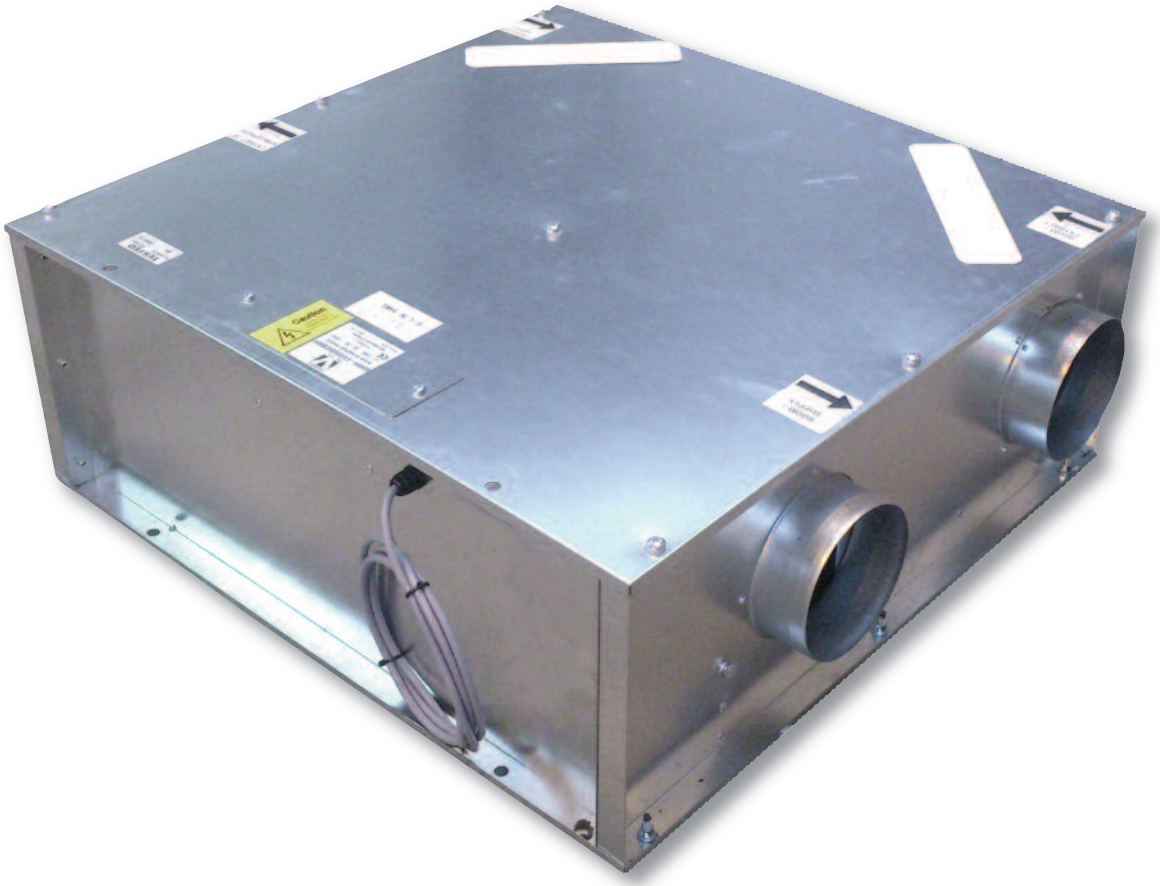
EVO90DC

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

Installation, Operating and Maintenance Instructions



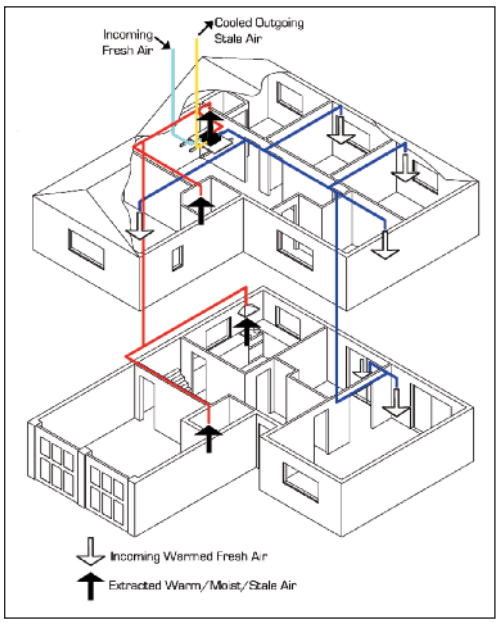
"EVO90DC" - WHOLE HOUSE HEAT RECOVERY UNITS INSTALLATION AND OPERATING INSTRUCTIONS

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.

General Information

The Vectaire EVO90DC heat recovery system provides whole house mechanical ventilation to living areas, bedrooms, kitchen and bath-rooms. 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, filtered air throughout the dwelling. The extract and intake air streams are separated to avoid contamination.



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. It is important to follow the advice in this user manual and correctly install and maintain the system to ensure a healthy and comfortable indoor environment.

Features

- whole house heat recovery units giving continuous ventilation in the kitchen and up to six additional wet rooms
- 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
- Can be mounted with left or right hand drainage and ducting

Standard control features:

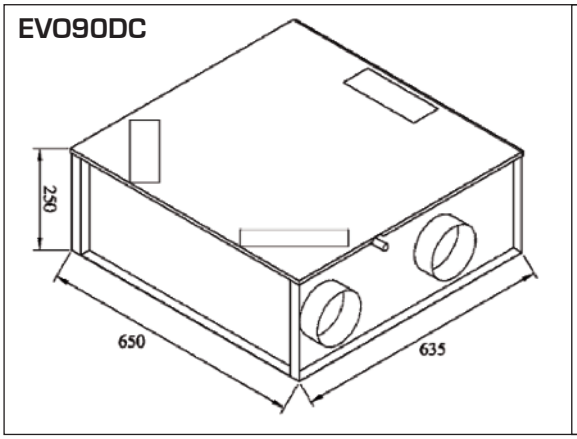
> **variable adjustment** - trickle and boost speeds set at installation for both motors independently
> **boost setting** - with integral overrun timer adjustable up to 20 minutes
> **optional delay-on-timer -** boost speed does not operate if switched off within 2 minutes
> **integral frost-stat -** proportionately reduces intake motor speed as temperature falls
> **summer bypass** - automatic bypass of heat exchanger in hot weather

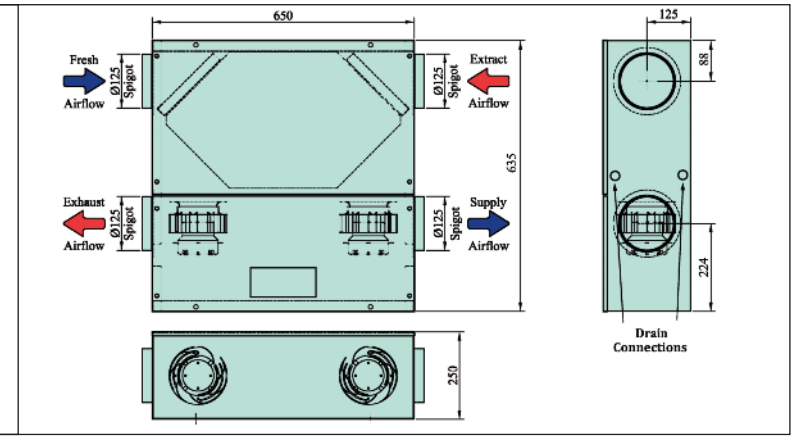
Factory Set Options

> **purge boost** - for rapid air change - automatically timed for 15 minutes
> **BMS connections** - for remote motor shut off
> **integral humidistat** - proportionately increases motor speeds with rising humidity

- Installation MUST be carried out by suitably qualified personnel and MUST be in accordance with current IEE regulations

EVO90DC





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 EVO90DC will generally be fitted into a loft or ceiling void. **In order to comply with Construction (Design & Management) Regulations, sufficient access for safe maintenance (recommend ed 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 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 50ºC 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 230v-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.

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 installed in a heated space, only the cold ducts should be insulated. i.e. the supply duct from outside and the extract 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 connection is provided on this unit).

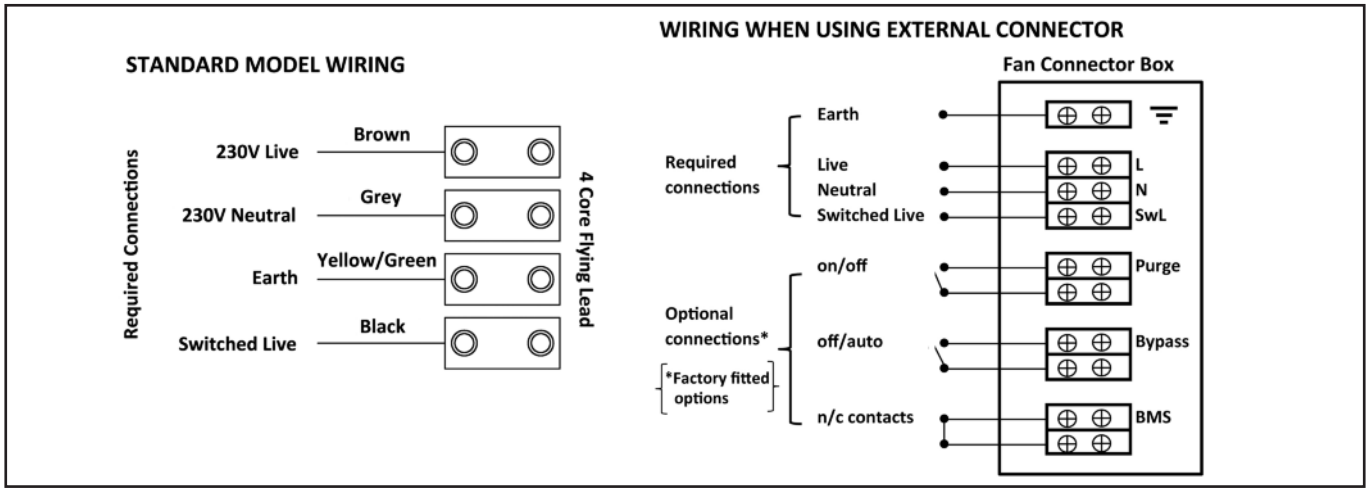
- A 15mm dia pipe must be fitted to the pipe connection. If any part of the condensate drain is in an unheated space it MUST be insulated with the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04 W/(mK).
- The pipe must drain into the normal household drainage system.
- 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-240v, 50Hz
- The unit is supplied with a mains rated 4 core flexible cord (black, brown, grey and green/yellow), or an external connector box
- 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 switch wiring cable access is via a 12mm cable gland.
- The 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.)



Commissioning

- 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.
- 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.
- Prior to starting the commissioning procedure, ensure that the ductwork connections and airflow directions are as marked on the product.
- Before making any adjustments, ensure that the air valves or grilles are fully open.
- Motor speed and timer settings are adjusted on the control board, which is located behind the small panel on the front of the cabinet. Once removed, there is access to potentiometers and jumper switches for use during the commissioning process. (See diagram on Page 6)

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

Airflow Adjustment

Depending on the configuration of the duct connections and drainage, the adjustment potentiometers on the control board marked MOT 1 and MOT 2 will correspond to the supply or extract valves. It will be necessary to identify which is which before commencing the adjustment.

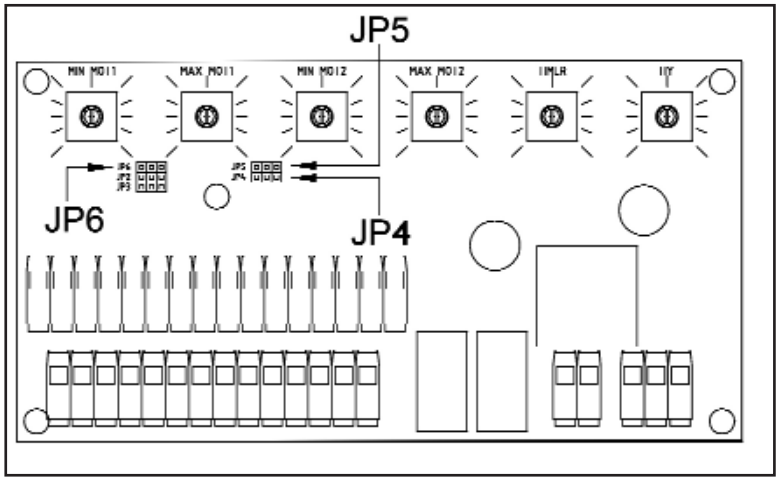
Normal (trickle) Speed

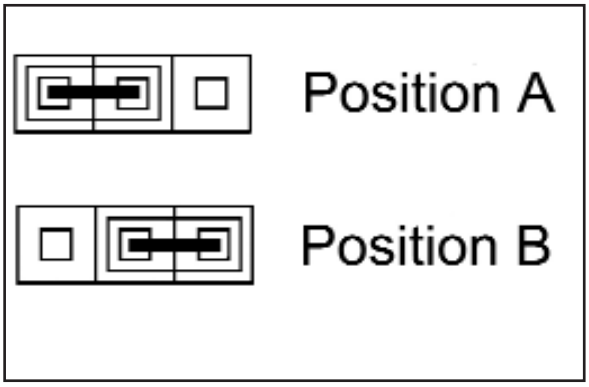
Before making any adjustments, switch on the unit at trickle speed.

1. Move the speed adjust jumper switch JP5 to position A, as shown in the diagram. A green light will appear on the circuit board.
2. With the boost switch off (bathroom light switch OFF), measure the airflow rate at the valves corresponding to MOT 1 (supply or extract) and compare to the design values. If there is a difference, adjust the potentiometer MIN-MOT 1 on the control board and re-check the airflow rates. Re-adjust the potentiometer until the values are approximately correct. Final adjustments can be made at the air valves.
3. Set the potentiometer MIN-MOT 2 to roughly the same position as MIN-MOT 1. Repeat the adjustment process for the valves corresponding to MIN-MOT 2.

Boost Speed

4. Switch the unit to boost (light switch ON).
5. Measure the airflow rate at the valves corresponding to MOT 1 (supply or extract) and compare to the design value. If there is a difference, adjust the potentiometer MAX-MOT 1 on the control board and re-check the airflow rates. Re-adjust the potentiometer until the values are approximately correct. **Do not re-adjust the air valves.**
6. Set the potentiometer MAX-MOT 2 to roughly the same position as MAX-MOT 1 and check the airflow values at the corresponding valves. Re-adjust MAX-MOT 2 until approximately correct as per the design values. **Do not re-adjust the air valves**.
7. Return the 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**.

The air filters and heat exchanger of the Vectaire EVO90DC should be cleaned regularly by a suitably qualified person (the frequency of cleaning will vary depending on the installation environment).

Filters:

- Remove the magnetic strip covering the filter slots and pull out the filters. Remove the dust using a vacuum cleaner. Carefully replace the filters into the slots and re-fit the magnetic strips.

Heat Exchanger - Top Access only:

- Remove the centre screw and the four corner screws located on the larger access panel
- Using the strap attached, pull out the heat exchanger from the cabinet. Note : in cold weather, the heat exchanger may contain water. It is useful to have a bowl available to avoid spillage. Clean any excess dust and dirt from the faces of the heat exchanger. Carefully replace the heat exchanger into the cabinet and replace the access panel.

Heat Exchanger - Bottom Access:

- **this is a specialist operation, please contact Vectaire Ltd.**

Filter Replacement

- Filters should be replaced annually or after a maximum of 3 cleaning cycles.
- Replacement filters are available from Vectaire - call us on +44 (0) 1494 522333 or via sales@vectaire.co.uk