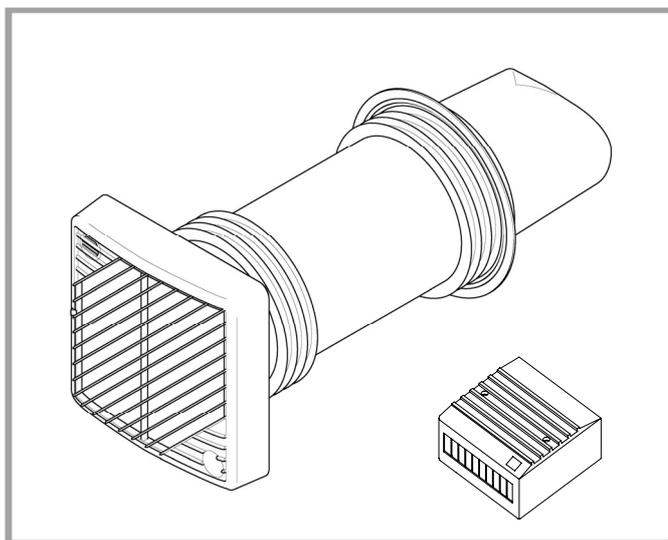


# Lo-Carbon HR25

Single Room Heat Recovery Unit

Installation and Wiring Instructions



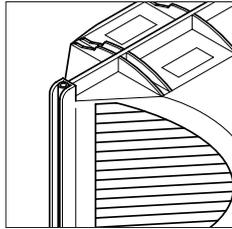
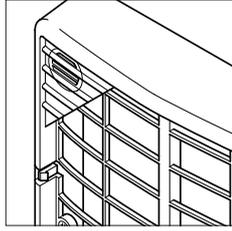
Stock Ref. N°

372261A	HR25
372262A	HR25H
372263A	HR25P
372264A	HR25L
372265A	HR25LH
372266A	HR25LP

**Vent-Axia**<sup>®</sup>

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

CE



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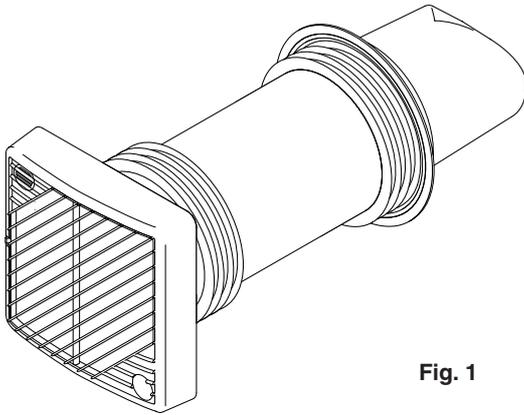


Fig. 1

## 1.0 Introduction

### 1.1 Description

1. The Vent-Axia HR25 range of products are "through the wall" heat recovery ventilators for use in areas such as bathrooms and WCs.

2. The units are fitted with a 24V DC motor and are supplied with a Switch Mode Power Supply (S.M.P.S.). On normal setting the power consumption is 2 Watts.

A 5m cable is provided for fixed wiring of the unit to the S.M.P.S.

3. The twin impeller and heat exchanger arrangement simultaneously supplies and extracts air while transferring heat from the stale exhaust airflow to the fresh intake airflow. This provides up to 84% heat recovery from the stale extracted air.

4. The range of products is as follows:-

#### **HR25**

The HR25 is fitted with a pull cord switch which provides a twin speed control function.

#### **HR25H**

The HR25H is fitted with an adjustable humidity sensor which automatically switches between its high and low settings depending on the relative humidity in the room of installation.

#### **HR25P**

The HR25P has an Infra-Red sensor which detects a person moving in the room, which then activates the unit to switch to its higher setting. This unit can operate under two different modes, direct action and delayed action.

#### **HR25L, HR25LH and HR25LP**

These are extended versions of the above models. They are designed for installations where the wall thickness is between 311mm and 425mm.

## 2.0 Site Requirements

### 2.1 Information

1. The unit is designed for installation in external walls with a thickness of up to 310mm. For wall thicknesses above 310mm, the 'L' version of the appropriate model must be used (see page 12 ). The 'L' models are suitable for wall thicknesses up to 425mm.

2. The unit must be sited and connected by a suitably competent person and be in accordance with current U.K. Building Regulations and I.E.E. Wiring Regulations (BS 7671).

3. The unit must be installed in conjunction with the separate power supply supplied, which is intended for permanent connection to the mains electrical supply. The unit and the power supply are intended for fixed wiring installation.

4. The power supply requires free air circulation for effective operation. It must not be recessed into the mounting surface or covered with any form of insulation, which might be used in a ceiling or roof void. The unit must be sited such that the ambient temperature will not exceed 40°C. please ensure that the air vents on the enclosure are not blocked or covered up.

5. Wiring to the unit in the U.K. must be via a switched fused spur.

6. The spur should have a minimum contact gap of 3mm in all poles.

7. Ensure that the mains electrical supply is compatible with the rating label attached to the product.

8. The unit must be sited such that the ambient temperature will not exceed 40°C.

9. Do not site the appliance in the vicinity of excessive levels of airborne oil or grease. or directly over a cooker.

10. If the unit is installed in a room containing a fuel burning appliance, the installer must ensure that air replacement is adequate for both appliances.

11. The unit must not be installed at a level below 500mm from the floor.

12. The internal grille surround must be sited at least 125mm away from the room ceiling (Fig. 3). and 300mm away from any adjacent vertical surface.

13. The external cowl of the unit must be sited at least 500mm away from any flue of gas or solid fuel appliances. This is to avoid back flow of gases entering the room.

14. All safety regulations and requirements must be strictly followed to prevent hazards to life and property both during and after installation and during subsequent maintenance or servicing.

15. Ensure the mains electrical supply is switched off before commencing installation or maintenance.

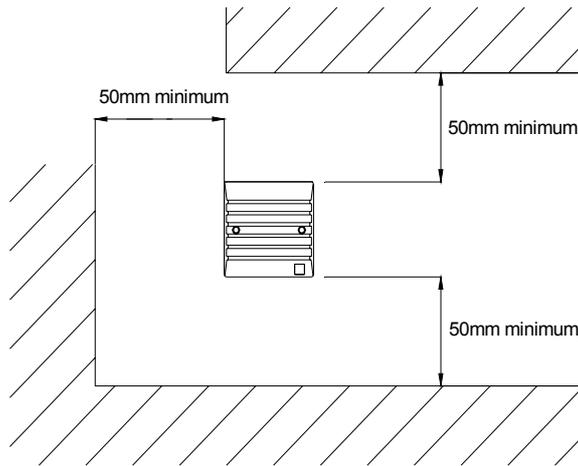


Fig.2

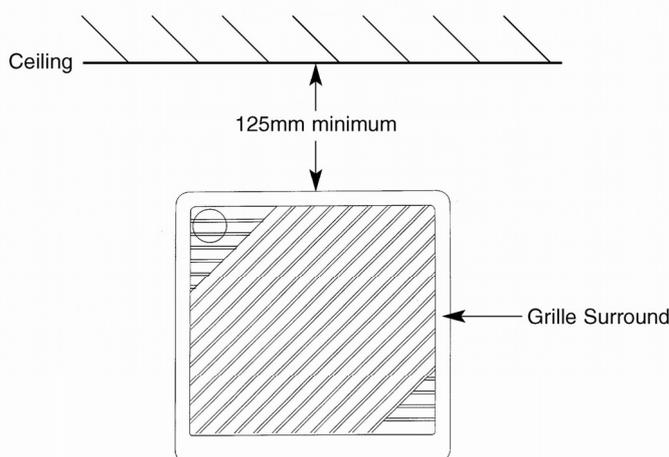


Fig.3

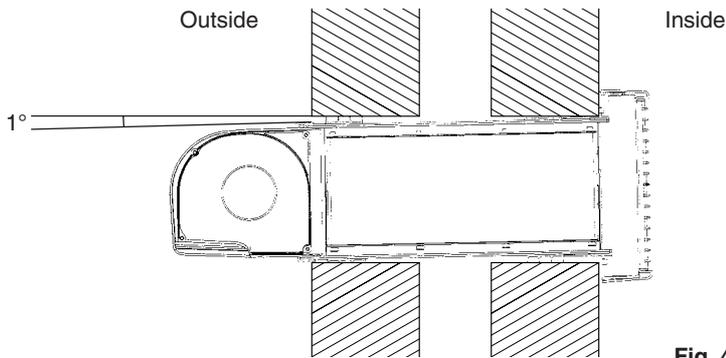


Fig. 4

## 3.0 Installation

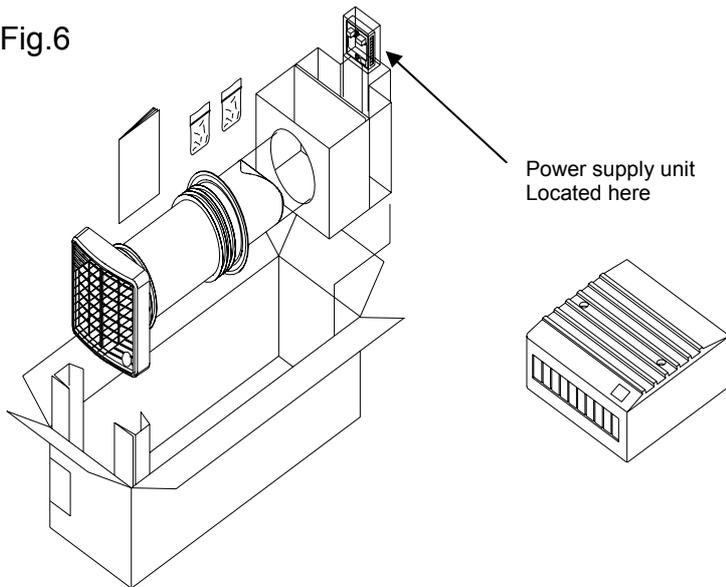
### 3.1 Initial Preparation

The unit is designed for installation in a 152mm (6") core drilled hole.

All installation can be undertaken from inside the building except for fixing of the external bezel if required.

1. After considering the site requirements (see previous section), select a suitable position for the unit and power supply enclosure (5m maximum between unit and power supply).
2. Remove the unit fixing template from the rear of the instructions.
3. Mark the position of the four fixing holes and the mounting hole.
4. Cut the mounting hole to a diameter of 152mm (6") using a core drill. Ensure that there is a slight fall on the hole, from inside to outside (Fig. 4).
5. Drill and plug the four fixing holes. Install the fixed cable runs using mini-trunking or via concealed installation. A 3-core red, white and black low voltage cable is supplied for connections between the unit and the power supply.
6. Using the template supplied mark the position of the four fixing holes for the power supply enclosure. Drill and plug the holes.
7. Ensure the cable to the unit extends sufficiently from the mounting hole to enable the required connections within the control enclosure.

Fig.6



### 3.0 Installation

#### 3.2 Installing the Power Supply Unit

1. Remove the power supply unit assembly from the carton. (Fig.6)
2. Remove the power supply unit packaging.
3. The mains input to the power supply unit must be routed via the rear of a single gang surface mounted back box (not supplied). **NOTE: Mains wiring must be kept separate from the SELV wiring.** The mains connection is to the terminals marked L & N (Fig.7)
4. Feed the 3-core cable through the rear of the back box.
5. Mark the fixing hole positions in the back box (not supplied) then Drill and plug the wall to secure the power supply enclosure using the fixing screws provided.

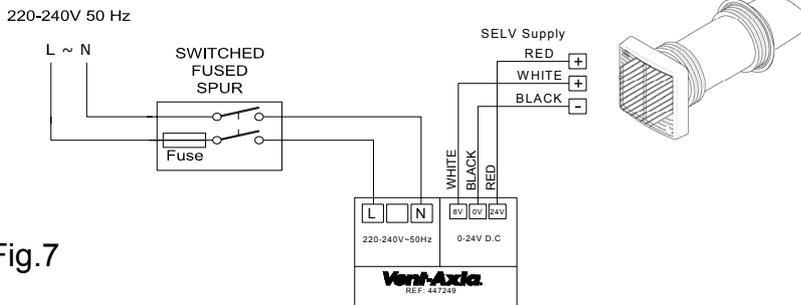


Fig.7

**HR25 / HR25L ONLY**  
Disconnect and make safe  
**White wire for High speed/Off**

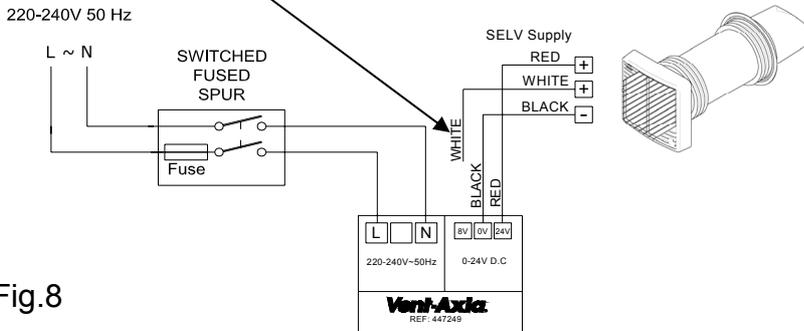


Fig.8

**HR25 / HR25L ONLY**  
Disconnect and make safe  
**Red wire for Low speed/Off**

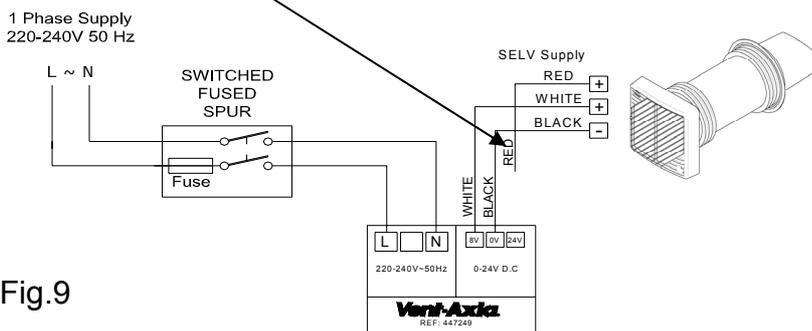


Fig.9

6. Connect the 5m cable supplied to the red, white and black low voltage supply via the terminal block. (Fig. 7) **NOTE: Red is positive high speed, white is positive low speed and black is negative. This polarity must be maintained at the unit connections.**

#### HR25/HR25L ONLY

The HR25/HR25L units are factory set to operate continuously at high or low speed via a pull cord switch.

Two alternative settings can also be achieved by disconnecting and making safe the respective wires at the cable end of the terminal block within the power supply enclosure. The settings are as follows:-

- High speed / Off – Disconnect White (Fig.8)
- Low speed / Off – Disconnect Red (Fig.9)

**N.B** For all other models, refer to the respective installation page.

## 3.0 Installation

### 3.3 Installing the HR25

1. Remove the unit, bezel and fixing pack from the carton.

2. Unclip the removable grille from the unit and remove filter (Fig. 10).

3. Loosen the two securing screws and remove the grille surround (Fig. 11).

4. Remove the divider board (Fig. 11).

5. Measure the total wall thickness. The outer of the two rubber seals is adjustable and should be set in a position that is 25mm in from the outer face of the external wall (Fig. 12).

6. Secure the rubber seal to the unit using the adhesive provided.

7. Locate the unit in the mounting hole, but do not push it fully in.

8. Route the low voltage cable from the power supply enclosure to the unit.

9. Pass the low voltage cable through the cable entry grommet at the top of the unit (Fig. 14).

10. Secure the unit to the wall using the four fixing screws provided.

11. Remove the control cover by undoing the two retaining screws (Fig. 14).

12. Strip the low voltage cable sheath back 40mm from the end and separate the three individual wires.

13. Connect the wires to the terminal block. Connect red to red, white to white and black to black (Fig. 13 & 14).

14. Ensure that the low voltage cable is routed through the divider slot (Fig. 14).

15. Reassemble in reverse order ensuring the divider board seals against the heat exchanger.

16. A bezel is provided to neaten the appearance of the outside wall around the unit. If required this should be fixed in place using a suitable silicone/mastic sealant.

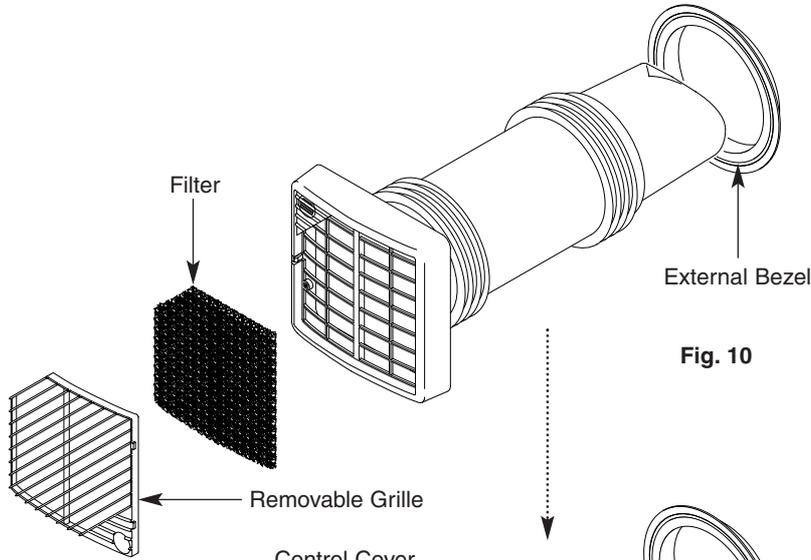


Fig. 10

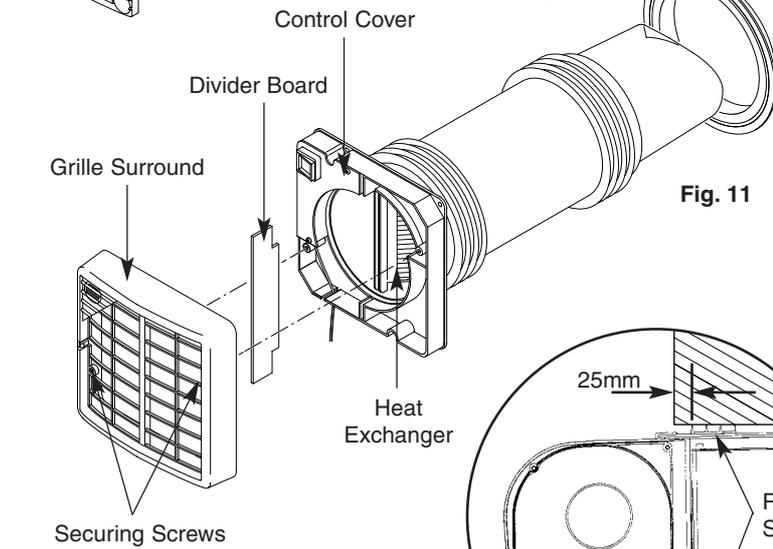


Fig. 11

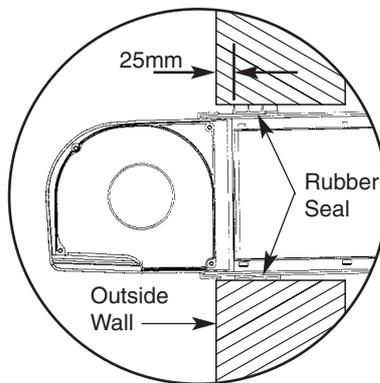


Fig. 12

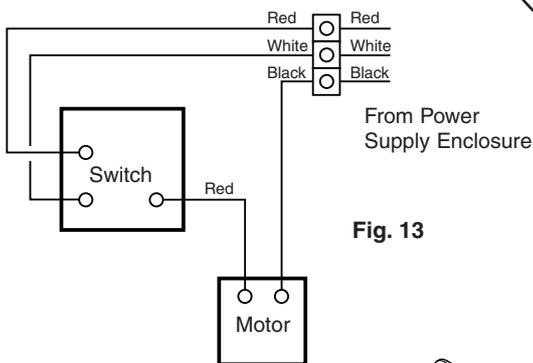


Fig. 13

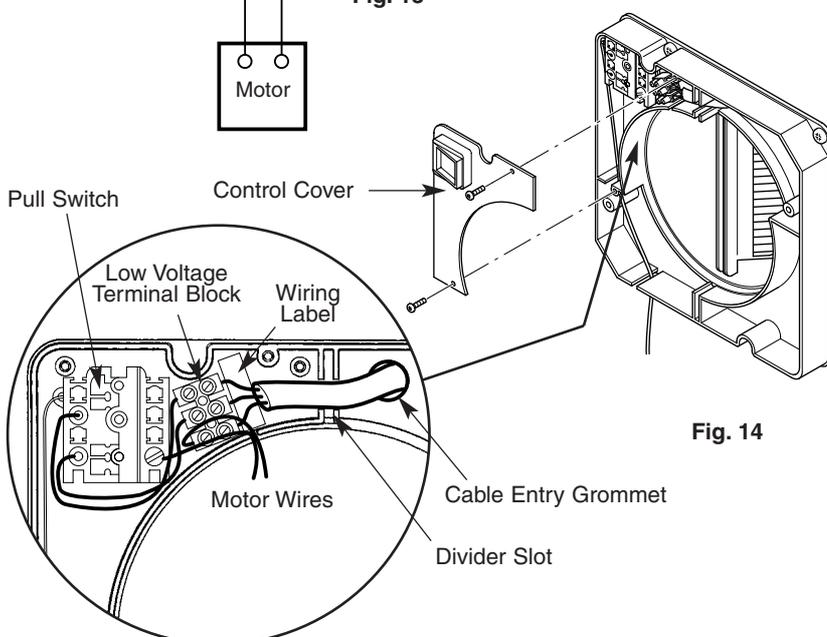


Fig. 14

## 3.0 Installation

### 3.4 Installing the HR25H

1. Remove the unit, bezel and fixing pack from the carton.
2. Unclip the removable grille from the unit and remove filter (Fig. 20).
3. Loosen the two securing screws and remove the grille surround (Fig. 21).
4. Remove the divider board (Fig. 21).
5. Measure the total wall thickness. The outer of the two rubber seals is adjustable and should be set in a position that is 25mm in from the outer face of the external wall (Fig. 22).
6. Secure the rubber seal to the unit using the adhesive provided.
7. Locate the unit in the mounting hole, but do not push it fully in.
8. Route the low voltage cable from the power supply enclosure to the unit.
9. Pass the low voltage cable through the cable entry grommet at the top of the unit (Fig. 24).
10. Secure the unit to the wall using the four fixing screws provided.
11. Carefully remove the control cover by undoing the two retaining screws. Take care not to dislodge the sensor or strain the wires (Fig. 24).
12. Strip the low voltage cable sheath back 40mm from the end and separate the three individual wires.
13. Connect the wires to the terminal block. Connect red to red, white to white and black to black (Fig. 23).
14. Ensure that the low voltage cable is routed through the divider slot (Fig. 24).
15. The HR25H unit is factory set to switch between high or low speed. Two alternative settings can also be achieved by changing the position of the 'jumpers' on the control board (Fig. 23).
  - 1 Off / Low speed
  - 2 Off / High speed
  - 3 Low / High speed (continuously running)
16. The switching point of the unit can be adjusted between 60% - 90% humidity. It is factory set to operate at 70% humidity at 25°C.
17. To adjust the humidity level, rotate switch (A) as follows (Fig. 23):
  - a) For the unit to operate at a lower humidity level, turn switch (A) anti-clockwise (Min. 60%).
  - b) For the unit to operate at a higher humidity level, turn switch (A) clockwise (Max. 90%).
18. Reassemble in reverse order ensuring the divider board seals against the heat exchanger.
19. A bezel is provided to neaten the appearance of the outside wall around the unit. If required this should be fixed in place using a suitable silicone/mastic sealant.

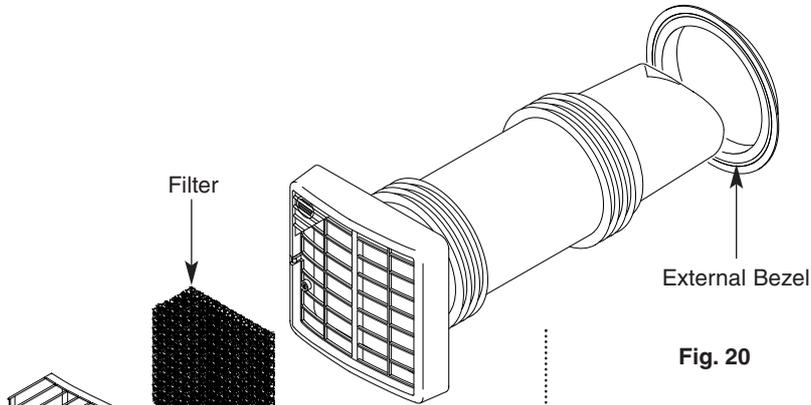


Fig. 20

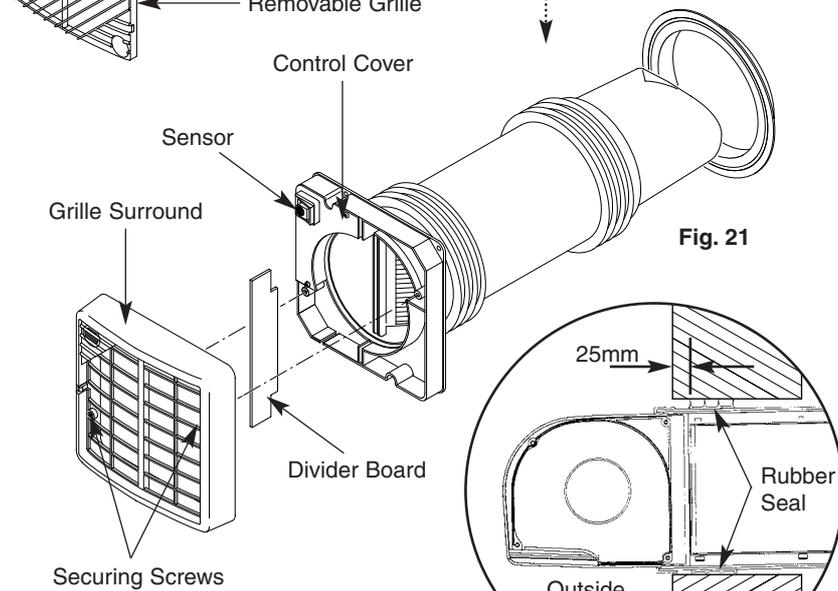


Fig. 21

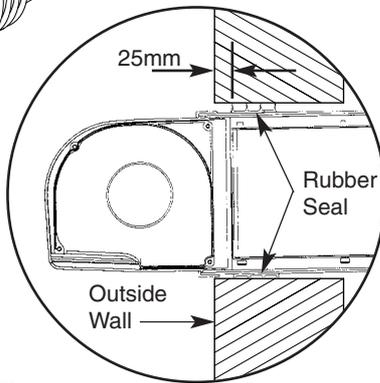


Fig. 22

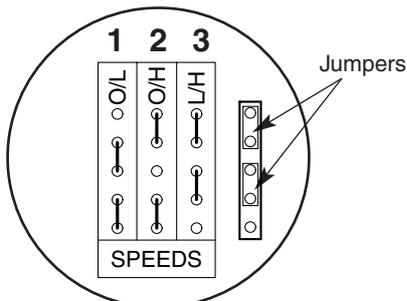


Fig. 23

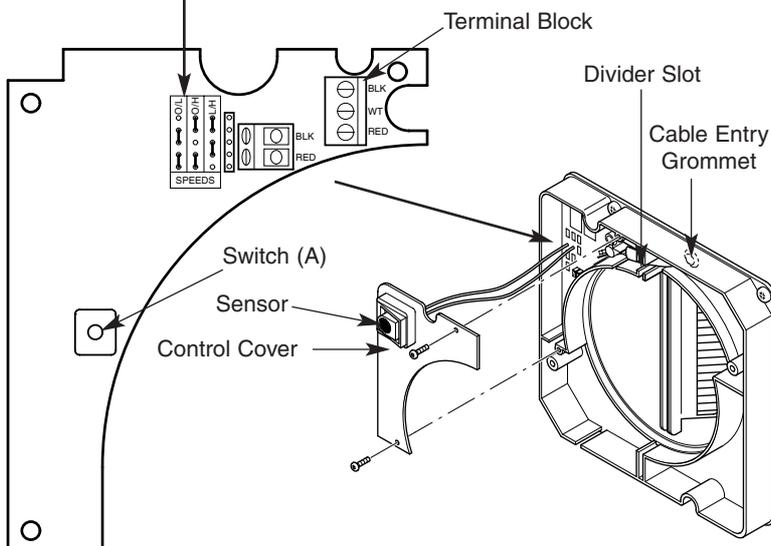


Fig. 24

## 3.0 Installation

### 3.5 Installing the HR25P

1. Remove the unit, bezel and fixing pack from the carton.
2. Unclip the removable grille from the unit and remove filter (Fig. 25).
3. Loosen the two securing screws and remove the grille surround (Fig. 26).
4. Remove the divider board (Fig. 26).
5. Measure the total wall thickness. The outer of the two rubber seals is adjustable and should be set in a position that is 25mm in from the outer face of the external wall (Fig. 27).
6. Secure the rubber seal to the unit using the adhesive provided.
7. Locate the unit in the mounting hole but do not push it fully in.
8. Route the low voltage cable from the power supply enclosure to the unit.
9. Pass the low voltage cable through the cable entry grommet at the top of the unit (Fig. 29).

10. Secure the unit to the wall using the four fixing screws provided.

11. Carefully loosen the control cover by undoing the two retaining screws. Slowly pull the cover forwards. There are two sets of wires leading from the PIR sensor in the control cover to the control board. Note the position of these wires and unplug them at the control board. Place the control cover to one side (Fig. 29).

12. Strip the low voltage cable sheath back 40mm from the end and separate the three individual wires.

13. Connect the wires to the terminal block. Connect red to red, white to white and black to black (Fig. 28).

14. Ensure that the low voltage cable is routed through the divider slot (Fig. 29).

15. The HR25P unit is factory set to switch between high or low speed. Two alternative settings can also be achieved by changing the position of the 'jumpers' on the control board (Fig. 28).

- 1 **Off / Low speed**
- 2 **Off / High speed**
- 3 **Low / High speed (continuously running)**

16. The unit is designed to operate under two different conditions, these are as follows:

#### a) DIRECT ACTION:

This mode effectively means that the PIR sensor will detect movement within the room and either switch the unit on, or from the low to high speed depending upon how it has been set (paragraph 15 above).

#### b) DELAYED ACTION:

This mode means that the PIR sensor will ignore movement in the room for the first 2 minutes. This mode has been designed for night time use of toilets and bathrooms where brief visits will not activate the unit.

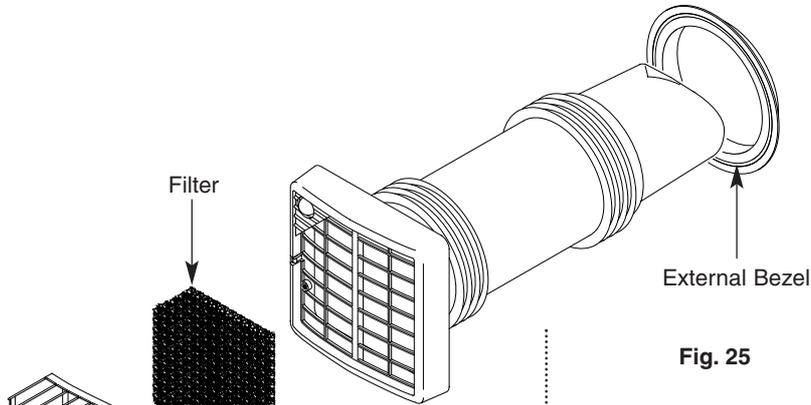


Fig. 25

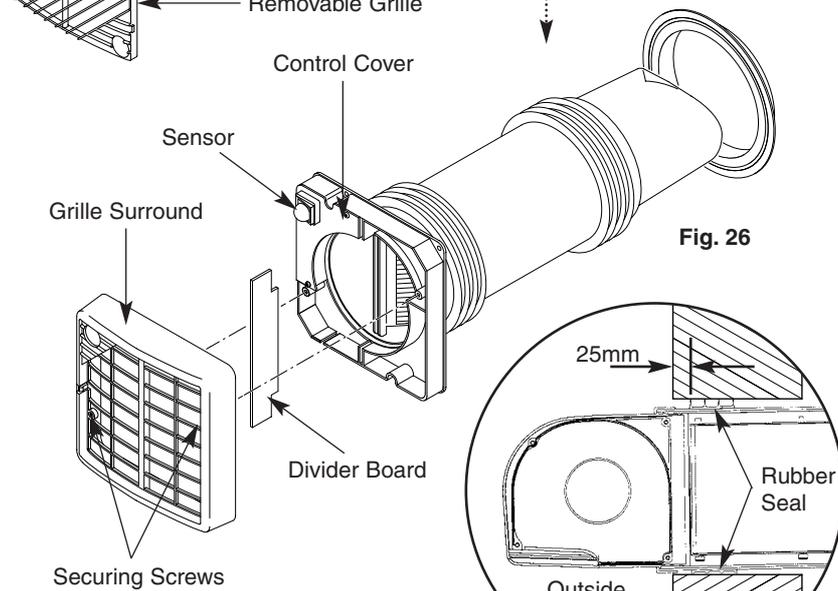


Fig. 26

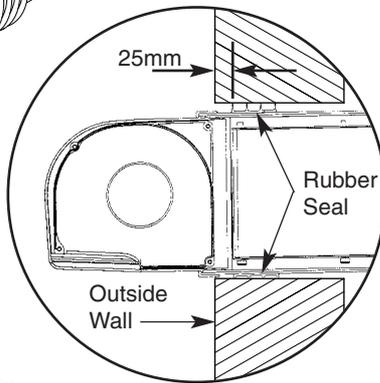


Fig. 27

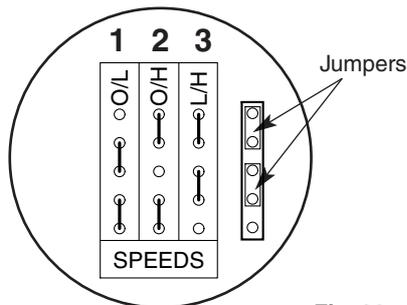


Fig. 28

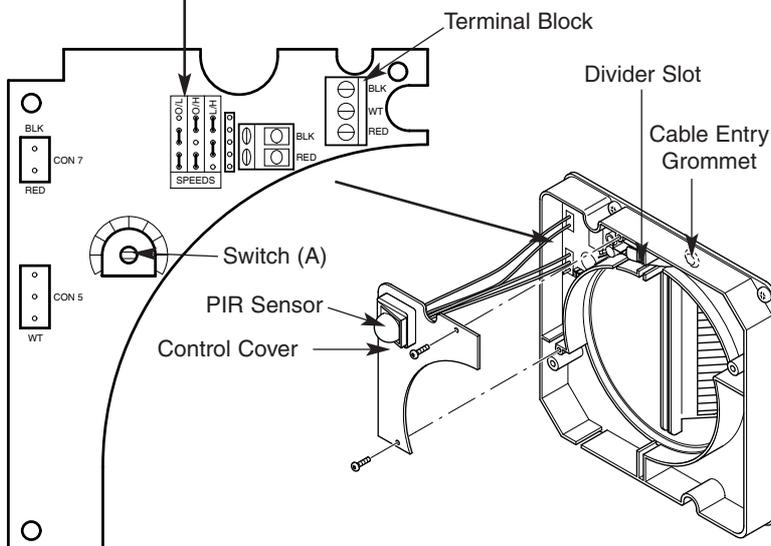


Fig. 29

## 3.0 Installation

### 3.5 Installing the HR25P (cont)

If any movement is detected after the first 2 minutes, the unit will switch to its higher setting. This mode has a reset which operates after 5 minutes.

17. Both modes have a timer setting which determines the length of time the unit runs for after the last movement detection. This time can be adjusted using switch (A) between 2 - 27 minutes (Fig. 30).

To increase the time;  
turn switch (A) clockwise.

To decrease the time;  
turn switch (A) anti-clockwise.

18. Hold the control cover adjacent to the unit (Fig. 31) and reconnect the plugs to the control board as follows:

a) Push the red/black connector on to the pins marked CON 7 (Fig. 34). Ensure that the wires correspond with the colours marked on the board. The unit will not operate if connected in any other way.

b) The purple/white connector determines the unit mode and should be placed on to CON 5 as follows:

Delayed Action - Middle and Top pin (Fig. 32)  
Direct Action - Bottom and middle pin (Fig. 33)

Note: In either mode the white wire should be on the lower pin.

The unit will not operate if the connector is fitted upside down.

19. Replace the control cover with the two securing screws ensuring that no wires are trapped.

20. Reassemble the remainder of the unit in reverse order ensuring the divider board seals against the heat exchanger.

21. A bezel is provided to neaten the appearance of the outside wall around the unit. If required this should be fixed in place using a suitable silicone/mastic sealant.

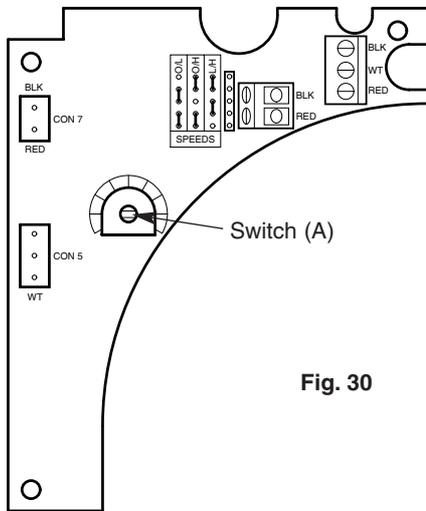


Fig. 30

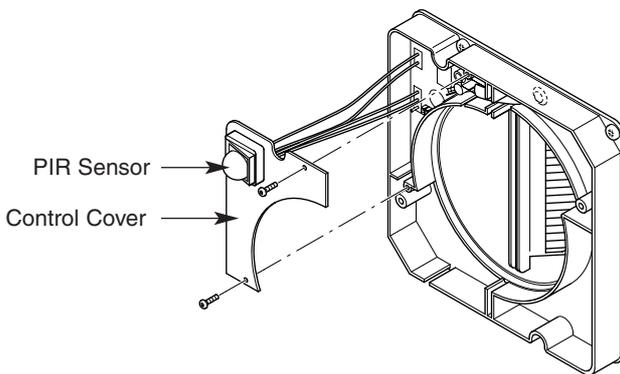


Fig. 31

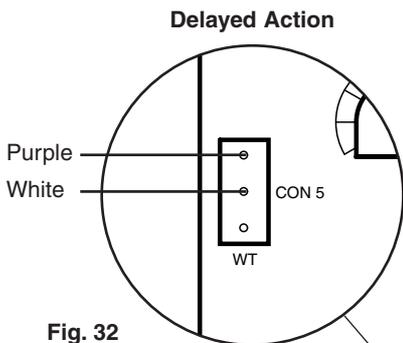


Fig. 32

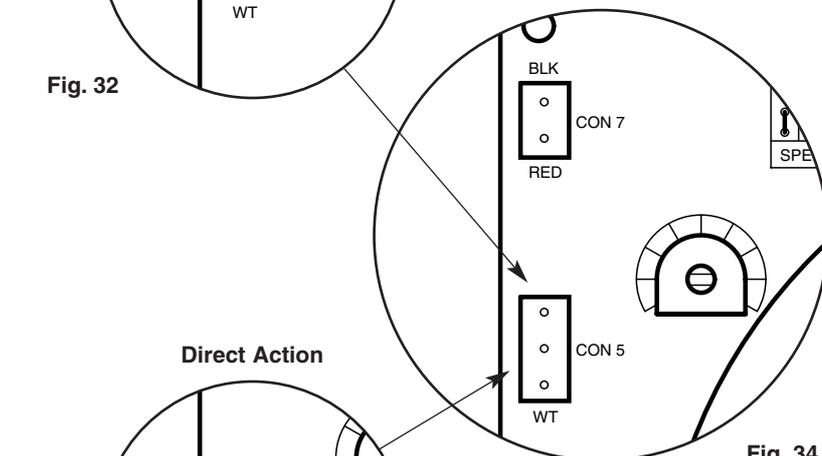


Fig. 34

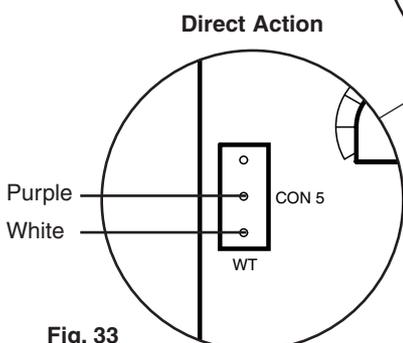


Fig. 33

## 3.0 Installation

### 3.6 Installing the HR25L, LH & LP

For wall thicknesses between  
311mm & 425mm

1. Remove the control cover and disconnect the red and black motor wires (Fig. 35).

2. Carefully withdraw the heat exchanger from the unit (Fig. 36).

3. Slide the inner tube out of the unit by pushing the motor housing (Fig. 37).

4. Remove the plastic ring and rubber seal from the outer tube (Fig. 38).

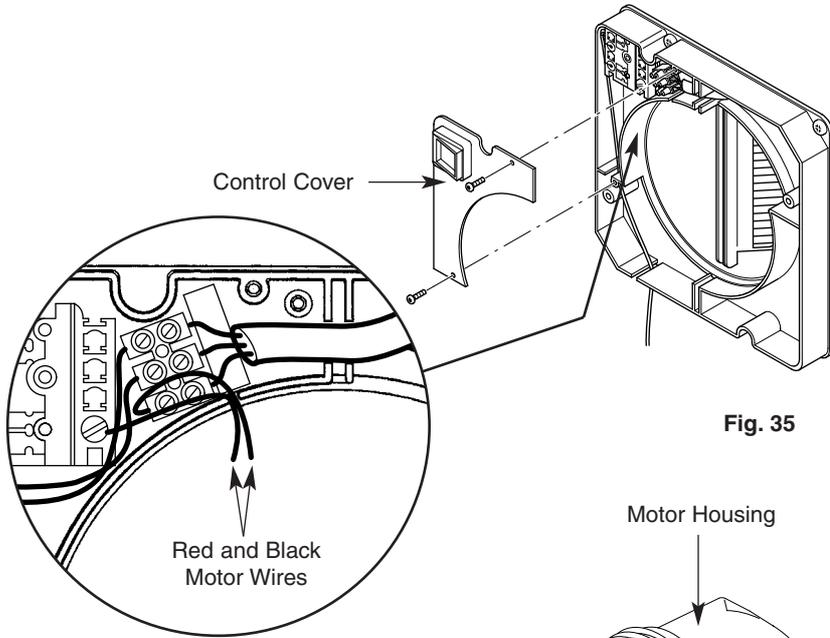


Fig. 35

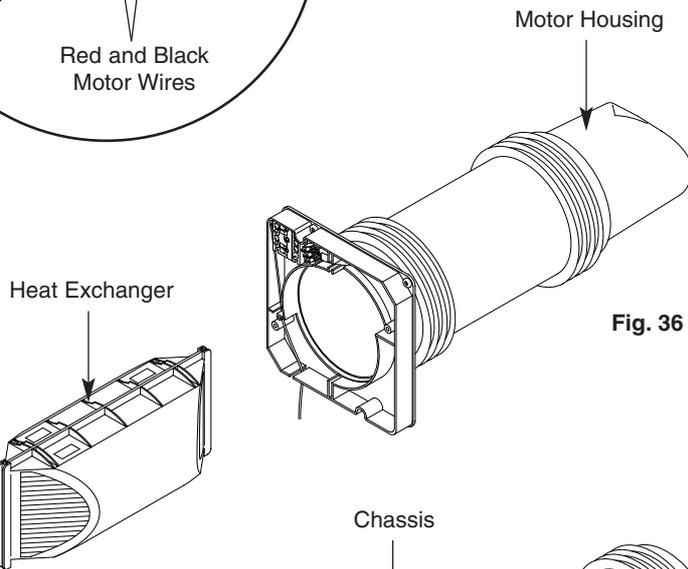


Fig. 36

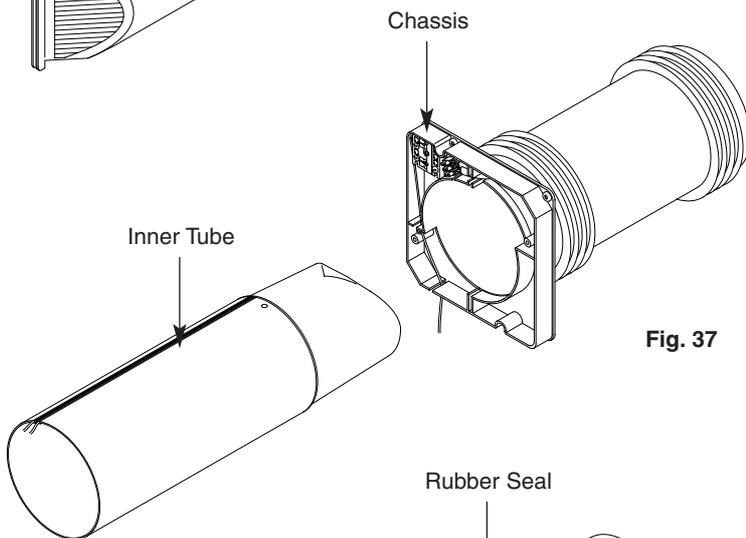


Fig. 37

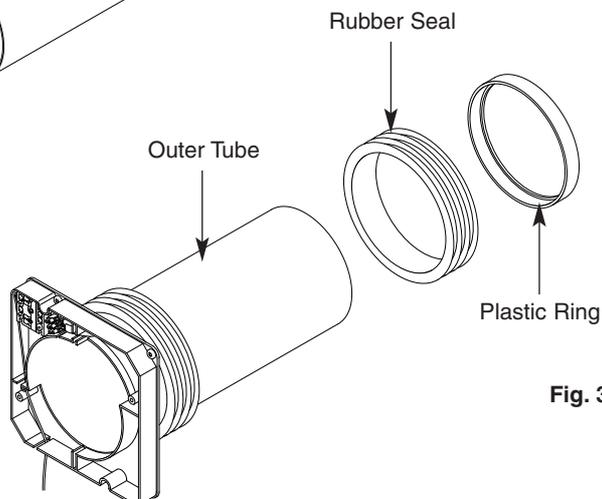
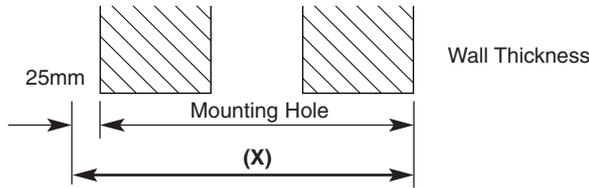


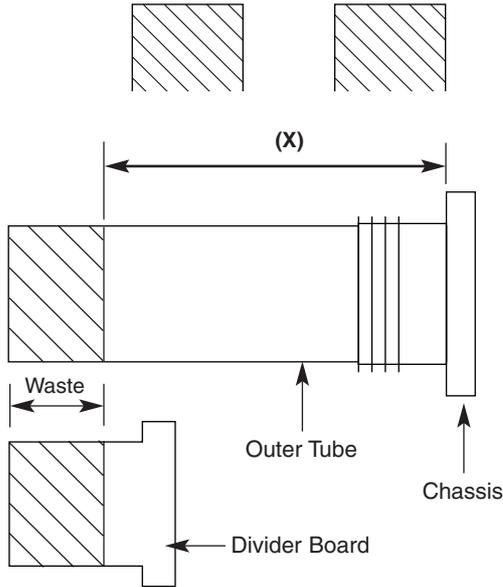
Fig. 38

## 3.0 Installation

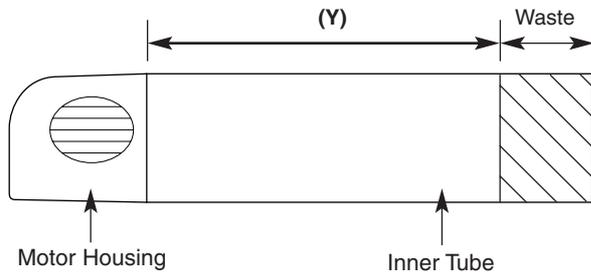
### 3.6 Installing the HR25L, LH & LP (cont)



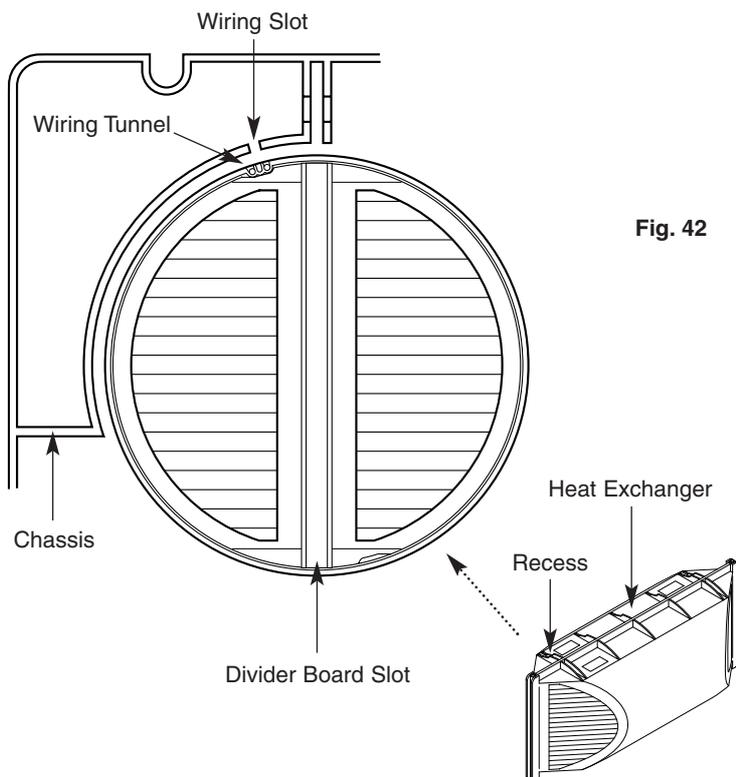
**Fig. 39**



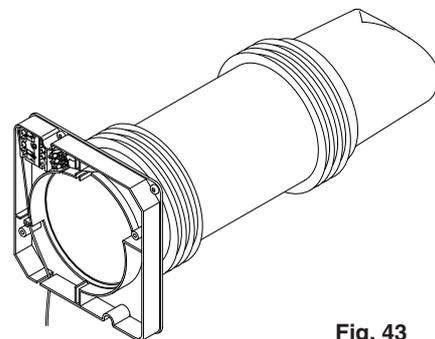
**Fig. 40**



**Fig. 41**



**Fig. 42**



**Fig. 43**

5. Measure the wall thickness and add 25mm. This is dimension "X" (Fig. 39).

6. Mark off dimension "X" on the outer tube, measuring from the rear of the chassis. Cut off the excess material (Fig. 40).

7. Remove any burrs from the tube.

8. Measure the waste from the outer tube and cut the same amount off the base of the divider board (Fig. 40).

9. Replace the rubber seal 50mm in from the end of the tube and secure using the adhesive provided.

10. Refit the plastic ring using the adhesive provided.

11. Subtract 1.5mm from dimension "X". This will be dimension "Y".

12. Mark off dimension "Y" from the motor housing end of the inner tube, and scribe a line around the inner tube. Peel the two motor wires away from the wiring tunnel beyond the scribed line to prevent damage. Carefully cut the excess off the tube (Fig. 41).

13. Remove any burrs from the tube.

14. Reassemble the tubes in reverse order ensuring that the two motor wires are located back in the wiring tunnel, and that the tunnel is aligned with the wiring slot in the chassis (Fig. 42).

15. Replace the heat exchanger according to the 'Inside/Outside' labels. The recess in the heat exchanger outer must be aligned with the wiring tunnel on the inner tube to ensure the divider slot is vertical (Fig. 42 & 43).

16. Cut the two motor wires to size and reconnect to their respective terminals and replace the control cover (Refer to the relevant unit instructions - see pages 8-12).

Continue installing the unit from paragraph 7 onwards in the relevant unit instructions - see pages 8-12.

## 4.0 Maintenance

### 4.1 Cleaning the Unit (all models)

Apart from removing odours, providing fresh air and recovering heat, this unit extracts airborne impurities such as dust, dirt and grease. These gradually build up and diminish from the efficiency and detract from the appearance of the unit.

To maintain efficiency the unit should be cleaned at least every six months, or more regularly if a high level of contamination is experienced.

1. Isolate the mains power supply.
2. Unclip the removable grille from the unit and remove filter (Fig. 44).
3. Loosen the two securing screws and remove the grille surround (Fig. 45).
4. Remove the divider board and slide out the heat exchanger (Fig. 45 & 46).

5. Wash the grille, surround, filter and heat exchanger in warm water using a mild detergent and dry thoroughly.

**NOTE:** Keep water away from all electrical components and wiring within the unit.

If it is not possible to fully clean the filter, it must be replaced (see short parts list on page 15 for part number).

6. Reassemble in reverse order ensuring the divider board seals against the heat exchanger.

**NOTE:** Follow the 'Inside/Outside' instruction labels on the heat exchanger. The recess in the heat exchanger outer wall must be aligned with the wiring tunnel on the unit to ensure the divider board slot is vertical (Fig. 46 & 47).

7. Switch the power supply on and check the operation of the unit.

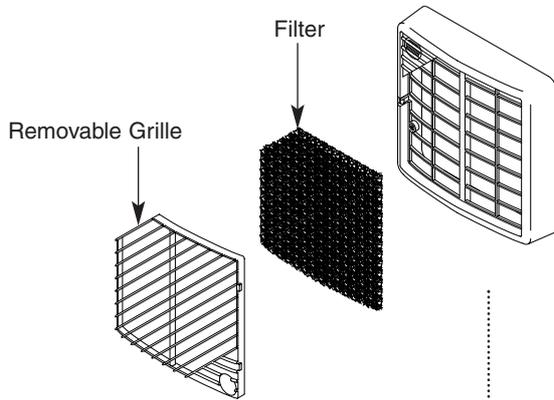


Fig. 44

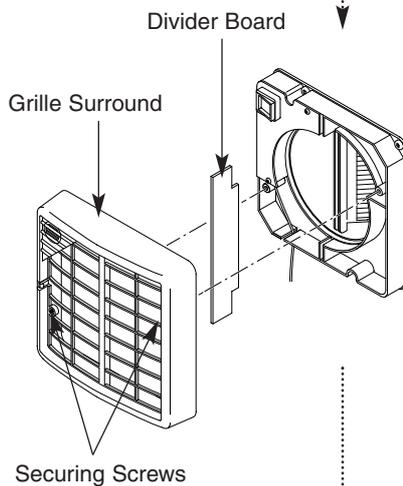


Fig. 45

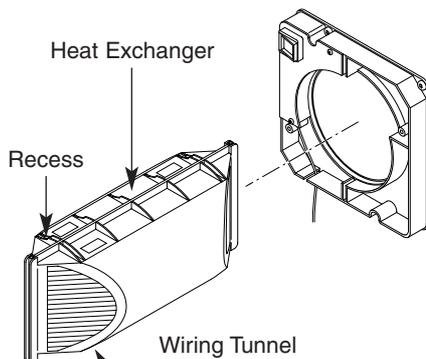


Fig. 46

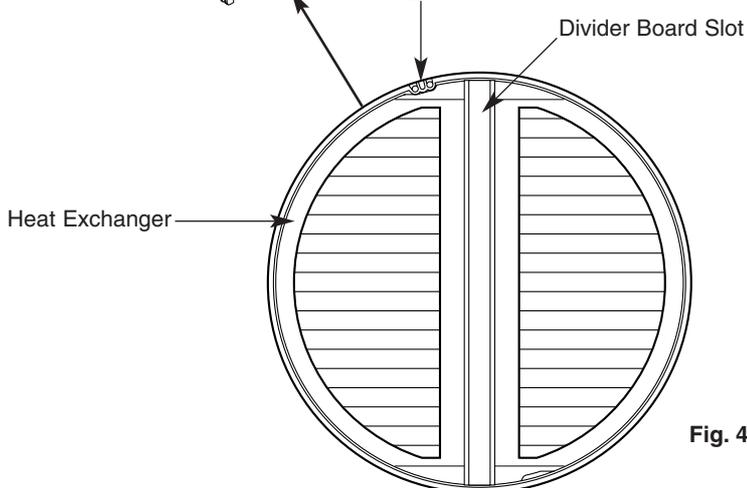
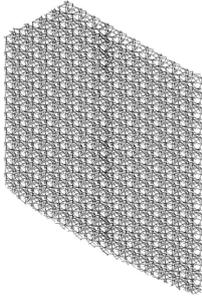
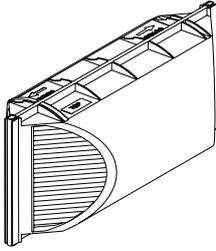


Fig. 47

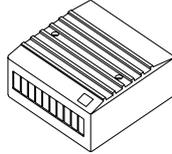
1



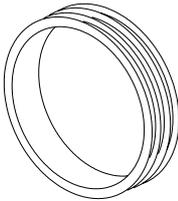
2



3



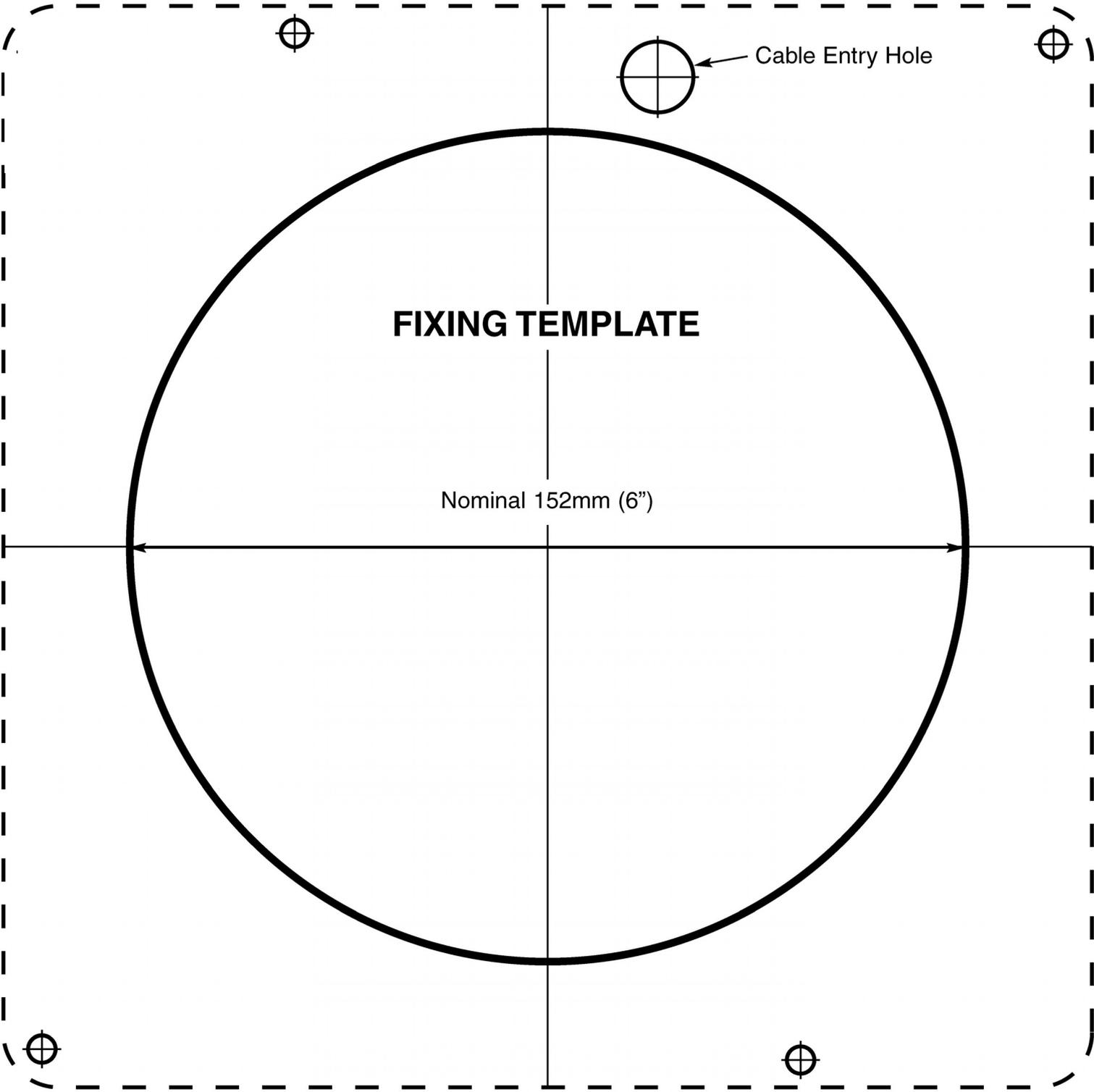
4



## **5.0 Spares list**

### **5.1 Spares List**

<b>Key No.</b>	<b>Description</b>	<b>Part No.</b>
1	Filter (pack of 4)	370412
2	Heat Exchanger	372329
3	Power supply unit	447249
4	Rubber seal	371297



**FIXING TEMPLATE**

Nominal 152mm (6")

Cable Entry Hole

## 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.

The guarantee is offered to you as an extra benefit, and does not effect your legal rights

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