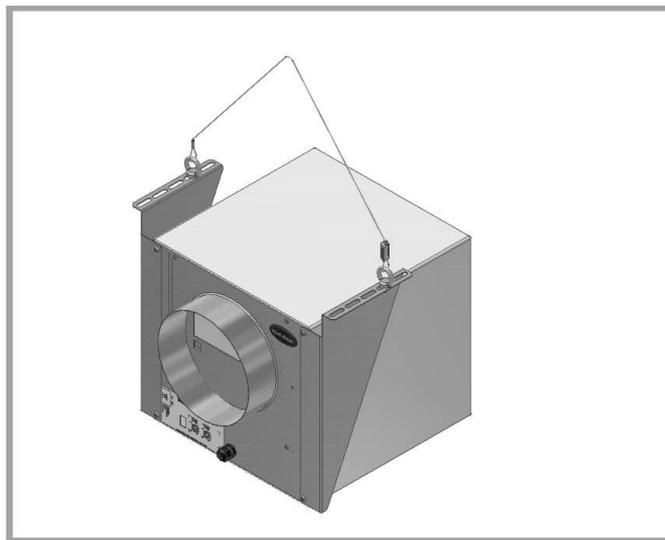


# Lo-Carbon PoziDry

## Positive Pressure Ventilation Unit

Installation and Wiring Instructions



**Stock Ref. N°**

444766 – With integral heater  
444075 – Without heater



**220-240V~50Hz**

# ***Vent-Axia***®

PLEASE READ INSTRUCTIONS IN CONJUNCTION WITH THE ILLUSTRATIONS.  
PLEASE SAVE THESE INSTRUCTIONS

IP22





# Installation and Wiring Instructions for the Lo-Carbon PoziDry Positive Ventilation Unit.

**IMPORTANT:**

**READ THESE INSTRUCTIONS BEFORE COMMENCING THE INSTALLATION**

## **SAFETY AND GUIDANCE NOTES**

1. DO NOT install this product in areas where the following may be present or occur:
  - 1.1. Excessive oil or a grease laden atmosphere.
  - 1.2. Corrosive or flammable gases, liquids or vapours.
  - 1.3. Ambient temperatures higher than 40°C or less than -5°C.
  - 1.4. Possible obstructions which would hinder access or removal of the Fan.
  - 1.5. Relative humidity above 90%
  - 1.6. Sudden ductwork bends or transformations close to the Unit.
2. All wiring to be in accordance with the current I.E.E. Regulations, or the appropriate standards of your country and MUST be installed by a suitably qualified person.
3. The fan should be provided with a 3A fused, isolator switch capable of disconnecting all poles, having a contact separation of at least 3mm.
4. Ensure that the mains supply (voltage, frequency, and phase) complies with the fan's rating label.
5. The fan should not be used where it is liable to be subjected to direct water spray.
6. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
7. Children should be supervised to ensure that they do not play with the appliance.

## **A. INTRODUCTORY NOTES**

The Vent Axia Lo-Carbon PoziDry is a positive input ventilation unit, designed to be installed in the loft of a dwelling to continually supply filtered fresh air into the building.

The system consists of a fan unit and a discharge grille with a short length of flexible ducting connecting the two.

The Lo-Carbon PoziDry has two fully adjustable speed settings; 'Trickle' and 'Normal'. These speeds are set on installation, but to aid commissioning there are pre-marked settings to suit the characteristics of the house

The Lo-Carbon PoziDry uses a sensor to monitor the temperature in the loft, automatically adjusting the air volume when necessary.

'Trickle' speed is automatically selected when the ambient loft temperature is less than 18°C.

'Normal' is automatically selected when the ambient loft temperature is between 18 and 27°C.

If the ambient loft temperature exceeds 27°C, the Lo-Carbon PoziDry will automatically switch to standby (no airflow). The standby power consumption is 2W.

In the case of the integral 500W heater version (444766), the heater element is automatically activated when necessary and tempers the supply air to between 10°C and 20°. This temperature can be set using the adjuster located between the Trickle and Normal speed adjusters.

By wiring in a switch on installation it is possible to switch off the heater if its use is not necessary. See wiring section.

The Vent Axia Lo-Carbon PoziDry has the capability to run on Purge setting (maximum speed); this is particularly useful for installations where condensation has been a severe problem in order to help dry the property out. Mould will turn to a dry grey powder when dried out and should be vacuumed up.

To enable 'Purge' speed, connect a switched live connection to the LS core on the integral mains flying lead. See WIRING on pages 5 and 6 and the notes on page 7.

The unit also incorporates a non-resettable elapsed hours counter.

## **B. INSTALLATION**

### **TYPICAL INSTALLATION**

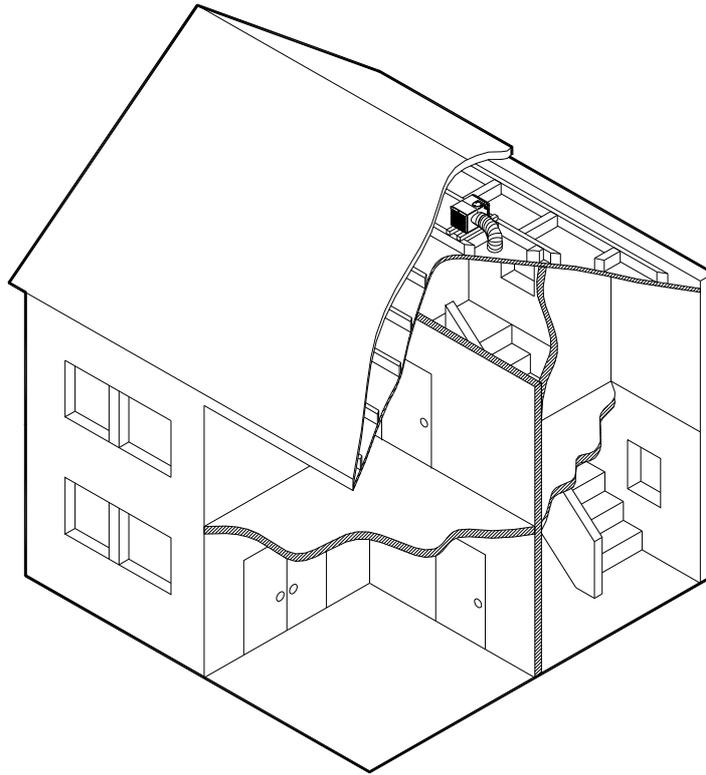


Fig.1.

#### **Lo-Carbon PoziDry UNIT:**

Prior to installation ensure that the loft is adequately ventilated. The following tips can be used as a basis for this. However this is not an exhaustive list.

Ensure that any ridge vents, tile vents and continuous air gaps are not blocked. These may not be present in older properties; however there should be enough 'leakage' to accommodate the requirements of the Lo-Carbon PoziDry unit.

One method of checking this is by entering the loft, closing the loft hatch, switching off the lights and looking for any daylight penetration. If daylight is visible it is reasonable to assume that there is adequate ventilation within the loft.

There may well be occasions where a loft is so well sealed that additional ventilation may need to be provided by the owner/occupier. This will not only assist the operation of the Lo-Carbon PoziDry, but may also help to prevent future expensive structural damage caused by inadequate air movement. It should be noted that there can never be too much ventilation in a loft.

Ensure that all water tanks are covered and sealed.

Check that all water pipes are lagged.

Ensure that any extract fans are discharging to the outside and not into the loft.

Check that the loft hatch is tightly sealed.

Ensure that all holes in the ceilings are sealed, i.e. ceiling light fittings etc.

A visual inspection of any flues or chimneys for leakage in the loft should be carried out by the installer.

If any leakage points are found, or if there is any doubt at all, the installer should advise the house owner/provider as soon as possible and seek instruction from them before proceeding with the installation.

Flexible ducting is supplied as standard. Ensure that this is pulled out and does not allow any moisture to collect; it should be a smooth single curve to the grille. If the application requires a fixed 90 degree bend, straight ducting may be used. See Spares and Accessories on page 8.

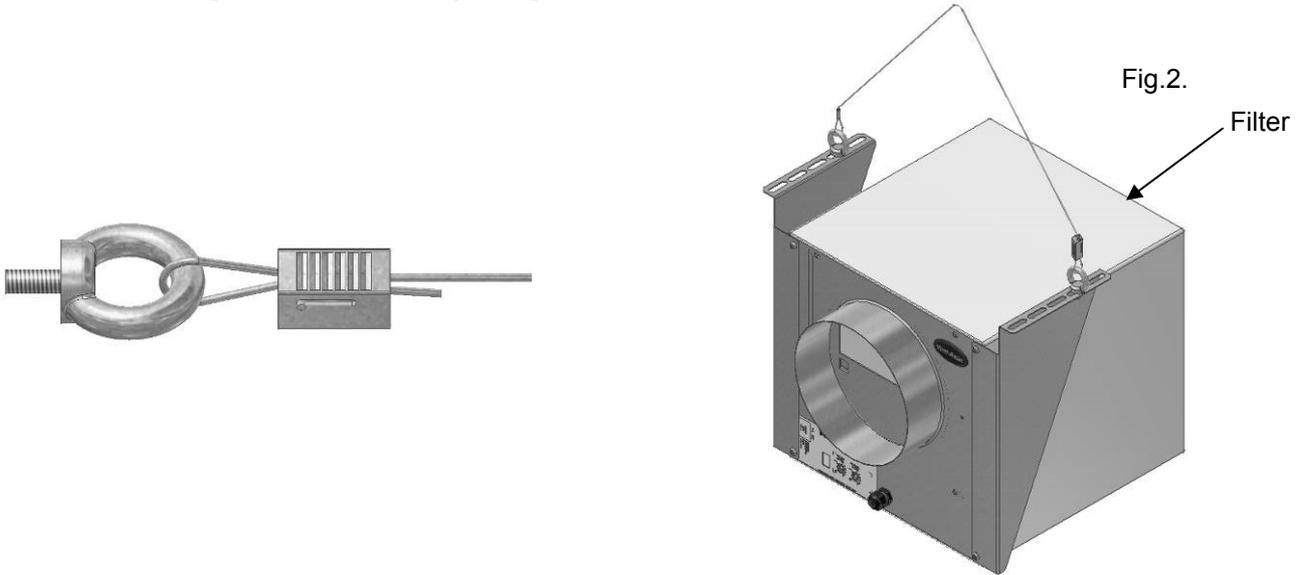
#### **Hanging method:**

The Lo-Carbon PoziDry can be hung from a roof beam (Fig. 2). Fix the eye bolts through the round holes in the centre of each foot. Suspend from an appropriate hook, or equivalent, attached to a convenient roof beam. An adjuster is provided to adjust the length of the wire, if required.

Ensure that the route for the flexible ducting has gentle bends and that the duct can not be crushed.

Fit the filter to the rear of the unit. **Please make sure that the filter is fitted correctly to the seal on all four sides. This will ensure that all the fresh air entering the dwelling has passed through the filter first.**

The method of fixing the wire to the roof beam is the responsibility of the installer. Ensure that the hook device attached to the beam is strong enough and that the beam is in sufficient condition to withstand the load. The unit weight is approximately 15 kg.



**Floor mounting:**

Remove the feet brackets from the unit and replace them so that the unit (and hence the display) will be the right way up.

Cut two lengths of 25mm x 50mm (1in x 2in) sawn timber batten to suit the span of the ceiling joists. An accessory kit containing four anti-vibration feet is available, see page 8. Attach these, if needed, to the Lo-Carbon PoziDry using the supplied M8 bolts and washers.

Position the Lo-Carbon PoziDry onto the two sawn timber battens and ensure it is within easy reach of the discharge grille. Ensure that the route for the flexible ducting has gentle bends and that the duct can not be crushed. Screw the 4 anti vibration feet to the two sawn timber battens.

Fit the filter to the rear of the unit. **Please make sure that the filter is fitted correctly to the seal on all four sides. This will ensure that all the fresh air entering the dwelling has passed through the filter first.**

Fig. 3.

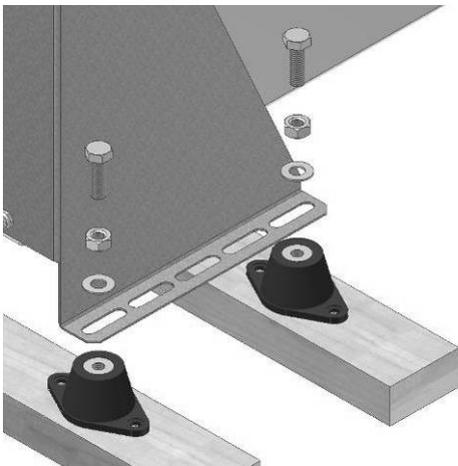
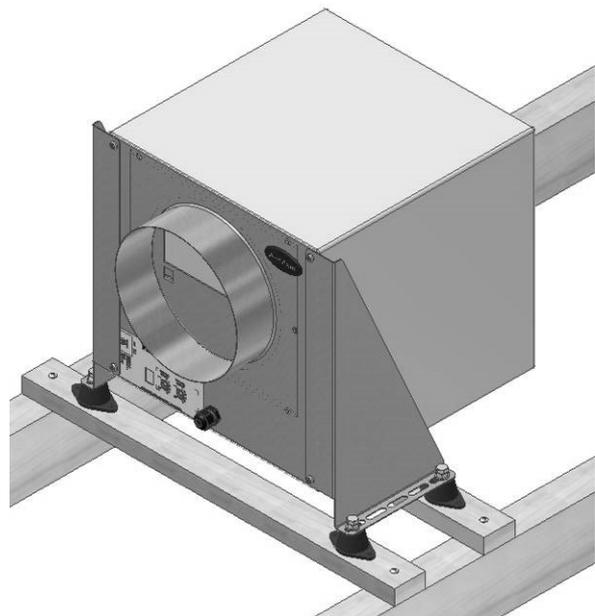


Fig. 4.



**DISCHARGE GRILLE:**

The discharge grille must be carefully sited to ensure the maximum effectiveness of the system. This grille should be fitted in the ceiling of a common area, ideally above the landing so that the incoming air can reach all the rooms.

Do not cut the flexible ducting. The ducting **must** remain a minimum of 1m in length.

Remove the loft insulation from the location of the discharge grille and cut a 200mm dia hole in the ceiling.

Pull the plastic diffuser plate off the magnets that retain it on the spigot base (Fig .5). Position the spigot base in the ceiling hole and mark the fixing hole positions. Drill and insert the appropriate fixings (e.g. plasterboard rawlplugs; not supplied) into these holes to suit No. 8 screws.

Pass the spigot base through the ceiling hole and fix it to the ceiling with 1-1/2 inch long No. 8 screws (not supplied). Attach the plastic diffuser plate to the spigot base using the magnets. Fit the free end of the flexible ducting to the discharge grille spigot using the worm drive clip supplied.

**The Lo-Carbon PoziDry should not be situated within 1m of a smoke detector, however if this is not possible the Lo-Carbon PoziDry has provisions to blank off the airflow for up to two sides of the diffuser. To do this, cut the closed cell foam material to size (Fig.6) and utilising the self adhesive backing, stick the foam strip to the metal base. Once securely located, put the plastic diffuser plate in place using the magnetic attachments.**

Blanking off one side only reduces the flow by about 6%, but blanking off two sides reduces the flow by about 20% and so if two sides are blanked off then you should consider increasing the fan speed to the next setting to maintain the appropriate airflow.

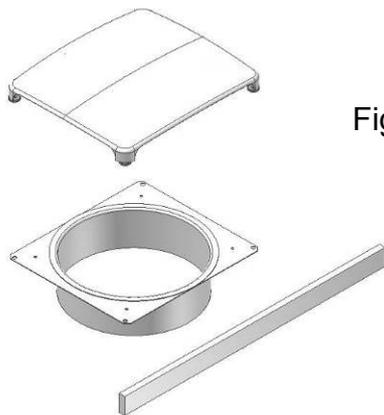


Fig. 5.

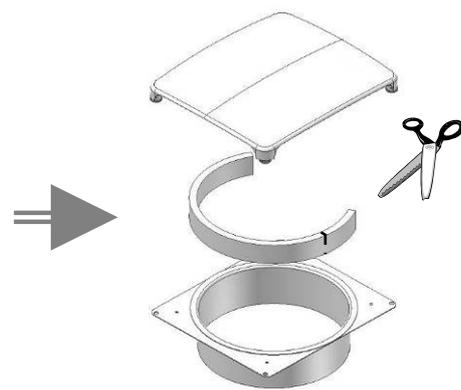
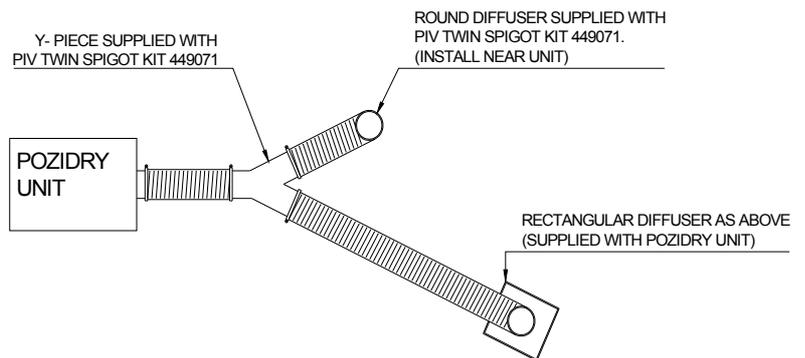


Fig. 6.

**IMPORTANT**  
(Read only if installing with PIV twin spigot kit Ref:- 449071)

Ensure that the round adjustable diffuser supplied with the kit is installed nearer to the Pozidry unit than the rectangular diffuser. This allows both flows to be balanced.



**C. WIRING**



**WARNING: THE POSITIVE VENTILATION UNIT AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING THE INSTALLATION / OR MAINTENANCE.**

**THE Lo-Carbon PoziDry (POSITIVE VENTILATION UNIT) MUST BE EARTHED.**

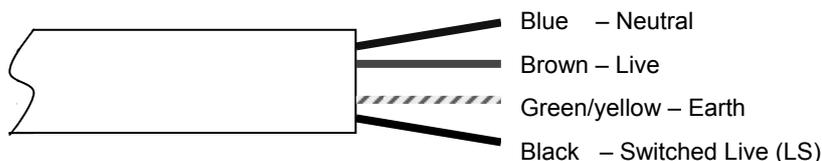
Mains supply voltages (220-240V ac) are present in this equipment which may cause death or serious injury by electric shock. Only a qualified electrician or installer should connect the power supply to this unit. The Lo-Carbon PoziDry is designed for operation from a single-phase alternating current source (220-240V AC).

A 1.2 m integral mains flying lead is connected to the unit for connection to a 3A switched fused spur. It should be capable of disconnecting all poles, having a contact separation of at least 3mm.

If a heater switch is required in order to turn the heating element on and off during Trickle ventilation operation, a single pole, one-way switch can be wired in to the Lo-Carbon PoziDry heater version terminal block by removing the link between H & L and replacing with the heater switch wires; thus making and breaking the live supply to the heater. There is a 16mm hole provided with a plug stopper fitted in the front panel of the Lo-Carbon PoziDry. This should be removed and replaced with a suitable cable gland. The heater switch cable can be fed through the cable gland and into the terminal strip. The heater switch cable should be located under the cut-out in the terminal cover together with the fan and thermistor cables when the terminal cover is replaced. The switch, cable and cable gland which are not supplied should be rated at 3 amps.

#### TO CONNECT A POWER SUPPLY:

- Ensure the local AC power supply is isolated.
- The product has a pre-wired flying lead. Connect the brown core to Live, blue core to Neutral, green/yellow to Earth, and black to LS (for 100% PURGE if required).



- Use cable clamps and clips to secure the cable, as appropriate.
- Maximum heater power 500 W and motor power 13 W.

## **D. START UP SEQUENCE**

The Lo-Carbon PoziDry will perform a start up test procedure on **every** power up.

During this sequence, the following will occur:

- 1) Motor goes to full speed.
- 2) LED segments light up one at a time until all 7 are lit.
- 3) Potentiometers and Thermistor are measured and the motor pulses counted. If any of these sources shows an fault, then it is displayed. A list of fault codes is shown below.
- 4) Motor goes to lowest (Trickle) speed; if the motor stalls then a 'fault' is displayed. Otherwise the display shows 'n' indicating Trickle speed.
- 5) After 10 seconds the heater is turned on, the display now shows 'h.' for heat, (irrespective of whether a heater is fitted or not).
- 6) After 20 seconds (to allow the element to warm up if fitted) the heater is turned off, the motor goes to maximum Normal speed to cool the heater and the display shows 'b' indicating Normal speed.
- 7) **After 10 seconds the display shows the elapsed hours. Six digits are displayed sequentially immediately after the 'b'. For example, 000048 would indicate 2 complete days has elapsed.**
- 8) The unit exits the test mode and runs at the appropriate rate whilst displaying a rotating segment display. The rate will depend upon ambient temperature.

The Lo-Carbon PoziDry has built in fault detection software to ensure continual safe functioning. If any of these faults are displayed on the LCD display please contact Technical Support on 0844 8560594.

F1 = open circuit thermistor i.e. not connected.  
F2 = short circuit thermistor i.e. wires, PCB or thermistor shorted.  
The above codes are mutually exclusive so cannot occur at the same time.

F3 = Motor Tachometer signal failure or fan not rotating.  
F4 = Motor AND open circuit thermistor failures.  
F5 = Motor AND short circuit thermistor failures.

### **CAUTION:**

As the heater element is activated during this sequence, the ducting **must** be attached. Please take extreme caution after the self test as the unit may become hot.

## E. COMMISSIONING

The Lo-Carbon PoziDry has two speed settings, 'Trickle' and 'Normal'.

'Trickle' speed is automatically selected when the ambient loft temperature is **below 18°C**.

'Normal' is automatically selected when the ambient loft temperature is **between 18°C and 27°C**.

If the ambient loft temperature exceeds 27°C, the Lo-Carbon PoziDry automatically switches to standby (no airflow).

The speed settings on the Lo-Carbon PoziDry are fully adjustable via the two potentiometers located on the front of the unit.

As marked on the unit, the **left hand** potentiometer controls the 'Trickle' speed setting.

The **right hand** potentiometer controls the 'Normal' speed setting.

The **central** potentiometer (if available) controls the heat setting for integral heater version (444767).



**WARNING: THE BLUE POTENTIOMETER DRIVER SUPPLIED WITH THE UNIT MUST BE USED TO ADJUST THE POTENTIOMETERS.**

Turning the potentiometer **clockwise** will increase the speed.

Once the Lo-Carbon PoziDry speeds are set, apply the supplied clear label (446704) over marked area containing 'Trickle' and 'Normal' holes to ensure the potentiometers are inaccessible and so that the unit returns to an IPX2 rated status.

The fan speeds must be selected to suit the condensation level of the house.

The condensation level of a house is affected by a combination of factors and not just house size, but research by the Building Research Establishment and other bodies has shown that a ventilation rate equal to half the volume of the house per hour will provide adequate background ventilation, therefore for ease of installation the Lo-Carbon PoziDry can be commissioned based on house size.

Based on this air change rate the following speeds are recommended:

Setting	Airflow, l/s (m <sup>3</sup> /h)	Floor area, m <sup>2</sup>	Power, W	SFP, W/l/s
1	10 (36)	30	2.5	0.25
2	18 (65)	54	3.0	0.17
3	26 (94)	78	4.0	0.15
4	34 (122)	102	5.0	0.15
5	42 (151)	125	7.0	0.17
6	50 (180)	(boost only)	10.3	0.21

This performance is achieved with the filter, duct and diffuser as included with this unit. The duct bent to incorporate a 90° bend.

As a guideline the 'Normal' speed setting should be the 'Trickle' speed setting plus two, however as house sizes vary in some houses the 'Normal' speed may need to be more or less than this guideline.

Note: Figures based on a 2.4m ceiling height.

The factory setting is "Trickle" **Setting 2** and "Normal" **setting 4**.

**In many installations where condensation is a severe problem; it is recommended to run the fan at purge speed for a couple of weeks to ventilate the house thoroughly. This can be achieved by utilizing the LS input option, whereby the unit will run on Purge setting until the LS signal is terminated. To achieve this, connect the LS core of the integral mains flying lead to an LS input.**

It is the responsibility of the installer to ensure that appropriate speeds are selected.

## **F. SERVICING AND MAINTENANCE.**

The fan motor uses sealed ball bearings, and does not require further lubrication.

Apart from filter change the Lo-Carbon PoziDry contains no user serviceable parts.

Under normal conditions; i.e. away from main roads and industrial areas it is recommended that the filter is checked annually and cleaned or replaced as necessary. Otherwise change as required.

The filter may be gently cleaned with a vacuum cleaner or washed in a soapy water solution and allowed to air dry before re-fitting. Do not dry the filter in a tumble dryer. **When re-fitting the filter, please make sure that the filter is fitted correctly to the seal on all four sides. This will ensure that all the fresh air entering the dwelling has passed through the filter.**

Spare filter packs are available from Vent-Axia Sales Centres.

<b>Spares and Accessories</b>	Part Number
FILTER PACK	447428
ANTI-VIBRATION FEET SET OF 4	68MP033G
HANGING CABLE SET	446817
90 degree BEND dia 200	370202
CONTROL PCB	447386
HEATER ELEMENT	447431
MOTOR/IMPELLER	447432
PIV TWIN SPIGOT KIT	449071
1 m diameter 200 mm flexible duct	451820

## **G. FAULT FINDING.**

The Lo-Carbon PoziDry has built in fault detection software to ensure continual safe functioning.

If one of the following faults appears on the LCD display please contact Technical Support on 0844 8560594.

F1 = Open circuit thermistor i.e. not connected.

F2 = Short circuit thermistor i.e. wires, PCB or thermistor shorted.

The above codes are mutually exclusive so cannot occur at the same time.

F3 = Motor Tachometer signal failure or fan not rotating.

F4 = Motor AND open circuit thermistor failures.

F5 = Motor AND short circuit thermistor failures.

## PRODUCT FICHE

For Residential Ventilation Units (Complying Commission Delegated Regulation (EU)

No 1254/2014)

Name:	Vent-Axia	Vent-Axia
Model ID (Stock Ref.) :	Lo-Carbon PoziDry - 444075	Lo-Carbon PoziDry - 444766
SEC Class	B	B
SEC Value ('Average')	28.30	28.30
SEC Value ('Warm')	12.80	12.80
SEC Value ('Cold')	55.36	55.36
Label Required? (Yes/No=Out of scope)	No	No
Declared as: RVU or NRVU/UVU or BVU	RVU-UVU	RVU-UVU
Speed Drive	Variable Speed	Variable Speed
Type HRS (Recuperative, Regenerative, None)	None	None
Thermal Eff: [ (%), NA(if none)]	N/A	N/A
Max. Flow Rate (m3/h)	180.00	180.00
Max. Power Input (W): (@Max.Flow Rate)	13.00	13.00
LWA: Sound Power Level (dB)	N/A - (Ducted)	N/A - (Ducted)
Ref. Flow Rate (m3/s)	0.04	0.04
Ref. Pressure Diff. (Pa)	TBC	TBC
SPI [W/(m3/h)]	0.10	0.10
Control Factor & Control Typology: (CTRL/ Typology)		
Control Factor; CTRL	0.65	0.65
Control Typology	Local Demand Control	Local Demand Control
Declared: -Max Internal & External Leakage Rates(%) for BVUs or carry over (for regenerative heat exchangers only), -&Ext. Leakage Rates (%) for Ducted UVUs;	TBC	TBC
Mixing Rate of Non-Ducted BVUs not intended to be equipped with one duct connection on either supply or extract air side;	N/A	N/A
Filter Warning (RVU)	No	No
For UVUs (Instructions Install Regulated Supply/Extract Grilles Façade)	In F&W	In F&W
Internet Address (for Disassembly Instructions)	<a href="http://www.vent-axia.com">www.vent-axia.com</a>	<a href="http://www.vent-axia.com">www.vent-axia.com</a>
Sensitivity p. Variation@+20/-20 Pa: (for Non-Ducted Vus)	TBC	TBC
Air Tightness-ID/OD-(m3/h) (for Non-Ducted Vus)	TBC	TBC
Annual Electricity Consumption: AEC (kWh/a)	1.37	1.37
Annual Heating Saved: AHS (kWh/a)		
AHS: Average	28.30	28.30
AHS: Warm	12.80	12.80
AHS: Cold	55.36	55.36

## The **Vent-Axia** Guarantee

Applicable only to products installed and used in the United Kingdom. For details of guarantee outside the United Kingdom contact your local supplier.

Vent-Axia guarantees its products for two years from date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's option replaced, without charge, provided that the product:-

- Has been installed and used in accordance with the instructions given with each unit.
- Has not been connected to an unsuitable electricity supply. (The correct electricity supply voltage is shown on the product rating label attached to the unit).
- Has not been subjected to misuse, neglect or damage.
- Has not been modified or repaired by any person not authorised by the company.

### IF CLAIMING UNDER TERMS OF GUARANTEE

Please return the complete product, carriage paid to your original supplier or nearest Vent-Axia Centre, by post or personal visit. Please ensure that it is adequately packed and accompanied by a letter clearly marked "Guarantee Claim" stating the nature of the fault and providing evidence of date and source of purchase.

# **Vent-Axia**<sup>®</sup>

Head Office: Fleming Way, Crawley, West Sussex, RH10 9YX.

UK NATIONAL CALL CENTRE, *Newton Road, Crawley, West Sussex, RH10 9JA*

SALES ENQUIRIES:           Tel: 0844 8560590           Fax: 01293 565169

TECHNICAL SUPPORT:       Tel: 0844 8560594           Fax: 01293 539209

For details of the warranty and returns procedure please refer to [www.vent-axia.com](http://www.vent-axia.com) or write to Vent-Axia Ltd, Fleming Way, Crawley, RH10 9YX