.8	43.5	17.0	40.5	18.3	N/A	N/A
	10	52.6	15.1	49.8	16.2	46.8	17.3	43.6	18.6	N/A	N/A

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Heat Pump Heating Fixed Capacities

		Winter Ambient (°C)									
		-5		0		5		10		15	
Unit	Cond Temp (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-1HP-0	40	11.2	4.2	12.5	4.2	13.9	4.2	15.4	4.2	17.1	4.2
	45	11.1	4.6	12.4	4.6	13.8	4.6	15.3	4.6	16.9	4.6
	50	N/A	N/A	12.3	5.1	13.7	5.1	15.2	5.1	16.7	5.1
	55	N/A	N/A	N/A	N/A	13.6	5.7	15.1	5.7	16.6	5.6
CUR092V20-1HP-0	40	16.0	6.0	17.8	6.0	19.7	6.0	21.7	6.0	23.9	6.0
	45	15.8	6.5	17.7	6.6	19.6	6.6	21.5	6.6	23.7	6.6
	50	N/A	N/A	17.4	7.1	19.4	7.2	21.3	7.2	23.4	7.2
	55	N/A	N/A	N/A	N/A	N/A	N/A	21.1	7.8	23.1	7.8
CUR092V25-1HP-0	40	19.7	7.5	21.8	7.5	24.2	7.6	26.7	7.6	29.4	7.7
	45	19.9	8.2	22.0	8.3	24.2	8.3	26.6	8.4	29.3	8.4
	50	N/A	N/A	N/A	N/A	24.2	9.1	26.6	9.2	29.1	9.3
	55	N/A	N/A	N/A	N/A	N/A	N/A	26.5	10.2	28.9	10.2
CUR092V29-1HP-0	40	21.6	8.2	24.0	8.3	26.5	8.3	29.2	8.4	32.0	8.5
	45	21.7	9.0	24.0	9.1	26.4	9.2	29.0	9.3	31.8	9.3
	50	N/A	N/A	N/A	N/A	26.4	10.2	28.9	10.2	31.6	10.3
	55	N/A	N/A	N/A	N/A	N/A	N/A	28.8	11.3	31.4	11.4
CUR122V35-1HP-0	40	28.9	13.0	32.0	13.0	35.6	13.0	39.2	13.0	43.2	13.1
	45	29.1	14.2	32.1	14.2	35.5	14.2	39.0	14.2	42.9	14.2
	50	N/A	N/A	N/A	N/A	35.5	15.5	38.8	15.5	42.6	15.5
	55	N/A	N/A	N/A	N/A	N/A	N/A	38.6	17.0	42.2	17.0
CUR122V40-1HP-0	40	32.0	14.0	35.4	14.2	39.4	14.3	43.3	14.4	47.8	14.6
	45	32.2	15.2	35.5	15.3	39.3	15.5	43.1	15.6	47.5	15.7
	50	N/A	N/A	N/A	N/A	39.2	16.8	42.9	16.9	47.1	17.0
	55	N/A	N/A	N/A	N/A	N/A	N/A	42.7	18.4	46.7	18.5

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Heat Pump Heating Modulating Capacities

		Winter Ambient (°C)									
		-5		0		5		10		15	
Unit	Cond Temp (°C)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)	Output (kW)	Input (kW)
CUR092V16-VHP-0	40	12.1	4.4	13.6	4.4	15.2	4.5	17.0	4.5	18.9	4.6
	45	12.1	4.8	13.6	4.9	15.1	5.0	16.8	5.0	18.6	5.1
	50	N/A	N/A	13.5	5.4	15.0	5.5	16.6	5.5	18.3	5.6
	55	N/A	N/A	N/A	N/A	14.8	6.0	16.4	6.1	18.0	6.2
CUR092V20-VHP-0	40	15.9	5.7	17.7	5.8	19.6	5.9	21.7	5.9	23.9	6.0
	45	15.9	6.2	17.7	6.4	19.5	6.5	21.5	6.5	23.7	6.6
	50	N/A	N/A	17.6	7.0	19.4	7.1	21.4	7.2	23.4	7.3
	55	N/A	N/A	N/A	N/A	N/A	N/A	21.2	8.0	23.2	8.1
CUR092V25-VHP-0	40	19.0	7.0	21.0	7.0	23.2	7.0	25.5	7.0	28.0	7.0
	45	19.1	7.9	21.1	7.8	23.2	7.8	25.4	7.7	27.8	7.7
	50	N/A	N/A	21.1	8.8	23.2	8.7	25.3	8.6	27.7	8.6
	55	N/A	N/A	N/A	N/A	N/A	N/A	25.3	9.7	27.5	9.6
CUR092V29-VHP-0	40	21.6	8.2	23.9	8.2	26.4	8.1	29.0	8.1	31.7	8.1
	45	21.7	9.2	24.0	9.2	26.4	9.1	28.9	9.1	31.6	9.1
	50	N/A	N/A	N/A	N/A	26.5	10.2	28.9	10.2	31.4	10.1
	55	N/A	N/A	N/A	N/A	N/A	N/A	28.9	11.5	31.3	11.4
CUR122V35-VHP-0	40	27.9	12.3	31.0	12.4	34.5	12.4	37.9	12.5	41.8	12.6
	45	28.1	13.4	31.1	13.5	34.5	13.5	37.8	13.6	41.6	13.7
	50	N/A	N/A	N/A	N/A	34.4	14.8	37.7	14.8	41.3	14.9
	55	N/A	N/A	N/A	N/A	N/A	N/A	37.5	16.2	40.9	16.3
CUR122V40-VHP-0	40	32.7	14.1	36.0	14.2	39.8	14.3	43.4	14.3	47.6	14.4
	45	33.0	15.4	36.3	15.4	39.9	15.5	43.5	15.6	47.4	15.7
	50	N/A	N/A	N/A	N/A	40.0	16.9	43.5	17.0	47.3	17.0
	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	47.0	18.6

Notes:
1 Output kW refers to the compressor duty.
2 Input kW refers to the compressor and fan input power only.

Mechanical Data - Heat Pump Fixed Capacities

			CUR092V16-1HP-0	CUR092V20-1HP-0	CUR092V25-1HP-0
Capacity					
Nominal Cooling Capacity	(1)	kW	14.6	21.1	26.5
Nominal Heating Capacity	(2)	kW	13.7	19.4	24.2
Capacity Steps			1	1	1
Dimensions – W x D x H	(3)	mm	922 x 764 x 1736	922 x 764 x 1736	922 x 764 x 1736
Masses – Machine / Operating	(4)	kg	229	229	261
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Heat Pump Evaporator / Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor			Axial		
Motor Type			AC 1ph	AC 1ph	AC 1ph
Quantity x Motor Size		kW	1 x 0.6	1 x 0.6	1 x 0.6
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	860	860
Maximum Airflow		m³/s	2.0	2.0	2.0
Compressor					
Compressor Type			Fixed Capacity Scroll		
Quantity			1	1	1
Oil Charge Volume			1.57	1.57	3.3
Oil Type			Polyolester		
Refrigeration			Single Circuit - 2 pipe configuration		
Refrigerant control and type			Optional REEV package		
Refrigerant type			R410A		
Holding Charge			Inert Gas		
Coil Volume		l	9.9	9.9	9.9
Refrigerant Charge	(5)	kg	11.9	12.0	13.6
Connections					
Liquid (sweat)		in	3/8	3/8	1/2
Suction / Discharge (sweat)		in	1/2	5/8	7/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1000	1000
Maximum Airflow		m³/s	2.3	2.3	2.3
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	922 x 764 x 1750	922 x 764 x 1750
Masses – Machine / Operating	(3)	kg	221	221	253
Short Case Axial Fan			Designed to 75Pa ESP		
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Diameter		mm	560	560	560
Maximum Fan Speed		RPM	1330	1330	1330
Maximum Airflow		m³/s	2.8	2.8	2.8
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	922 x 764 x 1753	922 x 764 x 1753
Masses – Machine / Operating	(3)	kg	235	235	267
REEV Selection			E²V - 24	E²V - 35	E²V – 35

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Condensing temperature 50°C, Ambient 5°C with an AC fan matched with a REEV package
(3) Overall dimensions for clearance
(4) Unit mass excludes a refrigerant charge
(5) For guidance only

Mechanical Data - Heat Pump Fixed Capacities Continued

			CUR092V29-1HP-0	CUR122V35-1HP-0	CUR122V40-1HP-0
Capacity					
Nominal Cooling Capacity	(1)	kW	28.7	39.7	44.1
Nominal Heating Capacity	(2)	kW	26.4	35.5	39.2
Capacity Steps			1	1	1
Dimensions – W x D x H	(3)	mm	922 x 764 x 1736	1222 x 764 x 1736	1222 x 764 x 1736
Masses – Machine / Operating	(4)	kg	262	316	324
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Heat Pump Evaporator / Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor				Axial	
Motor Type			AC 1ph	AC 3ph	AC 3ph
Quantity x Motor Size		kW	1 x 0.6	1 x 1.97	1 x 1.97
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	1330	1330
Maximum Airflow		m^3/s	2.0	3.5	3.5
Compressor					
Compressor Type				Fixed Capacity Scroll	
Quantity			1	1	1
Oil Charge Volume		l	3.3	3.3	3.6
Oil Type				Polyolester	
Refrigeration				Single Circuit - 2 pipe configuration	
Refrigerant control and type				Optional REEV package	
Refrigerant type				R410A	
Holding Charge				Inert Gas	
Coil Volume		l	9.9	12.4	12.4
Refrigerant Charge	(5)	kg	13.6	15.6	19.9
Connections					
Liquid (sweat)		in	1/2	1/2	5/8
Suction / Discharge (sweat)		in	7/8	7/8	1 1/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1230	1230
Maximum Airflow		m^3/s	2.3	3.5	3.5
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	1222 x 764 x 1750	1222 x 764 x 1750
Masses – Machine / Operating	(3)	kg	254	308	316
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	N/A	N/A
Diameter		mm	560	N/A	N/A
Maximum Fan Speed		RPM	1330	N/A	N/A
Maximum Airflow		m^3/s	2.8	N/A	N/A
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	N/A	N/A
Masses – Machine / Operating	(3)	kg	268	N/A	N/A
REEV Selection			E^2V - 35	E^2V - 45	E^2V – 45

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Condensing temperature 50°C, Ambient 5°C with an AC fan matched with a REEV package
(3) Overall dimensions for clearance
(4) Unit mass excludes a refrigerant charge
(5) For guidance only

Mechanical Data - Heat Pump Modulating Capacities

			CUR092V16-VHP-0	CUR092V20-VHP-0	CUR092V25-VHP-0
Capacity					
Nominal Cooling Capacity	(1)	kW	16.4	21.0	25.3
Nominal Heating Capacity	(2)	kW	15.0	19.4	23.2
Capacity Steps			16-100%	16-100%	16-100%
Dimensions – W x D x H	(3)	mm	922 x 764 x 1736	922 x 764 x 1736	922 x 764 x 1736
Masses – Machine / Operating	(4)	kg	236	236	262
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Heat Pump Evaporator / Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor			Axial		
Motor Type			AC 1ph	AC 1ph	AC 1ph
Quantity x Motor Size		kW	1 x 0.6	1 x 0.6	1 x 0.6
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	860	860
Maximum Airflow		m³/s	2.0	2.0	2.0
Compressor					
Compressor Type				Modulating Capacity Scroll	
Quantity			1	1	1
Oil Charge Volume			1.9	1.9	3.2
Oil Type				Polyolester	
Refrigeration				Single Circuit - 2 pipe configuration	
Refrigerant control and type				REEV package	
Refrigerant type				R410A	
Holding Charge				Inert Gas	
Coil Volume		l	9.9	9.9	9.9
Refrigerant Charge	(5)	kg	11.9	12.0	13.6
Connections					
Liquid (sweat)		in	3/8	3/8	1/2
Suction / Discharge (sweat)		in	1/2	5/8	7/8
Optional Extras					
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1000	1000
Maximum Airflow		m³/s	2.3	2.3	2.3
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	922 x 764 x 1750	922 x 764 x 1750
Masses – Machine / Operating	(3)	kg	228	228	254
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Diameter		mm	560	560	560
Maximum Fan Speed		RPM	1330	1330	1330
Maximum Airflow		m³/s	2.8	2.8	2.8
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	922 x 764 x 1753	922 x 764 x 1753
Masses – Machine / Operating	(3)	kg	242	242	268
REEV Selection			E²V - 24	E²V - 35	E²V – 35

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Condensing temperature 50°C, Ambient 5°C with an AC fan matched with a REEV package
(3) Overall dimensions for clearance
(4) Unit mass excludes a refrigerant charge
(5) For guidance only

Mechanical Data - Heat Pump Variable Capacities Continued

			CUR092V29-VHP-0	CUR122V35-VHP-0	CUR122V40-VHP-0
Capacity					
Nominal Cooling Capacity	(1)	kW	28.4	38.1	43.5
Nominal Heating Capacity	(2)	kW	26.5	34.4	40.0
Capacity Steps			16-100%	16-100%	16-100%
Dimensions – W x D x H	(3)	mm	922 x 764 x 1736	1222 x 764 x 1736	1222 x 764 x 1736
Masses – Machine / Operating	(4)	kg	264	317	323
Construction					
Material/Colour			Panels: Galvanised Sheet Steel, Epoxy Baked Powder Paint – Light Grey (RAL 7035)		
Heat Pump Evaporator / Condenser			Rifled Copper Tube/Louvered Hydrophilic Coated Aluminium Fins		
Fan Motor				Axial	
Motor Type			AC 1ph	AC 3ph	AC 3ph
Quantity x Motor Size		kW	1 x 0.6	1 x 1.97	1 x 1.97
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	860	1330	1330
Maximum Airflow		m³/s	2.0	3.5	3.5
Compressor					
Compressor Type				Modulating Capacity Scroll	
Quantity			1	1	1
Oil Charge Volume		l	3.2	3.2	3.2
Oil Type				Polyolester	
Refrigeration				Single Circuit - 2 pipe configuration	
Refrigerant control and type				REEV package	
Refrigerant type				R410A	
Holding Charge				Inert Gas	
Coil Volume		l	9.9	12.4	12.4
Refrigerant Charge	(5)	kg	13.6	15.6	19.9
Connections					
Liquid (sweat)		in	1/2	1/2	5/8
Suction / Discharge (sweat)		in	7/8	7/8	1 1/8
EC Fan					
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Diameter		mm	630	630	630
Maximum Fan Speed		RPM	1000	1230	1230
Maximum Airflow		m³/s	2.3	3.5	3.5
Dimensions – W x D x H	(2)	mm	922 x 764 x 1750	1222 x 764 x 1750	1222 x 764 x 1750
Masses – Machine / Operating	(3)	kg	256	309	315
Short Case Axial Fan				Designed to 75Pa ESP	
Quantity x Motor Size		kW	1 x 1.4	N/A	N/A
Diameter		mm	560	N/A	N/A
Maximum Fan Speed		RPM	1330	N/A	N/A
Maximum Airflow		m³/s	2.8	N/A	N/A
Dimensions – W x D x H	(2)	mm	922 x 764 x 1753	N/A	N/A
Masses – Machine / Operating	(3)	kg	270	N/A	N/A
REEV Selection			E²V - 35	E²V - 45	E²V – 45

(1) Evaporating temperature 7°C, Ambient 35°C with an AC fan matched with a REEV package
(2) Condensing temperature 50°C, Ambient 5°C with an AC fan matched with a REEV package
(3) Overall dimensions for clearance
(4) Unit mass excludes a refrigerant charge
(5) For guidance only

Electrical Data – Heat Pump

			CUR092V16-1HP-0	CUR092V20-1HP-0	CUR092V25-1HP-0
Unit Data	(1)				
Nominal Run Amps		A	11.5	16.9	19.4
Maximum Start Amps		A	73.7	103.7	145.7
Recommended Mains Fuse Size		A	20	32	32
Max Mains Incoming Cable Size		mm²	35	35	35
Mains Supply		V		400V / 3PH + N / 50Hz	
Control circuit		VAC	24	24	24
Condenser Fan - Motor					
Motor Type			AC	AC	AC
			1~	1~	1~
Quantity x Motor Size	(2)	kW	1 x 0.6	1 x 0.6	1 x 0.6
Full Load Amps		A	2.7	2.7	2.7
Locked Rotor Amps		A	9.2	9.2	9.2
Compressor					
Motor Size		kW	4.6	6.4	8.5
Nominal Run Amps		A	7.9	13.3	15.8
Locked Rotor Amps		A	70	100	142
Type of Start				Direct On Line	
OPTIONAL EXTRAS					
Electronic Soft-start					
Nominal Run Amps		A	11.5	16.9	19.4
Maximum Start Amps		A	45.7	63.7	88.9
Recommended Mains Fuse Size		A	20	32	32
Power Factor Correction					
Nominal Run Amps		A	11.2	16.5	18.6
Maximum Start Amps		A	73.7	103.7	145.7
Recommended Mains Fuse Size		A	20	32	32
Compressor Nominal Run Amps		A	7.5	12.9	15
First upgrade EC Motor					
			1~	1~	1~
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Full Load Amps		A	3.3	3.3	3.3
Locked Rotor Amps		A	N/A	N/A	N/A
Second upgrade SCAF					
			1~	1~	1~
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Full Load Amps		A	6	6	6
Locked Rotor Amps		A	18	18	18

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Heat Pump Continued

			CUR092V29-1HP-0	CUR122V35-1HP-0	CUR122V40-1HP-0
Unit Data	(1)				
Nominal Run Amps		A	20.6	25.1	29
Maximum Start Amps		A	145.7	162.4	201.4
Recommended Mains Fuse Size		A	32	40	50
Max Mains Incoming Cable Size		mm²	35	35	35
Mains Supply		V		400V / 3PH + N / 50Hz	
Control circuit		VAC	24	24	24
Condenser Fan - Motor					
Motor Type			AC	AC	AC
			1~	3~	3~
Quantity x Motor Size	(2)	kW	1 x 0.6	1 x 1.97	1 x 1.97
Full Load Amps		A	2.7	3.4	3.4
Locked Rotor Amps		A	9.2	11.9	11.9
Compressor					
Motor Size		kW	9.5	12.2	13.8
Nominal Run Amps		A	17	20.7	24.6
Locked Rotor Amps		A	142	158	197
Type of Start				Direct On Line	
OPTIONAL EXTRAS					
Electronic Soft-start					
Nominal Run Amps		A	20.6	25.1	29
Maximum Start Amps		A	88.9	99.2	122.6
Recommended Mains Fuse Size		A	32	40	50
Power Factor Correction					
Nominal Run Amps		A	19.8	23.8	27.5
Maximum Start Amps		A	145.7	162.4	201.4
Recommended Mains Fuse Size		A	32	40	50
Compressor Nominal Run Amps		A	16.2	19.4	23.1
First upgrade EC Motor					
			1~	3~	3~
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Full Load Amps		A	3.3	2.9	2.9
Locked Rotor Amps		A	N/A	N/A	N/A
Second upgrade SCAF					
			1~	3~	3~
Quantity x Motor Size		kW	1 x 1.4	1 x 1.94	1 x 1.94
Full Load Amps		A	6	3.4	3.4
Locked Rotor Amps		A	18	11.9	11.9

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Heat Pump Continued

			CUR092V16-VHP-0	CUR092V20-VHP-0	CUR092V25-VHP-0
Unit Data	(1)				
Nominal Run Amps		A	12.2	15.7	18.2
Maximum Start Amps		A	67.7	104.7	114.7
Recommended Mains Fuse Size		A	20	25	32
Max Mains Incoming Cable Size		mm²	35	35	35
Mains Supply		V		400V / 3PH + N / 50Hz	
Control circuit		VAC	24	24	24
Condenser Fan - Motor					
Motor Type			AC	AC	AC
			1~	1~	1~
Quantity x Motor Size	(2)	kW	1 x 0.6	1 x 0.6	1 x 0.6
Full Load Amps		A	2.7	2.7	2.7
Locked Rotor Amps		A	9.2	9.2	9.2
Compressor					
Motor Size		kW	5	6.8	8
Nominal Run Amps		A	8.6	12.1	14.5
Locked Rotor Amps		A	64	101	111
Type of Start				Direct On Line	
OPTIONAL EXTRAS					
Electronic Soft-start					
Nominal Run Amps		A	12.2	15.7	18.2
Maximum Start Amps		A	42.1	64.3	70.3
Recommended Mains Fuse Size		A	20	25	32
Power Factor Correction					
Nominal Run Amps		A	N/A	N/A	N/A
Maximum Start Amps		A	N/A	N/A	N/A
Recommended Mains Fuse Size		A	N/A	N/A	N/A
Compressor Nominal Run Amps		A	N/A	N/A	N/A
First upgrade EC Motor					
			1~	1~	1~
Quantity x Motor Size		kW	1 x 0.72	1 x 0.72	1 x 0.72
Full Load Amps		A	3.3	3.3	3.3
Locked Rotor Amps		A	N/A	N/A	N/A
Second upgrade SCAF					
			1~	1~	1~
Quantity x Motor Size		kW	1 x 1.4	1 x 1.4	1 x 1.4
Full Load Amps		A	6	6	6
Locked Rotor Amps		A	18	18	18

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Electrical Data – Heat Pump Continued

			CUR092V29-VHP-0	CUR122V35-VHP-0	CUR122V40-VHP-0
Unit Data	(1)				
Nominal Run Amps		A	20.4	25.5	30.8
Maximum Start Amps		A	121.7	144.4	177.4
Recommended Mains Fuse Size		A	32	40	50
Max Mains Incoming Cable Size		mm²	35	35	35
Mains Supply		V		400V / 3PH + N / 50Hz	
Control circuit		VAC	24	24	24
Condenser Fan - Motor					
Motor Type			AC	AC	AC
			1~	3~	3~
Quantity x Motor Size	(2)	kW	1 x 0.6	1 x 1.97	1 x 1.97
Full Load Amps		A	2.7	3.4	3.4
Locked Rotor Amps		A	9.2	11.9	11.9
Compressor					
Motor Size		kW	9.4	11.8	13.9
Nominal Run Amps		A	16.8	21.1	26.4
Locked Rotor Amps		A	118	140	173
Type of Start				Direct On Line	
OPTIONAL EXTRAS					
Electronic Soft-start					
Nominal Run Amps		A	20.4	25.5	30.8
Maximum Start Amps		A	74.5	88.4	108.2
Recommended Mains Fuse Size		A	32	40	50
Power Factor Correction					
Nominal Run Amps		A	N/A	N/A	N/A
Maximum Start Amps		A	N/A	N/A	N/A
Recommended Mains Fuse Size		A	N/A	N/A	N/A
Compressor Nominal Run Amps		A	N/A	N/A	N/A
First upgrade EC Motor					
			1~	3~	3~
Quantity x Motor Size		kW	1 x 0.72	1 x 1.85	1 x 1.85
Full Load Amps		A	3.3	2.9	2.9
Locked Rotor Amps		A	N/A	N/A	N/A
Second upgrade SCAF					
			1~	3~	3~
Quantity x Motor Size		kW	1 x 1.4	1 x 1.94	1 x 1.94
Full Load Amps		A	6	3.4	3.4
Locked Rotor Amps		A	18	11.9	11.9

(1) Based upon ARI conditions, Evaporating at 7°C, Condensing at 54.4°C.

Interconnecting Wiring - Heat Pump

BluCube		L1	¡	ç		Mains incoming supply 400V/3PH/50Hz
		L2	¡	ç		
		L3	¡	ç		
		N	¡	ç		
		PE	¡	ç		
		502	¡	è		24 Volts AC
		551	¡	ç		Cooling Signal
		552	¡	ç		Heating Signal
		500	¡	è		0 Volts
		845	¡	ç	Variable Capacity Compressor Only	0-10Volts Compressor demand
		800	¡	è		0 Volts
		567	¡	è		Defrost Status Normally Open
		568	¡	è		Defrost Status Normally Closed
		569	¡	è		Common
		561	¡	è	NO	Critical alarm Normally Open
		562	¡	è	Common	GND
		563	¡	è	NC	Critical alarm Normally Closed

		Rx-Tx-	¡	ç	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Inward connection)
		Rx+Tx+	¡	ç		
		GND	¡	ç		
		Rx-Tx-	¡	è	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Outward connection)
		Rx+Tx+	¡	è		
		GND	¡	è		

Controls

Display Keypad

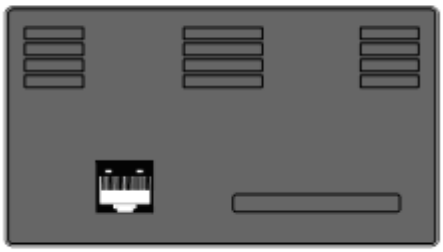
Display Keypad Connections

The display keypad is equipped with an LCD display (8 rows x 22 columns) with 6 buttons, connected to the controller by an RJ11 cable.



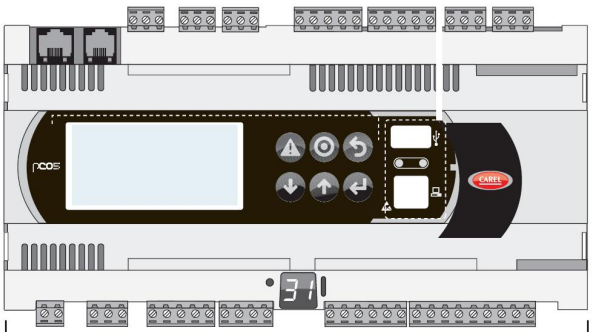
pGD1 Display

Local network connection, plug cable into J10 on PC0 Controller



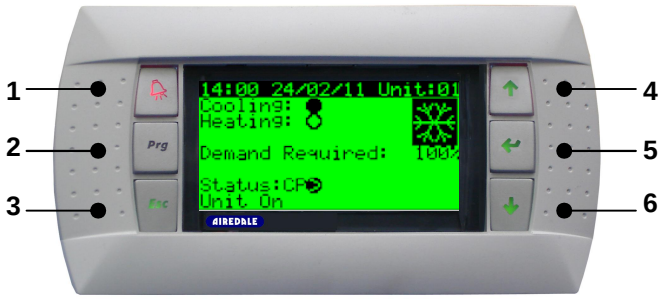
Display Keypad

RJ11 Cable

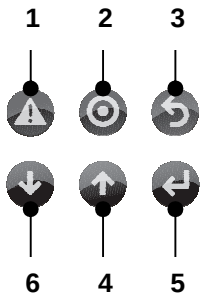


Use of Display Keypad Buttons

Remote Display Keypad



Built-in Keypad



Built-in Display	Remote Display	Function	Description
		1. ALARM	When one or more alarms are active the ALARM button will illuminate red. Pressing the ALARM button once will indicate information regarding any active alarms. Pressing the ALARM button twice will reset any active manual-reset alarms.
	Prg	2. PRG	Pressing the PRG button will select the main navigation menu.
	Esc	3. ESC	Pressing the ESC button will return the user to the main display screen showing unit status.
		4. UP	Pressing the UP button can either: Scroll through the various display screens, providing the cursor is in the top left position. Increase the value of a set point adjustment.
		5. ENTER	Pressing the ENTER button will confirm any set point adjustments and move the cursor to the next available set point.
		6. DOWN	Pressing the DOWN button can either: Scroll through the various display screens, providing the cursor is in the top left position. Decrease the value of a set point adjustment.

Use of Extra Function Buttons

Built-in Display	Remote Display	Key Combinations	Description
+ +	.+. .+.	UP + DOWN+ ENTER	Allows access to controller address.
+	+	ALARM + ENTER	Allows access to controller system information.
+	+	ALARM + UP	Allows access to change controller address (only when display address is zero).
+	Esc +	ESC + ENTER	Allows the user to switch between the preinstalled languages.
+	Prg +	PRG + ENTER	Temporarily displays the address of the controller.
+	+	ENTER + UP	Change unit on remote display keypad.

Navigation

The following instructions refer to the built-in display keypad buttons. See the table above for the corresponding buttons if using the remote keypad.

Initially, use the button to access the main navigation menu. The first menu UNIT ON/OFF will be selected.

Use the or buttons to move to the desired menu. The selected menu will be highlighted with a black bar.

Press to enter the selected menu.

Navigation Sub Menus

There are eight sub menus available from the main navigation menu, these are listed below:

A. Unit On/Off	Switch on or switch off the unit.
B. Setpoints	View the user setpoints.
C. Clock/Scheduler	View the current time and date and set on/off timezones.
D. Input/Output	View the status of the controller inputs and outputs.
E. Alarm Log	View the alarm log.
F. Board Switch	Change the controller pLAN board address.
G. Service	View maintenance related parameters, such as hours run, sensor calibration and manual overrides.
H. Manufacturer	Manufacturer menu and adjustment of various manufacturer related parameters, such as unit configuration and timing settings.

Password Protection

To guard against unauthorised adjustments, a password is required to gain access to certain menus. The passwords for the sub menus are defined as follows:

SERVICE SETTINGS
CLOCK/SCHEDULER } 4648
SETPOINTS

MANUFACTURER See Airedale

When a password is requested use the or keys to enter the number and to access the page.

Adjusting Customer Control Settings

Use the correct keys to access the parameters to be adjusted (refer to Parameters List and Factory Values).

After entering the correct password the cursor will appear at the top left corner (Home location).

Use the or keys to move to the desired menu.

To move the flashing cursor to the required adjustable fields press and the or keys to change the values.

Press the key to move the cursor to the next field or Home location.

When the cursor is Home either use the or keys to scroll to the next sub-menu or the key to exit and return to the Main Menu page.

Network Display

The user will be able to view all modules connected to the AIRELAN.

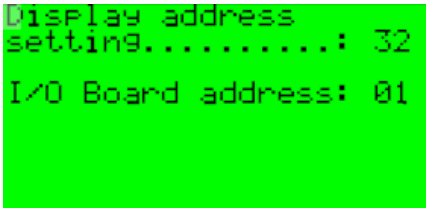
By pressing + buttons, you can access each controller connected to the AIRELAN.

The display will show the unit number it is currently viewing at the top right-hand corner of the screen. (Examples U:01 U:02 U:03 U:04 U:05)

All the controllers connected to the AIRELAN network are identified using their own individual address. If duplicate addresses are used the network will not work.

Addressing the Display Keypad

The address of the display keypad can be configured only after having connected the power supply, using the RJ11 connection cable.

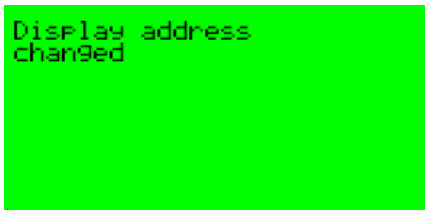


To access the configuration mode, press the + + buttons simultaneously and hold them for at least 5 seconds; the screen shown above will be displayed, with the cursor flashing in the top left corner.

To change the address of the display keypad (display address setting), press the button once.

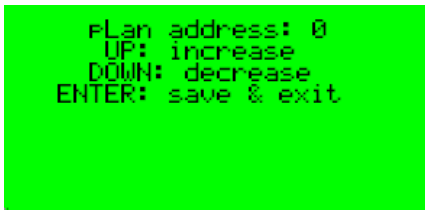
The cursor will move to the address field (nn).

Use the or buttons to select the desired value, and press again to confirm. The display below confirms that the address has been successfully changed.



Note: If the field "nn" is set to 0, the terminal will communicate with the pCO board using "point-to-point" protocol (not pLAN). The field "I/O Board address: xx" will not be displayed, as this is not used with P2P protocol.

Addressing the pCO Controller

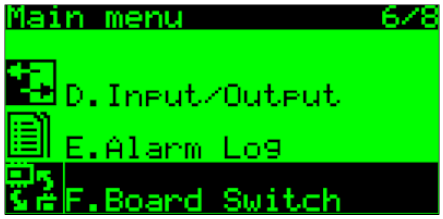


The address of the controller can be configured by setting the display keypad to address 0 (zero).

To change the address of the pCO controller, press and hold the + buttons together and switch on the controller. After the self test screen has been displayed, the pLAN address screen will be displayed.

Controller Address 1
BluCube EEV Driver Address 9
Airedale REEV Driver Address 17
Remote Display Address 32

The board address can also be changed be selecting **Board Switch** from the main menu:



The following screen will be displayed:

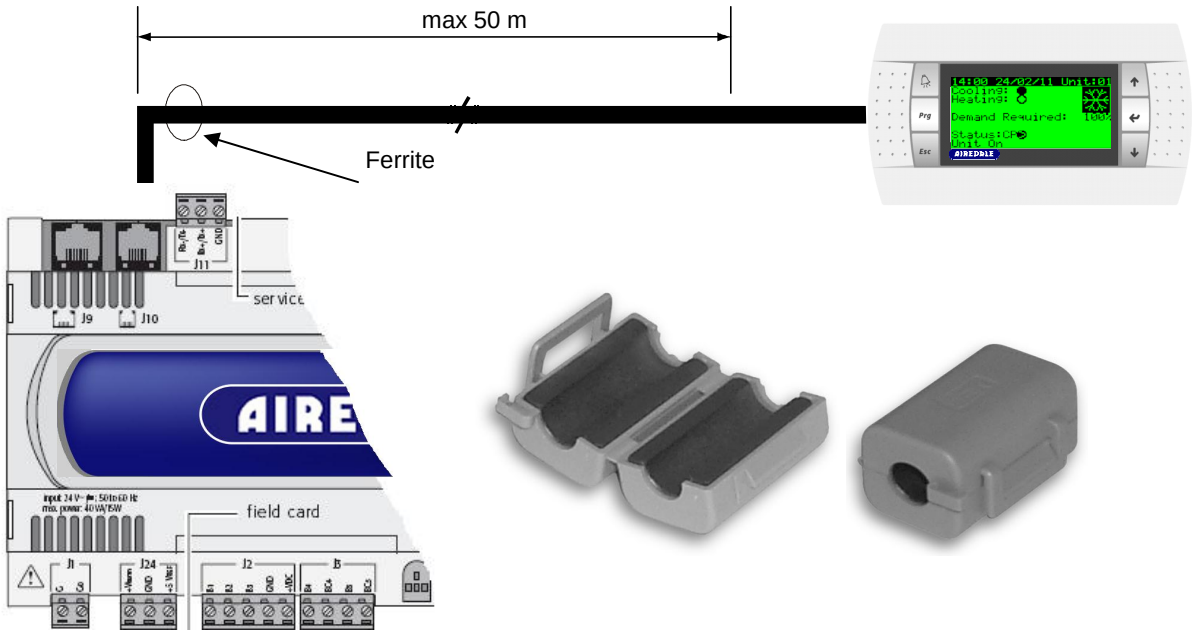


The unit number can be changed to another number on the network.

Remote Display Keypad

Remote installation requires the insertion of 1 ferrite (part number 6171433) as illustrated below. The ferrite is illustrated in both the open and closed position. The ferrite is mounted on the telephone connecting cable, on the controller side.

Note: If using a shielded cable, it can be located at a maximum distance of 200 m

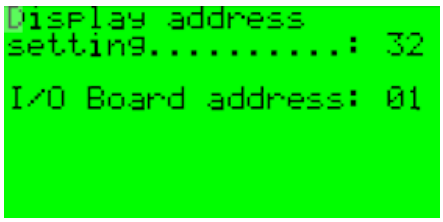


Programming the Remote Display Keypad to the Controller

In the situation that the terminal display address is required to be set up, the following procedure applies.

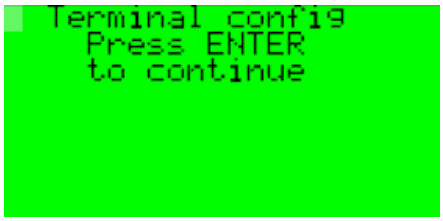
Set the correct address on the display, connect to the controller and then power up the unit.

By simultaneously pressing and holding + + , the display will show the Display Address screen.

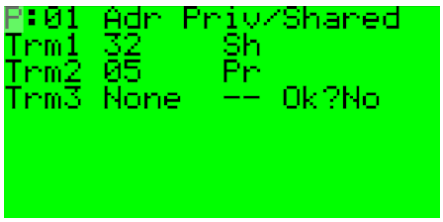


Pressing will change the I/O board address to the controller address 1.

Press . The following screen will be displayed:



Press again. The display will show the following terminal configuration screen:



Selecting Terminal 1 – Press until the cursor is underneath `Trm1 00 Pr.`

Pressing or will change the 00 to the required value 32.

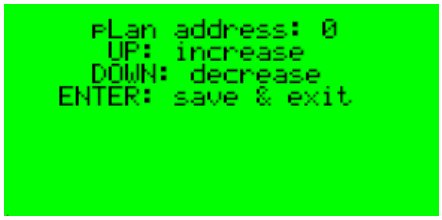
Setting Private to Shared – Press until the cursor is underneath the Pr (PRIVATE) symbol.

Pressing or will change the `Pr` to `Sh` (SHARED) symbol.

Press until the cursor is underneath the NO.

Pressing or will change the NO to YES. Press and the display is programmed.

Addressing the pCO5 Controller



The address of the controller can be configured by setting the display keypad to address 0 (zero).

To change the address of the pCO5 controller, press and hold the + buttons together and switch on the controller.

After the self test screen has been displayed, the pLAN address screen will be displayed.

BluCube Operational Icons

Below are the icons which are present on the PGD1 display once the unit is running in the relevant operation mode.

Compressor

			
Solid	Unit On	Unit Off	Alarm
Flashing	Compressor on by timing	Compressor off by timing	

Unit Status

					
Cooling	Heating	Defrosting	Alarm	Pump down	Reversing Valve

Cooling/Heating Indication

	Cooling ○ Heating ○	**Cooling ● Heating ○**	**Cooling ○ Heating ●**	**Cooling ● Heating ○/●**	**Cooling ○/● Heating ●**
Solid	Unit Off	Cooling	Heating		
Flashing				Cooling while compressor is on by timing – preparing to go into heating	Heating while compressor is on by timing – preparing to go into cooling

Network Wiring

Carel RS485

		-	¡	ç	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Inward connection)
		+	¡	ç		
		GND	¡	ç		
		-	¡	è	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Outward connection)
		+	¡	è		
		GND	¡	è		

pLAN

		RX+/Tx-	¡	ç	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Inward connection)
		RX+/Tx+	¡	ç		
		GND	¡	ç		
		RX-/Tx-	¡	è	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Outward connection)
		RX+/Tx+	¡	è		
		GND	¡	è		

Notes for Installing pLAN:

Pay attention to the network polarity - RX/TX+ on one board must be connected to RX/TX+ on the other boards. The same is true for RX/TX- . The shield twisted pair must be connected to ground at both ends.
Use AWG20/22 Twisted Pair (With Overall Shield), Cable Belden Ref. 8762, (Airedale Ref: - 6110316) For pLAN Network.

Modbus

		-	¡	ç	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Inward connection)
		+	¡	ç		
		GND	¡	ç		
		-	¡	è	Use Awg20/22 twisted pair (with overall shield) cable, Belden ref. 8762 (Airedale ref: 6110316), or equivalent, for AIRELan network	AIRELan Network Connections (Outward connection)
		+	¡	è		
		GND	¡	è		

Commissioning

GENERAL

The following commissioning information is based on a complete matched Airedale system using R410A refrigerant.

Pre-Start Checks

Once the whole system has been installed it is most important that the following pre-start checks are made:-

GENERAL

1 The unit condition is satisfactory.

2 All pipework is complete and insulated where necessary.

Electrical

1 All electrical connections (both mains and control) are properly terminated.

2 The power supply is of the correct voltage and frequency.

3 External fuses/circuit breakers are of the correct rating.

4 The units are properly earthed in accordance with current regulations.

5 All pipework is earth bonded as required.

6 Check that there is a supply to the crankcase heater (if fitted) and ensure this is switched on for a minimum of 8 hours prior to the unit operation.

Refrigeration

1 The unit condition is satisfactory.

2 All pipework is complete and insulated where necessary.

3 All fans are able to rotate freely.

4 The system has been evacuated correctly.

5 Check the operation of the high and low pressure switch settings. These should be as follows:-

HIGH PRESSURE SWITCH - 40.25 Bar CUT OUT
LOW PRESSURE SWITCH - 0.5 Bar - CUT OUT
2.5 Bar - CUT IN

6 The low pressure switch is automatically reset. The high pressure switch must be reset by either switching the unit off/on at the isolator, or de-energising the compressor signal from the indoor unit.

Fan Speed / head pressure control

The head pressure control, allows control to be achieved in ambients down to -20°C.

Defrost Control

Defrost is controlled by software (user defined) via a coil temperature sensor.

Commissioning

Control Circuit Checks

Please refer to the Airedale matched indoor unit manual for further details.

Cooling Only & Heat Pump

1. Disconnect the compressor power wiring from the compressor contactor. Switch on mains power.
2. Check status of the Alarm output on the microprocessor, refer to information provided with unit.
3. Select Cooling mode on the indoor unit and check for continuity between the cooling signal on the microprocessor.
4. The compressor contactor should pull in.
5. De-select Cooling mode on the indoor unit and check for no continuity between the cooling signal on the microprocessor.
6. The compressor should switch off.

Heat Pump Units

Follow steps 1-6 above and then check heating operation as described below:

1. Select heating mode on the indoor unit and check for continuity between the heating signal and the microprocessor.
2. Check status of the microprocessor; refer to information provided with unit.
3. The compressor contactor should pull in.
4. The compressor should switch on. The reversing valve should activate changing the unit from cooling to heating mode. Refrigerant may travel to different parts of the system (it may produce a whoosh noise when this occurs; this is normal) when the valve is activated.
5. De-select heating mode on the indoor unit and check for no continuity between the heating signal and the microprocessor. (the reversing valve will again change positions)
6. The compressor contactor should drop out.
7. Switch off mains power and reconnect compressor power wiring.

Commissioning

Refrigerant Charging

The following information is based on a complete Airedale matched system and indicates the approximate amount of refrigerant charge required. It is also assumed that the system has been designed within operating parameters and to good refrigeration practice.

NOTE: It is important that the system is charged with the correct amount of refrigerant. Remember, a seriously over or undercharged system may lead to major component failure.

The final refrigerant charge level should be set by the design evaporating and condensing pressures, together with a full or nearly full sight glass.

The suction and discharge pressures should be constantly monitored whilst charging is in progress.

NOTE:- The sight glass level must be checked in the COOLING MODE ONLY.

Adding Oil

The initial oil charge in the compressor is suitable for pipe runs up to 20m (equivalent length).

For longer pipe runs add 26 g of oil for every ADDITIONAL 0.45 kg of refrigerant added up to the maximum permissible equivalent pipe runs stated. Please consult Airedale for further details.

Commissioning

SYSTEM READINGS

NOTE :- The sight glass should only be used as an assistance to charging as the charge level showing in the glass will vary according to different operating conditions. This is especially noticeable with the heat pump units where the system may appear to be undercharged in the heating mode.

Evaporating temperature (suction gauge) should read approximately 2°C. to 3°C. with a room (return air temperature) of approximately 22 °C.

Condensing temperature (as read on the discharge gauge) should be in the region of 45 to 46 °C. with an external ambient temperature of 30°C (Condensing is normally 15 °C. above ambient).

Running Checks

Once the system has been charged, the following running checks should be carried out:-

Check the operation of the fan speed controller by observing an increase in fan speed if the outdoor coil is temporarily partially blocked.

If the system is a heat pump option, check that the reversing valve switches over from cooling to heating and vice-versa.

NOTE: Head pressure control also operates in heating mode by slowing down the outdoor unit fan as the system pressure rises. This can be checked by partially blocking the inlet grilles of the indoor unit and observing the outdoor unit fan slowing down.

IMPORTANT

FINALLY AND MOST IMPORTANTLY - Fill in the commissioning sheet and return a copy to the factory to ensure that the warranty on the unit will be valid.

Troubleshooting

FAULT	POSSIBLE CAUSE	REMEDY/ACTION
CRITICAL ALARMS:		
Aux. Alarm	Auxiliary Trip.	Check operation of customer-added alarm function.
Outdoor Fan Fault	Fan Trip.	Check and (if necessary) replace fan.
Coil Sensor Fault	Faulty Sensor.	Replace sensor.
No Cooling/Heating	Compressor Protection Delay.	Wait for a maximum of 10 minutes then re-check.
Unit Will Not Start	No power.	Check power supply to the controller.
	Wired incorrectly.	Check wire connections in accordance with wiring diagram on control box lid.
	Loose wires.	Check all wires, connections, terminals etc.
Compressor not operating	No power to compressor.	Check isolator, fuses, MCBs, contactor and control circuit wiring.
	Low pressure switch operated (if fitted) (large or complete loss of refrigerant charge).	Repair leak and recharge system - if completely out evacuate before charging.
	Condenser fan thermal trip open circuit.	Investigate and correct.
	Seized compressor.	Replace compressor - investigate oil trapping and general installation.
	Defective compressor motor.	Check winding resistances - replace compressor. If burnt out follow burn out procedure using suction line burn-out drier.
Noisy Compressor	Expansion valve malfunction (abnormally cold suction line).	Ensure sensor is tight on suction and superheat is correct (normally 5 to 6°C). Replace power assembly or valve as necessary.
	Lack of oil.	Repair leaks if any, add oil if required but not too much. Investigate pipe system and trapping. If no oil still, drain compressor and measure in correct quantity.
	Broken or damaged compressor valve reed (compressor knocking).	Replace compressor (possible other symptom is that it will have high suction pressure).
	Worn or scored compressor bearing. (excessive knocking).	Replace compressor.
Head Pressure too high/HP cut-out operated	Condenser coil clogged or dirty.	Clean condenser.
	Overcharge of refrigerant. Normally troublesome in warm weather.	Remove excess refrigerant from system.
	Air or other non-condensable gas in system.	Evacuate system and re-charge with new refrigerant.
	Head pressure controller faulty.	Check fan speed controller - if faulty - replace.
	Fan not operating or operating inefficiently.	Check motor - if faulty - replace.
Head pressure too low	Fan operating too fast in low ambient conditions.	Check fan speed controller adjustment - if faulty - replace.

Troubleshooting

FAULT	POSSIBLE CAUSE	REMEDY / ACTION
Compressor short cycles or LP cut-out operated	LP switch faulty (if fitted).	Check cut out pressure and replace if necessary.
	Dirty indoor unit 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 ambients or when long pipe runs are experienced.	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.
Suction Pressure too low	Low evaporator airflow.	Check fan motors, belts and drives.
	Flash gas (bubbles in sight glass) at expansion valve.	Investigate for refrigerant leaks, repair and re-charge system.
	Clogged filter drier (pressure / temperature drop across it).	Replace.
	Obstruction in liquid line solenoid valve.	Inspect, clean or replace.
	Obstruction in expansion valve.	Inspect, clean or replace.
Defrost cycle not initiating	Unit set for cooling only.	Check links. Check unit configuration / defrost settings
Condenser fan not operating - power on	Power supply failure. Wiring to motor.	Check power supply at circuit breaker. Check voltage at motor terminals.
	Motor / fan assembly jammed.	Isolate unit and check free rotation of motor/fan assembly. If faulty - replace.
	Motor internal overheat protector tripped.	Carry out continuity check at terminals “TK” in motor terminal box. If tripped and motor hot - check bearings. If tripped and motor cold - replace motor.
	Faulty motor windings/capacitor.	Motor humming would indicate fault in motor or capacitor. Check windings for continuity and if OK replace capacitor.
	Minimum speed set too low.	Adjust head pressure controller to suit.
	Faulty pressure sensor.	Check electrical connections are secure at controller and pressure sensor. Replace controller and sensor (as they are matched sets).
	Faulty Fan Speed Controller.	Link wires “line” and “load” to bypass controller. If motor runs full speed - replace unit.

Troubleshooting

FAULT	POSSIBLE CAUSE	REMEDY / ACTION
Condenser fan runs too fast	High ambient condition or excessive re-circulation of air around condenser coil.	Check installation against design.
	Minimum set speed setting incorrect.	Adjust as necessary.
	Incorrect pressure sensor setting.	Adjust sensor screw as necessary.
	Faulty Fan Speed Controller.	Replace controller and sensor (as they are matched sets).
	Faulty pressure sensor.	Replace controller and sensor (as they are matched sets).
Condenser fans runs only slowly	Incorrect pressure setting. Faulty Controller.	Adjust sensor screw as necessary. Replace controller and sensor (as they are matched sets).
	Faulty Pressure sensor.	Replace controller and sensor (as they are matched sets).
	Motor/capacitor faulty.	Replace.

Operational Maintenance Checks

Owners Responsibility

To ensure that the unit can be maintained correctly the following requirements are required.

- Maintain a safe working environment around the unit, free from obstructions and debris.
- The unit shall follow the following maintenance regime as a minimum.

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

Ensure Lock off procedures is carried out accordingly.

Maintenance Schedule

Item	Task	Frequency		
Unit Inspection		6 Mths	12 Mths	60 Mths
General Inspections	Check for visible mechanical damage to unit.	●		
	Check for cleanliness.	●		
	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.	●		
Coil Guard Cleaning	Ensure that the coil guard is free from debris.	●		
Electrical Inspection	Check main power supply voltages.	●		
	Check electrical terminals are tight.	●		
	Check that the control panel and fan assembly cables are securely fastened together.	●		
	Check amperages are as per design.	●		
Controls Alarm Log	Check alarm log for any spurious events.	●		

Service tools / Test Equipment

- Multimeter
- Screwdrivers/ Allen keys

Safety Equipment

- Safety Glasses/ Goggles

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