"WHHR100/90DC-B Plus"

Whole House Heat Recovery Unit with Low Energy DC Motor - for domestic and commercial use

Installation, Operating and Maintenance Instructions

SAP Q Eligible

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"WHHR100/90DC-B PLUS" - WHOLE HOUSE HEAT RECOVERY UNIT INSTALLATION AND OPERATING INSTRUCTIONS

Safety Notice

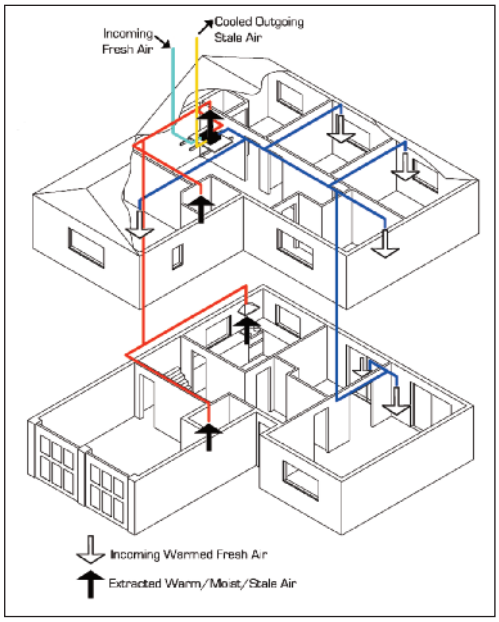
It is important to read this Instruction Manual carefully before installing or using the product. Following these instructions will ensure that your ventilation system is installed, commissioned and used properly and continues to operate effectively. Vectaire will not be held responsible and will not accept liability for any damage caused to persons or property through failure to follow the guidance provided in this manual. It should always be available with the product for easy reference.

Your unit SHOULD NOT be switched off. It is designed to run continuously. If it is switched off indoor pollutant and moisture levels may increase.

WHHR100/90DC-B Plus: 5"/125mm spigot, for dwellings up to 200m², max capacity 80 l/sec

General Information

The Vectaire WHHR100/90DC-B Plus heat recovery system provides whole house mechanical ventilation to living areas, bedrooms, kitchen and bathrooms. It extracts stale, contaminated air from kitchens, utility rooms and bathrooms, and uses the heat recovered from this air to warm fresh, incoming air to create a flow of fresh air throughout the dwelling. The extract and intake air streams are separated to avoid contamination.



Heat is reclaimed from extracted air and used, via the heat exchange process, to warm incoming fresh air. The system will operate continuously to create a stable, comfortable, healthy environment avoiding the use of excessive energy and saving heat already generated.

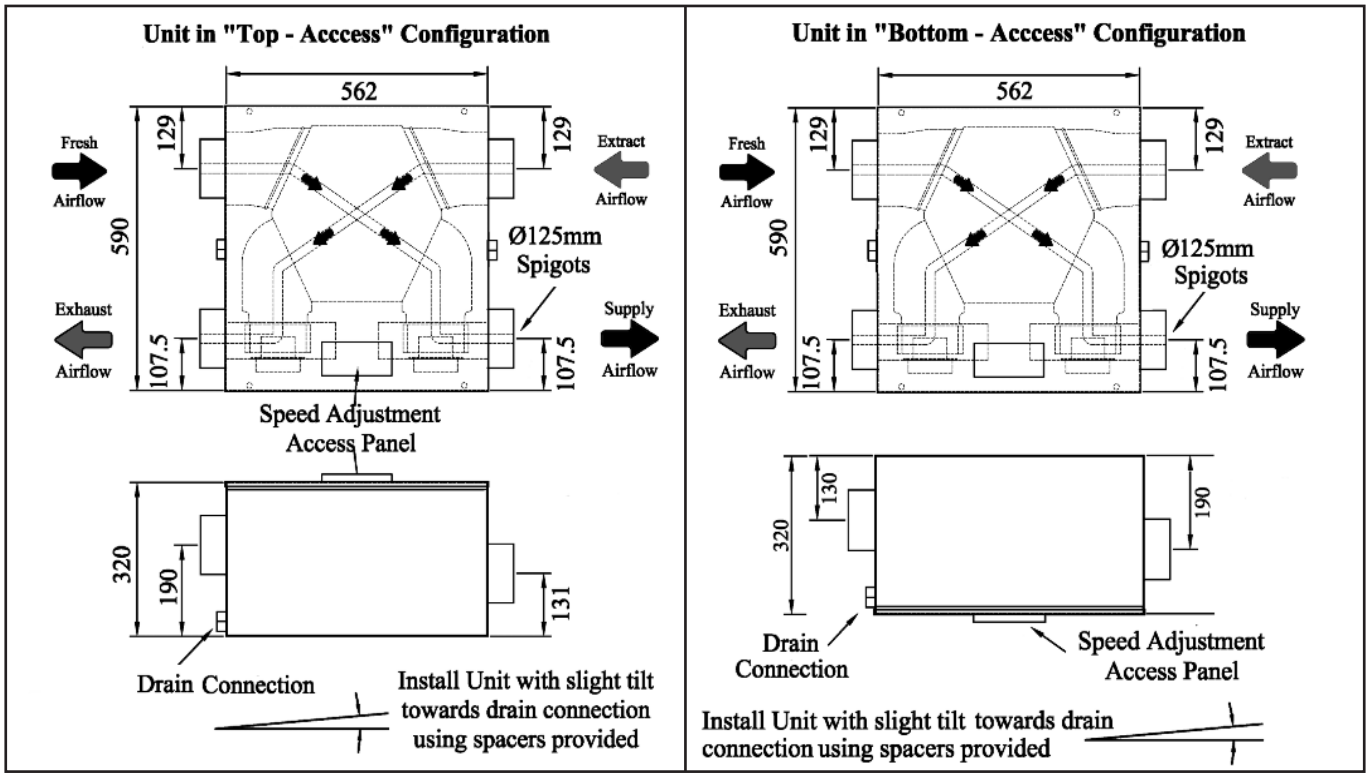
The heat recovery unit will generally be installed in the loft of a house or the void above the ceiling in an apartment (but may be installed in a cupboard) and will be connected by hidden ductwork to vents sited in the ceilings of the rooms which require ventilation. Each unit is commissioned individually allowing its performance to be tailored to suit the performance required. There will be a facility to boost the extraction rate when desired (e.g when cooking or bathing or pollutant levels rise). This may be done automatically or manually.

The system is designed to run continuously and should NOT be switched off except for maintenance or filter replacement.

Features

- **SAP Q Eligible** whole house heat recovery unit giving continuous ventilation in the kitchen and up to four additional wet rooms (using rigid ducting)
- low noise levels
- variable choice low (trickle) speed and boost options for optimum setting at installation
- boost speed can be triggered by a switched live connection from a variety of external devices including:
  - PIRFF (passive infra red)*
  - DRH240 (dynamic remote humidistat)*
  - THM (thermostat)*
  - a light switch (if more than one light switch is used, **each one must be a double pole switch)**
  - a remote switch/pull cord

  (*PIRFF, DRH240 and THM may have integral over-run timer which controls the length of time that the fan will continue to operate at its boost speed after the boost has been switched off.)
- Installation MUST be carried out by suitably qualified personnel and MUST be in accordance with current IEE regulations and all appropriate standards and applicable regulatory guidance.



Installation

IT IS IMPORTANT THESE INSTRUCTIONS ARE READ FULLY BEFORE INSTALLATION

- This product should not be used for any purpose other than that for which it was designed and as shown in this leaflet
- All packaging should be removed and the unit checked for damage in transit. If there is any damage, please contact your supplier
- The WHHR100/90DC-B Plus will generally be fitted into a loft of ceiling void. In order to comply with Construction (Design & Management) Regulations, sufficient access for safe maintenance (recommended on an annual basis), or removal following installation, MUST be provided for this product. See dimensions above.
- Fire Dampers must be fitted to duct work at appropriate locations in accordance with Building Regulations
- Flue gases from fuel-burning equipment must not be drawn into a living area. If any room from which air is extracted contains a fuel burning appliance, such as a central heating boiler, then its flue must be of the sealed or balanced flue type, or allowance must be made for an adequate supply of air into the room.
- The unit is designed for horizontal installation and should be fitted with 2º tilt towards the condensation drain used
- The unit must NOT be installed:
  - where there is excessive oil or grease
  - where there are hazardous gases, liquids or vapours that are flammable or corrosive
  - in ambient temperatures above 60ºC or lower than 5ºC
  - in humidity levels above 90% or in a wet environment
- Where possible the unit should NOT be installed directly above a bedroom or living room.
- The condensation drain must be fitted and if insulated, use the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK)
- Care should be taken to ensure that ducting is free from blockages before switching on the unit as this may invalidate your guarantee
- External grilles should be located a minimum of 600mm from any flue outlet in accordance with all Regulations
- The unit must be connected to a 230-240v, 50Hz single phase electrical supply.
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- The product should only be connected to the mains electricity supply or electrical outlet if:
  - your electrical voltage and frequency correspond to those shown on the rating label.
  - the capacity of your electricity supply is sufficiently powerful to operate the product at its maximum power
- If one of the spigots is not connected to ducting a safety grille MUST be fitted to that spigot, so that it is impossible for any moving part to be touched.
- This appliance is not suitable for installation on the outside of a building.

Installation of the appliance MUST be carried out by a qualified and suitably competent person and should be carried out in clean, dry conditions where dust and humidity are at minimal levels. It should only be installed after other building works have been completed and the building in which it is installed cleaned. Failure to comply with any of the above points will have an impact on the validity of the guarantee.

Duct and Duct Connections (refer to design drawing)

- 4 x 125mm nominal diameter spigots are provided for the connection of ducting. These are clearly marked for correct connection of the supply and exhaust ducts.
- Where ducting is installed in an unheated space, all of the ducts should be insulated. Where ducting is in stalled in a heated space, only the cold ducts should be insulated. i.e. the supply duct from outside and the ex tract duct from the unit to the outside.
- The duct layout must be designed to suit the requirements of the ventilation/recovery system and building lay-out. If the ducting passes through a fire wall/barrier, suitable fire dampers must be installed
- Where rigid duct is used, it should be installed using the least number of fittings to minimise air flow resistance. Where possible, final connection to the grilles and unit should be made with a flexible connection.
- Where flexible ducts are used, ensure that:
  - duct runs are kept as short as possible
  - the duct is stretched so that it is smooth and straight
  - where bends are necessary, they have large radii (ie avoid sharp bends)
  - the duct is not crushed if in a restricted area

Condensation

(The unit may sometimes produce condensation which must be drained away. A 15mm dia pipe outlet is provided on this unit).

- A 15mm dia pipe must be fitted to the pipe connection. If any part of the condensate drain is in an unheated space it MUST be insulated with the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK).
- The pipe must drain into the normal household drainage system.
- The drain must incorporate a wet or dry trap to prevent air penetration.
- The unit must be tilted towards the side carryng the condensation exit point. It should be installed horizontally with a 3º tilt towards the condensation drain used (equivalent of raising the opposite end by approximately 25mm).
- The drainage pipe must have a continuous fall from the unit to the drainage collection point.

Electrical Connection

WARNING: these appliances must be earthed and all wiring must conform to current IEE Regulations and all applicable standards and Building Regulations.

- The unit is suitable for 230V, 50Hz Single phase supply.
- The unit is supplied with a mains rated 4 core flexible cord (black, brown, grey and green/yellow)
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- Boost controls must not be located within 1 metre of a cooker or where they may be affected by excessive heat or moisture
- Boost controls should be clearly identified and conveniently located.
- The boost speed can be triggered by a switched live connection from:
  - PIRFF (passive infra red)*
  - DRH240 (dynamic remote humidistat)*
  - THM (thermostat)*
  - a light switch (if more than one light switch is used, **each one must be a double pole switch)**
  - a remote switch/pull cord

(*PIRFF, DRH240 and THM may have integral over-run timer which controls the length of time that the fan will continue to operate at its boost speed after the boost has been switched off.)

Commissioning

- The units operate by extracting hot, stale air from kitchens, WCs, bathrooms etc, and passing it into a heat exchanger and out to the atmosphere. Another fan draws in cool, fresh air and passes it through the same heat exchanger, where it heated by the outgoing, stale air.
- When the unit is set up and running, the minimum setting on the speed control switch must relate to the designed volume air flow. The variable air flow from minimum to maximum allows the unit to extract a greater volume to cope with any increase in the build up of condensation or foul air, ie cooking etc.
- Before starting the commissioning procedure, refer to the design drawing for correct air flows.

N.B extract and supply air volumes will not always be equal. When setting up, therefore, the extract system should be the datum.

Installation of the appliance **MUST** be carried out by a qualified and suitably competent person and should be carried out in clean, dry conditions where dust and humidity are at minimal levels. It should only be installed after other building works have been completed and the building in which it is installed cleaned. Failure to comply with any of the above points will have an impact on the validity of the guarantee.

Commissioning Procedure

- Ensure that the exhaust and supply grilles or valves are fully open.
- Turn the electrical supply ON and set the fan speed control to trickle mode (switched live off).
- Check the airflow at the extract air valves or grilles and compare to the design value. If incorrect, adjust as follows:-
  - Turn the electrical supply off.
  - Remove the cover of the electrical control panel.
  - Adjust the potentiometer marked 'min' up or down as required. (See page 6)
  - Turn on the electrical supply and recheck the airflows.
  - Re-adjust as above, if necessary.
  - Make any final adjustments at the air valve by rotating the centre section.
- Switch the unit to boost mode by connecting the switched live. Measure the airflow and adjust the boost air flow by following the procedure above using the 'max' potentiometer. (Do not make any further adjustments at the air valve).
- Replace the controller cover.

Cleaning and Maintenance

WARNING: The unit uses a 230V supply and contains rotating mechanical parts.

- **Before carrying out any maintenance or cleaning operations the mains electrical supply MUST be disconnected**.
- **Heat Exchanger maintenance must be done professionally. Contact Vectaire Service Department for Advice.**
- The air filters of the Vectaire WHHR100/90DC-B Plus should be cleaned regularly by a suitably qualified person (the frequency of cleaning will vary depending on the installation environment).

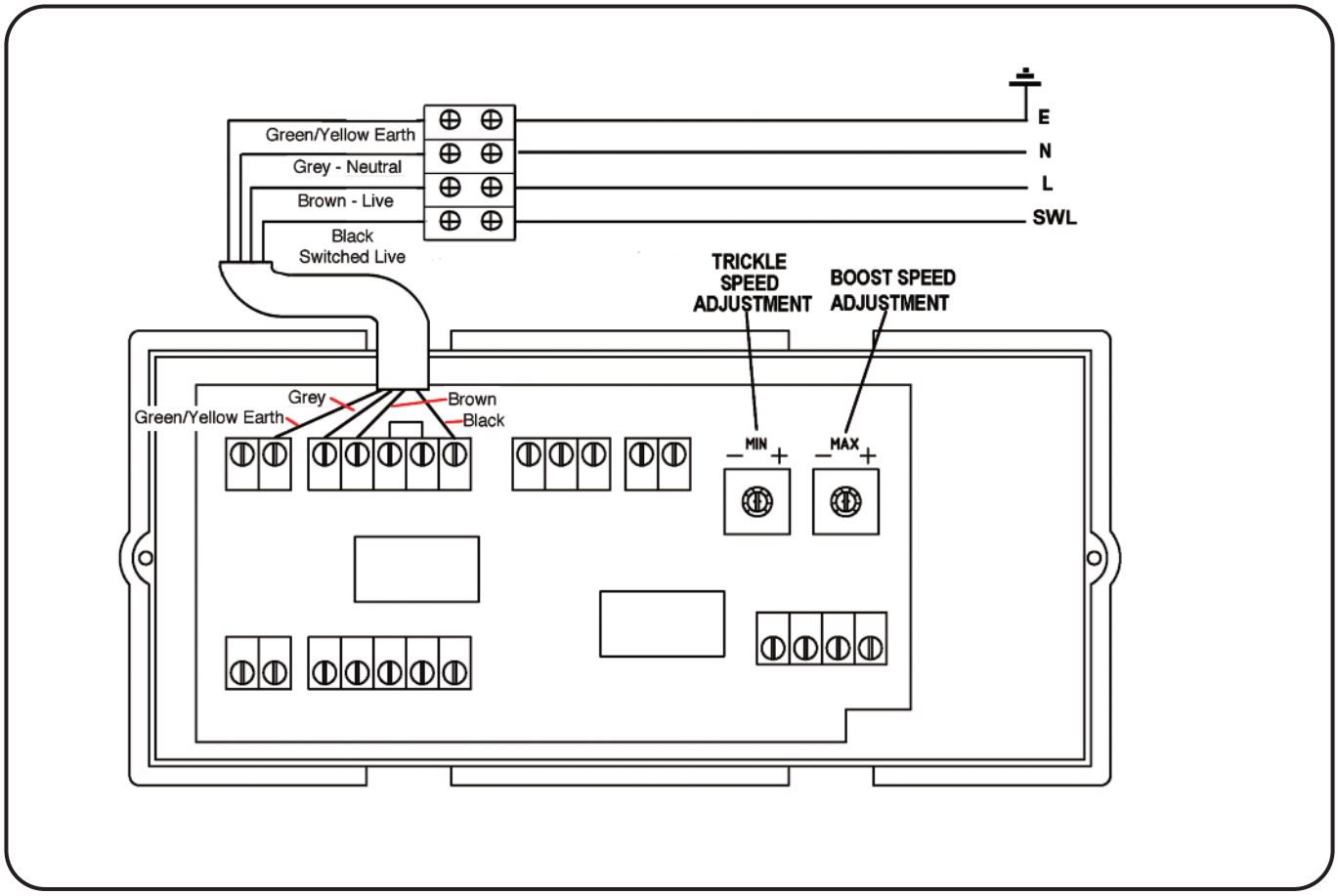
To clean the filters

- Remove the main access panel
- Remove the rubber inserts from the filter slots (where fitted) and slide out the filters from the internal mouldings.
- Clean the filters carefully using a vacuum cleaner and refit.
- Replace the rubber inserts into the slots.
- Replace the access panel and ensure it is securely located.
- Power to the unit can now be restored.

Filter Replacement

Filters should be cleaned annually and replaced when heavily contaminated.

Replacement filters are available from Vectaire - call us on +44 (0) 1494 522333 or via sales@vectaire.co.uk



Vectaire Ltd, Lincoln Road, Cressex Business Park, High Wycombe, Buckinghamshire, HP12 3RH
Tel: +44 (0)1494 522333. Fax: +44 (0)1494 522337. Email: sales@vectaire.co.uk

"WHHR100/90DC-B Plus" Bypass models

Whole House Heat Recovery Unit with Low Energy DC Motor - for domestic and commercial use

Installation, Operating and Maintenance Instructions

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"WHHR100/90DC-B PLUS" - WHOLE HOUSE HEAT RECOVERY UNIT INSTALLATION AND OPERATING INSTRUCTIONS BYPASS MODELS

Safety Notice

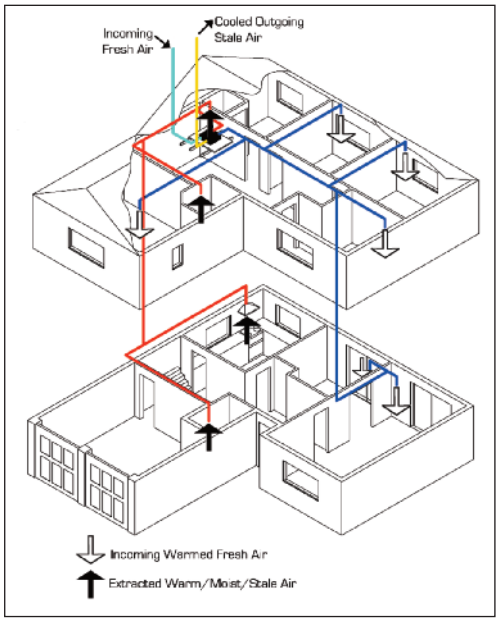
It is important to read this Instruction Manual carefully before installing or using the product. Following these instructions will ensure that your ventilation system is installed, commissioned and used properly and continues to operate effectively. Vectaire will not be held responsible and will not accept liability for any damage caused to persons or property through failure to follow the guidance provided in this manual. It should always be available with the product for easy reference.

Your unit SHOULD NOT be switched off. It is designed to run continuously. If it is switched off indoor pollutant and moisture levels may increase.

WHHR100/90DC-B Plus Bypass: 5"/125mm spigot, for dwellings up to 200m², max capacity 80 l/sec

General Information

The Vectaire WHHR100/90DC-B Plus Bypass heat recovery system provides whole house mechanical ventilation to living areas, bedrooms, kitchen and bathrooms. It extracts stale, contaminated air from kitchens, utility rooms and bathrooms, and uses the heat recovered from this air to warm fresh, incoming air to create a flow of fresh air throughout the dwelling. The extract and intake air streams are separated to avoid contamination.



Heat is reclaimed from extracted air and used, via the heat exchange process, to warm incoming fresh air. The system will operate continuously to create a stable, comfortable, healthy environment avoiding the use of excessive energy and saving heat already generated.

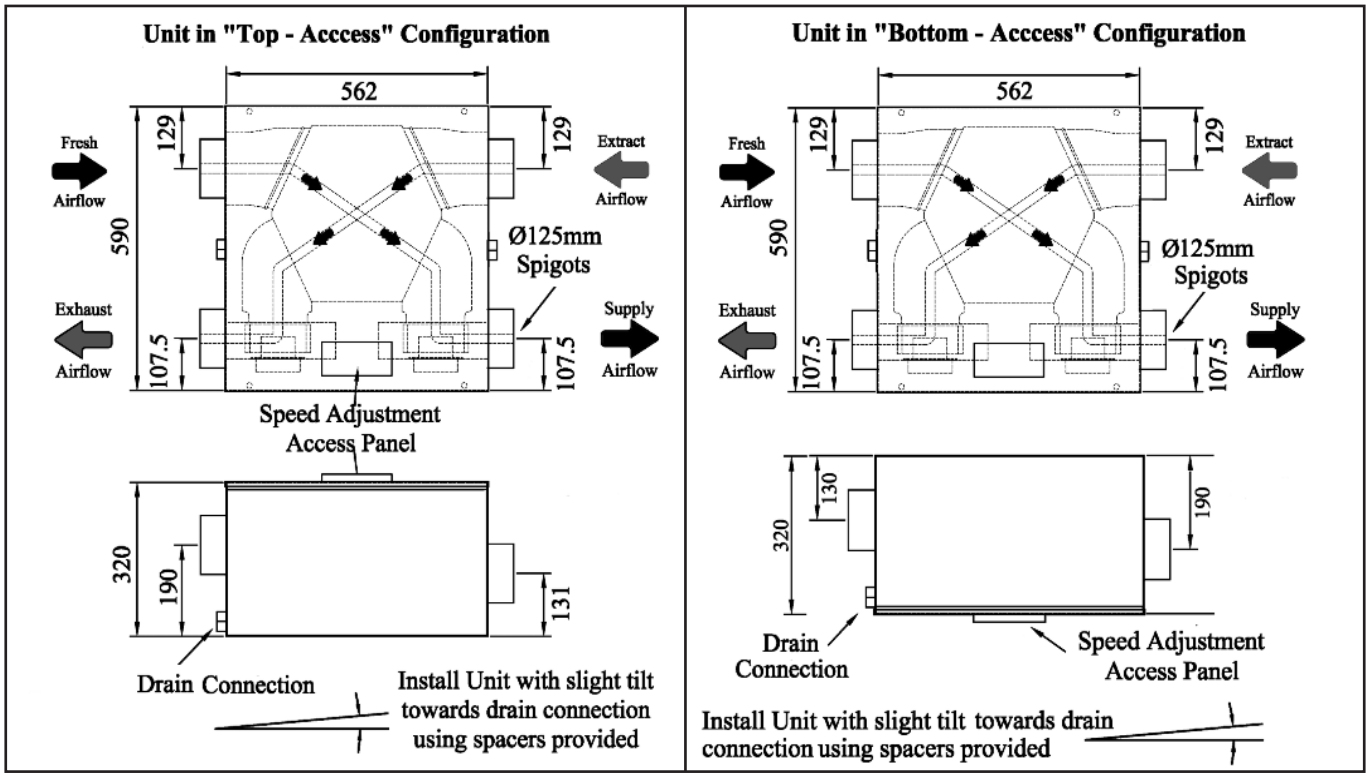
The heat recovery unit will generally be installed in the loft of a house or the void above the ceiling in an apartment (but may be installed in a cupboard) and will be connected by hidden ductwork to vents sited in the ceilings of the rooms which require ventilation. Each unit is commissioned individually allowing its performance to be tailored to suit the performance required. There will be a facility to boost the extraction rate when desired (e.g when cooking or bathing or pollutant levels rise). This may be done automatically or manually.

The system is designed to run continuously and should NOT be switched off except for maintenance or filter replacement.

Features

- **SAP Q Eligible** whole house heat recovery unit giving continuous ventilation in the kitchen and up to four additional wet rooms (using rigid ducting)
- low noise levels
- variable choice low (trickle) speed and boost options for optimum setting at installation
- boost speed can be triggered by a switched live connection from a variety of external devices including:
  - PIRFF (passive infra red)*
  - DRH240 (dynamic remote humidistat)*
  - THM (thermostat)*
  - a light switch (if more than one light switch is used, **each one must be a double pole switch)**
  - a remote switch/pull cord

  (*PIRFF, DRH240 and THM may have integral over-run timer which controls the length of time that the fan will continue to operate at its boost speed after the boost has been switched off.)
- Installation MUST be carried out by suitably qualified personnel and MUST be in accordance with current IEE regulations and all appropriate standards and applicable regulatory guidance.



Installation

IT IS IMPORTANT THESE INSTRUCTIONS ARE READ FULLY BEFORE INSTALLATION

- This product should not be used for any purpose other than that for which it was designed and as shown in this leaflet
- All packaging should be removed and the unit checked for damage in transit. If there is any damage, please contact your supplier
- The WHHR100/90DC-B Plus Bypass will generally be fitted into a loft of ceiling void. In order to comply with Construction (Design & Management) Regulations, sufficient access for safe maintenance (recom mended on an annual basis), or removal following installation, MUST be provided for this product. See dimensions above.
- Fire Dampers must be fitted to duct work at appropriate locations in accordance with Building Regulations
- Flue gases from fuel-burning equipment must not be drawn into a living area. If any room from which air is extracted contains a fuel burning appliance, such as a central heating boiler, then its flue must be of the sealed or balanced flue type, or allowance must be made for an adequate supply of air into the room.
- The unit is designed for horizontal installation and should be fitted with 2º tilt towards the condensation drain used
- The unit must NOT be installed:
  - where there is excessive oil or grease
  - where there are hazardous gases, liquids or vapours that are flammable or corrosive
  - in ambient temperatures above 60ºC or lower than 5ºC
  - in humidity levels above 90% or in a wet environment
- Where possible the unit should NOT be installed directly above a bedroom or living room.
- The condensation drain must be fitted and if insulated, use the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK)
- Care should be taken to ensure that ducting is free from blockages before switching on the unit as this may invalidate your guarantee
- External grilles should be located a minimum of 600mm from any flue outlet in accordance with all Regulations
- The unit must be connected to a 230-240v, 50Hz single phase electrical supply.
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- The product should only be connected to the mains electricity supply or electrical outlet if:
  - your electrical voltage and frequency correspond to those shown on the rating label.
  - the capacity of your electricity supply is sufficiently powerful to operate the product at its maximum power
- If one of the spigots is not connected to ducting a safety grille MUST be fitted to that spigot, so that it is impossible for any moving part to be touched.
- This appliance is not suitable for installation on the outside of a building.

Installation of the appliance MUST be carried out by a qualified and suitably competent person and should be carried out in clean, dry conditions where dust and humidity are at minimal levels. It should only be installed after other building works have been completed and the building in which it is installed cleaned. Failure to comply with any of the above points will have an impact on the validity of the guarantee.

Duct and Duct Connections (refer to design drawing)

- 4 x 125mm nominal diameter spigots are provided for the connection of ducting. These are clearly marked for correct connection of the supply and exhaust ducts.
- Where ducting is installed in an unheated space, all of the ducts should be insulated. Where ducting is in stalled in a heated space, only the cold ducts should be insulated. i.e. the supply duct from outside and the ex tract duct from the unit to the outside.
- The duct layout must be designed to suit the requirements of the ventilation/recovery system and building lay-out. If the ducting passes through a fire wall/barrier, suitable fire dampers must be installed
- Where rigid duct is used, it should be installed using the least number of fittings to minimise air flow resistance. Where possible, final connection to the grilles and unit should be made with a flexible connection.
- Where flexible ducts are used, ensure that:
  - duct runs are kept as short as possible
  - the duct is stretched so that it is smooth and straight
  - where bends are necessary, they have large radii (ie avoid sharp bends)
  - the duct is not crushed if in a restricted area

Condensation

(The unit may sometimes produce condensation which must be drained away. A 15mm dia pipe outlet is provided on this unit).

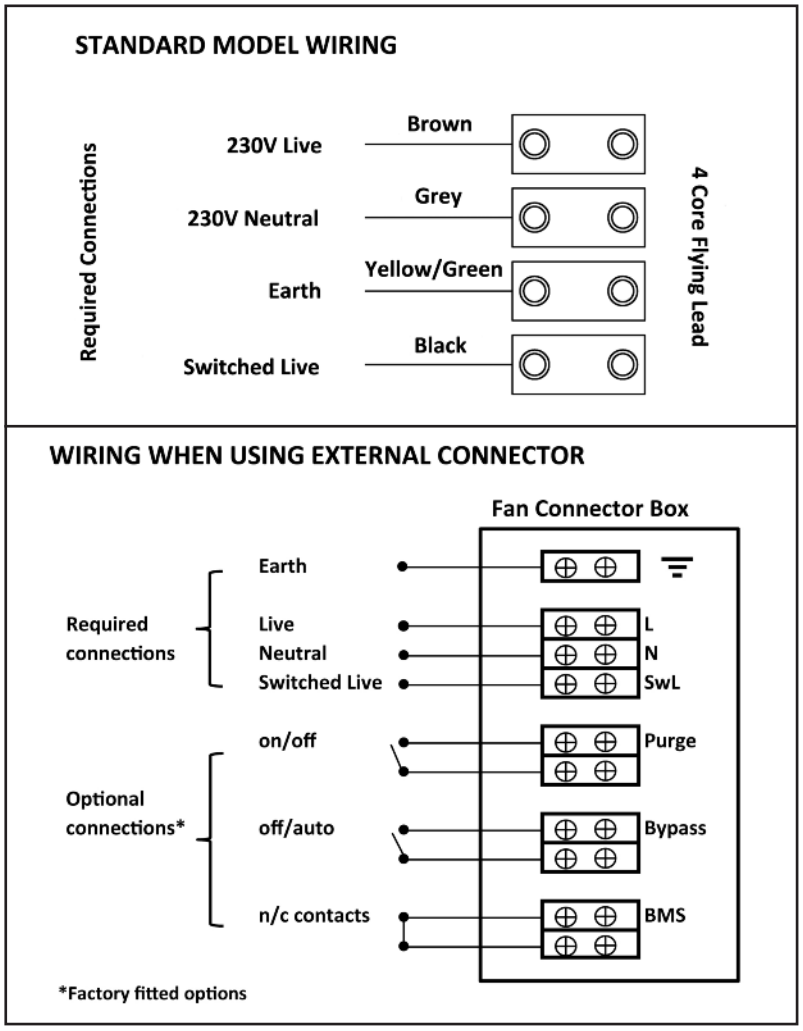
- A 15mm dia pipe must be fitted to the pipe connection. If any part of the condensate drain is in an unheated space it MUST be insulated with the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK).
- The pipe must drain into the normal household drainage system.
- The drain must incorporate a wet or dry trap to prevent air penetration.
- The unit must be tilted towards the side carryng the condensation exit point. It should be installed horizontally with a 3º tilt towards the condensation drain used (equivalent of raising the opposite end by approximately 25mm).
- The drainage pipe must have a continuous fall from the unit to the drainage collection point.

Electrical Connection

WARNING: these appliances must be earthed and all wiring must conform to current IEE Regulations and all applicable standards and Building Regulations.

- The unit is suitable for 230V, 50Hz Single phase supply.
- The unit is supplied with a mains rated 4 core flexible cord (black, brown, grey and green/yellow)
- A triple pole isolation switch with contact separation of at least 3mm must be used to connect the appliance to the fixed wiring when using the Switched Live.
- Boost controls must not be located within 1 metre of a cooker or where they may be affected by excessive heat or moisture
- Boost controls should be clearly identified and conveniently located.
- The boost speed can be triggered by a switched live connection from:
  - PIRFF (passive infra red)*
  - DRH240 (dynamic remote humidistat)*
  - THM (thermostat)*
  - a light switch (if more than one light switch is used, **each one must be a double pole switch)**
  - a remote switch/pull cord

(*PIRFF, DRH240 and THM may have integral over-run timer which controls the length of time that the fan will continue to operate at its boost speed after the boost has been switched off.)



Commissioning

1. The commissioning must only be carried out by a suitably qualified person.
2. Prior to starting the commissioning procedure, ensure that the ductwork connections and airflow directions match one of the options A or B, shown on page 3. Check that the drain connection is on the correct side.
3. Before making any adjustments, ensure that the air valves or grilles are fully open.
4. Motor speed and timer settings are adjusted on the control board, which is located behind the access panel Once removed, there is access to potentiometers and jumper switches for use during the commissioning process. (See diagram on Page 8)

WARNING : With the control board panel removed, 230 volt live connections are accessible.

Airflow adjustment for Right-Hand Drainage

The supply and extract motors are adjusted separately for both the normal (trickle) speed and boost speed. The set-up procedure is as follows :-

1. For right-hand drainage as shown on Page 5, ensure that the jumper switch JP4 (see diagram below) is in **Position A**

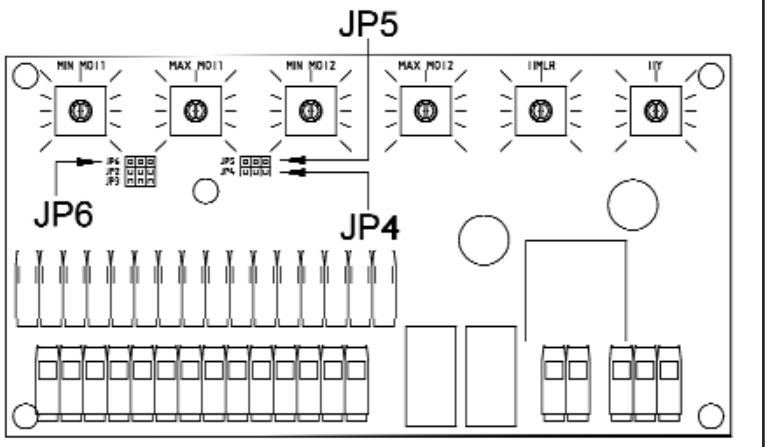
Normal (trickle) Speed (r/h drainage)

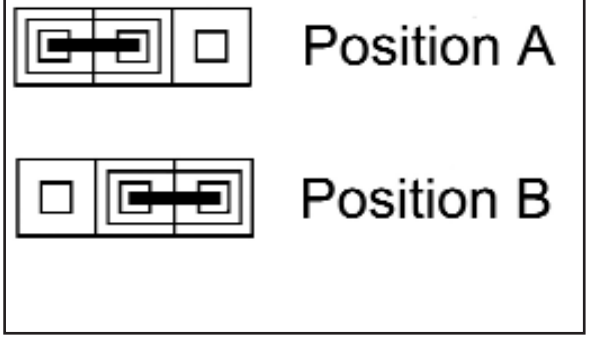
2. Before making any adjustments, switch on the unit at trickle speed. **WARNING : 230 volt, live mains are present on the circuit board.** Move the speed adjust jumper switch JP5, to position A, as shown in the diagram. A green light will appear on the circuit board.
3. With the boost switch OFF (bathroom light switch off), measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MIN-MOT2 , on the control board and re-check the airflow rate. If the value is slightly higher than that required, final adjustment can be made at the air valve.
4. Set the position of the potentiometer MIN-MOT1 to the same as MIN-MOT2.
5. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate*. If higher, reduce the airflow by adjusting MIN-MOT1. Final minor adjustments can be made at the air valve. *unless a different supply value has been specified.

Boost Speed (r/h drainage)

6. Switch on the boost (light switch ON).
7. Measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MAX-MOT2.
8. Re-check the airflow rate and make further adjustments at MAX-MOT2 until correct. **Do not re-adjust the air valve.**
9. Set the position of the potentiometer MAX-MOT1 to the same as MAX-MOT2.
10. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate.* If higher, reduce the airflow by adjusting MAX-MOT1 until correct. **Do not re-adjust the air valve**. *unless a different supply value has been specified.
11. Return the speed adjust jumper switch JP5, to position B (green light goes out)

Controller Adjustment diagram





Airflow adjustment for Left-Hand Drainage

1. For left hand drainage as shown on Page 5, ensure that the jumper switch JP4 (see diagram above) is in **Position B.**

Normal (trickle) Speed (l/h drainage)

2. Before making any adjustments, switch on the unit at trickle speed. **WARNING : 230 volt, live mains are present on the circuit board.** Move the speed adjust jumper switch JP5, to position A, as shown in the diagram. A green light will appear on the circuit board.–
3. With the boost switch OFF (bathroom light switch off), measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MIN-MOT1, on the control board and re-check the airflow rate. If the value is slightly higher than that required, final adjustment can be made at the air valve.
4. Set the position of the potentiometer MIN-MOT2 to the same as MIN-MOT1.
5. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate (*unless a different supply value has been specified*). If higher, reduce the airflow by adjusting MIN-MOT2. Final, minor adjustments can be made at the air valve.

Boost Speed (l/h drainage)

6. Switch on the boost (light switch ON).
7. Measure the airflow rate at the extract valve and compare this to the design value. If there is a difference, adjust the potentiometer MAX-MOT1.
8. Re-check the airflow rate and make further adjustments at MAX-MOT1 until correct. **Do not re-adjust the air valve.**
9. Set the position of the potentiometer MAX-MOT2 to the same as MAX-MOT1.
10. Measure the airflow at the supply valve. This should be the same or slightly lower than the extract rate.* If higher, reduce the airflow by adjusting MAX-MOT2 until correct. **Do not re-adjust the air valve**.
    *unless a different supply value has been specified.
11. Return the speed adjust jumper switch JP5, to position B (green light goes out)

Timer Overrun Adjustment

After the boost switch has been turned off, the fan will continue to run at boost speed for up to 20 minutes. This overrun time is adjustable using the potentiometer marked TIMER. The time can be varied between 0 and 20
minutes. After the set time, the fan returns to normal speed.

Delay-on Boost

When the boost switch is operated, the boost speed activation can be delayed by 2 minutes, if required. Using the jumper switch JP6, move the jumper position to either:-

A - 2 minutes, or
B - 0.5 seconds

Finally, replace the control panel cover securely.

Cleaning and Maintenance

WARNING: The unit uses a 230V supply and contains rotating mechanical parts.

- **Before carrying out any maintenance or cleaning operations the mains electrical supply MUST be disconnected**.
- **Heat Exchanger maintenance must be done professionally. Contact Vectaire Service Department for Advice.**
- The air filters of the Vectaire WHHR100/90DC-B Plus should be cleaned regularly by a suitably qualified person (the frequency of cleaning will vary depending on the installation environment).

To clean the filters

- Remove the main access panel
- Remove the rubber inserts from the filter slots (where fitted) and slide out the filters from the internal mouldings.
- Clean the filters carefully using a vacuum cleaner and refit.
- Replace the rubber inserts into the slots.
- Replace the access panel and ensure it is securely located.
- Power to the unit can now be restored.

Filter Replacement

Filters should be cleaned annually and replaced when heavily contaminated.

Replacement filters are available from Vectaire - call us on +44 (0) 1494 522333 or via sales@vectaire.co.uk