

# ES-OPUSDC-M

Low Power Duct Mounted Extract Fans

## Installation and Maintenance

The Nuaire range of low power duct mounted extract fans have been specifically designed to ventilate areas such as toilets, bathrooms, small offices, etc. The range consists of units for four duty ranges, 40 l/s, 60 l/s, 75 l/s and 110 l/s maximum extraction.

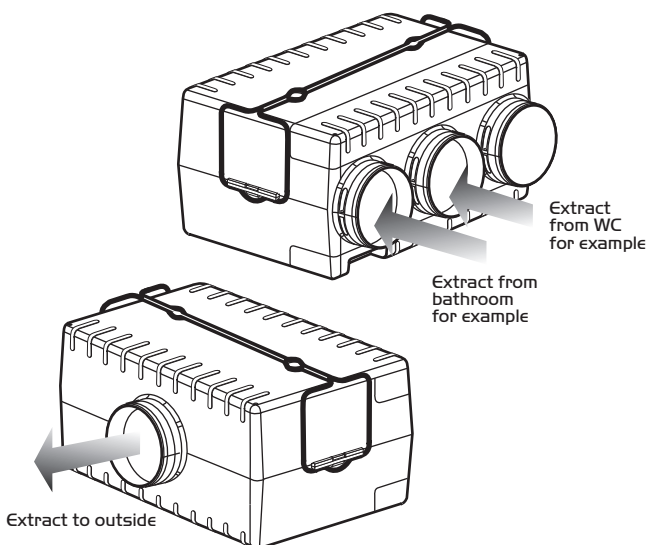
The 40 l/s and 60 l/s products are available as single fan or twinfan variants, twinfan units are duty sharing. The 75 l/s and 110 l/s products are dual fan only (both fans run simultaneously).

All units incorporate speed control for both low and high speed, along with adjustable run-on facility and allow connection of Ecosmart sensors (PIR, humidistat etc).

### Model range

ES-OPUSDC 40-M	Single fan unit. 40 l/s extract. Ecosmart control
ES-OPUSDC 60-M	Single fan unit. 60 l/s extract. Ecosmart control
ES-OPUSDC 40-2M	Twinfan unit. 40 l/s extract. Ecosmart control
ES-OPUSDC 60-2M	Twinfan unit. 60 l/s extract. Ecosmart control
ES-OPUSDC 75-M	Dual fan unit. 75 l/s extract. Ecosmart control
ES-OPUSDC 110-M	Dual fan unit. 110 l/s extract. Ecosmart control

Figure 1. General view of unit.



The unit discharges through 100mm diameter outlet spigot. Air enters the unit through 3 off 100mm diameter spigots, the central spigot is supplied open and the other two supplied closed but are easy to open (see fig. 7).

The motor is of the DC variant, fitted with self lubricating ball bearing and locked rotor protection.

The unit is supplied with a quick release fan mounting bracket which allows for installation in any configuration.

### I.O Fan Installation

Installation must be carried out by competent personnel conforming to all statutory and governing regulations including the current wiring and CDM regulations.

The unit is designed to be ceiling/wall mounted in any plane, with the access panel for the wiring and controls on the underside.

Figure 2. Ceiling mounted.

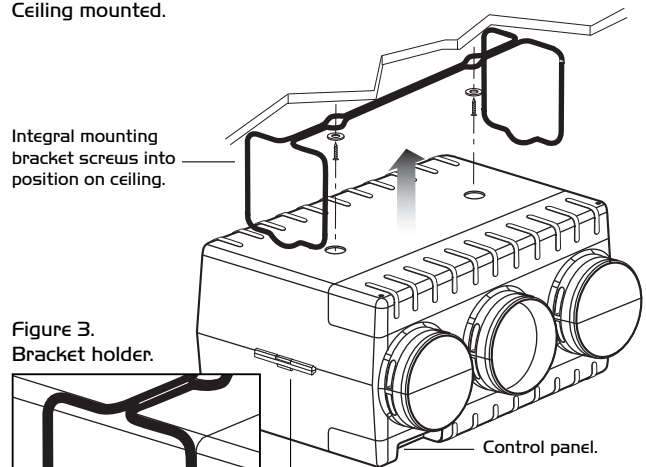


Figure 3. Bracket holder.

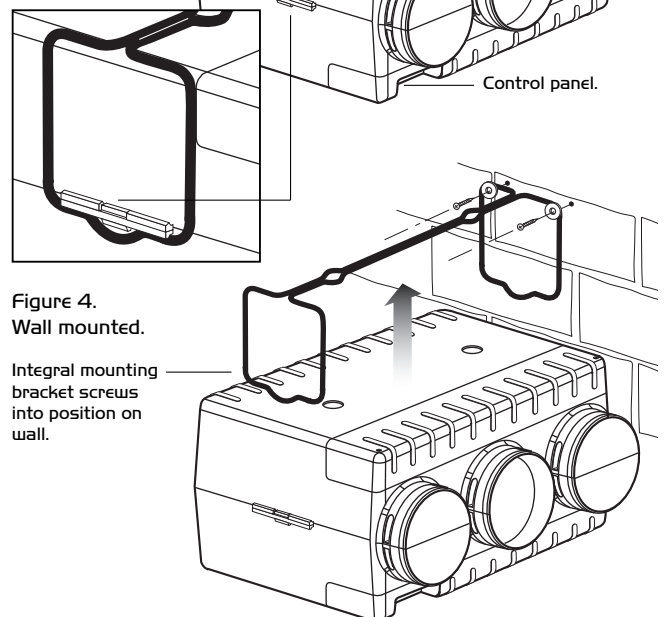
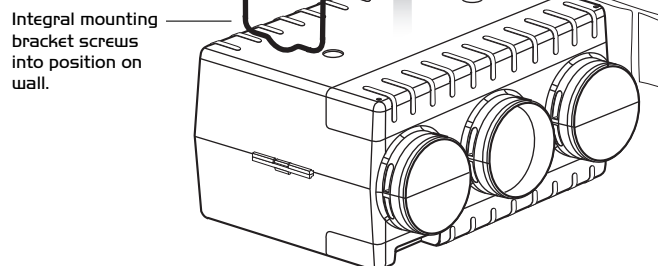


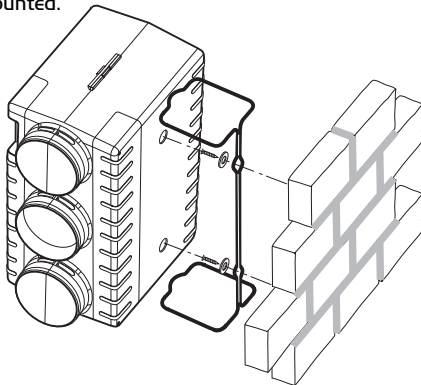
Figure 4. Wall mounted.



## 1.0 Installation cont.

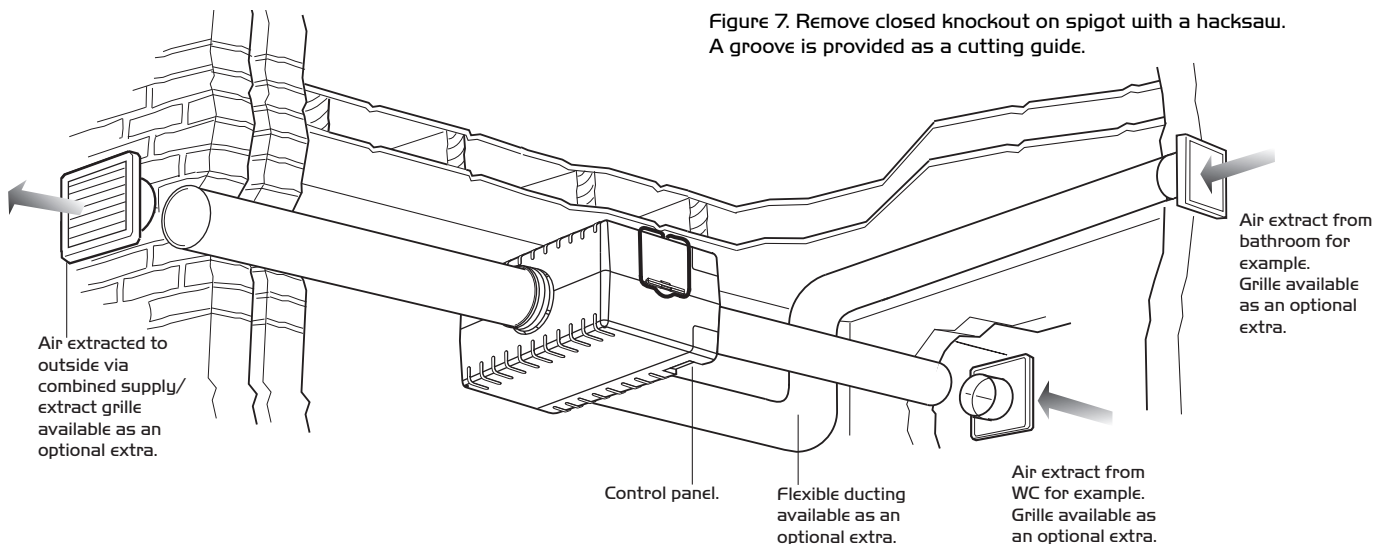
The fan must be fitted indoors, away from any direct sources of heat, water spray or moisture generation.

Figure 5. Wall mounted.



**Please note a clear working space is required around the installed unit to allow the cover to be removed and provide sufficient access for maintenance.**

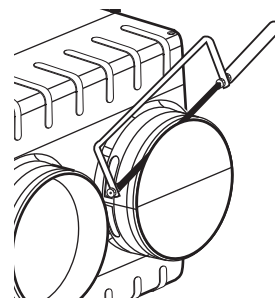
Figure 6. Typical installation.



The integral mounting bracket supplied with the unit can be offered up to position on the ceiling or wall (see figure 2 and 4).

The fixing points for the bracket should then be marked and the bracket installed with 2 screws ensuring that the bracket is secure on the ceiling or wall.

Offer the unit into position inside the bracket ensuring the access cover is face down, and locate the bracket into the moulded bracket holders on the case sides (see figure 3).



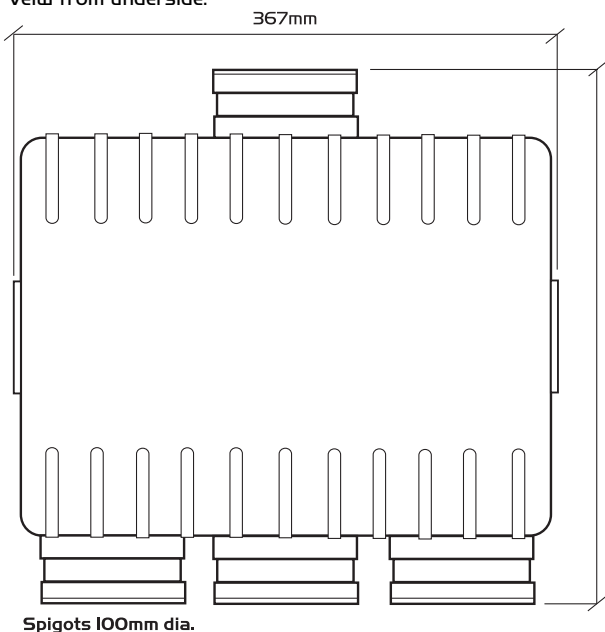
Various spigot positions can be utilised as required to suit the system ductwork and extract grilles.

The unit is supplied with one spigot open and two 'closed' as knockouts when delivered but they can be opened using a hacksaw (See figure 7).

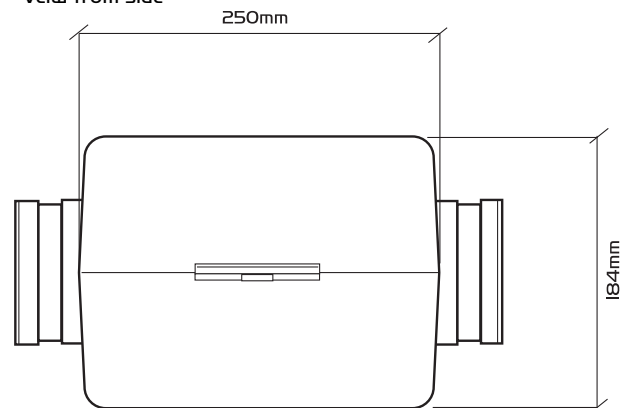
Figure 7. Remove closed knockout on spigot with a hacksaw. A groove is provided as a cutting guide.

## 2.0 Dimensions

View from underside.



View from side



## 3.0 Electrical Details

To gain access to the units power supply and control panels remove the access cover as shown in figure 8.

Power Consumption	ES-Opus			
	DC 40	DC 60	DC 75	DC 110
Unit input power (watts)	18	44	33	90
Full load running current (amps)	0.14	0.32	0.26	0.61

### IMPORTANT

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

Figure 8. Mains cable and clamp.

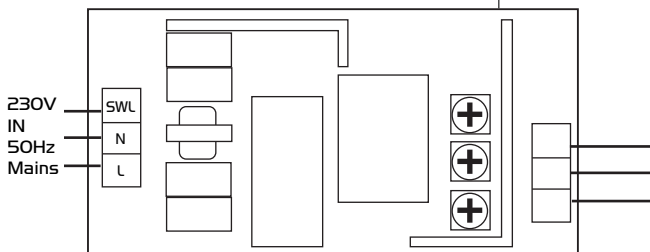
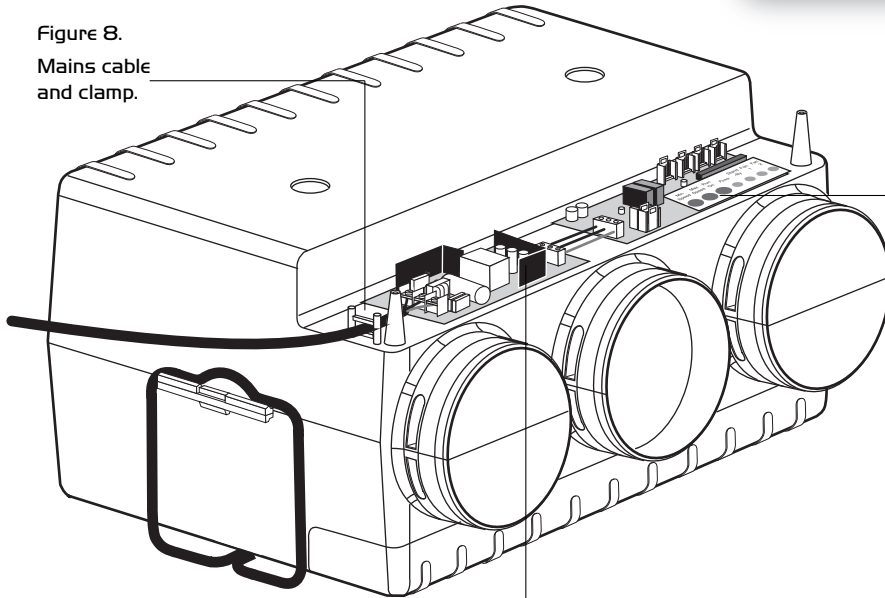


Figure 9. 24V power supply.

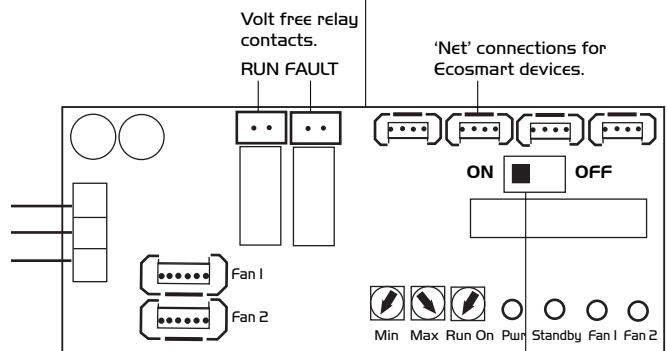


Figure 10. Ecosmart control (PCB).

## 3.1 Connections

### Ecosmart control (see figure 10)

(a) **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.

**NOTE: Do not run the SELV data cable in the same conduit as the mains cable and leave a 50mm separation with any power cables.**

#### (b) 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.

#### (c) Run connections

These contacts are closed when the fan is running.

**Fault connections - No fault** = the contacts are closed.

**Fault** = the contacts are opened (this includes no power supply at the unit).

#### (d) Data Cable installation

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

as sensors to the fan and for interconnecting multiple fan units.

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) LED Indication

**PWR** GREEN: Power on and OK, RED:

**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.

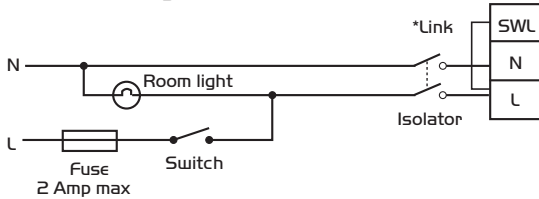
### 4.0 Settings

- Min speed** – used to regulate trickle speed.  
Can be disabled using switch.
- Max speed** – used to regulate full speed.
- Run-on timer** – Adjustable between 1 and 60 minutes.

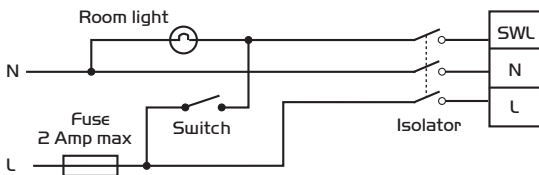
### 5.0 Wiring details

\* Note: Link also required when used in conjunction with remote user control (ES-UCF).

Unit ventilating one room



Unit ventilating one room (using run on circuit)

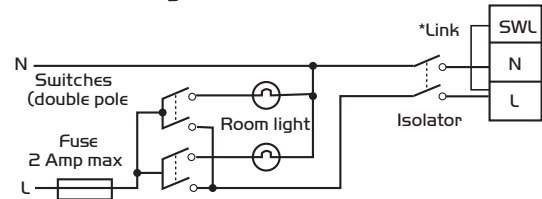


**IMPORTANT**

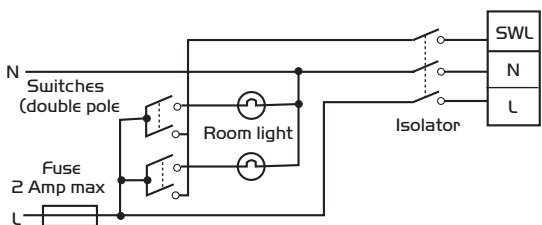
**Isolation** - Before commencing work make sure that the unit, switched live and Nuair control are electrically isolated from the mains supply.

For good EMC engineering practice, any sensor cables or switched live cables should not be placed within 50mm of other cables or on the same metal cable tray as other cables.

Unit ventilating two rooms



Unit ventilating two rooms (using run on circuit)



### Replacement of Parts

Should any component need replacing Nuair keep extensive stocks for quick delivery. 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).

### Warranty

ES-OPUSDC-M has a 5 year warranty. The 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.

The product warranty applies to the UK mainland and in accordance with Clause 14 of our Conditions of Sale. Customers purchasing from outside of the UK should contact Nuair International Sales office for further details.

### 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**

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

## 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:** ES-Opus DC  
**Machinery Types:** ES Opus DC 40-M, 60-M, 40-2M, 60-2M, 75-M, IIO-M  
**I & M Serial No.:** 671339  
**Relevant EC Council Directives:** 2006/42/EC (Machinery Directive)  
**Applied Harmonised Standards:** BS EN ISO 12100, BS EN ISO 9001, BS EN ISO 13857  
**Applied National Standards:** BS848 Parts 1, 2.2 and 5

### Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs 	Technical Director	31. 12. 10
2) A. Jones 	Manufacturing Director	31. 12. 10

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

## CE DECLARATION OF CONFORMITY

We declare that the machine named below conforms to the requirements of EC Council Directives relating to Electromagnetic Compatibility and Safety of Electrical Equipment.

**Designation of machinery:** ES-Opus DC  
**I & M Serial No.:** 671339  
**Machinery Types:** ES Opus DC 40-M, 60-M, 40-2M, 60-2M, 75-M, IIO-M  
**Relevant EC Council Directives:** 2014/30/EU (EMC), 2014/35/EU (Low Voltage Directive)  
**Applied Harmonised Standards:** BS EN 55014-1, BS EN 55014-2, BS EN 61000-3-2, BS EN 61000-3-3, BS EN 60335-2-80  
**Basis of Self Attestation:** Quality Assurance to BS EN ISO 9001 BSI Registered Firm Certificate No. FM 149

### Signature of manufacture representatives:

Name:	Position:	Date:
1) C. Biggs 	Technical Director	31. 12. 10
2) A. Jones 	Manufacturing Director	31. 12. 10

Nuaire Ltd,  
Western Industrial Estate,  
Caerphilly CF83 1NA.

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 Nuaire 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 Nuaire.

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 In the event of RF interference the fan may change speed. This is normal and will have no adverse effect on the fan. The speed will return to normal once the interference has subsided.

### 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.