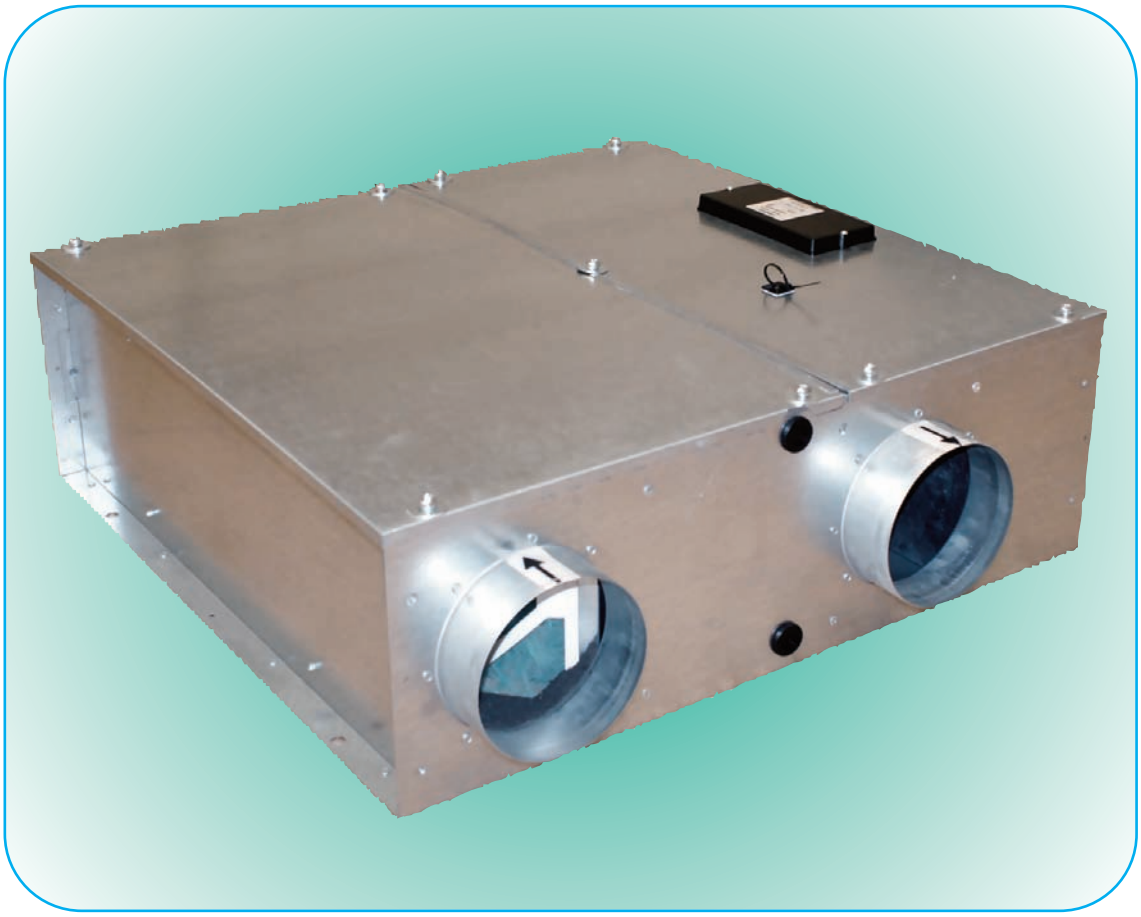
WHHR100/90DC



This MVHR - WHHR100/90DC - is a slimline, efficient, low energy solution to controlling condensation and pollution. It provides low level continuous ventilation in a kitchen and up to six wet rooms, extracting moist, polluted air and replacing it with fresh, filtered air - recovering up to 79% of the heat from the outgoing flow.

The user can to boost to maximum performance when required. The slimline WHHR100/90DC is easily installed in the loft or roof void, or a cupboard The noise level and running costs are extremely low, and it is compliant with Parts L and F of the Building Regulations

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Whole House Mechanical Ventilation with Heat Recovery - MVHR

WHHR100/90DC

Technical Characteristics

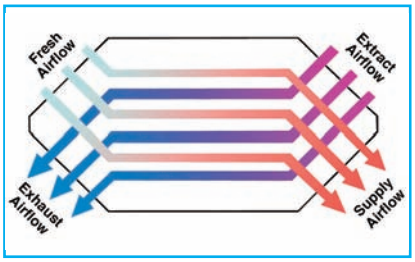
Features

- **SAP Q eligible** (MVHR) residential whole house heat recovery unit for providing continuous ventilation in kitchen and up to 6 additional wet rooms
- maximum airflow 76 l/sec
- suitable for areas up to 210m²
- up to 79% of heat recovered from stale air extracted from warm, moist rooms replacing it with fresh, filtered, warmed air to create a constant, comfortable, healthy environment
- easy to install and maintain
- for fitting into lofts, voids, false ceilings or cupboards
- variable choice of low (trickle) speed and boost options for optimum setting at installation
- the boost speed can be triggered by a switched live connection from a range of devices:
  - 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.)
- low noise levels
- low running costs
- gives extra security by removing need to open windows
- 3 year warranty
- Vectaire Ltd can supply all accessories for use with these units, including air filter cassettes, silencers, fire dampers, air valves, ducting, outside grilles and wall cowls

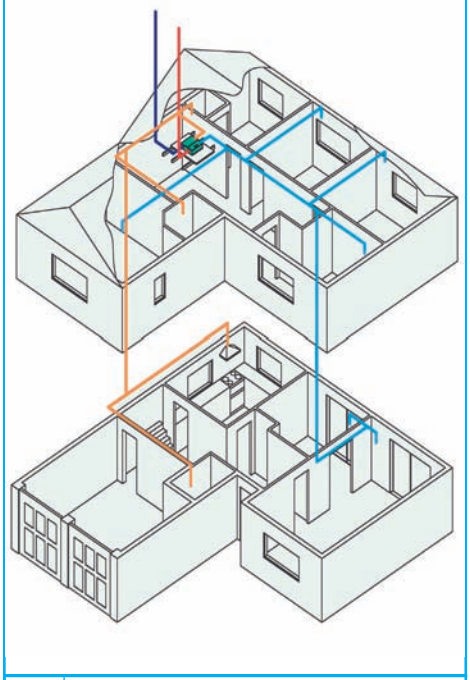
Specification

- compact, low profile unit - **only 200mm deep**
- casing manufactured from galvanised sheet with an epoxy finish
- thermo-acoustic lining in polypropylene to prevent thermal bridging to outside
- low energy DC brushless motor for optimum combination of high performance, low noise levels and low energy consumption
- impellers are single width, single inlet, direct drive and backward curved for higher efficiency
- operates in temperatures up to 60ºC
- pre-wired for easy electrical connection
- uses standard, disposable G3 filters
- counter flow heat exchanger for greater efficiency and increased separation of airflows



Vectaire Ltd offers a design service to ensure that the unit installed is the best possible to provide efficient, effective, low energy and low running cost ventilation. Vectaire can also organise installation and commissioning of these products

Loft or Void Installation



	Incoming fresh air
	Warmed fresh air
	Extracted warm, moist, stale air
	Cooled outgoing stale air
	WHHR100/90DC

Complies with

- Part L1A and L1B of Building Regulations for enhanced energy saving capability
- Part F of Building Regulations for reliable, efficient ventilation
- manufactured to BS EN ISO 9001
- complies with IEC 60335-2-80, LVD2006/95/CE and EMC 2004/108/CE European Directive against radio interference and electro-magnetic compatibility
- CE marked
- **SAP Q eligible**

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WHHR100/90DC

Technical Characteristics - SAP Results

RESULTS for SAP CALCULATIONS

ENERGY LEVEL PERFORMANCE - using rigid ducting only

Exhaust Terminal Configuration	Fan Speed Setting	Specific Fan Power (W/l/s)	Heat Exchange Efficiency (%)
Kitchen + **1** additional wet room	100% variable	**0.71**	**79**
Kitchen + **2** additional wet rooms	100% variable	**0.78**	**79**
Kitchen + **3** additional wet rooms	100% variable	**0.91**	**78**
Kitchen + **4** additional wet rooms	100% variable	**0.99**	**78**
Kitchen + **5** additional wet rooms	100% variable	**1.22**	**78**
Kitchen + **6** additional wet rooms	100% variable	**1.39**	**77**

Figures from BRE test results

RESULTS for Approved Document F

Exhaust Terminal Configuration	Fan Speed Setting	Total Exhaust Flow Rate (l/sec)	Total Supply Flow Rate (l/sec)
Kitchen + **1** additional wet room	100% variable	**15.0**	**15.0**
Kitchen + **2** additional wet rooms	100% variable	**21.0**	**21.0**
Kitchen + **3** additional wet rooms	100% variable	**27.0**	**27.0**
Kitchen + **4** additional wet rooms	100% variable	**33.0**	**33.0**
Kitchen + **5** additional wet rooms	100% variable	**39.0**	**39.0**
Kitchen + **6** additional wet rooms	100% variable	**45.0**	**45.0**

Figures from BRE test results

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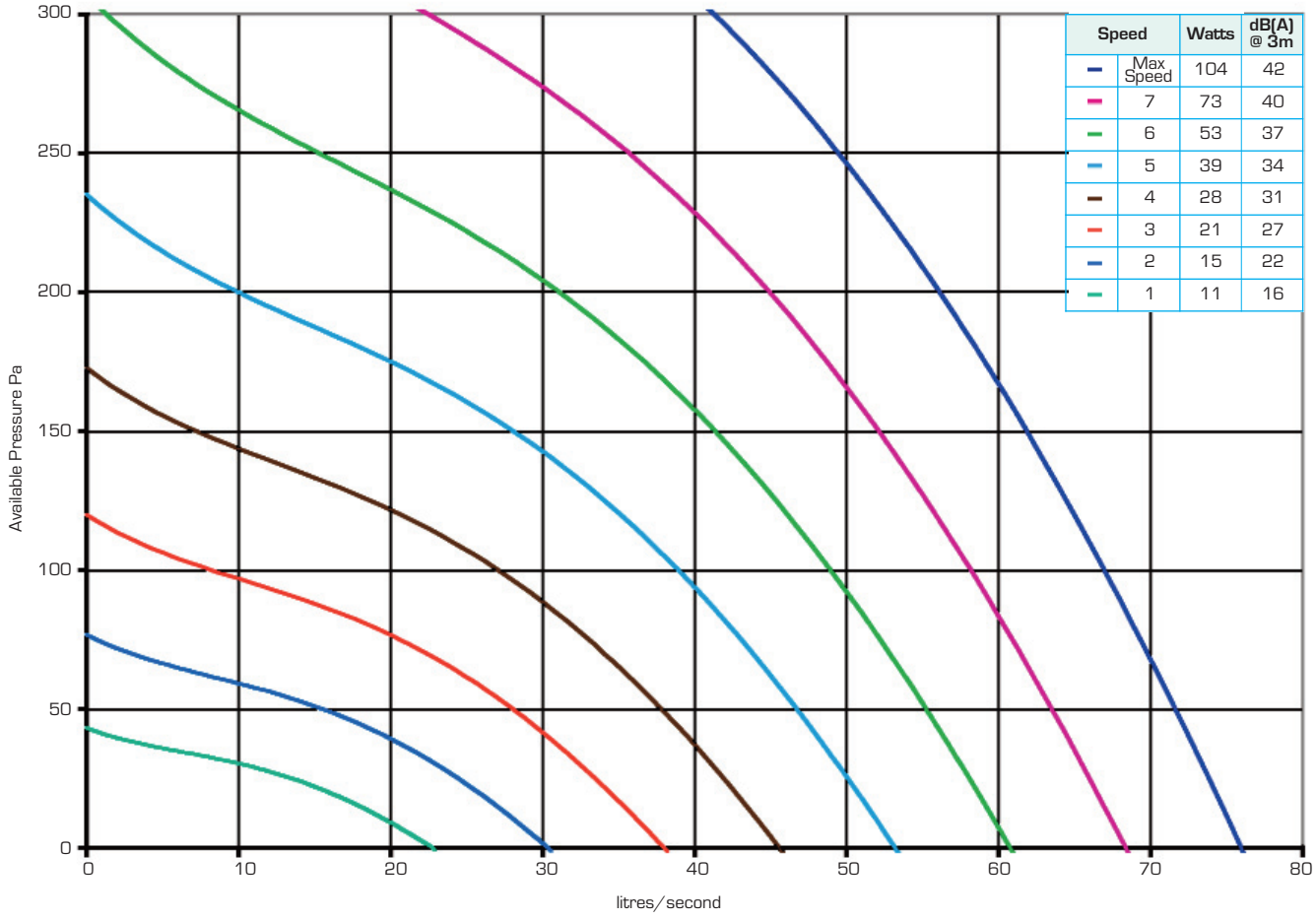
WHHR100/90DC

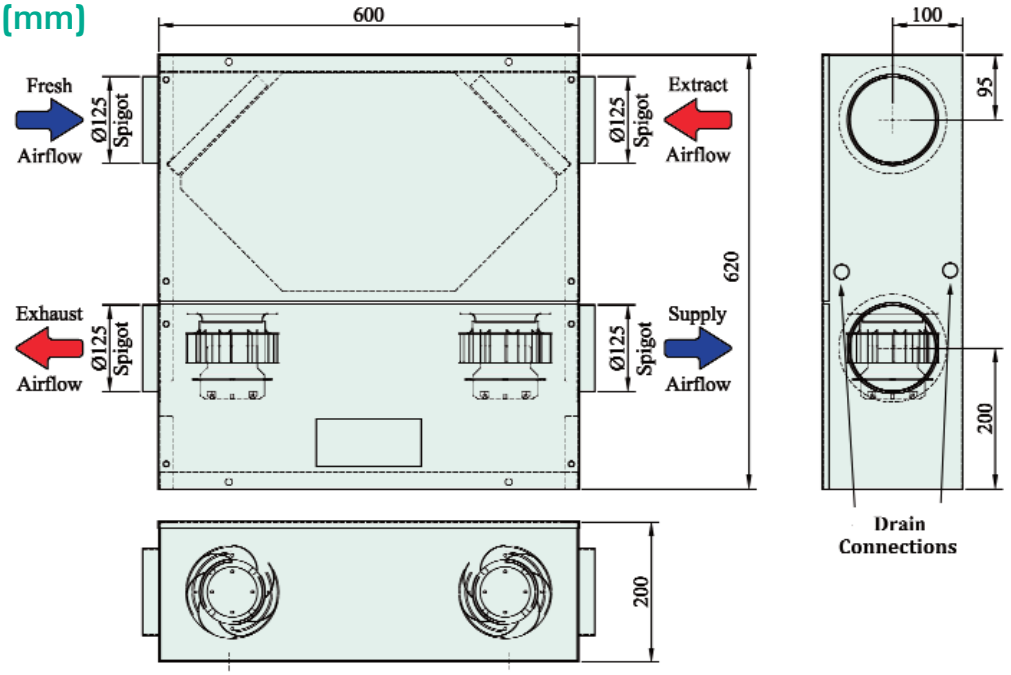
Technical Characteristics - Performance & Dimensions

curves are for guidance only



Speed		Watts	dB(A) @ 3m
	Max Speed	104	42
	7	73	40
	6	53	37
	5	39	34
	4	28	31
	3	21	27
	2	15	22
	1	11	16

Dimensions (mm)



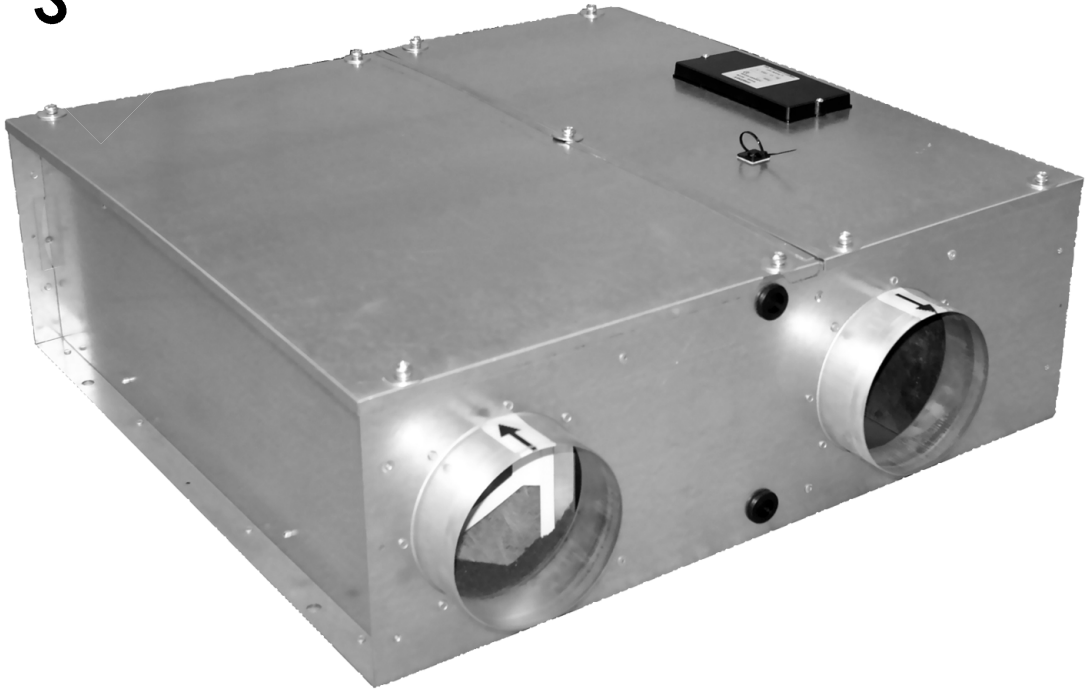
"WHHR100/90DC"

vectaire

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" - WHOLE HOUSE HEAT RECOVERY UNITS INSTALLATION AND OPERATING INSTRUCTIONS

Safety Notice

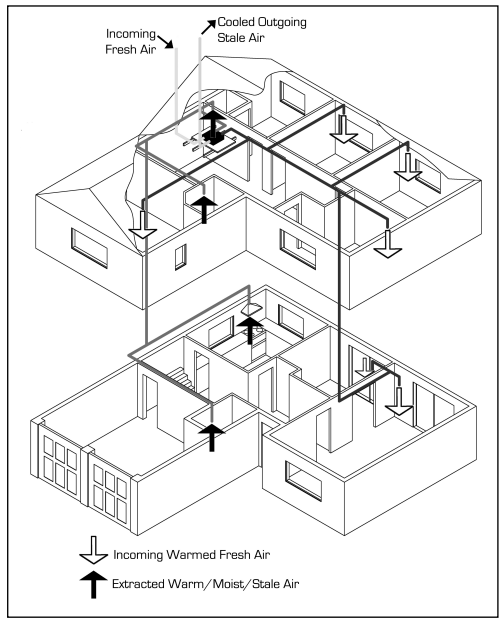
It is important to read this Instruction Manual carefully before installing or using the product. Following these instructions will ensure that your ventilation system is installed, commissioned and used properly and continues to operate effectively. Vectaire will not be held responsible and will not 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.

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: 5"/125mm spigot, for dwellings up to 210m^2, max capacity 76 l/sec

General Information

The Vectaire WHHR100/90DC heat recovery system provides whole house mechanical ventilation to living areas, bedrooms, kitchen and bathrooms. They extract stale, contaminated air from kitchens, utility rooms and bathrooms, and use 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 exchanger, 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.

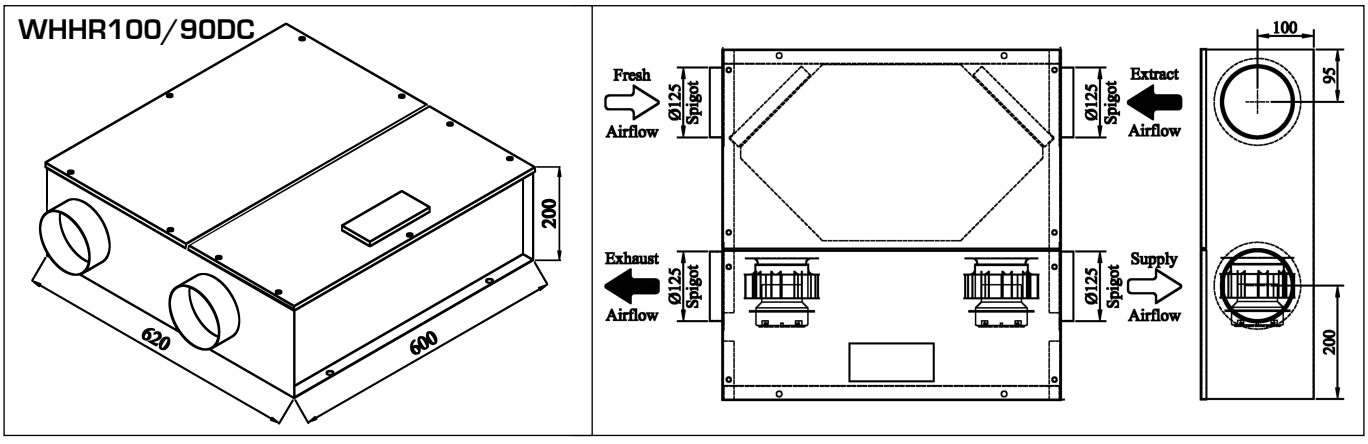
The heat recovery unit will generally be installed in the loft of a house or the void above the ceiling in an apartment (but may be installed in a cupboard) and will be connected by hidden ductwork to vents sited in the ceilings of the rooms which require ventilation. Each unit is commissioned individually 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 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

  (*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 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 WHHR 100/90DC will generally 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. 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 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, 50Hz single phase electrical supply fused at 3A.
- A fused spur box, or triple pole switch having a minimum contact separation of 3mm must be used for isolation.
- 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. Flexible duct fits over the spigots, whilst rigid duct fits into the spigots.
- Where ducts are exposed in unheated areas, they should be insulated (except for the exhaust duct from the unit to the atmosphere),
- 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 resist ance. 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
- The inlet for the fresh air supply can be directly from outside, or from within a ventilated roof space. If the sup ply is directly from outside, it must have an external wall grille fitted if supplied through a wall, or a recognised roof terminal if supplied through a roof. If the supply is from a ventilated roof space, it must be protected by a filter box.

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 drain must incorporate a U-bend to prevent air penetration.
- The pipe must drain into the normal household drainage system.
- 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).
- Four possible condensation drain points are provided, which allow the installer to turn the unit through 180º to simplify duct layout and connections.

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 fused at 3A.
- 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 appli- ance 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

- The units operate by extracting warm, 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 is 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 open.
- Turn the electrical supply ON and set the fan speed control to TRICKLE.
- Check the air flows at the grilles or valves, and adjust to suit the design figures by turning the centre of the valve clockwise to decrease the airflow, and anticlockwise to increase the airflow.
- If the airflow is still not correct proceed as follows:
  - turn the electrical supply OFF
  - remove the electrical access cover
  - locate the trickle speed adjustment (see Wiring Diagrams) and adjust as required.
  - turn the electrical supply ON.
- Re-measure the air flows at the grilles or valves as detailed above, and repeat the procedure until the correct air flows are achieved.
- Adjust the Boost Speed to requirement and ensure that the air flows increase when the boost switch is acti vated.

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 WHHR100/90DC should be cleaned regularly by a suitably qualified person (the frequency of cleaning will vary depending on the installation environment). Filters should be replaced after a maximum of 3 cleaning cycles.

Filter and Heat Exchanger access:

- Remove the centre screw and the four corner screws located on the larger access panel
- Completely remove the panel

To clean the filters and heat exchanger:

- Remove the access panel
- Slide out the filters that are fitted either side of the heat exchanger as shown.
- Clean the filters carefully using a vacuum cleaner.
- Carefully remove any dust from the face of the heat exchanger using a vacuum cleaner.

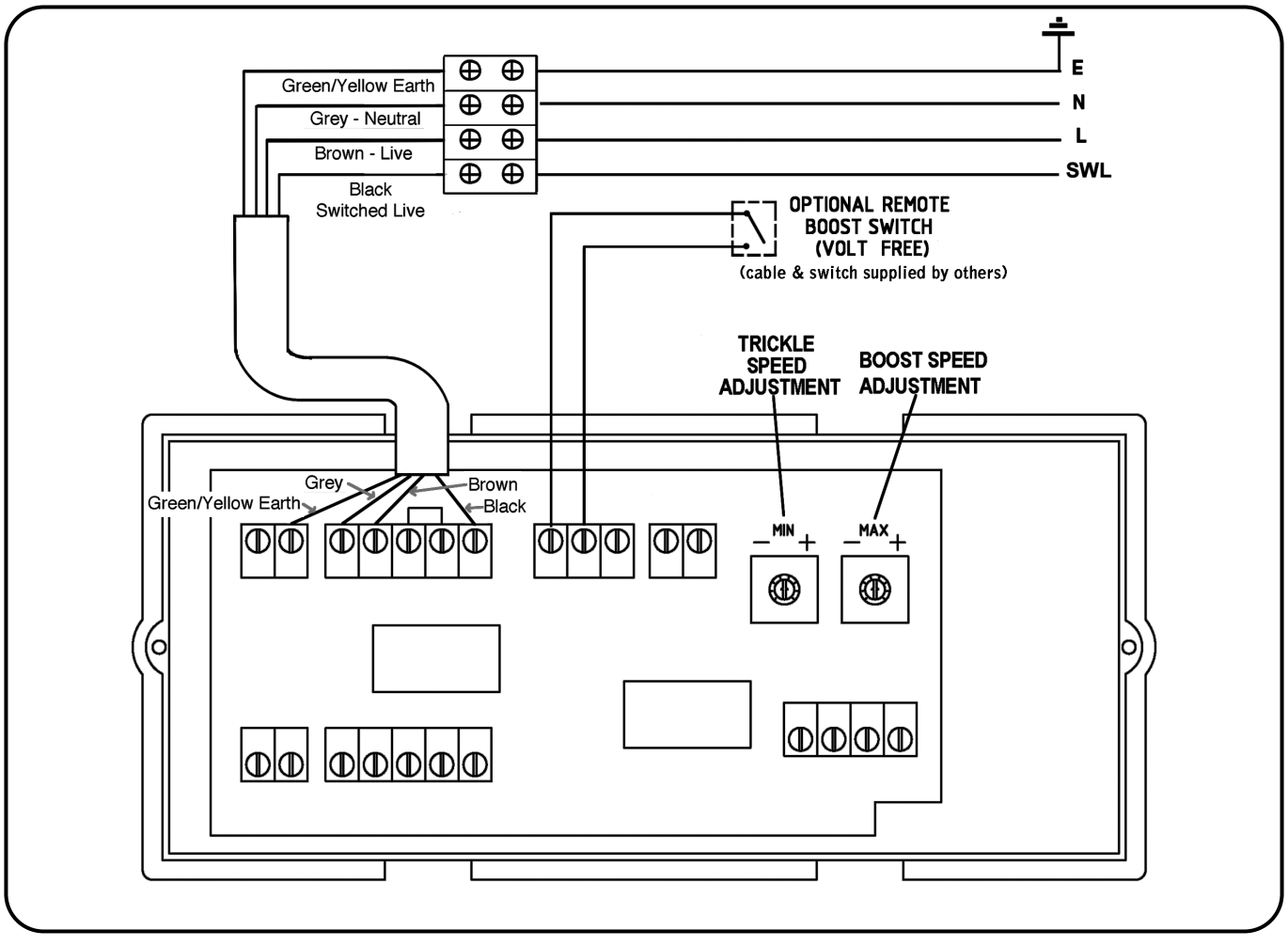
Never use water or any other fluids to clean the heat exchanger.

- Return the heat exchanger and filters to their original position.
- Replace the front cover and ensure it is securely located at the top before tightening all screws.
- Power to the unit can now be restored.

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



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