

# Mini DC



Heat Recovery Unit  
with Low Energy DC Motors  
Optional - Remote LCD

Installation, Operating and Maintenance  
Instructions





## "MINI DC" - 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.

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.

**Mini DC:** 5"/125mm spigot, for continuous ventilation equivalent to a kitchen plus up to one additional wet room.  
Max airflow 120m<sup>3</sup>/hr

### General Information

The Vectaire Mini DC heat recovery system provides mechanical ventilation to bedrooms, and bathrooms. It extracts stale, contaminated air from bathrooms, replaces it with fresh air to the bedroom and vents the stale air to the outside.

Heat is reclaimed from the extracted air and used, via a heat exchanger, to warm the incoming fresh air. The extract and intake airstreams are completely separate to avoid cross-contamination.

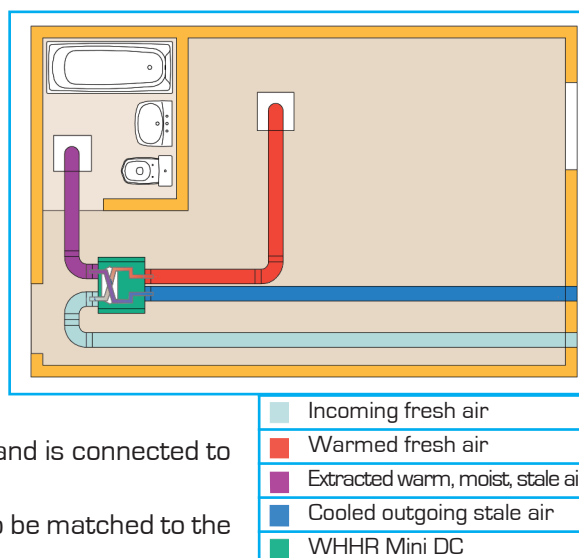
The system operates continuously and is designed not to be switched off, except for maintenance purposes.

During normal operation, the unit produces a low-volume airflow, creating a comfortable, healthy environment, using minimum energy consumption.

If additional ventilation is required, (e.g. when a shower is in use), a boost facility is included which increases the airflow rate. The boost can be operated automatically or manually.

Installation of the unit is usually above a ceiling or in a loft space and is connected to air vents via hidden ductwork.

Each unit is commissioned individually allowing its performance to be matched to the size of area to be ventilated.



### Features

- Variable choice low (trickle) speed, boost and purge options for optimum setting at installation.
- Boost speed triggered by a switched live connection from:
  - a light switch (if more than one light switch is used, **each one must be a double pole switch**)
  - DRH240 (dynamic remote humidistat)
  - PIRFF (passive infra red)
  - THM (thermostat)
  - a remote switch/pull cord
- Can be mounted with left or right hand drainage and ducting.
- Economical EC motor with electronic control plus:

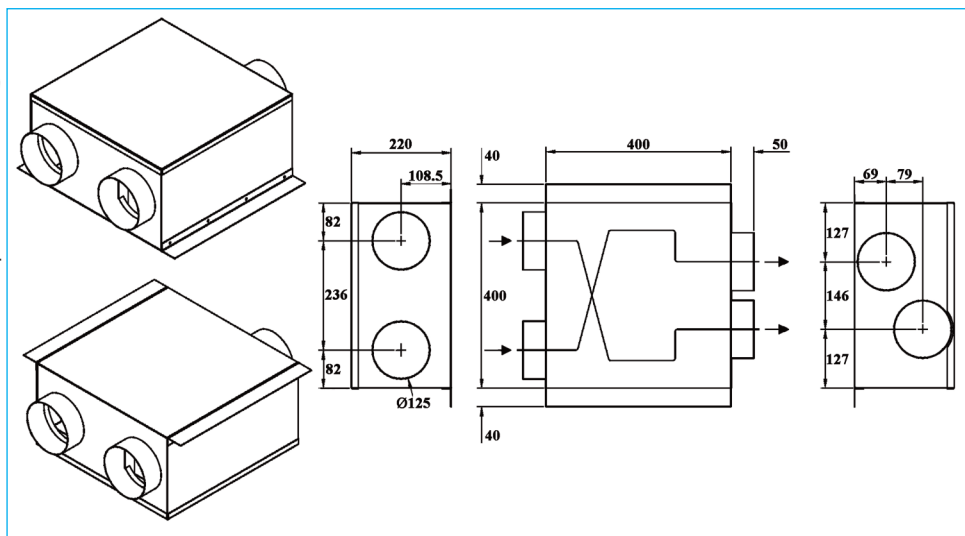
#### Standard control features:

- > **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
- > **purge boost** - for rapid air change
- > **BMS connections** - for remote motor shut off
- Installation **MUST** be carried out by suitably qualified personnel and **MUST** be in accordance with current IEE regulations

## 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 Mini DC will normally be fitted into a loft or 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. We recommend that a clearance of at least 150mm is available on each side of the cabinet to allow access to the motors. See dimensions diagram.**
- Regulations and current Building Regulations. In order to comply with these, it may be necessary to fit fire dampers or other similar devices.
- **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 gasses, liquids or vapours that are flammable or corrosive
  - in ambient temperatures above 50°C or lower than 5°C
  - 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
- Care should be taken to ensure that ducting is free from blockages
- 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.



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. The unit is not suitable for installation to the exterior of the dwelling.

### Transportation, packaging and storage prior to installation

- Care should be taken when transporting the unit Dropping or knocking will damage the inner workings of the unit.
- The unit should always be stored in a clean, dry environment.
- Remove all packaging before installation.

### Pre-inspection

- Inspect the unit and electrical supply cord for any damage (damage must be repaired by a suitably qualified and competent person.)

## Installation

Installation must be carried out by a suitably qualified person and must comply with all current building regulations and electrical installation regulations.

### Mounting the unit

Before choosing the position for mounting, it is important to take into consideration the ductwork routes and condensate drain route. The four spigots on the unit are marked for the four unique connections. The unit can be supplied left or right-handed in order to match the required duct routes more easily. (Factory option only.)

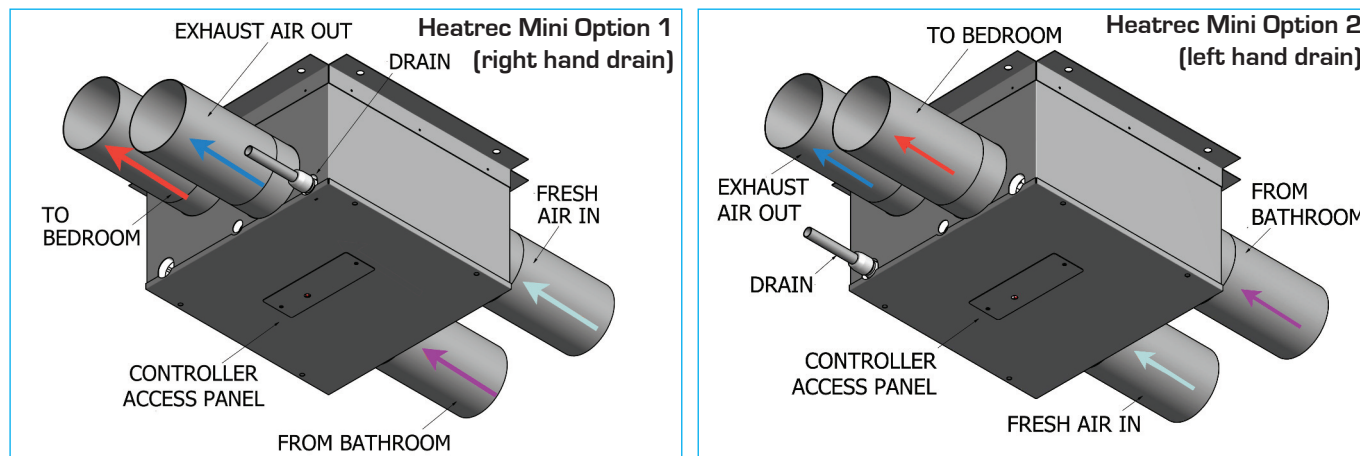
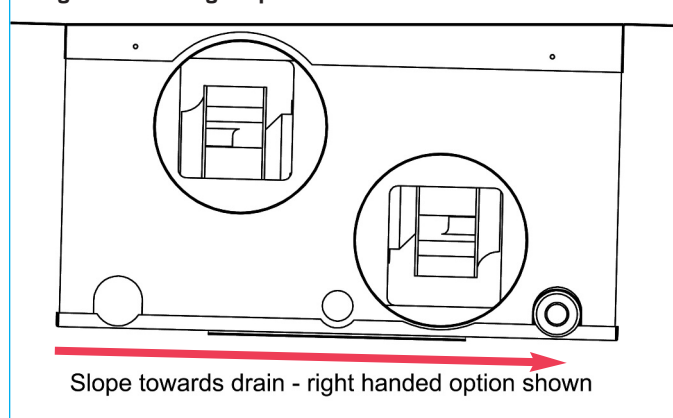


Diagram showing slope towards drain



It is also essential that adequate access to the product is provided for maintenance or removal after installation (at least 150mm). The entire access panel needs to be removed for maintenance.

The unit is intended to be suspended from a ceiling or similar fixture. Two pairs of fixing brackets are supplied and either pair can be used depending on the more suitable orientation.

It is important that the unit is attached to its fixings so that there is a slope down towards the drainage end of the product. The correctly fitted brackets provide a drop of approximately 10 mm at the lower end.

### Duct and Duct Connections [refer to design drawing]

1. 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.
2. 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.
3. The duct layout must be designed to suit the requirements of the ventilation/heat recovery system and building layout. If the ducting passes through a fire wall/barrier, suitable fire dampers must be installed.
4. 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.
5. 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

**Note:** Whenever the unit is installed in close proximity to a bedroom or other habitable space, we recommend that sound attenuation is provided within the duct runs between the rooms and the unit. A length of 1 metre of flexible acoustic ducting will be sufficient in most circumstances, but reference should be made to the sound data provided for this product



## Condensate Drainage

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

1. A 15mm rigid PVC push-fit pipe must be used for connection to the unit.
2. **IMPORTANT : A solvent weld must NOT be used on this joint as the joint has to be disconnected in order to remove the heat exchanger for cleaning.**
3. The condensate drain pipe must incorporate a 'U' bend or other trap in order to prevent air penetration into the unit.
4. The drainage pipe must have a continuous fall from the unit to the drainage collection point.
5. 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.

### Note:

1. In order to prevent any possible condensate overspill from the unit, excess water in the condensate tray will be detected and the motors will switch off to prevent further condensation from forming. If this happens, a warning light on the unit will flash.
2. The cause of this will usually be inadequate drainage. The drain must be inspected and cleared of any blockage and the correct rate of fall from the unit must be ensured.
3. Once the drainage problem has been resolved, the unit can be re-set by switching off and on again.

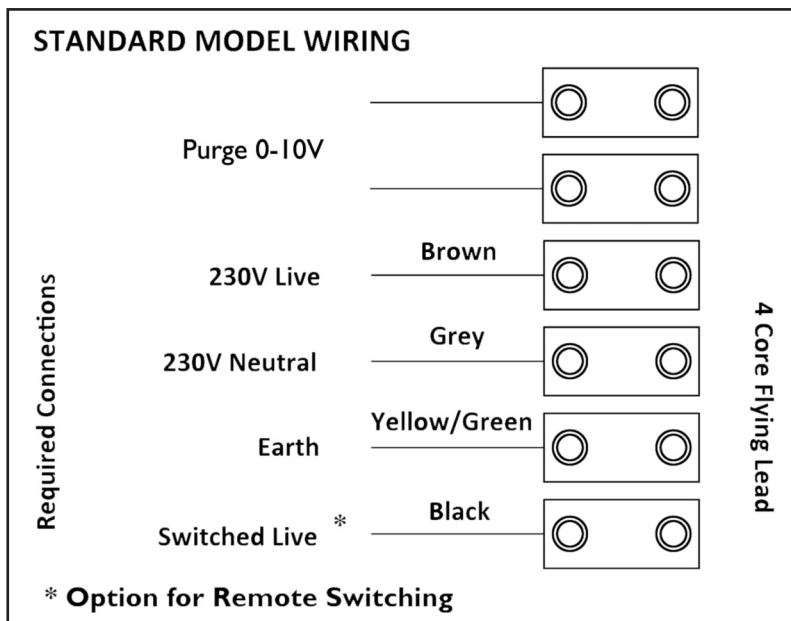
## Electrical Connection

**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) and 2 core 0-10v cables for purge switching, **or** an external connector box.
- Cables for any other external device will be **provided and labelled on request**
- 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 and other external controls should be clearly identified and conveniently located.
  - The boost facility can be activated by a switched live connection (in addition to the permanent supply live). The switched live can be operated by 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

or via LCD control

(\*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 1 or 2, shown on page 4. 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. **Please see separate "LCD Control Panel Commissioning Instructions" for details on commissioning and user operations.**

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

### 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 heat exchanger within the unit should be cleaned annually.

### Filter Cleaning/Replacement

1. Remove the filter access strips from the bottom panel.
2. Slide out the filters by pulling the tabs.
3. Clean the filters carefully using a vacuum cleaner. Replace the filters in the slots and refit the covers.
4. Filters should be replaced annually or after a maximum of three cleaning cycles.

### Heat Exchanger Access and Cleaning

1. Disconnect the condensate drain from the drain connector.
2. Remove the four screws retaining the access panel and completely remove the panel.
3. The heat exchanger and condensate drain tray are a single assembly, fastened together with a plastic strap. Before pulling out the heat exchanger by the strap, ease out the two sides of the drain tray at the drainage end.
4. Pull the strap gently downwards and the assembly should come out. Ensure that the drain tray is not trapped, by carefully easing it out together with the heat exchanger. Keep the whole assembly as horizontal as possible when removing, as there may be water within the heat exchanger.
5. Using a vacuum cleaner with a soft brush attachment, carefully remove any dust from the faces of the heat exchanger.
6. Check that the drain connector is clear of any deposit or blockage and remove as necessary. Do not use any type of cleaning fluid on this product.
7. Replace the assembly by locating the heat exchanger within the guide rails at each side of the cabinet and push upwards. Ensure that the two sides of the drain tray are also located correctly within the internal mouldings of the cabinet.
8. Check that the drain connector is located in its correct position.
9. Replace the access panel and secure using the four screws.
10. Re-connect the drain pipe and ensure that there is the required amount of fall away from the unit.

Switch on the power to the unit and check that it is running correctly.

**Should you have any queries relating to these instructions, please contact the**

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