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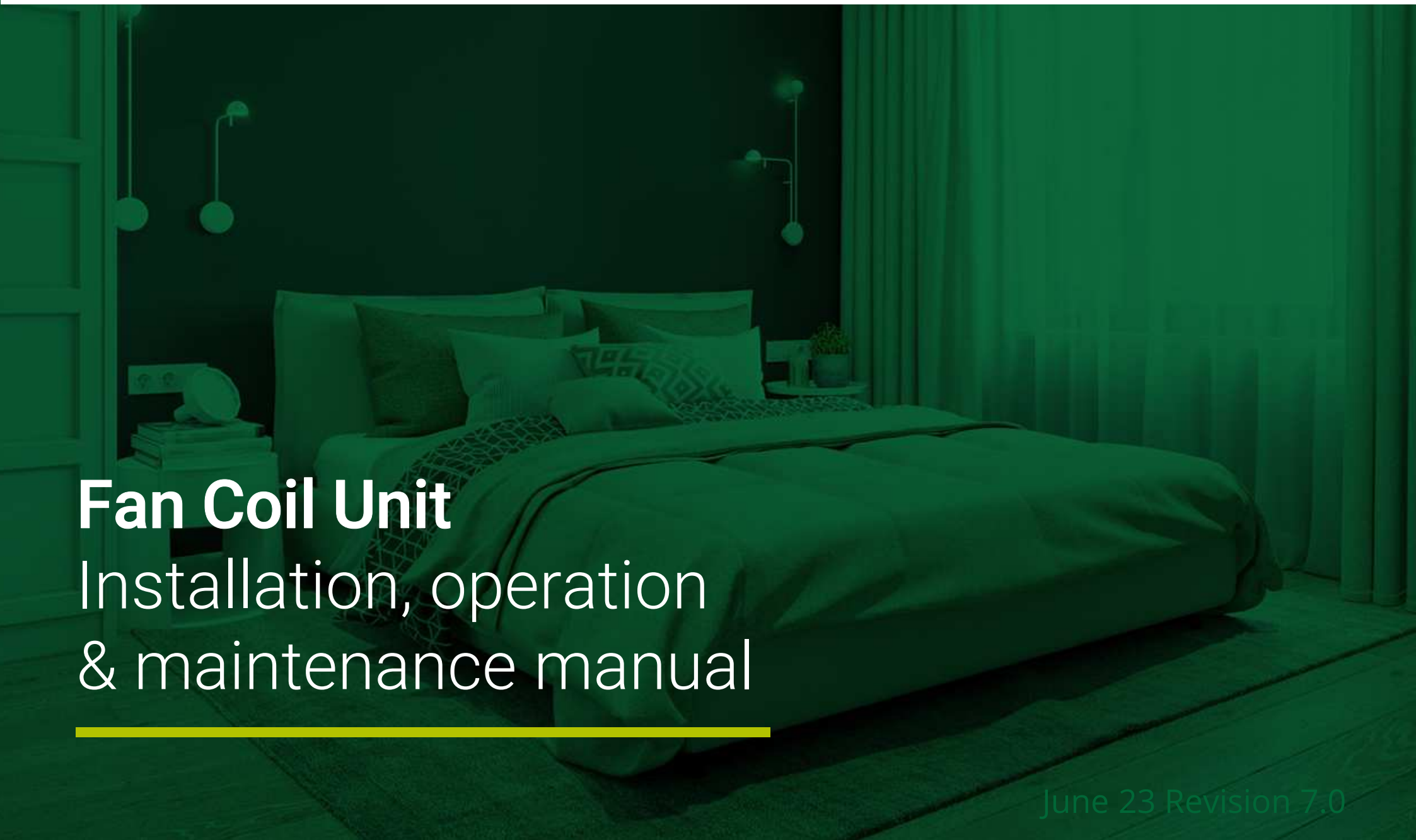

Fan Coil Unit

Installation, operation & maintenance manual

June 23 Revision 7.0

Contents

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1.0 Introduction

These Installation Operation and Maintenance instructions relate solely to the H235 and H270, Horizontal Fan Coil Unit products released in 2018 and as manufactured by CAICE Acoustic Air Movement Ltd.

The information herein provides guidance on how the product should be installed, operated and maintained.

Qualified and professional personnel should be used in all instances to determine exact methods of working using these instructions as a guide to good practice.

General information regarding product specifications can be obtained by reference to our sales literature.

Project related fan coil unit performance data can be obtained by reference to project specific documentation, or by contacting your local technical representative.

This instruction document forms an important part of the technical information associated with the product, and should be passed to the end user for reference during the working life of the product.

This instruction document is provided to the purchaser as part of project specific documentation, but may also be obtained by either contacting your local technical representative, or by visiting our website at www.caice.co.uk and following the links to our product information.

The fan coil units are purpose built to provide comfort conditioning. The units are intended for horizontal installation only in ceiling or floor voids, or alternatively in an exposed location.

The product is only for indoor use where dry conditions can be guaranteed, in an ambient temperature range of 0°C – 40°C, and at altitudes not exceeding 500m above sea level.

The product is intended for connection to one or more air distribution ducts.

The symbols to the right are used within these instructions to highlight references to potential danger, advice for safe operation, or other important information.

Warning

Indicates hazards relating to electric current or high voltages

Caution

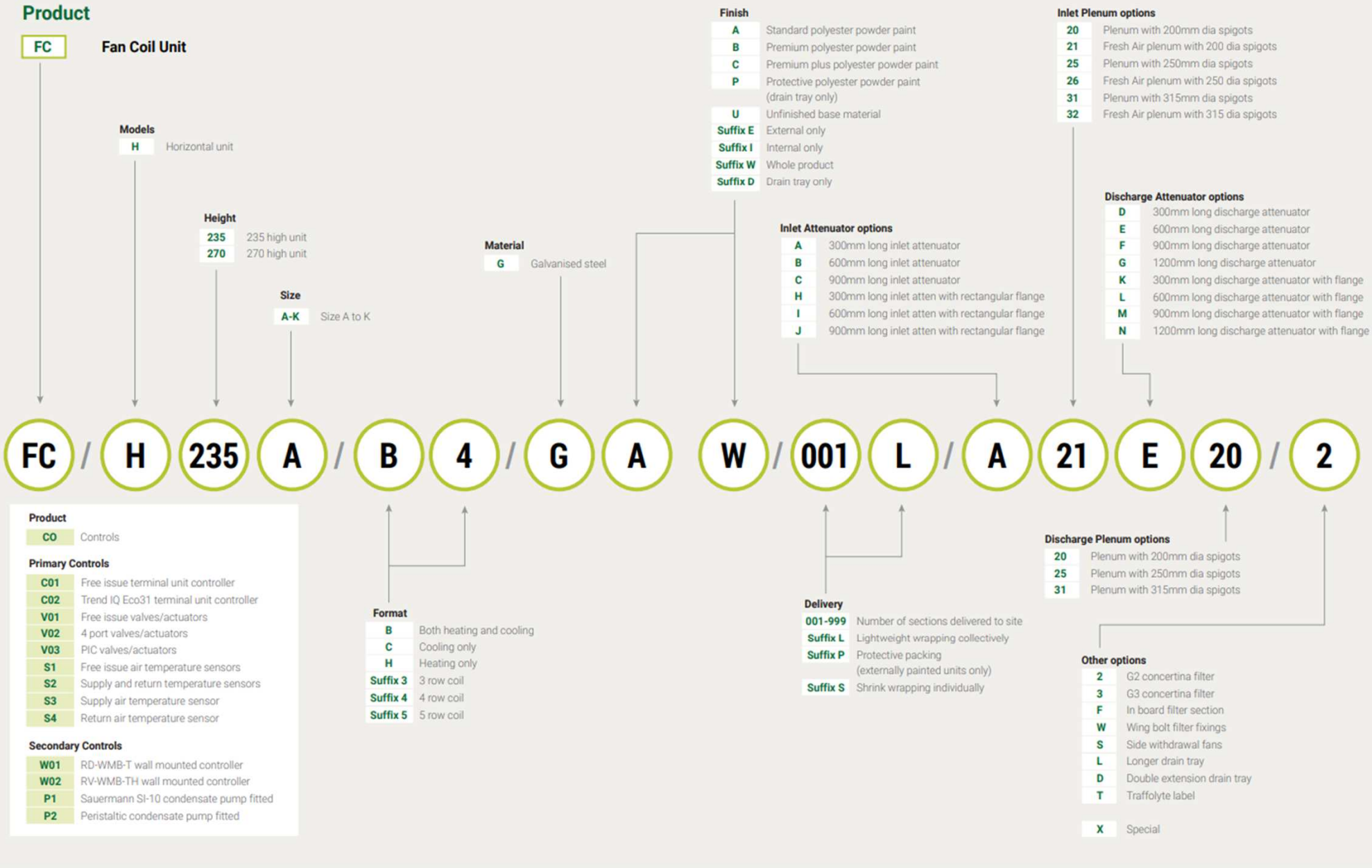
Indicates hazards requiring safety advice for personnel or with regard to possible damage to the equipment or property.

Important

Indicates important information

This manual does not relate to the Cheetah Fan Coil Unit product that is covered by a separate Instruction manual.

1.1 Fan Coil Unit Product Code Definitions



1.2 Modular Design

Discharge Plenum

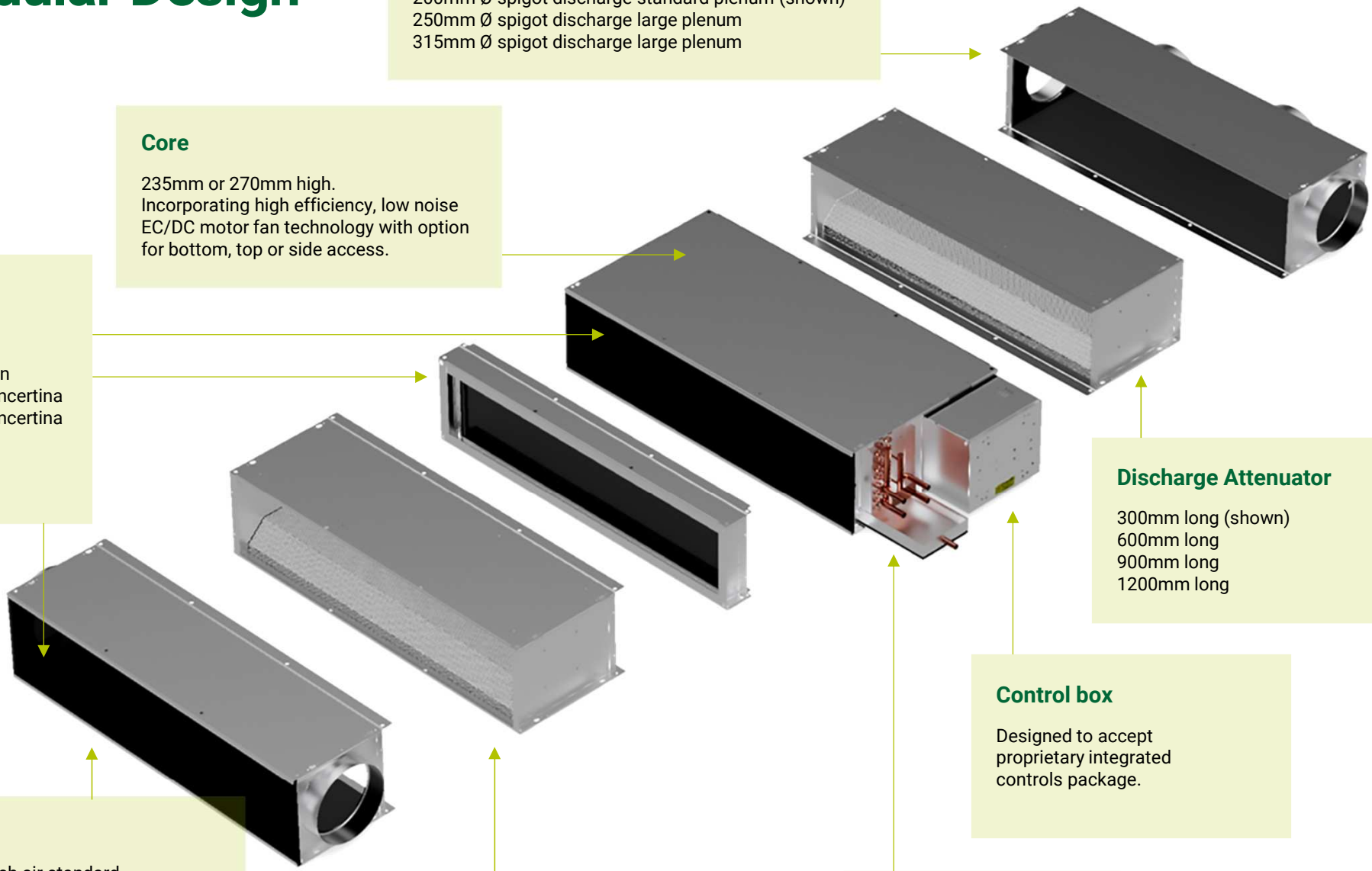
200mm Ø spigot discharge standard plenum (shown)
250mm Ø spigot discharge large plenum
315mm Ø spigot discharge large plenum

Core

235mm or 270mm high.
Incorporating high efficiency, low noise EC/DC motor fan technology with option for bottom, top or side access.

Filter

Options:
Inlet filter
In-board filter section
Course 35% (G2) concertina
Course 55% (G3) concertina
Bottom/top access
Side access



Discharge Attenuator

300mm long (shown)
600mm long
900mm long
1200mm long

Control box

Designed to accept proprietary integrated controls package.

Inlet Plenum

200mm Ø spigot fresh air standard plenum (shown)
250mm Ø spigot fresh air large plenum
315mm Ø spigot fresh air large plenum
200mm Ø spigot inlet standard plenum
250mm Ø spigot inlet large plenum
315mm Ø spigot inlet large plenum

Inlet Attenuator

300mm long (shown)
600mm long
900mm long

Coil

Operating Modes:
Heating & Cooling
Cooling only
Heating only

2.0 Safety

Prior to installation, operation, or maintenance of the product the below must be considered and understood by the personnel undertaking the work.

- That these instructions have been read and understood fully and completely
- That the nature of the installation site and associated working conditions have been appraised and hazards identified
- That all necessary risk assessments have been undertaken, and all ensuring safety measures have been implemented
- That they understand fully the scope of the work required, and that they have been trained and are competent to undertake the work
- That they wear the correct personal protective equipment
- That they have the correct tools and equipment to undertake the various tasks
- Take note that the materials used can have sharp edges, sharp angles and rough surfaces.

The equipment is to be assembled into a system of ventilation which may, or may not, incorporate additional components.

For the purposes of safety, the entire system must be considered, and it is the responsibility of the installer to ensure that all equipment is installed in accordance with manufacturer's recommendations, and with consideration to any relevant industry standards and codes of practice, and in conformance with all statutory legislation or regulations that are applicable.

Each unit is fitted with a rating plate indicating the nature of the supply voltage and the declared current.

Warning labels are also fitted where required.

3.0 Delivery and receipt of equipment

Receipt of goods on site

A Delivery Advice Note will be issued in advance of any delivery, usually providing 5-7 working days' notice of the delivery date, destination and any other delivery conditions.

Prior to dispatch all equipment is tested and inspected in accordance with our Quality Assurance procedures.

On arrival to site the client must thoroughly inspect the goods before signing the Delivery Note. Any damage or shortages in delivery must be confirmed by writing on the delivery note and also by reporting the matter to our main sales office within 48 hours of receipt.

No responsibility will be accepted for damage sustained during offloading from the delivery vehicle or thereafter from distribution of goods around the site.

Large units may be delivered in multiple sections as defined in the order documentation and delivery note and these will need to be assembled on site.

The valve assembly and coil header are protected for transit, the valve protection cover needs removing after installation.

3.0 Delivery and receipt of equipment

Offloading and distribution

It is the purchaser's responsibility to ensure that offloading of equipment from the delivery vehicle is undertaken in an appropriate manner, and that suitable mechanical lifting and/or moving devices are available to suit the delivery vehicle and site conditions.

Equipment will be palletised for delivery, and each unit will have an individual identification label affixed bearing the weight of the equipment.

It is recommended that offloading is undertaken using a suitably rated fork-lift truck or other mechanical lifting device. Note that pallets may contain more than one unit.

Alternatively, the equipment may be lifted from above using a crane. Lifting beams should be passed through the pallet in the same way as the forks of a forklift truck would be inserted.

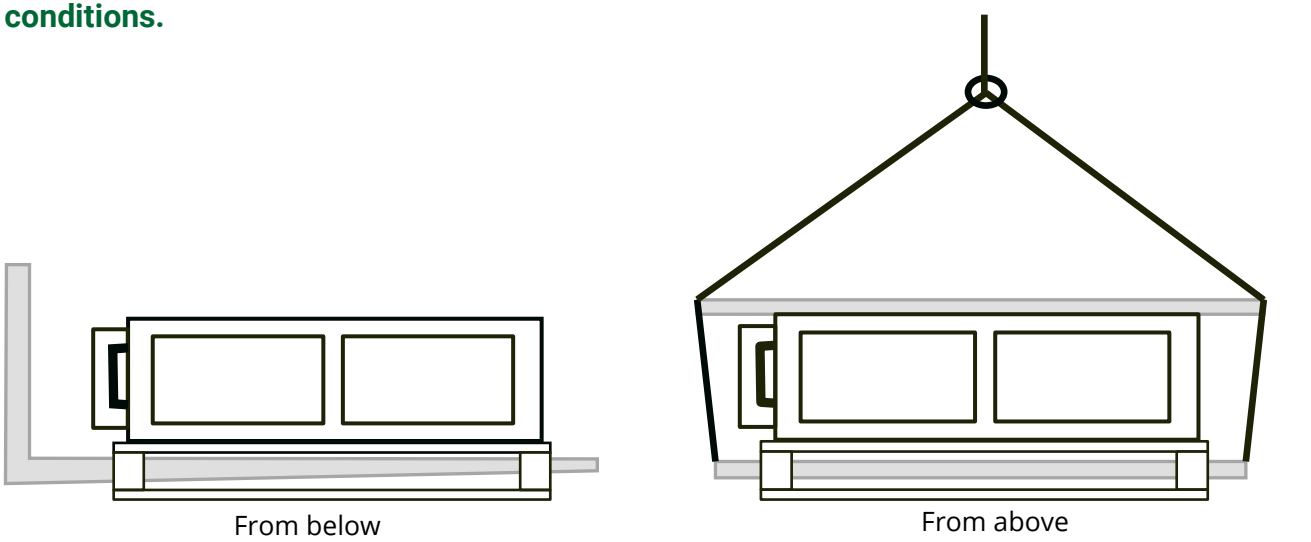


Fig 3.0a: Lifting palletised equipment

When lifting in this way, spreaders must be used to avoid damage to the casings of the equipment. Care must be taken to ensure that slings are correctly positioned.

Care must be taken at all times to prevent damage to the equipment.

Corners, edges and protruding components may be particularly susceptible to damage if handled incorrectly.

In particular controls enclosures, duct connectors, pipework connections or drain trays must not be used as lifting points.

Distribution of equipment should be undertaken using suitable mechanical handling devices.

Care must be taken to avoid subjecting the equipment to any shocks or impacts, as these may result in misalignment of the fan impellor, or damage to internal components.

4.0 Storage

General

The equipment must be stored in dry internal conditions. Duct connection apertures must remain sealed against the ingress of dust, debris or any other foreign matter.

The equipment should be stored on its delivery pallets, and must remain in horizontal orientation and the correct way up.

It is not acceptable to store the equipment in any other orientation, i.e. equipment must not be stored on its side, its end, or in any inclined position.

4.0 Storage

Extended storage

If the equipment is likely to be in storage for a period exceeding two months, the following instructions should be observed in order to preserve the life of all static and moving parts of the equipment which may be particularly susceptible to deterioration.

It is strongly advised to pay careful attention to stored equipment and to make regular inspections to ensure that adequate storage conditions are being maintained.

Although other procedures or considerations commensurate with good engineering practice may be necessary but not detailed in this document, the purchaser's attention is particularly drawn to the following items:

Unit interior & exterior surfaces

If ducting is not connected it is essential that all inlet openings, discharge openings and pipe openings are completely sealed.

Whenever any access panels are removed for inspection purposes they must be replaced and made secure.

The exterior should be kept free from any falling building materials, dampness or extreme cold or heat.

The unit exterior surfaces must be inspected on a monthly basis, and any signs of corrosion or scratches should be treated immediately.

Static Indentation

Machines fitted with bearings may be damaged if left stationary for long periods.

The bearings may suffer damage by fretting corrosion (false brinelling, stationary vibration or static vibration marking).

No unit should therefore be permitted to stand on a vibrating floor while in storage.

Where this is absolutely unavoidable, then the equipment should be isolated by placing on thick blocks of rubber, cork or felt.

If stored for over 12 months then fans should be run up every 3 months for a period of 2 hours.

When the equipment is ready to be put into commission, the instructions in this documentation should be strictly adhered to.

Filters

All filters must be suitably wrapped and sealed to prevent damp and ingress of dust or foreign bodies, and must be held in a dry area. Filters are supplied installed in the FCU's.

5.0 Installation

General

Prior to installation, it is the installer's responsibility to observe the environmental and operational limitations of the equipment and ensure that they are compatible with the installation location.

Fig 5.0a: Label

The method of support must be suitable for the installation location of the equipment.

Any proprietary support system must be capable of taking the full unit weight and must be installed in full accordance with the manufacturer's instructions.

The installer must also take responsibility for ensuring that access panels are not obstructed, and that safe working access for maintenance can be provided.

Reference should be made to project specific drawings and data sheets in order to identify the handing, orientation and access requirements of any particular unit, and to verify that the installation location does not compromise these aspects of the equipment.

Provision should also be made for installation of adequate illumination of the unit in order for safe maintenance.

Each unit will be fitted with an identification label. (refer to Fig 5.0a)

5.1 Erection and assembly

Although the equipment is of robust construction, care must be taken when handling during final positioning and installation operations.

Controls enclosures, drain trays, duct connectors or pipework connectors are NOT designed to be load bearing, and under no circumstances must these be used move or support equipment during installation. Failure to observe this point may result in severe injury or damage to the equipment.

Units must be installed in accordance with good industry practice, horizontal and level across the width and along the length of the equipment.

A slight incline of 2-3° towards the condensate drain only is acceptable.

A prepared base may be utilised (this may include a suitably designed, suspended platform).

Support positions should be determined to provide a distributed support across the equipment casings, and provision is made for M10 fixings or drop rod supports to pass through the equipment casings.

The chosen support positions must not obstruct access panels, controls enclosures, ductwork or pipework connections.

In normal operation the equipment does not exhibit any significant levels of vibration, however vibration isolation treatment may be necessary in certain situations.

Typically, the fan coil unit assembly may be suspended using 3mm thick rubber washers and steel supporting washers.

Alternatively, proprietary rubber or steel spring mountings may also be used.

Where equipment is installed with vibration isolation measures, flexible connections to all other connecting services should also be installed.

Ductwork connections to the equipment are either circular slip joints, or rectangular flange suitable for connection to 20mm or 30mm Doby/MEZ compatible flanges for 235mm & 270mm high FCUs respectively.

All connecting ductwork or associated components must be independently supported, and must not impose any load on the duct connection.

The installer is responsible for sealing the ductwork connections to the equipment using duct sealing tape and closed cell foam for flange joints as appropriate.

M8 bolt fixings will be required for connecting to flange corners.

Where units are delivered in multiple sections, the joining sections must be sealed using an appropriate silicon sealant or similar on both sides, top and bottom to ensure an airtight seal.

5.1 Erection and assembly

If a discharge attenuator is provided it must be installed in the correct orientation to prevent restriction of airflow.

Guidance points are present to enable the correct installation of the attenuator, the guidance points are located on the attenuator side closest to the FCU, small inserts prevent the attenuator being fitted the incorrect way around.

Where component sections are supplied loose, fixings are located in the nutserts on the FCU core. These will need to be removed and refitted with the sections attached.

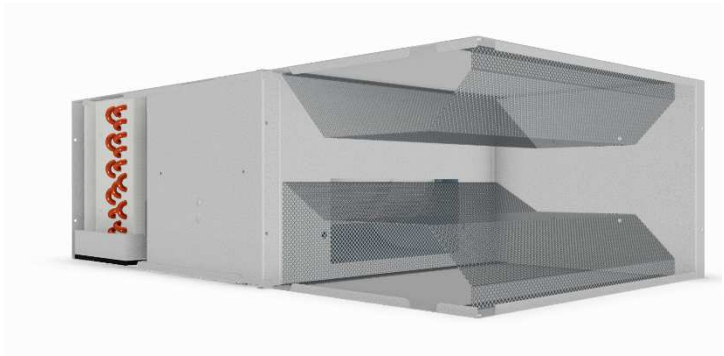


Fig 5.1a: Incorrect Installation of Discharge Attenuator

The connecting ductwork should be designed and installed in accordance with good industry practice.

In some instances, the configuration and geometry of the connecting ductwork may impair the performance of the equipment.

For example, installation of a 90° bend immediately adjacent to the equipment may result in increased noise levels and reduced airflow.

Flexible ductwork is commonly used for connection to Fan Coil Units.

Where this occurs, the flexible ductwork should be pulled reasonably tight, and used only to correct very slight angular misalignment between the air terminal and the connection to the fan coil unit.

Flexible ductwork should not be fully extended or taut.

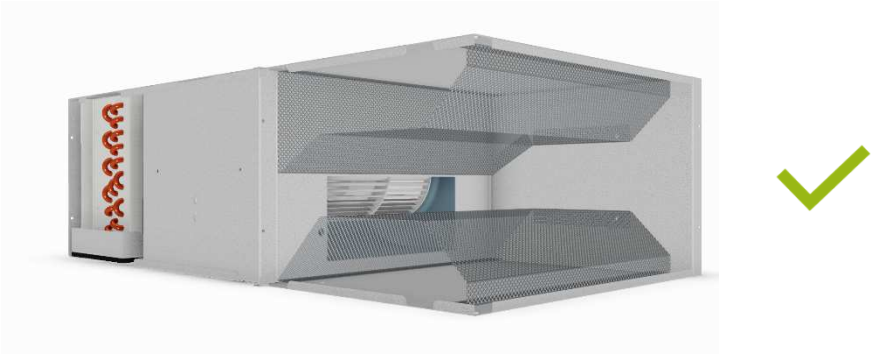


Fig 5.1b: Correct Installation of Discharge Attenuator

5.2 Access

Clear access zones must be maintained around the equipment in order to facilitate setting to work and subsequent maintenance.

Consideration must be given to the following access requirements for each of the various aspects of the equipment:

- **Fan chamber:** access panels are located on the bottom of the equipment (or optionally on the side or top of the equipment where these variants have been specified)
- **Inlet air filter:** access is via the inlet end of the equipment, from the left and right hand side, and from the rear as appropriate. Some equipment variants provide for an in-board filter section, in these instances filter access is from the left and right side or either the top or bottom.
- **Water and drainage services:** from the left or right hand side of the equipment (according to the manufactured handing)
- **Electrical control:** from the left or right hand side of the equipment (according to the manufactured handing)
- **Drain tray removal:** access is from the underside of the equipment or the side corresponding to the water and drainage services handing.
- **Heat exchanger (coil) removal:** access is from the underside of the equipment, although fixing screws on both sides of the equipment must be accessible.

Failure to provide sufficient unobstructed access/free space may prevent inspection, maintenance, service, repair and replacement of components, and connection of services.

The following minimum clear space requirements are recommended:

Rear & Bottom Fan access

Fan Removal	Filter Removal	Coil Connections	Electrical Connections	Drain Tray Removal	Coil Removal
Unit height + 100mm below unit	700mm	As indicated by site installation variables	600mm x 600mm Unit height + 100mm	50mm Below unit	Unit height +100mm below unit

Side Fan Access (if supplied)

Fan Removal	Filter Removal	Coil Connections	Electrical Connections	Drain Tray Removal	Coil Removal
700mm	700mm	As indicated by site installation variables	600mm x 600mm Unit height + 100mm	50mm Below unit	Unit height +100mm below unit

See diagrams on page 15 for further clarification.

5.2 Access

The below details the minimum access requirements for the FCU's.

- **Filters**

The concertina filters can be removed from either the side or below.

If removing from the side the filter folding zone can be utilised or the filter can be pulled fully to the side which will require the width of the unit (W) + 50mm.

For rear or bottom filter removal access is required to the screws holding in the filter retaining angle at the bottom of the FCU.

For a short animation on side access filter removal please refer to
www.caice.co.uk/fan-coil-units/

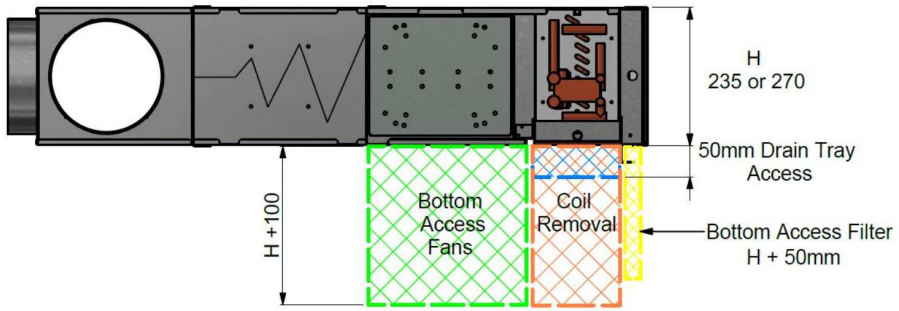


Fig 5.2a:
Bottom access shown, for floor mounting the access zones should be from above.

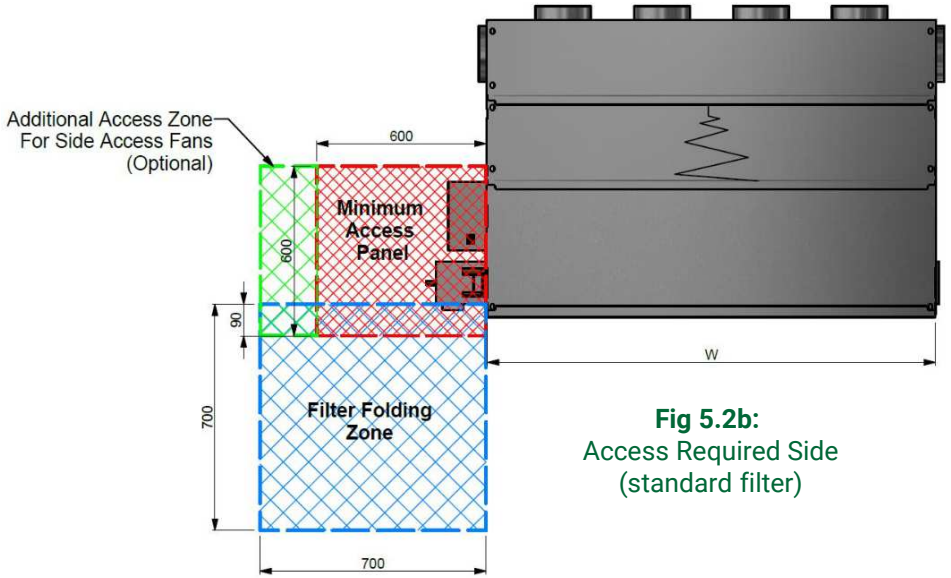


Fig 5.2b:
Access Required Side (standard filter)

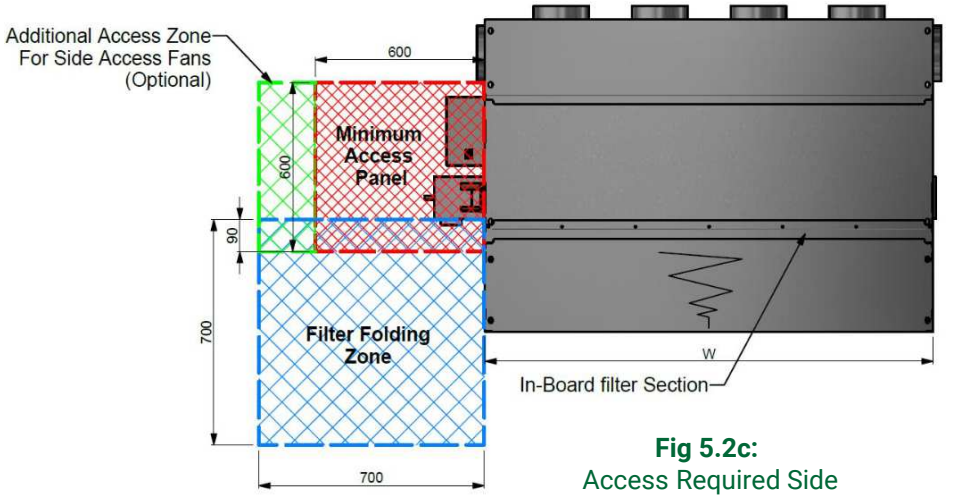


Fig 5.2c:
Access Required Side (with filter section)

5.3 Connecting the condensate drain

The equipment incorporates a water to air heat exchanger (coil) with provision to connect to CHW cooling and LPHW heating services.

The coil may produce condensate during use in cooling applications.

Condensate drip trays are fitted and provided with a 15mm plain pipework outlet, and this should be connected via pipework to a suitable drainage point.

The drainage pipework should be fitted with a suitable trap. The dimensions of the trap must be correctly sized to overcome the inlet pressure of the fans. It is recommended that the trap is arranged generally as shown in Figure 5.3a.

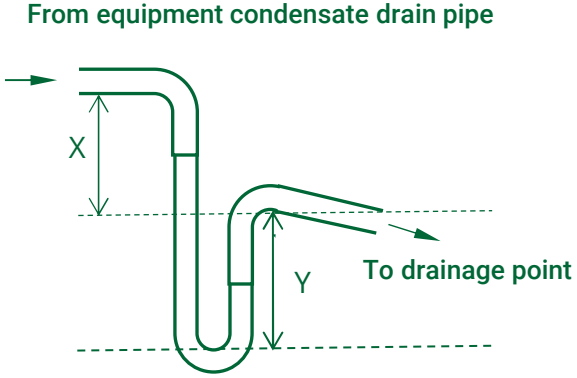


Fig 5.3a: Heat exchanger coil drain trap

Dimensions X and Y should be as follows:

X = fan inlet pressure (mm H_2O) + 25mm (minimum), Allow 100mm if pressure is unknown

Y = not less than X / 2

The drain pipework must have a free fall from the cooling coil drain tray and should be arranged to discharge over an open drain or tundish.

The installation of a supplementary condensate pump should be considered in situations where gravity drainage alone is insufficient. (Fig 5.3b)

Fig 5.3b: Condensate Pump

Where access to rotating parts or parts that can become electrically live is not prevented by the equipment's access panels or by the fixed installation (i.e. by means of connection of four individual air distribution ducts to the equipment), then appropriate guarding must be fitted before operating the equipment.

5.4 Connecting the water circulation services

The equipment incorporates a water to air heat exchanger (coil) with provision to connection to CHW cooling and LPHW heating services.

Coil connections are identified by means of a coloured label indicating heating and cooling flow and return connections (see fig 5.4a).

Flow is the bottom connection with the return being vertically above. The vertical spacing between the flow and return connection is 40mm centres.

All pipework connections to heating and cooling coils must be made in accordance with industry standards.

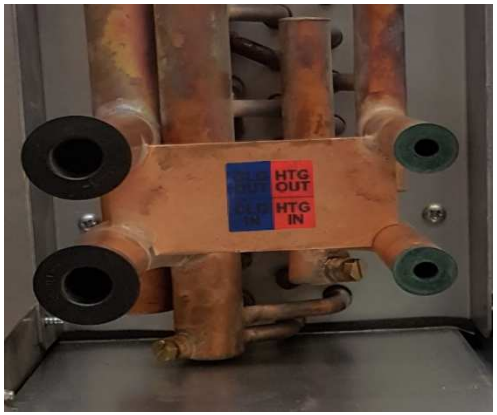


Figure: 5.4a Identification of heat exchanger coil connections

Connections should be arranged to allow the coils to expand and contract freely. Coil control valves should be suitably insulated as appropriate.

The coil connections are fragile and care must be taken during installation to avoid any undue stresses which may fracture the joint between the connection and coil body.

All external pipework and ancillary components must be supported independently from the coil, and where necessary must be insulated.

Coils must be protected against damage from frost or extreme weather conditions. Provision must be made to prevent water from freezing in the coil system.

Such provision may include frost thermostats or the addition of a suitable anti-freeze solution.

5.4 Connecting the water circulation services

Coil Connection Sizes

Model		Cooling	Heating
H235	A	15 Ø	15 Ø
	B	15 Ø	
	C, D	15 Ø	
	E, F	15 Ø	
	G, H, I	22 Ø	
	J, K	22 Ø	
H270	B	15 Ø	
	C, D	15 Ø	
	E, F	15 Ø	
	G, H, I	22 Ø	
	J, K	22 Ø	

The maximum allowable operation pressure through the coils is 7bar.

It is the installer's responsibility to check whether the water supply requires any treatment for the prevention of corrosion or scaling of equipment.

Materials of construction in contact with the water are copper tubes, brass fittings and valve bodies, and stainless steel valve stems.

Additional allowance must be made for materials in the external pipework system.

Information regarding the necessary actions to be taken can be obtained from the relevant water supply authority, particulars of which can be found in the Water Engineer Handbook Yearly Edition.

All aspects of the system should be installed with consideration to any relevant industry standards and codes of practice, and must conform to all statutory legislation or regulations that are applicable.

Do not run water through the cooling coils without the fans running for any period of time. Potential build up of condensation in certain scenarios can occur leading to leakage and possible FCU damage.

5.5 FCU Coil Water Volumes

235 Model

Model		CHW Coil Fluid Volume (litres)	LTHW Coil Fluid Volume (litres)
235	A	0.48	0.07
235	B	1.00	0.10
235	C	1.46	0.15
235	D	1.46	0.15
235	E	1.93	0.19
235	F	1.93	0.19
235	G	2.28	0.36
235	H	2.28	0.36
235	I	2.28	0.36
235	J	2.70	0.43
235	K	2.70	0.43

270 Model

Model		CHW Coil Fluid Volume (litres)	LTHW Coil Fluid Volume (litres)
-	-	-	-
270	B	1.18	0.10
270	C	1.75	0.14
270	D	1.75	0.14
270	E	2.30	0.19
270	F	2.30	0.19
270	G	2.74	0.36
270	H	2.74	0.36
270	I	2.74	0.36
270	J	3.27	0.43
270	K	3.27	0.43

5.6 Connecting the electrical supply

The electrical installation must conform to the requirements of the local electrical safety regulations (such as but not limited to the IEE regulations and any local by-laws).

The equipment is intended for connection to a 230v, single phase, 50Hz mains power supply.

WARNING: The equipment must not be connected to an electrical supply voltage outside of the specification.

The power supply should be via a switched and suitably rated fused spur. The declared current for the equipment is shown on the rating plate fixed to each unit.

The equipment is provided as standard with a male IEC connector and illuminated on/off switch. The equipment should be connected to the mains power supply by means of a suitably rated flexible supply cord fitted with a matching female EIC320/C13 connector (optional extra).

The installer must make suitable provision for adequate support/strain relief of the supply cord.

WARNING: It is essential that an earth connection is made prior to connecting the mains supply.

The electrical installation must incorporate a method of disconnection in the fixed wiring, in accordance with local regulations.

It is the installer's responsibility to provide a suitable local isolating switch and fuse.

Holes are provided for access into electrical controls enclosure to allow for the routing of controls cables, sensor cables or SELV wiring.

2-off panel holes of 15mm diameter are provided, these holes should be fitted with PG9 cable glands, providing adequate strain relief and protection for the incoming cables.

Fig 5.6a: Power supply connection point

WARNING: In order to restrict access to live parts housed within the electrical controls enclosure, it is the installer's responsibility to ensure that any unused panel holes are blocked by fitting of cable glands which must be screwed closed.

5.6 Connecting the electrical supply

Kettle Plug

A kettle plug is used to power the FCU. As per image shown the kettle plug socket is mounted on the side of the electrical enclosure.

As standard the FCU is not supplied with a kettle plug, this is an optional extra. The standard kettle plug is a IEC320/C13. An optional extra Low Smoke zero halogen (LSZH) cable is also available upon request (additional cost).

If the kettle lead is supplied by Caice, it will be located in a box on a pallet, and site fitted by others.

Fig 5.6c: Power supply connection point

Fig 5.6b: Male Kettle Lead

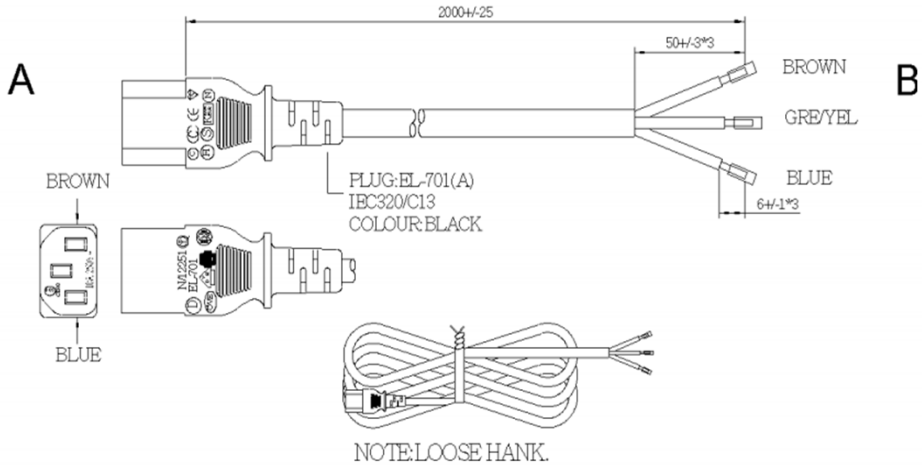


Fig 5.6c: Standard Optional Kettle Lead

5.7 Connecting the controls cabling

In order to operate the equipment according to the control strategy being implemented, it may be necessary to connect controls cabling

The installer should refer to the wiring diagrams and controller guides to identify the controller, connectivity and functionality applicable to the equipment supplied.

Project specific wiring diagrams should be available where free issue controls are fitted by Caice. Standard wiring diagrams can be found in Appendices 1 & 2 of these instructions.

Controls cables, sensor cables or SELV wiring should not be installed or routed in the same cable tray which carries mains power or 230V switched power.

6.0 Commissioning and setting to work

General

Prior to commissioning and setting to work, and with the unit disconnected from the power supply, pre-commissioning checks should be performed as follows:

- Inspect all internal sections of the equipment and faces of the filters, heat exchangers and coils to ensure that they are not obstructed, and that they are clean and free from dust, debris or foreign bodies.
- Perform a trial spin by hand of the fans to ensure that the rotating impellor is not rubbing on the inlet ring, wiring, or on any other part of the fan scroll.
- Check all water connections for leaks. Ensure that all air is vented independently from the coils and the circulating system.
- Introduce a small amount of water into the condensate tray to prime the trap and verify free flow into the drain.
- Check that the electrical installation is in accordance with the required legislation and standards, and that all the correct electrical safety measures (such as earth connection, fuses, isolators) are in place.
- Check that all access panels are in place and that they are securely fastened.
- Check the guarding of the system.
- Check that the controls enclosure cover is fitted and securely fastened.
- Check operation of Isolators/Controls.

If any aspect of the pre-commissioning checks is found to be unsatisfactory, the equipment must not be put into service until the matters have been corrected.

6.1 Initial start-up

On completion of the general pre-commissioning checks and rectification of any problems, the unit may be started. The following checks and adjustments should be performed:

- Ensure that any dampers in the connected ventilation system are fully opened.
- Connect the power supply and apply the necessary speed control signals.
- Operate the fans for approximately 10-15 minutes.
- Verify that the unit air volume and external pressure is in accordance with the design duty.
- Adjust the fan speed by way of the speed control setting and record the control voltage values.
- Check that the equipment current draw does not exceed the value on the rating plate.
- Check the functioning of the equipment controls.
- Check the fluid flow and return temperatures in the water circulating system and verify the fluid flow rate.
- Adjust to the design specification as necessary.

6.2 Checks after two weeks running

After initial start-up and continuous running of the equipment for a period of two weeks, it is recommended that the following checks are performed.

- Check the equipment current draw.
- Check condition of filters.
- Check condensate trays and drains for free flow and leaks.
- Check any valve connections for leaks.
- Check operation of controls.

Where these actions require access into the equipment, ensure that the maintenance procedures provided within this instruction document are followed.

7.0 Fault Finding

Issue/problem	Possible cause
• Air volume lower than expected	• Dirty filter • All fan scrolls not running • Dampers aren't all open • Flexible duct installation –check there is no restrictions, excess material, constricted bends or air leakage
• Noise level higher than expected	• Dirty filter • Ductwork is not sealed and there is air leakage • Higher external static pressure than design • Design room conditions not achieved
• Controls/Valves do not operate	• BMS set point temperature been set incorrectly. • Valve commissioning caps still installed • Sensors poorly located, restricted by draft or external source • BMS Contractor has not finished their controls commissioning process.
• Unit becomes noisy over time	• Filter dirty or poorly maintained
• Condensate does not drain causing leaks	• Dirty filters can prevent condensate flow/discharge • FCU has not been installed level • Blocked condensate drain • Condensate pump not working (if applicable)
• FCU not meeting cooling/heating demand	• Air volume not commissioned to manufacturers selection volume • Water flow rate not commissioned to manufacturers selection flow rate. • Check correct operation of fans and water valves

8.0 Maintenance

General

Before attempting to perform any maintenance work whatsoever on the equipment, it is essential that the equipment is disconnected and completely isolated from the mains power supply.

After disconnection of the mains power supply, a minimum of 1 minute should be allowed for any rotating parts to come to rest before access panels are removed. However, care should still be taken as it is possible for airflow generated in other parts of the system to cause the fan impellor to rotate (windmill effect) even when power is not present.

Access panels are not fitted with restraints.

Appropriate PPE should be worn and correct tools should be used when undertaking these various maintenance tasks.

Access panels that are removed for maintenance operations should be placed at floor level in a safe location until they are ready to be re-fitted. Replace access panels at the same locations and in the same orientation as found, and ensure that the screw fixings are fastened securely, but not over-tightened.

If failure of the equipment occurs or is suspected, then it should be taken out of service until the appropriate maintenance or repair can be undertaken.

8.0 Maintenance

Maintenance Schedule

In order to maximise the useful life of the equipment and keep it operating in good order, the maintenance checks and tasks detailed in these instructions should be performed as part of a regular and routine service schedule. Under normal operating conditions, the following schedule is recommended:

Item	3 Months	6 Months	Annually	Information page
Condensate Tray		✓		30
Coils		✓		31-32
Filters	✓			28-29
Motors/Fans		✓		33-35
External Surfaces			✓	37
Insulation & Seals			✓	-
Controls			✓	38

8.1 Filters

Caice filters are supplied as sectional concertina units. These can be supplied as course 35% (G2) as standard (black washable media) or course 55% (G3) (white non washable media) over a metal wire frame.

Fan Coil Model H235 or H270	Number of Filter Sections	Filter Section Dimensions (mm)
A	1	1 x 400
B	2	1x 620
C, D	2	1 x 310 & 1 x 620
E, F	2	2 x 620
G, H, I	3	1 x 310 & 2 x 620
J, K	3	3 x 620

Fig 8.1a: Standard Filter Sizes

Fig 8.1b: 35% Sectional Filter (J or K)

8.1 Filters

Filters must be properly maintained in order to ensure proper air cleaning efficiency and to maintain design airflow.

Filter removal

The concertina filter can as standard fitted on the inlet of the FCU (Fig 8.1a) or can be offered as an inboard filter (Fig 8.1b). The below steps should be followed to remove the different types of filters.

Standard Filter Removal (35% or 55%)

- Locate the black release tabs as per circled tabs on figure 8.1c
- The filter can be removed from either left or right side of the FCU
- Pull the black tabs to slide the filter out of the filter retaining channel.
- As the filter slides out of the side of the FCU channel the concertina design will allow it to fold making it easier to be removed.
- The filter can also be removed from below by unscrewing the screws along the bottom of the filter channel
- Note some filters have multiple filter sections. Refer to page 27.

Fig 8.1c: 55% Filter shown

In Board Filter Section Filter Removal

- Remove the 4 filter access screws, these need to be removed from the side in which the filter needs to be removed.
- Remove the filter access panel – this will then show the filter tabs as per figure 8.1d.
- Pull the filter tabs to slide the filter out from the internal filter channel.

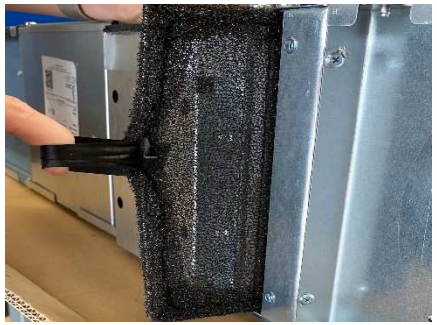


Fig 8.1d: 35% Filter shown

Filter Cleaning

The length of time between cleaning of filters is dependent upon the air condition. A 3-month cycle is normal, however more frequent maintenance may be required. A dirty filter can increase the unit resistance, which will increase noise levels.

Initially, cleaning can be performed by gently tapping and removing loose dust with an air line or vacuum cleaner.

Once removed, washable filters (35%) may be fully immersed in warm water with a mild detergent solution.

Agitate the water until all contaminants have been removed. The filter should then be rinsed in clear water, allowed to drain and air dried before replacement. In the event of heavy soiling or damage to the filter media or wire support frame, the entire filter should be changed.

When refitting new filters into the equipment, it is important to ensure these are fitted correctly in respect of airflow. The correct orientation is obtained when the wire frame is positioned towards the heat exchanger, and the filter media completely covers the wire frame.

8.2 Condensate drip trays and drains

Drain lines should be checked to ensure that they are unobstructed and free draining.

Drain traps should be checked that they are fully primed and functioning correctly.

Drain trays should be checked to ensure they are free from debris.

They should be periodically flushed out and chemically treated as necessary to remove any contamination. They may also be removed in order to remove debris, or to aid inspection or removal of the heat exchange coil.

To remove the drain tray, proceed as follows:

1. Disconnect the condensate drain pipework from the drain tray connection

2. Whilst supporting the drain tray from underneath, unscrew the self-tapping screw which is located on the side wall of tray (refer to Figure 8.2a)

3. Move the drain tray off the supporting lugs and away from the equipment (refer to Figure 8.2a & b)

4. To refit the drain tray, it is necessary to generally reverse the above procedure.

5. If valve sets are fitted then the valve support bracket will need removing. The condensate pump will also need removing if present.

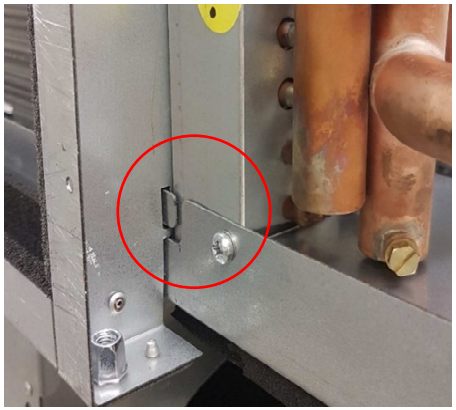


Fig 8.2a: Drain Tray Retaining Screw and Front Support Lugs

Fig 8.2b: Drain Tray Rear Support Lugs

8.3 Water to air heat exchange coil

The finned surfaces of the heat exchange coil should be inspected for accumulation of dirt, dust, biological contaminants.

The coil should also be inspected for any evidence of leaks on the finned surfaces, on the connections to the coil tails, and on all externally visible copper tubes, headers and return bends.

To enable full inspection of both faces of the coil, the fan access panels and air filter should be removed. Maintenance can be performed as follows:

- Superficial dust or debris can be removed from the surface of the heat exchanger core's matrix by gently brushing with a soft long haired brush. Loosened debris can then be vacuumed from the finned surfaces and other areas around the coil.
- It may be possible to remove stubborn deposits or biological contaminants by careful application of a damp cloth. The cloth should be dampened using warm water mixed with a mild detergent solution compatible with the materials used in the construction of the coils (copper tubes, aluminium fins). Care must be taken not to damage the finned surface of the coil.
- Compressed air may be used to blow through the coil fins, however care should be taken to ensure that any residue, debris or water from washing does not contaminate the fan assemblies or electrical connections within the fan chamber.

  Residual water should be dried immediately with a cloth, and must not be allowed to saturate the insulation inside the equipment casing.
- If there is any evidence of leaks, the coil block should be removed, and either repaired or replaced.

Any treated water within the coil fluid circulation system should not be drained into any waste water disposal system without Local Authority approval.

It is the responsibility of the user and the maintenance personnel to ensure that all Local Authority and prevailing environmental legislation / guidelines are adhered to.

Installation above plasterboard ceilings

If installed above plasterboard ceilings where access hasn't been provided for inspection / cleaning of the coil, it is essential the filter is regularly maintained. The filter is designed to protect the coil from significant dirt and debris under a normal environment. Should the coil become clogged due to excessive dirt due to poor maintenance / poor environment the performance and noise generated by the unit could be affected"

8.3 Water to air heat exchange coil

After disconnection of pipework and removal of certain fixings, the coil may then be slid out of the unit. Note that there may still be residual fluid within the coil block. The finned edges of coil blocks are sharp and may cause cuts if handled incorrectly. Suitable gloves must be worn. Larger coils (above a size B) can be heavy and will need more than one person to help remove.

Removal of a coil should be performed as follows:

- 1 – Isolate the power and make sure fans have stopped rotating.
- 2- Isolate the heating and cooling water circulation system from the coil.
- 2 - Drain down the water circuits by either disconnecting the flow and return pipework to the valves, or by using drain cocks where fitted.
- 3 - If necessary, remove valve actuators or disconnect control leads from the control box and move the valve/actuator assemblies to one side, taking care to note any specific actuator designation/connection.
- 4 - Once all water has been drained, disconnect the condensate drain pipework from the drain tray connection.
- 5 - To expose the coil, remove the drain tray as described within the preceding section of these instructions.
- 6 - Whilst supporting the coil from underneath, unscrew the eight self-tapping screws (four each side) which fix the coil in place. The screws are located beside the coil pipework tube bends (refer to Figure 8.3b). Note the coil end protection plate has cut outs to allow screws to be unscrewed (Figure 8.3a)
- 7 - Carefully lower the coil down and away from the equipment casing.

Refit of a coil should be performed as follows:

- 1 - To refit the coil it is necessary to generally reverse the above procedure.
- 2 - Re-fill the coil and check for leaks.
- 3 - Independently vent the coil and water circulation systems.
- 4 - If the valve/actuator has been removed, the settings should be checked and re-commissioned or re-set as necessary.

Fig 8.3a: Coil end protection plate

Fig 8.3b: Coil fixing screws

8.4 Fans

A regular inspection of the fan assemblies (comprising the impellor and the motor) should be undertaken to ascertain whether any overheating of the motor is occurring, and to check that the fan impeller is free running and has not sustained any damage.

The fan assembly should be cleaned regularly, as any excessive build-up of dust or debris may cause the impellor to fall out of balance, or the motor to overheat.

The impellor and motor should only be cleaned with a soft dry brush to remove dust deposits.

The fixings holding the fan motor to the fan scroll should be checked and tightened if necessary. In addition, the fixing screws holding the fan scroll to the main body of the equipment should also be checked and tightened as required.

These fixings must be secure before checking the fan bearings.

Standard fan bearings are “sealed for life”, therefore no specific maintenance is required. In normal service, the fans have an anticipated life of 40,000 hours.

However, the condition of the bearings should be checked and assessed at regular intervals as follows:

- The fan impellor should be rotated manually to detect any roughness or flat spots in the bearings.
- Gentle lateral pressure should be applied back and forth on the impellor to detect any excessive movement or play in the bearings.

If any roughness, flat spots or excessive movement is found, then the fans should be replaced.

8.4 Bottom Access Fans

If any roughness, flat spots or excessive movement is found, then the fans should be replaced:

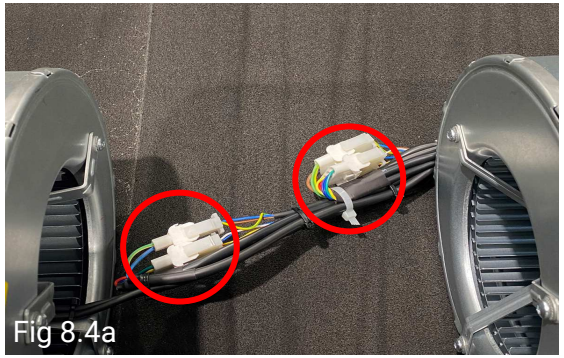


Fig 8.4a

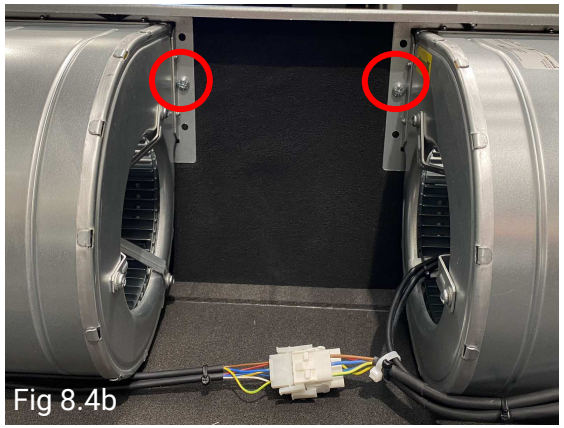


Fig 8.4b


Fig 8.4c

- 1 - Check the equipment is disconnected and completely isolated from the power supply.
- 2 - Remove fan access panel.
- 3 - Ensure a wiring diagram is available, or note the wiring connections before undoing any wires.
- 4 - Locate the two wiring looms from the fan motor and disconnect each multi-plug connector. (Image 8.4a)
- 5 - Whilst supporting the fan scroll, loosen and remove the screws holding the scroll to the main body of the equipment (Figure 8.4b & c), and manoeuvre the entire fan assembly out of unit. (different procedure for side withdrawal fan option).
- 6 - Check that the new fan assembly bears the same manufacturer identification as the unit which has been removed. If any differences are found, then the re-installation cannot be completed and the correct fan type must be obtained.
- 7 - To refit a new fan, it is necessary to generally reverse the above procedure. Once all fan fixing screws are tightened, check that the impellor spins freely and is not fouling on the inlet ring or any other part of the unit. Re-connect wiring.

On completion of the maintenance of the fans, re-fit the access panels.

8.5 Side Access Fans

When the side withdrawal fan option is incorporated into the fan coil unit the fan chamber access panel forms part of the control box with fixing screws accessed from within the control box. Fans are withdrawn through the access area, off their supporting slide rail.

- 1 - Check the equipment is disconnected and completely isolated from the power supply.
- 2 - Remove screws from side access panel (inside the electrics enclosure, as per Figure 8.5a).
- 3 - Remove fan access panel
- 4 – Pull fan deck out using bracket, make sure the fans are supported at all times to prevent damage to the runners. (Fig 8.5b)
- 3 - Ensure a wiring diagram is available, or note the wiring connections before undoing any wires.
- 4 - Locate the two wiring looms from the fan motor and disconnect each multi-plug connector. (Fig 8.5c)

If any roughness, flat spots or excessive movement is found, then the fans should be replaced:

- 5 - Whilst supporting the fan scroll, loosen and remove the screws holding the scroll to the fan deck (Fig 8.5d) and manoeuvre the entire fan assembly out of unit.
- 6 - Check that the new fan assembly bears the same manufacturer identification as the unit which has been removed. If any differences are found, then the re-installation cannot be completed and the correct fan type must be obtained.
- 7 - To refit a new fan, it is necessary to generally reverse the above procedure. Once all fan fixing screws are tightened, check that the impellor spins freely and is not fouling on the inlet ring or any other part of the unit. Re-connect wiring.

On completion of the maintenance of the fans, re-fit the side fan access panel.

For multiple fan units, each fan scroll is disconnected via two fixing screws and wiring loom multi-plug connector from it's adjacent fan.

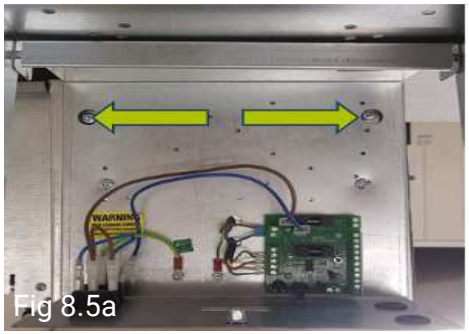


Fig 8.5a

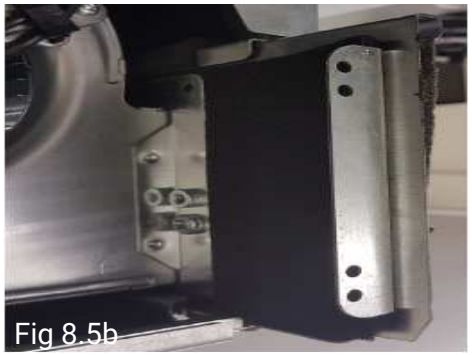


Fig 8.5b

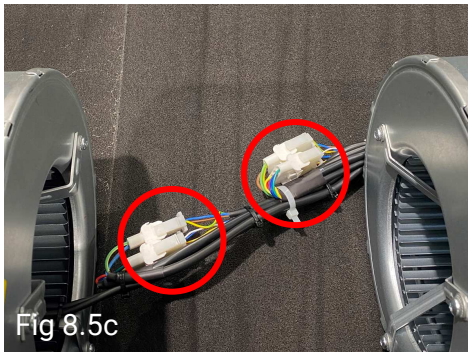


Fig 8.5c

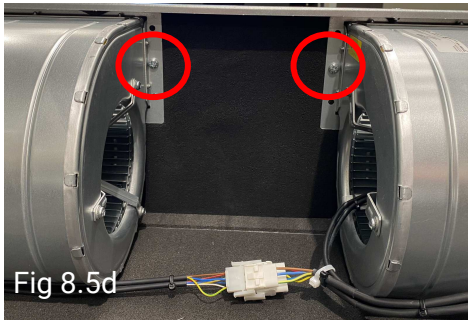


Fig 8.5d

8.6 Internal and external surfaces

All nuts, bolts and fixings should be checked for tightness.
The general condition of all components and the equipment overall should be checked.

The steel internal and external surfaces of the equipment should be regularly checked for scratches, corrosion, or for peeling of painted surfaces.

If found, thoroughly clean affected areas with a wire brush, apply a coat of zinc rich primer or similar, and re-touch with suitable finishing paint.

The insulating materials should be checked for condition and security.

If the insulation shows signs of powdering then it must be replaced. Insulation which is loose or peeling off should be made secure.

To replace insulation, proceed as follows:

1. Ensure that sufficient new insulation material with Class “O” fire resistance is available.
2. Peel off the existing affected insulation from the equipment casing.
3. Remove any old securing tape or residual foam.
4. Clean the area using suitable solvent cleaner such as ISO Propyl alcohol.
5. Position fixing tape on the equipment casing, and press the new insulation into place.

8.7 Controls, PCBs and wiring

The controls and electrical connections should be checked regularly.

The mains power supply cord should be visually checked. If there is any evidence whatsoever of damage or deterioration of the power supply cord, then the unit must not be put back into service until the supply cord has been replaced by suitably qualified personnel.

The condition of the controls devices, terminals, PCB and any associated wiring should be checked by visual inspection.

Any signs of discolouration, arcing or charring of any component, wire or terminal block should be investigated immediately, and the equipment must not be returned to service until the problem has been found and rectified.

PCBs incorporate fusible links which protect certain components. In the event of a blown fuse, only new fuses of equivalent specification, size and rating must be used.

The correct fuse ratings are permanently shown on the PCB.

If fuses are blowing persistently, this condition must be investigated immediately, and the equipment must not be returned to service until the problem has been found and rectified.

If the PCB is found to be faulty, a new unit may be fitted. Ensure a wiring diagram is available, or note the wiring connections before undoing any wires, then proceed as follows:

- 1 - Check the equipment is disconnected and completely isolated from the power supply.
- 2 - Remove the screw securing the controls enclosure cover in place, and open the cover.
- 3 - Unscrew the wiring clamps and withdraw the wiring from each terminal. For variants with optional transformer, remove the spade terminals from the terminals marked JT4 & JT7 on the PCB.
- 4 - Release the existing PCB from its mountings by gently squeezing the sides of the plastic riser mounts. Once all the mounts have been released, the existing PCB can be lifted away.
- 5 - Align the mounting holes in the new PCB with the riser, and apply even and gentle pressure until the PCB locates securely on each of the individual riser mountings.
- 6 - Ensure that the remote speed and enable switch settings on the new PCB match those from the previous PCB.
- 7 - Establish settings for the local speed control potentiometers as necessary.
- 8 - Re-fit the controls enclosure cover before re-connecting the power supply.

9.0 Disposal Information

Disposal / Recycling

Disposal must be carried out professionally & in an environmentally friendly way in accordance with the respective national and local legal stipulations.

- Separate the materials by the material type
- If required, consult and commission a specialist waste removal company to dispose of the waste correctly.

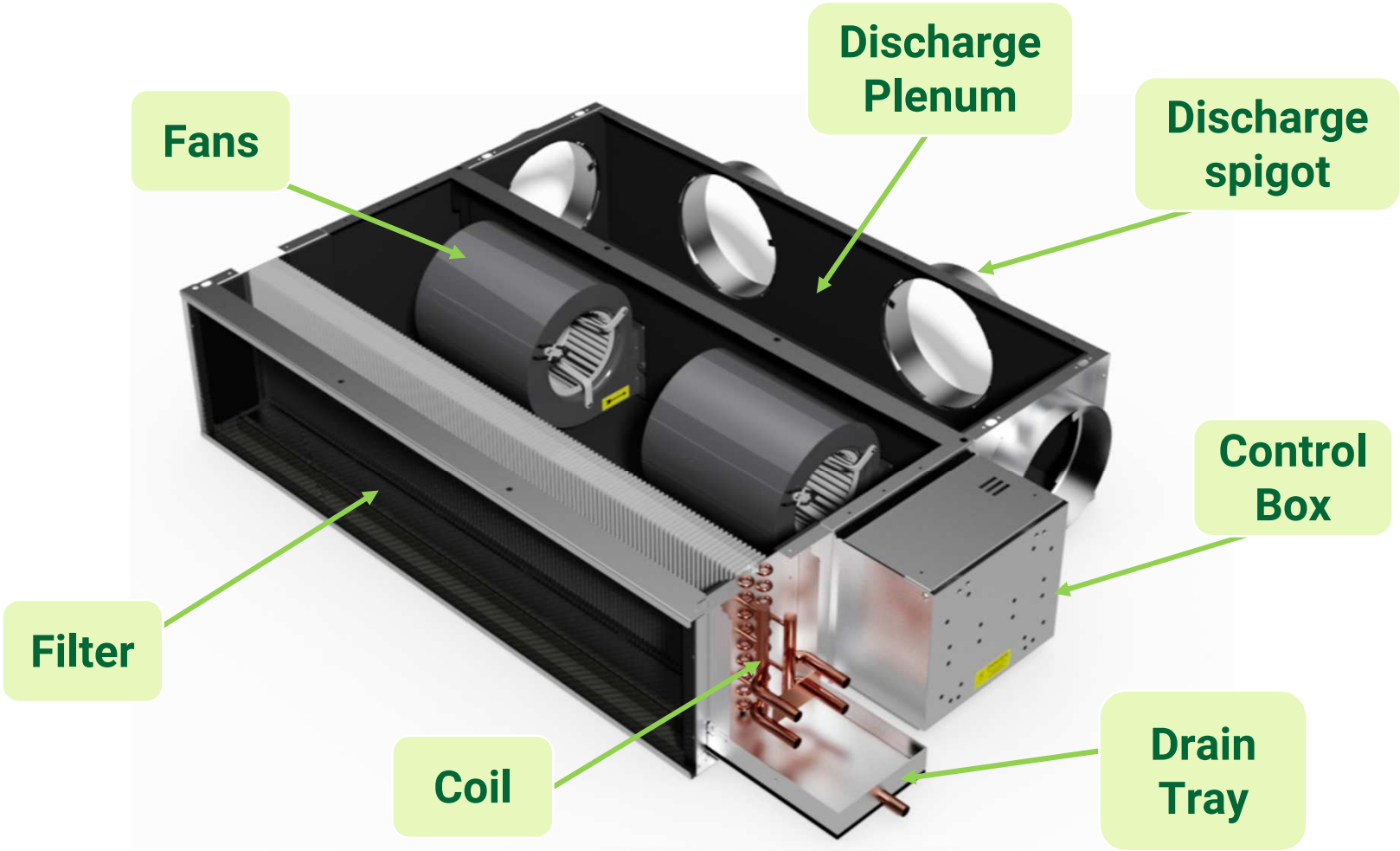
Do not dispose of any part of the product, components or packaging with normal household waste. Do not burn.

10.0 Spares Policy

Spares parts are available by contacting the Caice sales office (enquiries@ caice.co.uk).

Enquiries should include details of the unit reference and contract number, which will be displayed on the identification label.

Alternatively, details of the product and the model can be found on the product label.



11.0 Warranty

9.1 Warranty

Except where stated otherwise, this product is covered by our standard warranty valid for 12 months from the date of delivery to site or date of invoice, whichever is the earlier.

The warranty undertakes to supply only a replacement for any mechanical or electrical component that fails within this period, except dirty disposable filters.

Except where stated otherwise, the Warranty does not undertake to provide labour (or reimburse any costs associated with labour) for removal or refitting the faulty component, and does not undertake to cover any costs or financial penalties incurred due to any other works which may be necessary to remove or re-fit any component.

The warranty does not cover damage due to misuse (i.e. operation outside of the intended function of the product, or operation which exceeds the technical limitations of the product), damage from lack of adequate protection, lack of maintenance or failure to comply with these instructions.

The warranty will become void if any aspect of the product is modified or repaired without the written approval of CAICE.

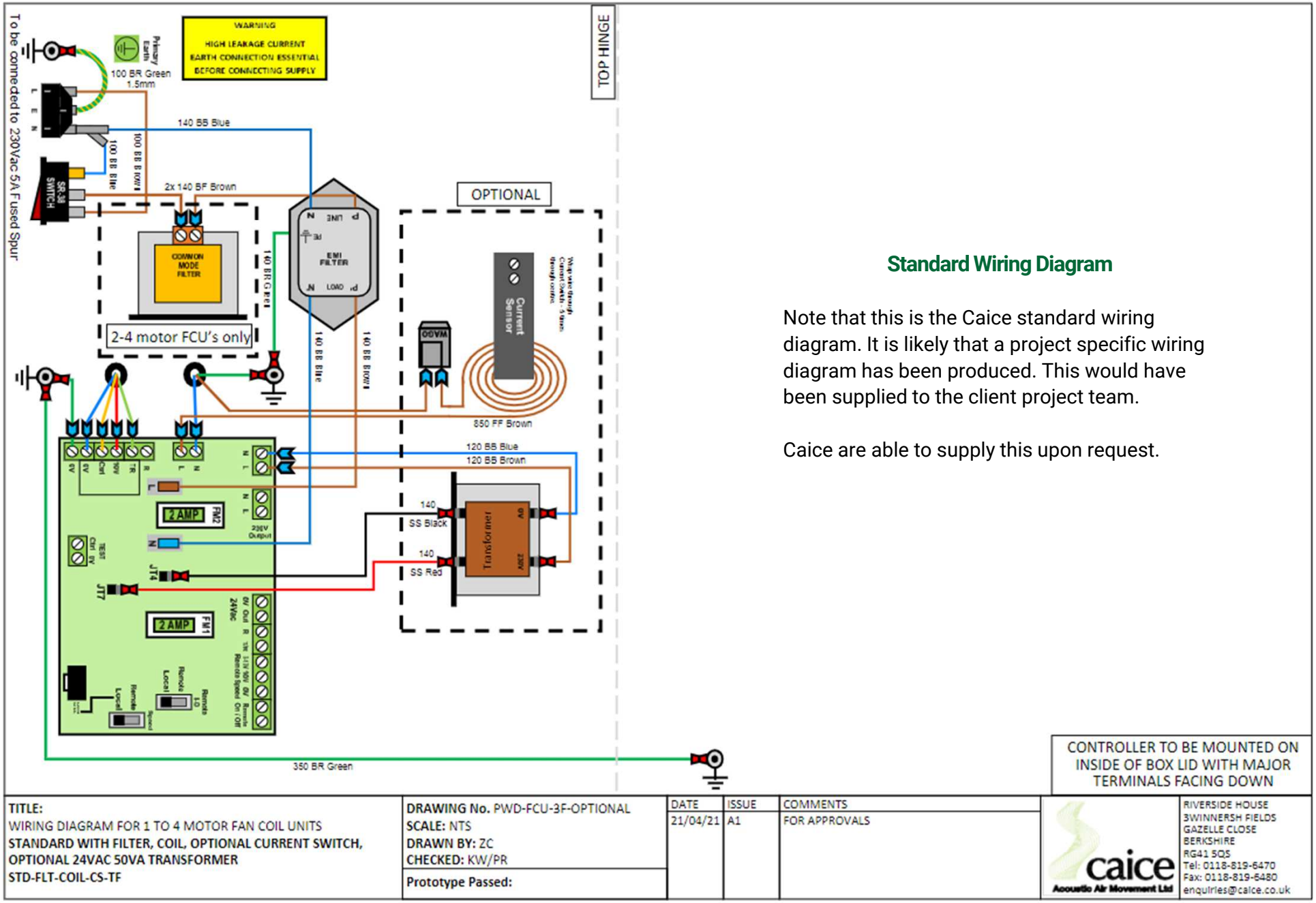
If a fault is identified that cannot be resolved by site personnel then our Engineers are available to attend site.

In these instances we will advise an attendance cost and a formal order must be issued before we visit site.

An invoice will be issued where our Engineer identifies that the fault is not covered by our Warranty.

Fan Coil Unit
APPENDIX 1
Wiring Diagrams

EC Wiring Diagram



Standard Wiring Diagram

Note that this is the Caice standard wiring diagram. It is likely that a project specific wiring diagram has been produced. This would have been supplied to the client project team.

Caice are able to supply this upon request.

TITLE: WIRING DIAGRAM FOR 1 TO 4 MOTOR FAN COIL UNITS **STANDARD WITH FILTER, COIL, OPTIONAL CURRENT SWITCH, OPTIONAL 24VAC 50VA TRANSFORMER STD-FLT-COIL-CS-TF**	**DRAWING No.** PWD-FCU-3F-OPTIONAL **SCALE:** NTS **DRAWN BY:** ZC **CHECKED:** KW/PR **Prototype Passed:**	DATE 21/04/21	ISSUE A1	COMMENTS FOR APPROVALS

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Fan Coil Unit
APPENDIX 2
Guide to EC Fan Control Interface

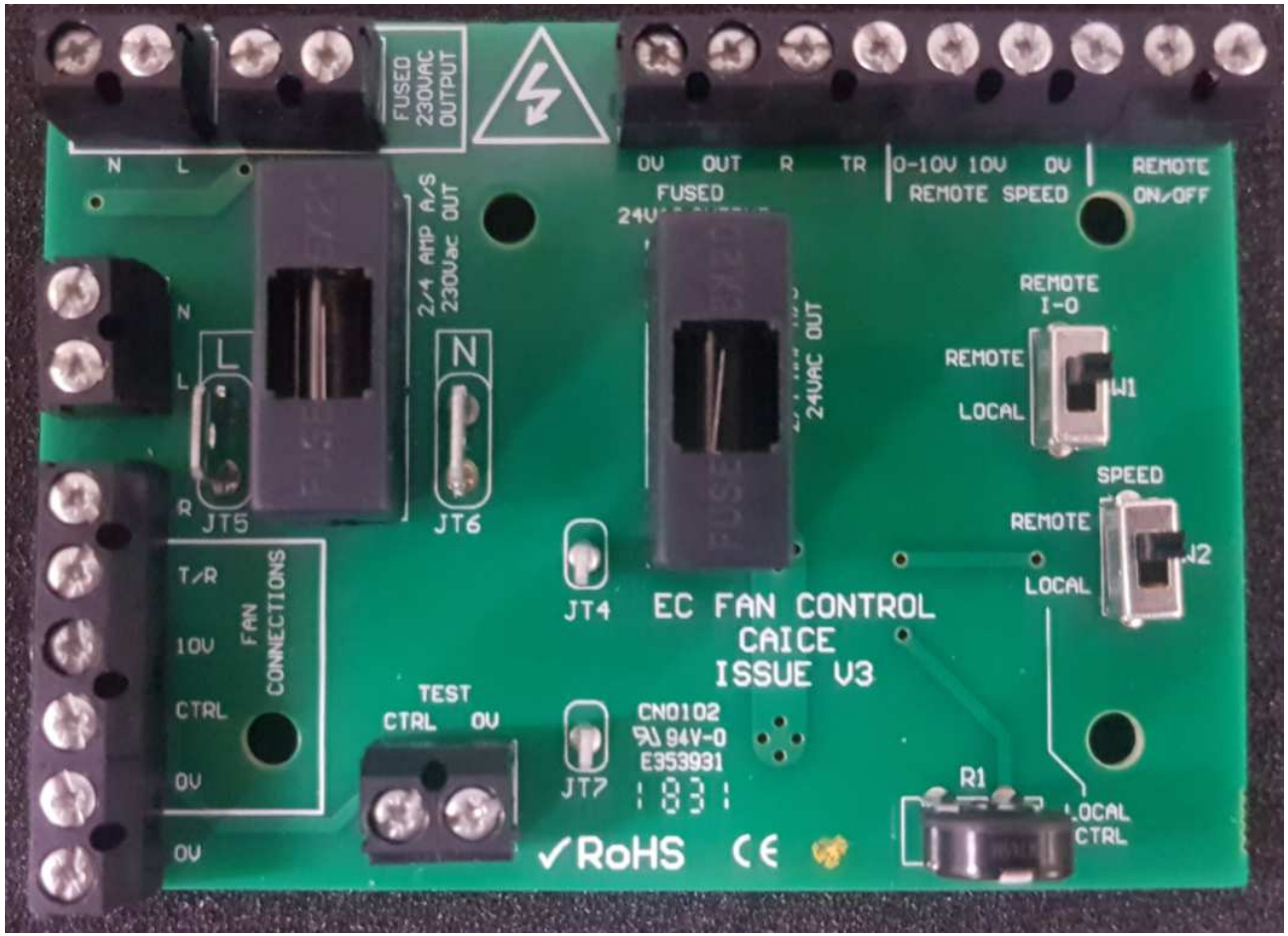
Controller identification

Controller identification

EC Fan Control, Caice, Issue V3

Application

Caice Fan Coil Units



Technical summary

It is important that the content of this document is read in full (in conjunction with the appropriate wiring diagrams) before attempting to connect to or operate this controller.

This work should not be undertaken by anyone other than suitably qualified personnel, as incorrect connection may damage components and invalidate the warranty.

In the event of any query, please contact the Caice technical department.

General

- Power supply: 230V AC single phase, 50Hz
- Maximum load: 10A total on mains power input or fan output
- Fuses: 2-off 20mm, 250V 2A anti-surge type (providing protection for the 230V output and 24Vac outputs)
- Connections: Rising clamp screw terminals
- Fan compatibility: see below
- Usage: Internal use only
- Enclosure: Metal de-mountable enclosure to IP20
- Ambient temperature: 0°C to 40°C

Fan compatibility

- Suitable fan types: EC only with either tachometer output or status relay output
- Power supply: 230V AC, single phase, 50Hz
- Maximum current: Not to exceed 10A total
- Speed control: via application of 0-10V dc signal
- Fan tachometer output: 1 pulse per revolution, square wave
- Fan relay output: Open contact to signal alarm

Current switch (Optional)

- Type: E.C. Products CSW-NO-ASD
- Input range: 1-200A (selectable in 3 ranges, low 1-50A, mid 50-100A, high 100-200A)
- Switching (max): 0.3A@135V (AC/DC)

Transformer (Optional)

- Type: Blore Bowron B5920 chassis mount
- Rating: 50vA (230vAC primary, 24vAC secondary)

Required user inputs

- Mains power connection: Live Neutral and Earth connections from fused spur with local isolator switch

Optional user inputs

- Fan speed control input: 0-10V dc (10V maximum, 1mA max load), from BMS, or from set-point potentiometer minimum value of 10kΩ if using the 10V output.
- Fan on/off control input enable signal (volt free contact, rated at >6V to switch 1mA). Wetting current 0.5mA.

Available user outputs

- 10v dc reference signal (for remote potentiometer speed adjustment), max current of 1mA
- 2 x 2A, 230Vac OR 24Vac output (for powering ancillary devices)

Terminal designations

	Terminal	Description	Connection notes
Mains Power	L (JT5)	230v supply live	Incoming supply
	N (JT6)	230v supply neutral	
	L	230v output	Either pre-wired to optional transformer, or for connection to 230Vac powered accessories
	N	230v output	
	L	230v output	
	N	230v output	
Fan Connections	N	230v supply neutral	Factory wired to Fan
	L	230v supply live	
	R	0v relay (when available)	
	T/R	Tachometer/relay	
	10v	+10v dc	
	CTRL	0-10v drive signal	
	0v	0v – common for fan	
	0v	0v – for reference ground of PCB and Transformer	
	R	0v relay (when available)	Not connected (reserved for status diagnostics)
	T/R	Tachometer/relay	
Ancillary Power	24Vac out	24V supply	For connection to 24Vac powered accessories
	0v	0v	
Remote speed	0v	0v	0v connection for BMS or remote potentiometer
	10v	10v dc output	Use with nominal 10kΩ potentiometer (if required)
	0-10v	0-10v dc input	Fan speed control from BMS or remote potentiometer
Remote on/off	Remote on/off	Volt-free contact	For connection to unit enable signal
	Remote on/off	Volt-free contact	

Technical summary

Jumper switches

- Switch SW1 (Remote I-O) – used to set status of remote on/off contacts. Set to “REMOTE” when remote on/off facility is used. Set to “LOCAL” when remote on/off facility is not required.

- Switch SW2 (Speed) – used to set primary speed control input. Set to “LOCAL” for speed control via the on-board potentiometer adjustment. Set to “REMOTE” when speed setting via external device is required.

Terminal connection blocks

This controller is provided with connection blocks incorporating rising clamp terminals.

EC fan speed control voltages

EC fan motors operate from a permanent mains power supply, however their speed is controlled by application of a variable 0-10v dc input control signal to the electronics which are integrated within the fan motors themselves.

This allows a simple and effective means of attaining VAV (variable air volume) operation.

From a standstill, EC fan motors will reliably start to operate when the control voltage input to the motor is 1.5v or more.

It is therefore recommended that the control voltage input is not less than 2v for any specific continuous duty point.

An input control voltage of 10v would provide the highest airflow for any particular system.

From any operational duty point, EC fan motors will stop running when the control voltage input to the motor reduces to a level of approximately 1v or below.

For a reliable fan stop condition, the input signal should always be reduced to 0v. If control strategy goes to 0V when stopped then Remote On/Off is not required.

Mode of operation

This controller provides a simple interface for the operation and speed control of EC fans. The features of this controller are:

- Fixed speed control via the local (on-board) speed setting potentiometer.

- Remote speed control using a 0-10v signal from a BMS.

- Remote speed control using a 0-10v signal from another external control device (e.g. wall mounted potentiometer). A 10v reference signal for this purpose is available from the controller.

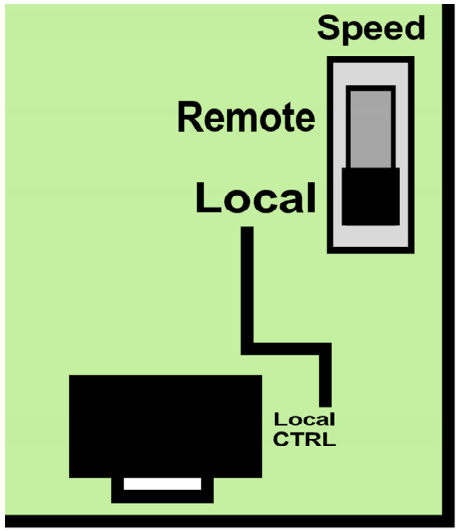
- Remote enable using a volt-free contact (e.g. wall switch, occupancy sensor, relay).

The installer should utilise the most appropriate features according to the required control strategy and the control equipment available.

Technical summary

Setting up for local speed control

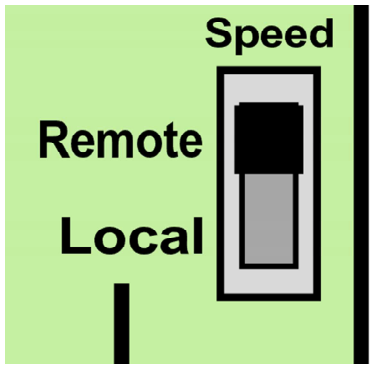
Where the fan is required to run at a single fixed speed, the local speed control function can be used. To enable the fan speed to be set in this way, the speed control switch SW2 should be set to the “LOCAL” position as shown:



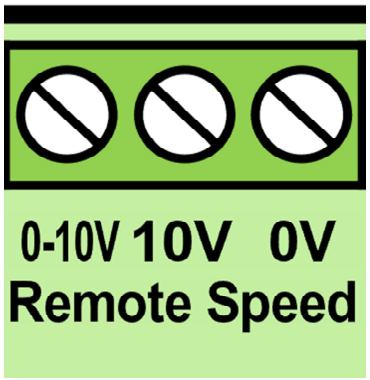
Fan speed will be controlled by the position of the Local Control adjustment potentiometer. The precise set-point can be attained by measuring the dc voltage across the adjacent test terminals (or alternatively across the “0v” and “CTRL” terminals of the Fan Connections).

Setting up for Remote Speed Control

Where fan speed is to be controlled by a remote device, the speed control switch SW2 should be set to the “REMOTE” position as shown:



With switch SW2 set to the “REMOTE” position, the local control adjust potentiometer will be disabled. Fan speed will then be controlled by a variable 0-10v dc input signal applied across the appropriate terminals of the remote speed input:



The “10v” terminal does not need to be connected, however it may be used if required to provide a 10v dc reference signal for use with a potentiometer device.

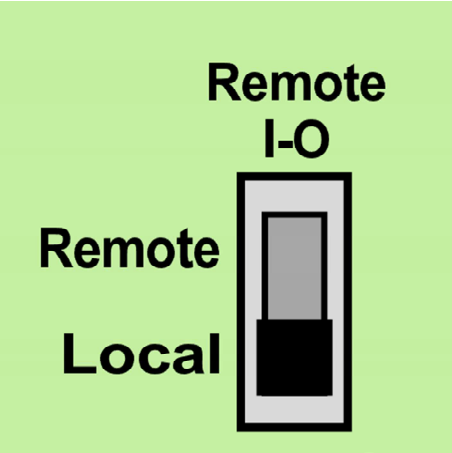
The precise set-point can be attained by measuring the dc voltage across the adjacent test terminals (or alternatively across the “0v” and “CTRL” terminals of the Fan Connections).

Technical summary

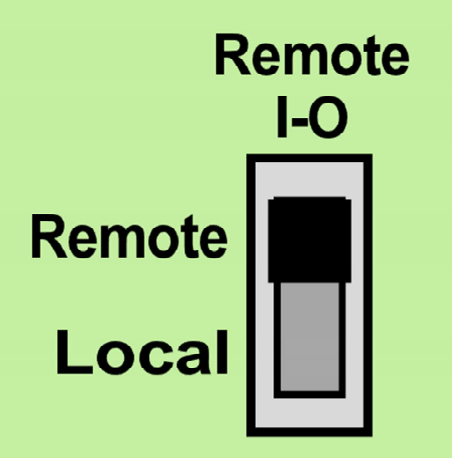
Setting up for fan enabling

The method of fan enabling will vary according to the setting of the remote on/off switch SW1.

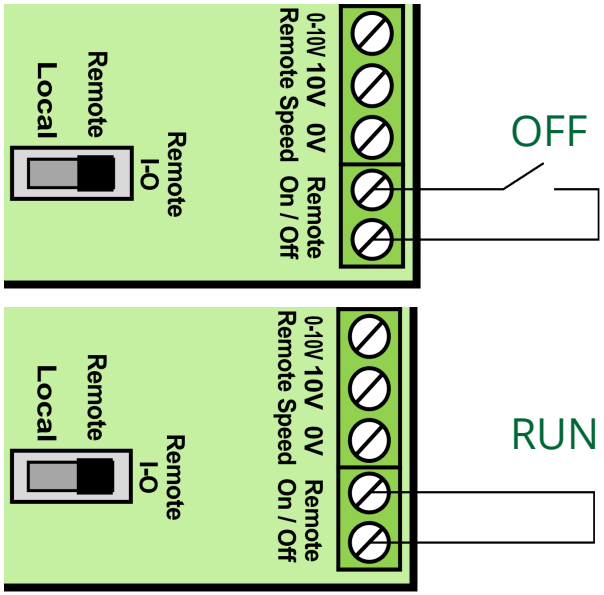
With the switch in the “LOCAL” position, the remote on/off function is disabled. The fans will therefore always be enabled and will operate on application of the mains power supply and the appropriate fan speed input setting.



Where the operation of the fans is to be controlled via an enable signal, switch SW1 should be set to the “REMOTE” position as shown below:



A volt-free contact should then be connected across the remote on/off input terminals. The fans will be enabled and will run at the set speed when the contacts are closed.



Transformer (Optional)

The controller may optionally be fitted with a 50vA or 100vA transformer, providing for a 24vAC power supply for connection of ancillaries with a maximum load of 2A or 4A respectively. When this is fitted the fuse should be checked to ensure the correct rating.

EC Declaration of Conformity

Declaration No: FCU-07-EU

CE

We, the undersigned:

Caice Acoustic Air Movement Ltd
3 Winnersh Fields, Gazelle Close
Winnersh, Berkshire RG41 5QS
United Kingdom

declare, under our sole responsibility, that the following apparatus:

Product description: Fan Coil Unit
Model/type: H235A,B,C,D,E,F,F,H,I,J,K, / H270B,C,D,E,F,G,H,I,J,K,
Brand name: Caice 2018 H235/270 Horizontal Fan Coil Unit

is in conformity with the following relevant EU legislation.

The object of the declaration is in conformity with the relevant Union harmonisation Legislation (directives):

EMC Directive 2014/30/EU
Low Voltage Directive 2014/35/EU
Machinery Directive 2006/42/EC
RoHS Directive 2011/65/EU

based on the following harmonised standards:

EMC: EN55014-1:2021; EN55014-2:2015; EN61000-3-2:2019 +A1:2021; EN61000-3-3:2013 +A2:2021; EN61000-4-2:2009; EN61000-4-3:2006 +A1:2007 +A2:2010; EN61000-4-4:2012; EN61000-4-5:2014; EN61000-4-6:2014; EN61000-4-11:2004
LVD: EN60335-2-80:2003 +A1:2004 +A2:2009; EN60335-1:2012 +A11:2014; IEC60335-2-80:2002 +A1:2004; IEC60335-1 +Corr.1:2010 +Corr.2:2011 +A1:2013

and therefore complies with the essential requirements of those directives.

Additional information:

For indoor use only where dry conditions can be guaranteed
For ambient operating temperature range of 0°C – 40°C
For connection to air distribution ductwork
Not for installation at altitudes exceeding 500m above sea level

Signature:

Name: Mark Macdonald
Position: Managing Director
Date of issue: 06/04/2022

UK Declaration of Conformity

Declaration No: FCU-07-UK

We, the undersigned:

Caice Acoustic Air Movement Ltd
3 Winnersh Fields, Gazelle Close
Winnersh, Berkshire RG41 5QS
United Kingdom

declare, under our sole responsibility, that the following apparatus:

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Model/type: H235A,B,C,D,E,F,F,H,I,J,K, / H270B,C,D,E,F,G,H,I,J,K,
Brand name: Caice 2018 H235/270 Horizontal Fan Coil Unit

is in conformity with the following relevant UKCA legislation.

The object of the declaration is in conformity with the essential requirements and other relevant requirements of:

The Electromagnetic Compatibility Regulations 2016 (UK EMC Regulations). SI.1091.
The Electrical Equipment (Safety) Regulations 2016. SI.1101.
The Supply of Machinery (Safety) Regulations 2008 (UK Machinery Regulations). SI.1597.
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. SI.3032.

based on the following designated standards:

EMC: EN55014-1:2021; EN55014-2:2015; EN61000-3-2:2019 +A1:2021; EN61000-3-3:2013 +A2:2021; EN61000-4-2:2009; EN61000-4-3:2006 +A1:2007 +A2:2010; EN61000-4-4:2012; EN61000-4-5:2014; EN61000-4-6:2014; EN61000-4-11:2004

LVD: EN60335-2-80:2003 +A1:2004 +A2:2009; EN60335-1:2012 +A11:2014; IEC60335-2-80:2002 +A1:2004; IEC60335-1 +Corr.1:2010 +Corr.2:2011 +A1:2013

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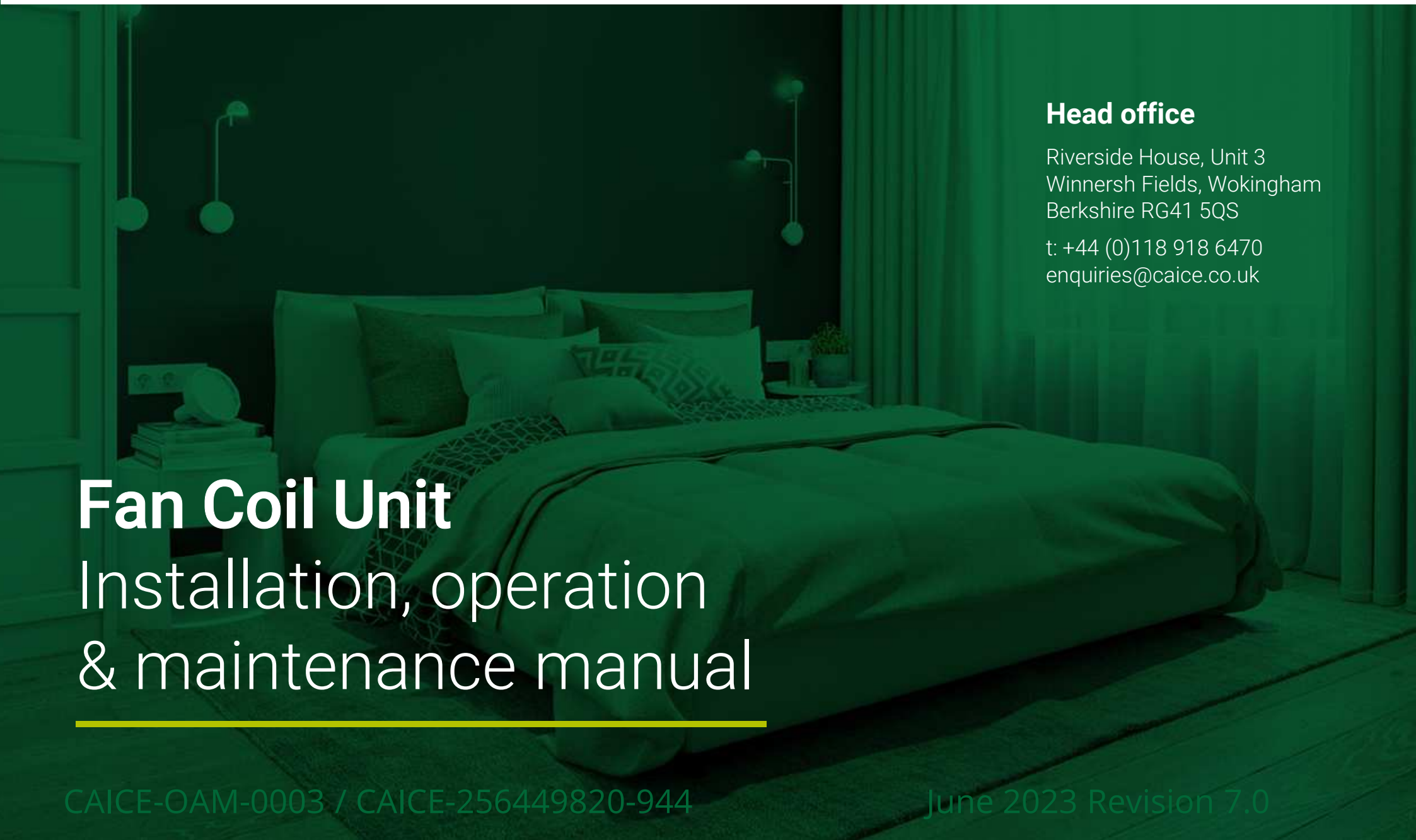

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Fan Coil Unit

Installation, operation & maintenance manual

CAICE-OAM-0003 / CAICE-256449820-944

June 2023 Revision 7.0