

ECOSMART SQRUBO

Installation and Maintenance

CE The EMC Directive
2014/30/EU
The Low Voltage
directive
2014/35/EU



Ecosmart Scurbo Fans

Scurbo single phase direct drive fans are supplied with or without heaters and the range includes:

- ESS* Ecosmart Supply Fans
- ESS*-E Ecosmart Supply Fans with Electric Heater
- ESS*-L Ecosmart Supply Fans with LPHW Heater
- ESSE* Ecosmart Extract Fans

*denotes unit size 1, 2, 3, 4 and 5.

Handling

Always handle the units carefully to avoid damage and distortion. Care must be taken to ensure that any slings used for hoisting do not damage the casing or the control module components.

I.O Fan Installation

The fan must be fitted indoors, on a secured surface, away from sources of water spray or steam generation. The fan can be installed using the integral mounting bracket supplied (Figure 1) or using drop-rods (by others Figure 2).

Figure 1a.

Mounting bracket to structure fixings. Bracket tongues must engage with case slots.

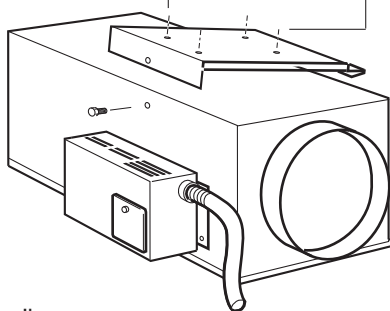


Figure 1b.

Bracket tongues engage with case slots, then case rotated up to align with fixing screw hole.

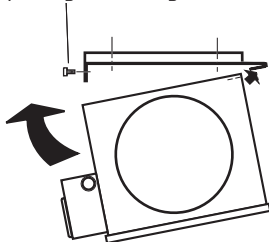
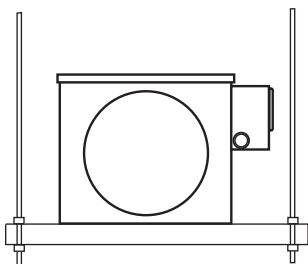
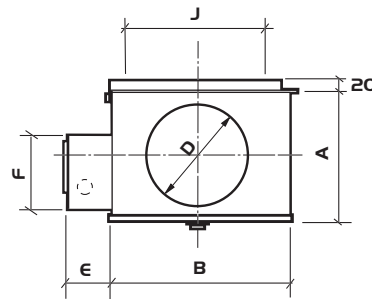
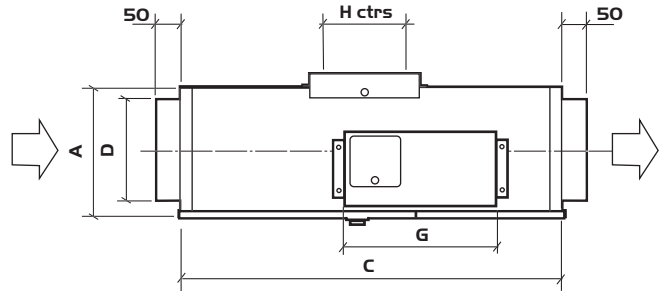


Figure 2.
Installation using drop-rods.



2.0 Dimensions (mm)



Supply Extract

Unit Code	Dimensions (mm)										Weight (kg)
	A	B	C	D	E	F	G	H	J	Weight (kg)	
ESS1/ESSE1	160	230	640	125	150	150	330	140	115	7.4	
ESS2/ESSE2	185	302	630	150	150	150	330	140	150	8.1	
ESS3/ESSE3	235	350	700	200	150	150	330	140	170	13.0	
ESS4/ESSE4	285	350	672	250	150	150	330	140	170	13.8	
ESS5/ESSE5	350	400	726	315	150	150	330	140	200	15.2	
ESS6/ESSE6	430	682	700	400	175	150	330	140	453	35	

Supply + Electric Heater

Unit Code	Dimensions (mm)										Weight (kg)
	A	B	C	D	E	F	G	H	J	Weight (kg)	
ESS1-E	160	230	968	125	150	150	403	140	115	12.1	
ESS2-E	185	302	968	150	150	150	403	140	150	14.5	
ESS3-E	235	350	968	200	150	150	403	140	170	21.5	
ESS4-E	285	350	968	250	150	150	403	140	170	23.4	
ESS5-E	350	400	968	315	150	200	450	140	200	27.1	
ESS6-E	430	682	1002	400	175	200	450	140	453	52	

Supply + LPHW Heater

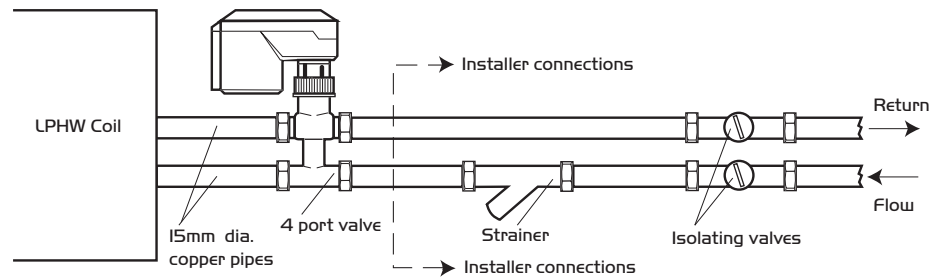
Unit Code	Dimensions (mm)										Weight (kg)
	A	B	C	D	E	F	G	H	J	Weight (kg)	
ESS2-L	285	450	968	150	150	170	515	140	250	25	
ESS3-L	285	450	968	200	150	170	515	140	250	25	
ESS4-L	285	450	968	250	150	170	515	140	250	26	
ESS5-L	350	450	968	315	150	170	515	140	250	29	
ESS6-2L	430	682	1002	400	175	170	515	140	453	52	

For systems which include supply fans with heating coils, other than where the BMS has control, the appropriate user control is required.

Installing the Water Circuit

It is recommended that all joints are checked for leaks when commissioning and a strainer and isolating valves are fitted (by others) for ease of maintenance. (See figure 3).

Figure 3.



IMPORTANT

Isolation - Before commencing work make sure that the unit, and Nuair control are electrically isolated from the mains supply.

3.0 Wiring

The electrical wiring must be carried out by competent persons, in accordance with good industry practice and should conform to all governing and statutory bodies i.e. IEE, CIBSE, COHSE etc.

Connections

a) Control Connections

Net - the 4 IDC plug-in connectors are provided for the connection of compatible sensors, manual controls and for linking the fans together under a common control. If more than 4 connections are required, the junction box (product code ES-JB) should be used (see data cable installation).

Switch Live (SL) terminal - A signal of 100-230V a.c. will activate the fan.

Note that a signal from an isolating transformer will produce an unpredictable result and is not recommended.

b) Damper Connections

OP - 230V 50Hz IA max supply to open the damper

CL - 230V 50Hz IA max supply to close the damper

N - Neutral supply to damper

RET - 230V ac return signal from the damper limit switch indicates the damper has reached its operating position. If the return signal is not present, the fan will wait for 1 minute before starting.

Note: If a damper is not fitted, connect a link wire from OP to RET. This will cancel the delay.

c) Volt Free Relay Contacts

Note that the volt free contacts are not fused. If these are used to power any external equipment, the installer must provide adequate fusing or other protections.

These contacts are rated at 5A resistive, 0.5A inductive.

Run connections - These contacts are closed when the fan is running.

Fault connections - No fault = the contacts are closed.

Fault = the contacts are opened.

Heat demand - contacts closed when heating is selected.

d) Data Cable Installation

A 4-core SELV data cable is used to connect devices.

Do not run data cable in the same conduit as the mains cables and ensure there is a 50mm separation between the data cable and other cables. The maximum cable run between any two devices is 300m when it is installed in accordance with the instructions.

Please note that the total data cable length used in any system must be less than 1000m. Keep the number of cable joints to a minimum to ensure the best data transmission efficiency between devices.

e) Maximum Number of Devices

The maximum number of devices (including fans) that can be connected together via the cable is 32, irrespective of their functions.

f) Other Low Voltage Cables

Follow the basic principle (as d). Keep the cable run as short as possible, less than 50 metres.

Electrical Details

Fans without Electric Heater		Fans with Electric Heater	
Unit Code	flc (amps)	Unit Code	flc (amps)
ESS1/ESSE1	0.32	ESS1-E	4.7
ESS2/ESSE2	0.34	ESS-2E	7.0
ESS3/ESSE3	0.72	ESS-3E	9.5
ESS4/ESSE4	0.92	ESS-4E	14.0
ESS5/ESSE5	0.92	ESS-5E	20.5
ESS6/ESSE6	2.95	ESS6-E	20.0
ESS6-2L	2.95		

Wiring

Figure 4. ESS1 - 5 LPHW and Extract.

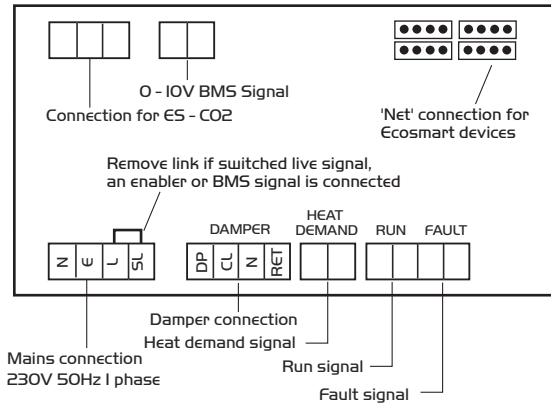


Figure 5. ESS1 - 5E (Electric Coil).

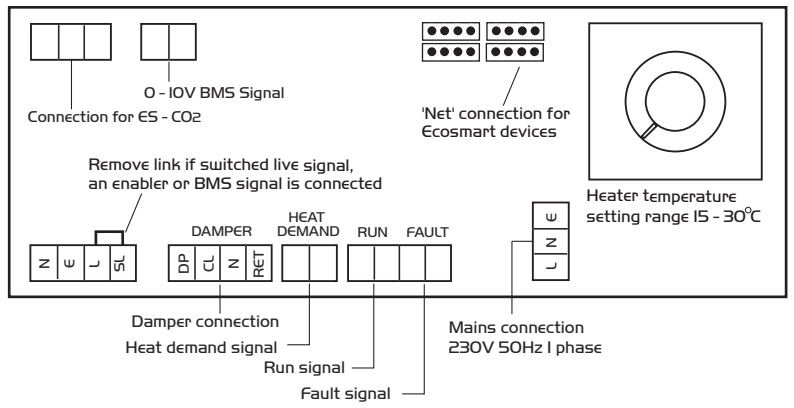


Figure 6. ESS6 and ESS6E (No Heater).

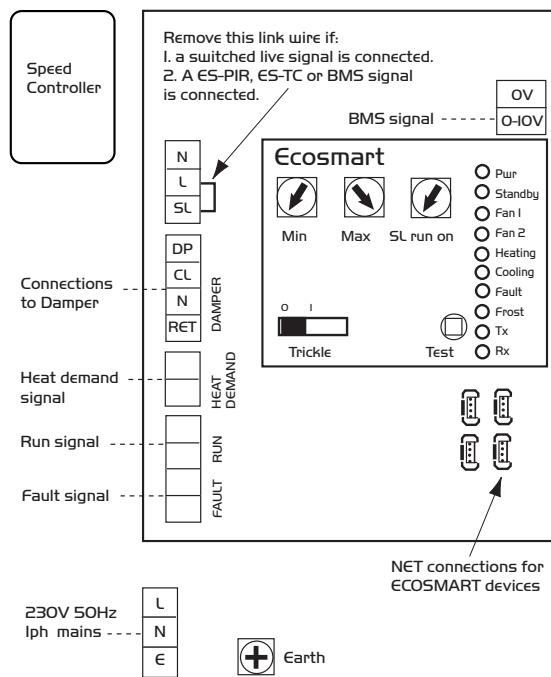


Figure 7. ESS6 - L (LPHW Coil).

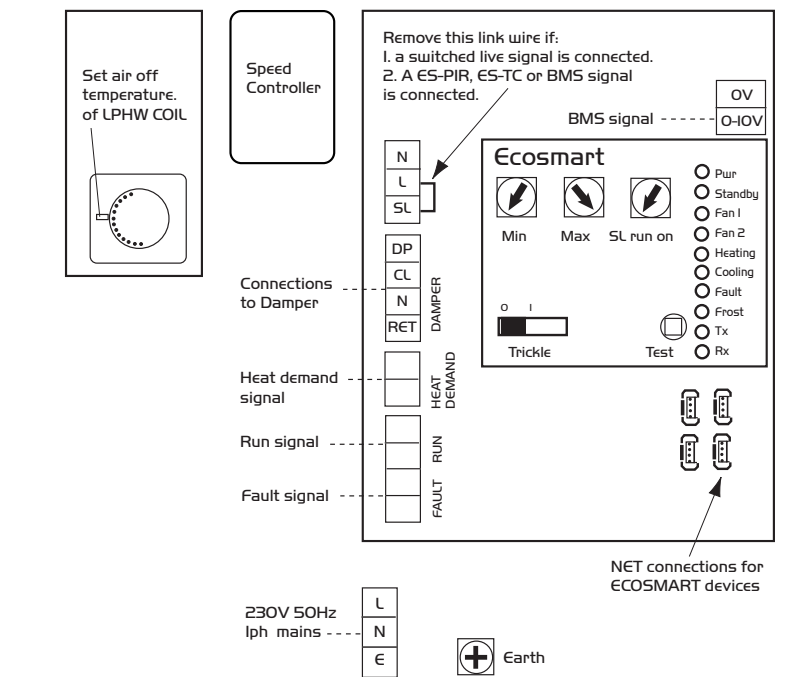
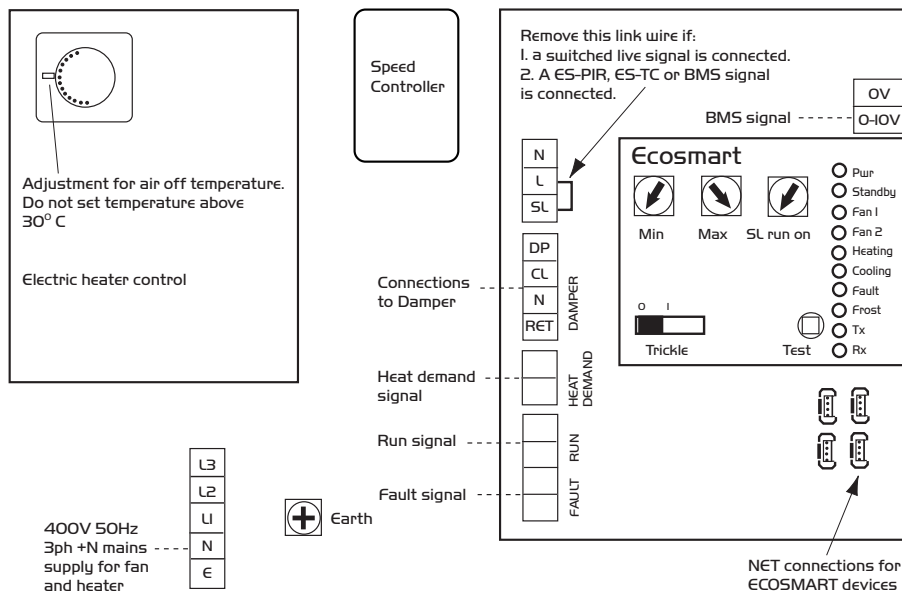


Figure 8. ESS6 - E (12kW Electric Coil).



4.0 Setting to Work

Using the Test Button

The test button allows the individual blowers within the unit to be checked for its operation. If the fan is running already, press the button once to stop the fan, press again to switch on the fan.

Note that the fan will return to normal operation after 30 seconds.

LED Indication

PWR GREEN: Power on & OK,

Standby LED on when fan is not running.

Fan 1 GREEN: Fan 1 is running, **RED:** Fan 1 faulty.

Fan 2 GREEN: Fan 2 is running, **RED:** Fan 2 faulty.

Heating* GREEN: Heating selected **RED:** Heating faulty.

Cooling* Not applicable. See note.

Fault LED on when a fault is present on unit.

Frost alarm - contacts close when air off temperature is 4°C or below. Fan shuts down, valve opens and the heat demand contacts activated.

Tx LED on when the controller is transmitting data.

Rx LED on when the controller is receiving data.

* Note that the control panel is common to all the Ecosmart products and will have indicators for functions that are not available in this particular fan. However these indicators will not be illuminated.

BMS Input Signals

The system's response to a 0-10V dc BMS signal is given in the following table.

Note the BMS signal will override any sensors and user control connected in the system. The voltage tolerance is +/- 125mV and is measured at the fans terminal.

	Ventilation mode	Cooling mode*	Heating mode*
Local control	0.00	-	-
OFF / trickle	0.25	-	-
Speed 1	0.50	0.75	1.00
Speed 2	1.50	1.75	2.00
Speed 3	2.50	2.75	3.00
Speed 4	3.50	3.75	4.00
Speed 5	4.50	4.75	5.00
Speed 6	5.50	5.75	6.00
Speed 7	6.50	6.75	7.00
Speed 8	7.50	7.75	8.00
Speed 9	8.50	8.75	9.00
Speed 10	9.50	9.75	10.00

* Only available on relevant unit

Settings

Setting the maximum air flow

ii) Ensure the power supply is switched off and that a link wire is connected from the supply L to the SL terminal. Unplug all items connected to the 'Net' connectors.

ii) Switch on the power supply.

iii) Wait for the fan to complete its self-test operation.

Measure the airflow using standard commissioning instruments at a suitable point in the ductwork. If adjustment is required, rotate the pot marked 'MAX' to obtain the desired airflow.

Setting the minimum trickle airflow (nominal 40%)

i) Repeat the same procedure as for maximum airflow above but without the link wire between supply L and SL terminal. Ensure the trickle switch is in the 'ON' position. Adjustment must be made on the pot marked 'Min'.

ii) Note that the minimum setting (nominally 40%) must be below the maximum setting, otherwise minimum setting will be automatically set to be the same as the maximum.

Setting the overrun time

A switched live of 100-230V at terminal SL will activate the fan. When the switched live signal is removed the fan will overrun for period set by the dial 'SL run on' - adjust the desired overrun time by rotating clockwise.

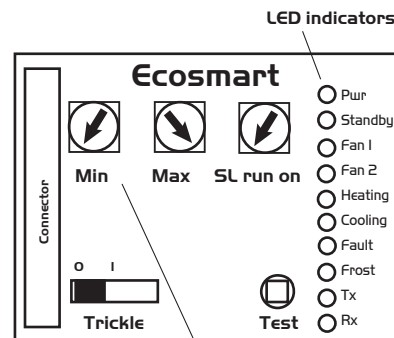
Setting the trickle ventilation facility

Slide the 'trickle' switch 0 = Off, 1 = On. With 'trickle' on and power to unit the fan will run at minimum speed until the switch live signal activates it to boost.

Setting the 'air off' temperature

The adjustment knob is located in the control pack and must be set to the desired 'air off' temperature.

Figure 9.



- MIN** = Minimum speed adjustment
- MAX** = Maximum speed adjustment
- SL** = Switched Live Run-On
- Run on** = Timer adjustment
- TRICKLE** = Selects trickle running:
0 = off, 1 = selected
- TEST** = Test button

IMPORTANT

Isolation - Before commencing work make sure that the unit, and Nuair control are electrically isolated from the mains supply.

5.0 Maintenance

The first maintenance should be carried out three months after commissioning and thereafter at twelve monthly intervals. These intervals may need to be shortened if the unit is operating in adverse environmental conditions, or in heavily polluted air.

Lubrication

Motors are fitted with sealed for life bearings and do not require any lubrication.

General Cleaning and Inspection

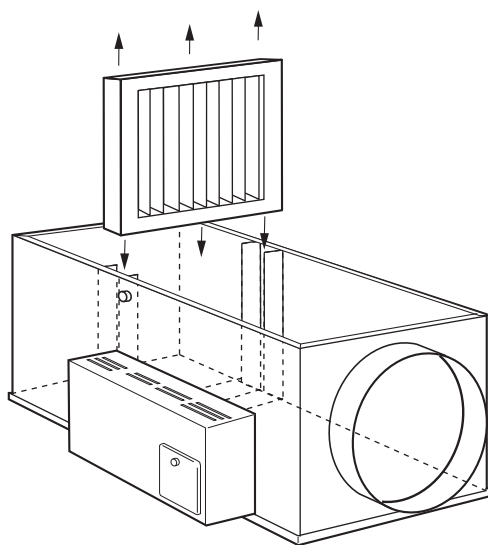
Clean and inspect the exterior of the fan unit and associated controls etc. Remove the access panel from the fan unit. Inspect and, if necessary, clean the fan and motor assemblies and the interior of the case. If the unit is heavily soiled it may be more convenient to remove the fan/motor assemblies. Check all parts for security and that the impeller rotates freely, taking care not to disturb the balance. Ensure all control components are secure and clean, refit all access doors.

Filter care/replacement

The filter inside the Ecosmart Sqrbo unit will require cleaning on a regular basis. The frequency of the cleaning operation will depend on the site conditions.

Figure 10.

The filter is located inside the unit and contained in a bracket as shown below. **Remove the access panel and withdraw the filter, which can now be vacuumed.**



Note: It is important to allow sufficient time for the heater battery to cool down before beginning work.

Cleaning Control Box and Sensors (if fitted)

Remove covers and carefully clean out interiors as necessary. Check for damage and security of components. Refit covers.

6.0 Replacement of Parts

Should any component need replacing Nuair keep extensive stocks for quick delivery. Ensure that the unit is electrically isolated, before carrying out any work.

When ordering spare parts, please quote the serial number of the unit and the ARC number of the purchase if possible. **(This information will be available on the fan label).**

7.0 Warranty

The 5 year warranty starts from the day of delivery and includes parts and labour for the first year. The remaining period covers replacement parts only.

This warranty is void if the equipment is modified without authorisation, is incorrectly applied, misused, disassembled, or not installed, commissioned and maintained in accordance with the details contained in this manual and general good practice.

8.0 After Sales Enquiries

For technical assistance or further product information, including spare parts and replacement components, please contact the After Sales Department.



Telephone 02920 858 400

DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

Designation of machinery: ECOSMART SQRBO
 Machinery Types: ESS
 Relevant EC Council Directives: 2006/42/EC (Machinery Directive)
 Applied Harmonised Standards: BS EN ISO 12100, BS EN ISO 13857
 EN60204-1, BS EN ISO 9001
 Applied National Standards: BS848 Parts 1, 2.2 and 5

Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs 	Technical Director	22. 11. 13
2) A. Jones 	Manufacturing Director	22. 11. 13

Note: All standards used were current and valid at the date of signature.

INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 2006/42/EC Machinery Directive and 2014/30/EU (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

1.0 GENERAL

1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuairé to be assembled into a ventilation system which may or may not include additional components.

The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.

2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuairé.

2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

3.0 TRANSPORTATION, HANDLING AND STORAGE

3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.

3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.

3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

4.0 OPERATIONAL LIMITS

4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.

4.2 Where installation accessories are supplied with the specified equipment eg. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.

4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.

4.4 **Local Environment - Humidity.** Ambient humidity (the humidity at the unit's installed location) shall be within the range: 10 to 95% (for controls, non-condensing).
 Air humidity (the humidity of the air passing through the unit) shall be within the range: 10 to 95% (for controls, non-condensing).

5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.

5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.

5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

6.0 COMMISSIONING REQUIREMENTS

6.1 General pre-commissioning checks relevant to safe operation consist of the following:

Ensure that no foreign bodies are present within the fan or casing.

Check electrical safety. e.g. Insulation and earthing.

Check guarding of system.

Check operation of Isolators/Controls.

Check fastenings for security.

6.2 Other commissioning requirements are given in the relevant product documentation.

7.0 OPERATIONAL REQUIREMENTS

7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.

7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

8.0 MAINTENANCE REQUIREMENTS

8.1 Specific maintenance requirements are given in the relevant product documentation.

8.2 It is important that the correct tools are used for the various tasks required.

8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.

8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.

NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.

8.5 Care should be taken when removing and storing access panels in windy conditions.

Notes



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