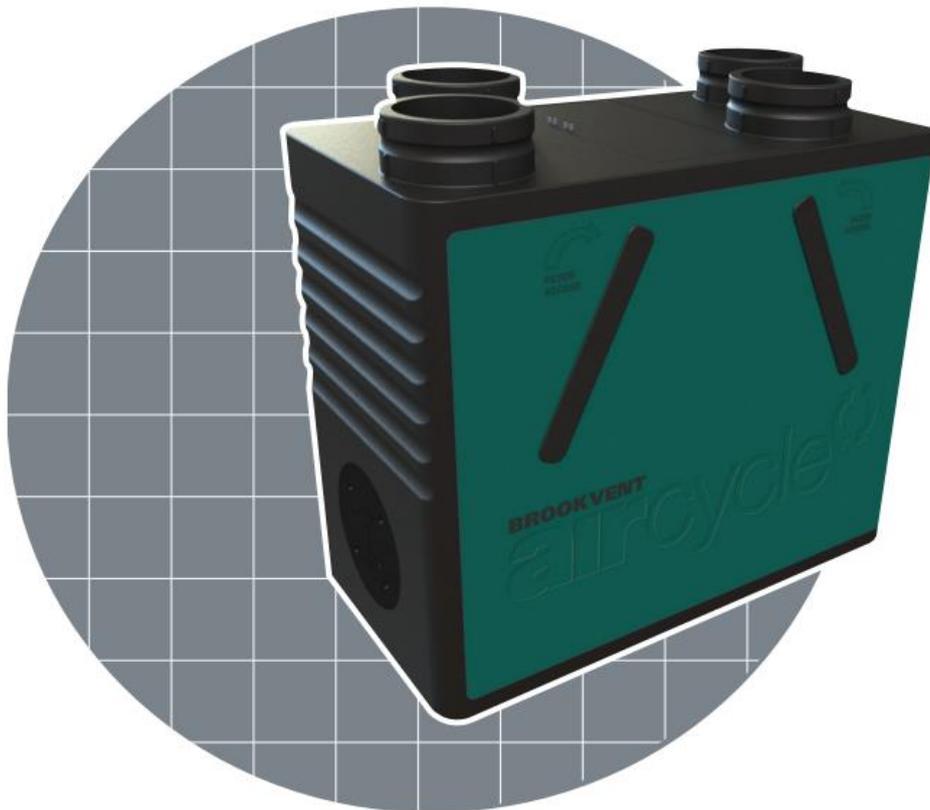


BROOKVENT

Market Leading Heat Recovery Ventilation



Applicable to the following **aircycle 1.2** models:
AS 90-0102-WIN-01 (Wall Mount, In-built Control)
AS 90-0102-WINS-01 (Wall Mount, In-built Control, Summer Bypass)



Installation, Maintenance and User Manual

Instructions for the Installer, Maintenance Engineer and End User





CONTENTS

**PLEASE KEEP THESE INSTRUCTIONS WITH THE PRODUCT.
Please read this manual fully prior to installing the HRV unit**

Language: English.....	2
1.0 Introduction.....	2
2.0 Safety.....	3
3.0 Specifications/ Dimensions.....	4
4.0 Installation.....	7
5.0 Electrical Connections/ Wiring.....	10
6.0 Controls and Settings.....	11
7.0 Maintenance.....	13
8.0 Commissioning.....	15
9.0 User Operation.....	15
10.0 Customer Support.....	17

IMPORTANT:

This appliance is not intended for use by persons (including children) with reduced physical sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



Language: English

1.0 Introduction

The Brookvent aircycle 1.2 is a compact and highly efficient Mechanical Heat Recovery Ventilation (HRV/MHRV) system, specifically designed for smaller dwellings and apartments with restricted space.

The system should be run continuously 24 hours a day, and should **only** be disconnected by a competent person during service or maintenance.

Heat Recovery ventilation works best in new homes, which are extremely airtight and have high efficiency ratings. These dwellings require a high level of fresh air to ensure a healthy living environment.

The system works by drawing stale air from 'wet rooms' such as Bathrooms, WC's and Kitchens, recovering up to **93%** of the heat from this air using a highly efficient heat exchanger, before expelling waste air from the home. Simultaneously, fresh air is drawn into the home, filtered and warmed by the recovered heat and supplied into the 'habitable rooms' such as bedrooms, dining rooms and living rooms.

1.1 Model Variations

This installation manual refers to the Brookvent aircycle 1.2 and pertains to the following models:

- ◆ **AS 90-0102-WIN-01** (Wall Mount, In-built Control)
- ◆ **AS 90-0102-WINS-01** (Wall Mount, In-built Control, Summer Bypass)

1.2 Product Guarantee

This product is guaranteed against defects for a period of 5 years from date of purchase. With the first year covering parts and labour, and the remaining 4 years covering parts only. In the instance of such a defect, Brookvent may repair the product, replace the product free of charge or refund the cost of the product.

In terms of installation, operation and maintenance, please follow all instructions provided, if this product has been misused or handled carelessly it may lead to the guarantee being declared void.

Brookvent does not accept any liability for damage caused by non-observance of the installation instructions. Service activities must be carried out by Brookvent or by competent installers using original Brookvent parts.

This guarantee does not affect your statutory right as a consumer.

Brookvent operate a policy of continuous innovation and improvement and thus reserve the right to alter product specifications and appearances without notice.



2.0 Safety

The following information must be read carefully to ensure safe installation and operation of the Brookvent HRV system.

2.1 General Safety

- ✦ Do not use this appliance for functions other than those described in this booklet.
- ✦ Never touch the appliance with wet hands.
- ✦ The unit is only suitable for 230 VAC/50Hz electric mains.
- ✦ Never modify the fan or electronics, all repairs must be conducted by Brookvent.
- ✦ Never connect the power if electronics cover is not fitted.
- ✦ Do not store inflammable products in the neighbourhood of the unit.
- ✦ If cleaning/ dusting the external surface, do so with a dry cloth only.

2.2 Responsibility of the Installer

- ✦ Correct Installation, balancing and commissioning of the MHRV unit.
- ✦ Record measured air flow volumes on each of the valves at High and Low rate.
- ✦ Compliance to requirements and local additional rules.
- ✦ Explanation of the ventilation system to the user.
- ✦ Warning for the user, to check or replace the air filters on time.
- ✦ All the above, as set out in the latest edition of the Domestic Ventilation Compliance Guide and the SAP Appendix Q – Installation Guide and Checklist.

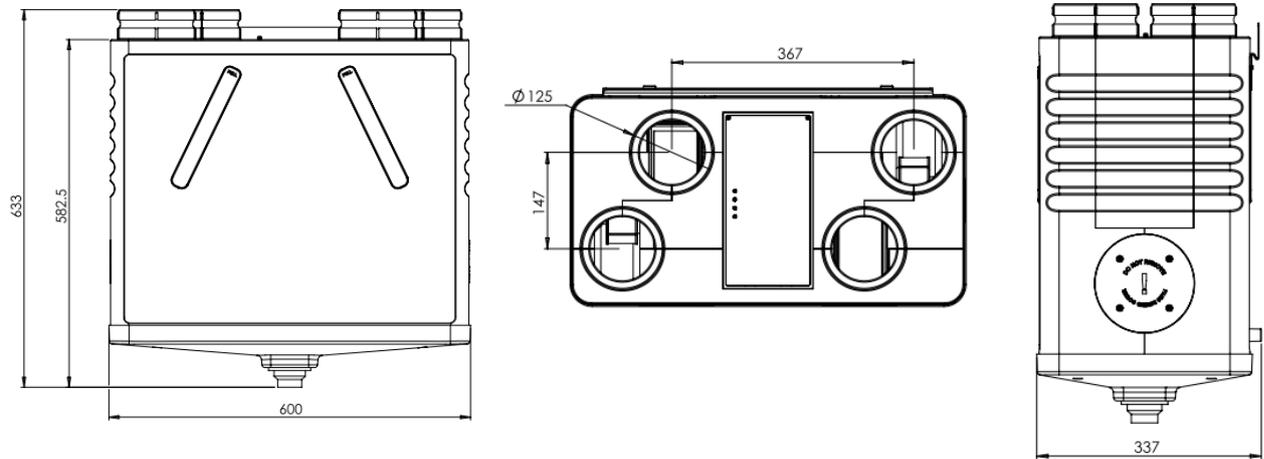
2.3 Responsibility of the Occupant

- ✦ Replacement of the filters as per the recommended/ required interval.
- ✦ Cleaning the valves in the rooms regularly to prevent blockage.
- ✦ To ensure that the system is functioning properly on a regular basis
- ✦ To use manual boost switches (where provided) to prevent build-up of pollutants or mould growth.

IMPORTANT: Dirty or clogged filters may cause inadequate ventilation in the home which may lead to air quality issues. It is important that the filters are changed **at least** once per year or as required. In new build properties it may be prudent to check/ change your filters after the first 3 months of occupancy depending on the amount of residual 'building dust' present within the property.

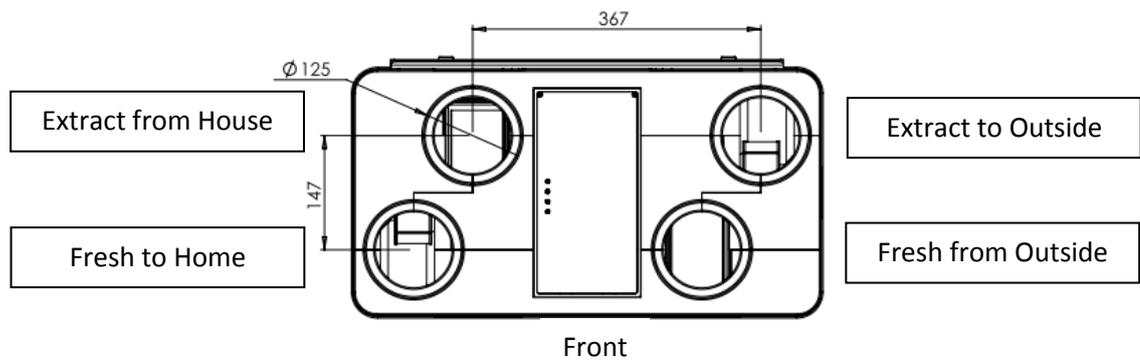


3.0 Specifications/ Dimensions

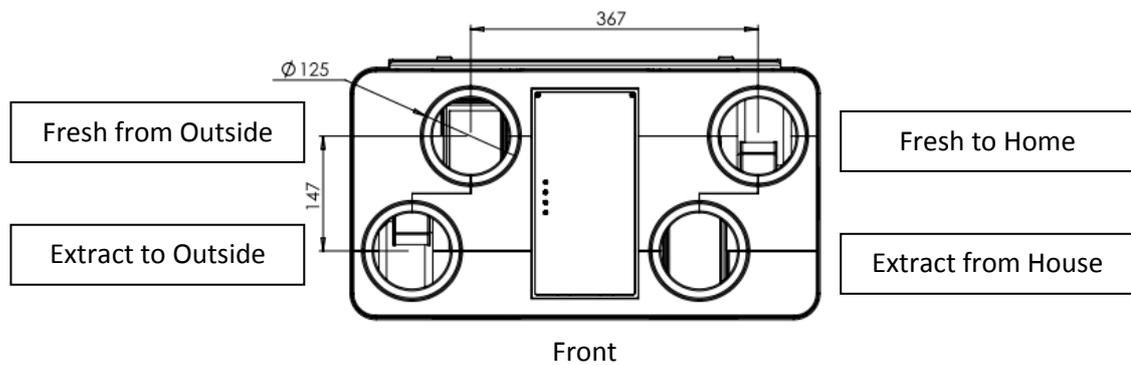


3.1 Duct Connections

Standard Configuration:



Inverted Configuration: (Factory Set: Must be specified at time of order)





3.2 Detailed Specification

Dimensions: 583mm x 600mm x337mm

Weight: 10kg

Materials: Main enclosure: Impact resistant EPP (Expanded Polypropylene)
PCB Enclosure: Nylon 6 V0
Drainage Tray: HIPS
Filters: Polyester Media (G2/3)
Mounting Bracket: Zinc Plated Steel

Electrical: 240V EC Quiet Fan Technology (CE Approved)

Controls: Extremely Efficient In-built Control Board (SAP Q Approved)
Independent Fan Speed Control (Trickle and boost settings for each fan)
Single 240v boost input (Light Switch, Humidistat, PIR, etc) 15 Min Over-run
In-built Humidity Sensor (Boost activation) Variable: 60% - 90% RH, Factory Set: 70%
Frost Protection, Variable Activation: 0 – 10 Degrees Cel., Factory Set: 5 Degrees Cel.

Installation: Wall mount only. Ceiling and floor mount versions are also available.

Fully complies with Building Regulations for UK & Ireland
SAP Q Approved
Energy Savings Trust Best Practice

Specific Fan Power: From **0.53** W/l/s

Heat Recovery Efficiency: Up to **93%** Efficiency

Guarantee Period: 5 Years

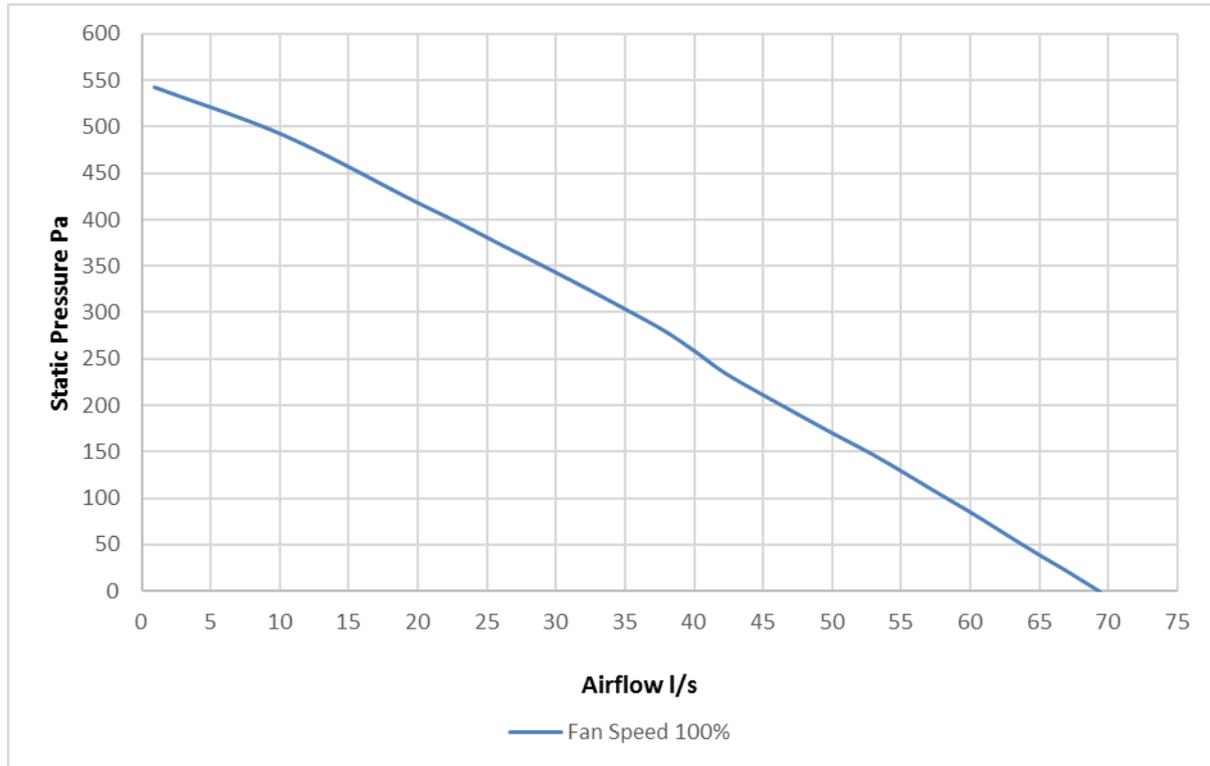
3.3 SAP Appendix Q Results

Exhaust Terminal Configuration	Fan Speed Setting	Specific Fan Power (W/l/s)	Heat Exchange Efficiency (%)	Energy Savings Trust Best Practice Compliance
Kitchen + 1 Wet Room	100 % Variable	0.53	93	YES
Kitchen + 2 Wet Room	100 % Variable	0.57	91	YES
Kitchen + 3 Wet Room	100 % Variable	0.67	90	YES
Kitchen + 4 Wet Room	100 % Variable	0.82	89	YES
Kitchen + 5 Wet Room	100 % Variable	0.97	88	YES
Kitchen + 6 Wet Room	100 % Variable	1.16	87	NO

SAP Q Link: http://www.sap-appendixq.org.uk/documents/Brookvent_Aircycle_1.2_MVHR_BP-.pdf



3.4 Airflow: Pressure/ Performance Curve



3.5 Acoustic Information

		Airflow (l/s)	Pressure (Pa)	Lf (MAX)						Overall	Overall	Casing Breakout dBA @ 3M	
				125	250	500	1000	2000	4000	8000	Lw		Lwa
Speed 1	Open Supply Duct	16	6	32.3	32.7	36	37.8	28.5	21.9	19.2	37	31	10
	Open Extract Duct	17	2	30	26.9	30.7	33.2	25.4	19.2	18.1	34	28	
	Breakout	19	4	27.4	26	32.6	30.5	29.6	22.1	19.6	34	28	
Speed 2	Open Supply Duct	28	12	28.2	39.2	52.5	50.1	42.4	33.9	24.7	49	44	19
	Open Extract Duct	29	10	31.7	29.7	47.3	40	33.3	28	22.2	41	34	
	Breakout	31	9	30.8	33.6	46.4	46.8	34	27.4	21.4	43	37	
Speed 3	Open Supply Duct	38	18	33.8	40.8	56.7	55.8	51.7	42.6	30.3	56	46	24
	Open Extract Duct	42	25	37.8	34.3	50.6	49.1	34.9	34.2	24.8	48	41	
	Breakout	42	16	28.7	33.3	50.3	46.2	40.4	33.8	25.4	48	41	
Speed 4	Open Supply Duct	49	31	48.3	44.8	61.3	64.5	56.9	50.3	39.9	64	55	32
	Open Extract Duct	53	43	45.9	36.2	52.4	59.9	36.5	40.1	26.2	54	50	
	Breakout	54	30	49.1	35.3	54.1	56.2	47	40.6	35.1	56	50	
Speed 5 (max)	Open Supply Duct	66	40	43.6	47.6	60.4	66.2	63.4	54.2	45.7	64	58	33
	Open Extract Duct	60	55	42	40.5	56.1	58.8	43.2	41.7	39.2	60	51	
	Breakout	66	40	36.9	35.7	57.4	60.5	52.9	45.4	40.4	60	51	

Test Location: Acoustic Laboratory, Brook House, Dunmurry, BT17 9HU

Equipment: Bruel & Kjaer 2260 Observer, Airflow Anemometer, Airflow Pressure Gauge



4.0 Installation

It is important that the full installation of this system is carried out by competent persons, including all electrical works and connections being completed by a qualified electrician.

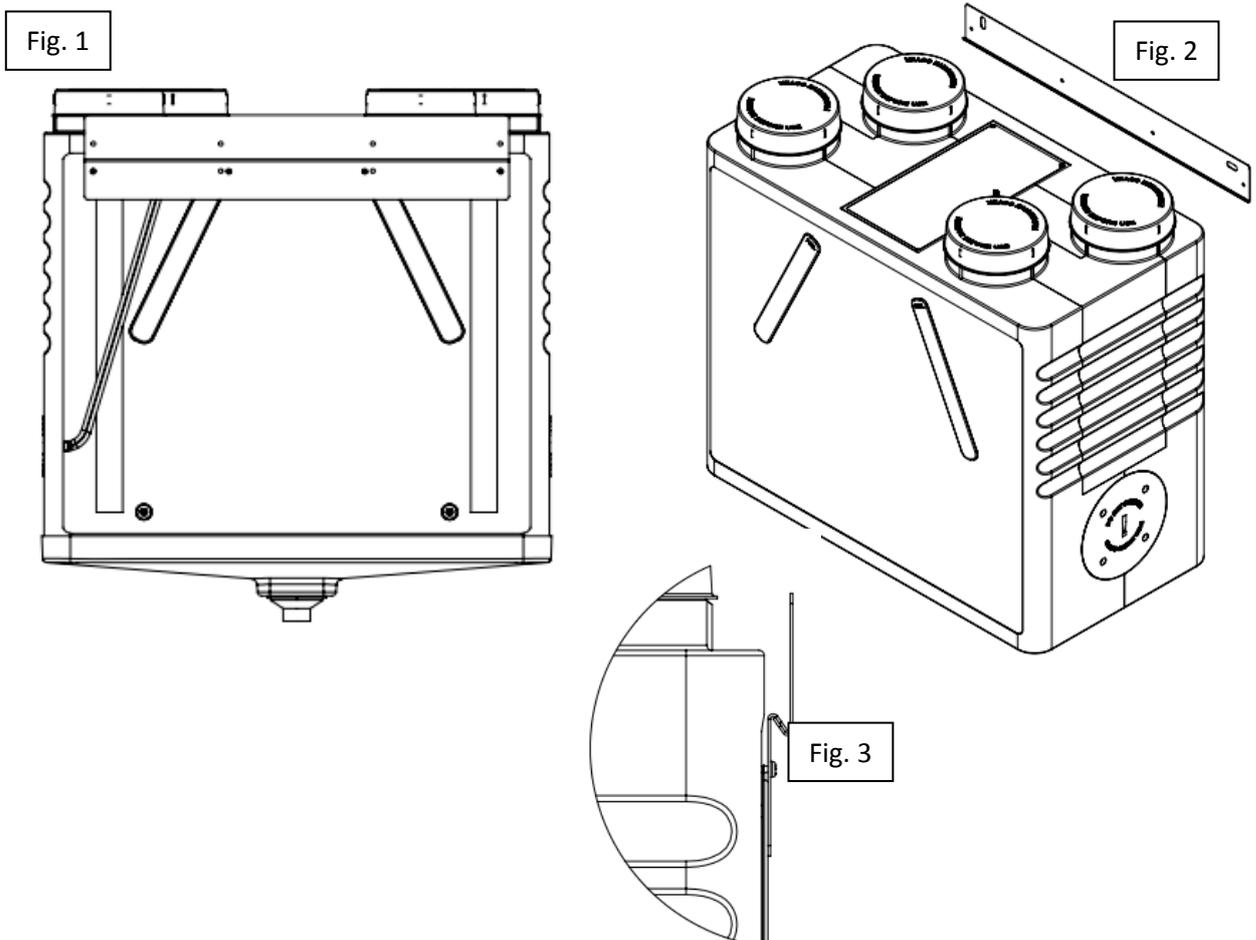
The MVHR unit is designed to be installed indoors, within an attic, storage cupboard, or void space, away from exposure to frost, water, or intense heat. The system should be installed in a ventilated space.

A clear access space is required around the unit; this will ensure ease of installation relating to ductwork, wiring, and the connection of the condensate drain. It is important that filters to the system can also be accessed for replacement.

4.1 Mounting

The aircycle 1.2 models, **AS 90-0102-WIN-01** and **AS 90-0102-WINS-0**, are designed for Wall Mounting only. The unit should be attached to the wall as shown using the wall bracket provided, please ensure the mounting surface can safely bear the load of the unit using suitable screw fixings.

One bracket should be secured to the back of the unit as shown in **Fig. 1**, the second bracket should be secured to the mounting surface as shown in **Fig. 2**. Please ensure the brackets are level. The unit can then be set onto the mounting surface with the lip of each bracket intersecting as shown in **Fig. 3**





4.2 Ductwork and Connections

To comply with SAP Appendix Q, and to facilitate the air flow performance, all ducting used should be rigid. If flexible ducting is required, it should be kept to an absolute minimum of 300mm and kept taut as per the Domestic Compliance Guide (Part F: Eng and Wales 2010)

The spigots on the Brookvent aircycle 1.2 systems are suitable for connection to 125mm diameter round pipe.

The label on top of the unit clearly identifies which spigot should be connected to which ducting route with the dwelling. This is also shown clearly within this manual.

For maximum efficient performance, it is recommended that 125mm diameter round pipe is used (where possible) to connect to the spigots and continue throughout the dwelling, this will assist in keeping pressure losses to a minimum. A minimum straight vertical run of 300mm should also be used directly off each spigot (where possible).

Where it is not possible to continue throughout the dwelling in rigid 125mm diameter round pipe due to the void spaces available, a conversion to rigid 204mm x 60mm flat rectangular ducting is recommended. It is recommended that the number of bends in the ducting system is kept to a minimum.

Each of the external roof terminals / wall terminals must be the equivalent to the open area of 125mm diameter round pipe.

To facilitate air circulation within the dwelling there must be a minimum of 10mm undercut on each of the doors (to the finished floor) within the dwelling (or grills placed at low level on the doors).

Extract air valves should be placed in all wet rooms (kitchen, utility, en-suite, etc.) and should be sited, where possible, close to the main source of humidity/ pollutant.

Fresh supply air valves should be placed in all habitable rooms (bedroom, sitting room, dining room, etc.).

Air valves should be locked upon commissioning so that they are tamper proof.

Duct designs/ layouts should always be adhered to if provided.

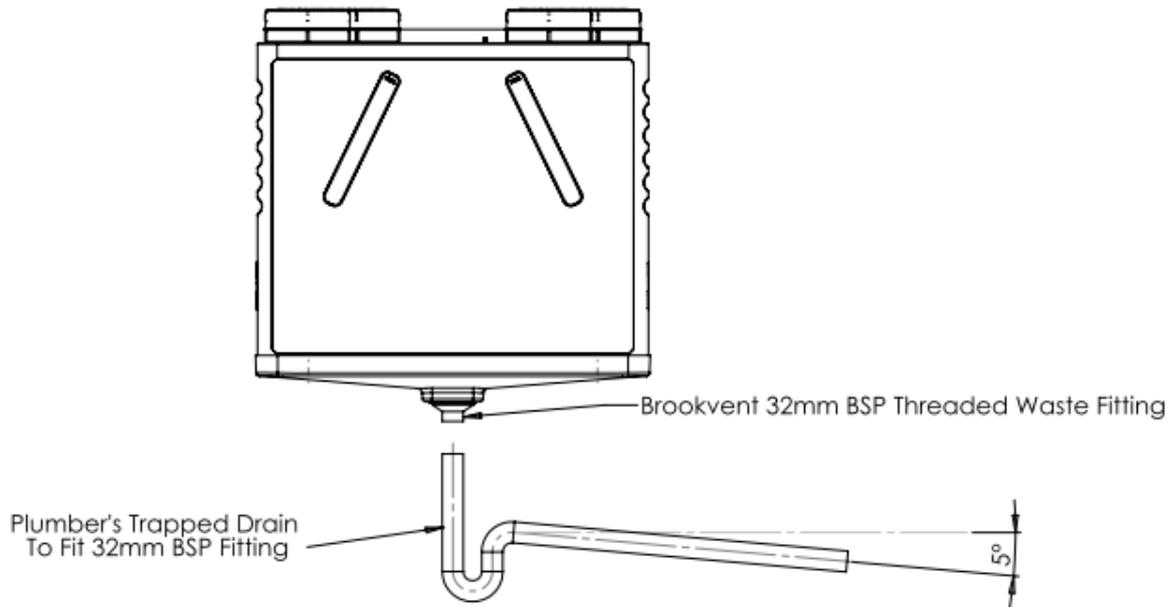
Important: The Domestic Compliance Guide: Eng and Wales 2010 or relevant equivalent dependent upon local guidelines, should be adhered to in terms of installation practices.



4.3 Connection of Condensate Drain

HRV systems generate considerable amounts of moisture due to their high Heat Recovery Efficiency; this moisture must be drained from the system.

The aircycle 1.2 is supplied complete with a centralised drainage connection on the bottom of the unit.



The condensate drain should incorporate a “P Trap” or equivalent, as shown, before being discharged into the waste drainage system of the dwelling. The “P Trap” should be filled creating an immediate seal upon installation.

It is imperative that there is a gravitational fall from the unit to the discharge point ensuring that the water drains from the unit. A minimum fall of 5 Degrees should be ensured throughout as shown. Drainage piping/ connections should be insulated if located in cold roof spaces.



5.0 Electrical Connections/ Wiring

Important: All the electrical connections must be carried out by a qualified electrician. Installations and wiring must conform to current IEE regulations (UK), local or appropriate regulations (applying to other countries).

Electrical Details:



Voltage: 230 V AC ~

Fuse rating: 5 A

Warning: This unit must be earthed.

Please Note: The core cable from the mains power supply must be connected to a fixed wiring installation, via a 5 amp fused isolator, as to comply with current IEE wiring regulations.

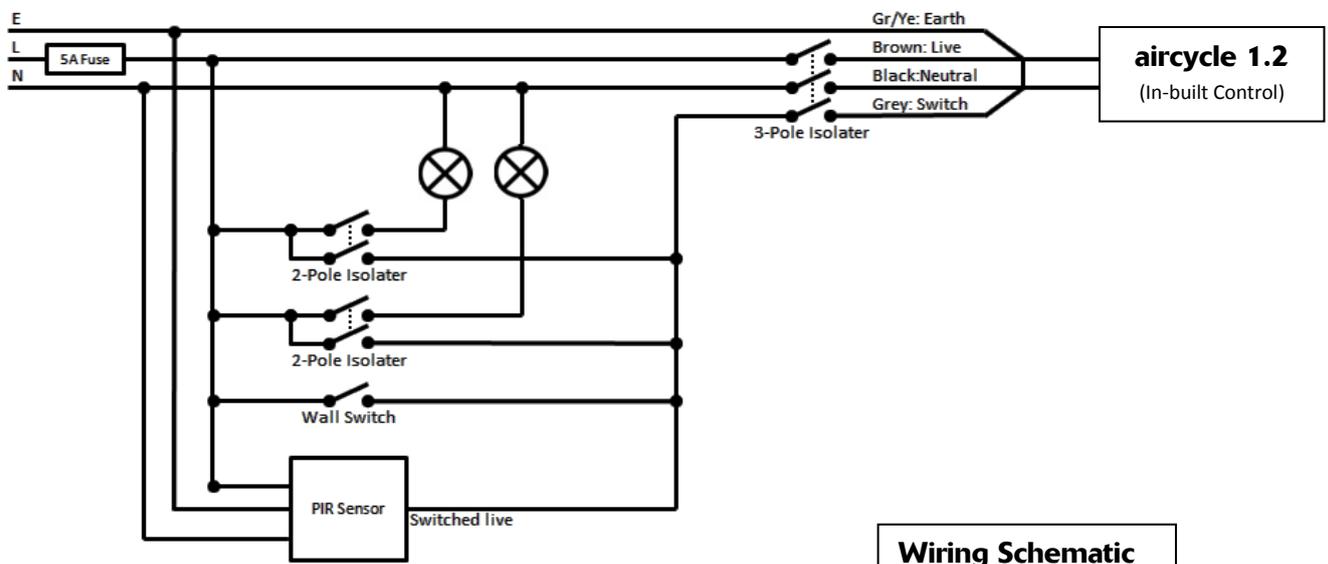
A switch or circuit breaker must be used in the power supply circuit. It should be in close proximity to the HRV unit and should be clearly marked as the disconnecting device for the HRV Unit.

Connecting to Mains:

The aircycle 1.2 unit comes pre-wired with 1m length of 4-core cable, which should be connected into a fan-isolation switch. In turn a 3-core mains cable should be used to connect to a 5A fused spur, which should be located close to the unit.

Green/Yellow	= Earth
Brown	= Live
Black	= Neutral
Grey	= Switch

The grey switch wire is used to boost the system. When a live 240v signal is applied, the Auto Boost function will be triggered.





6.0 Controls and Settings

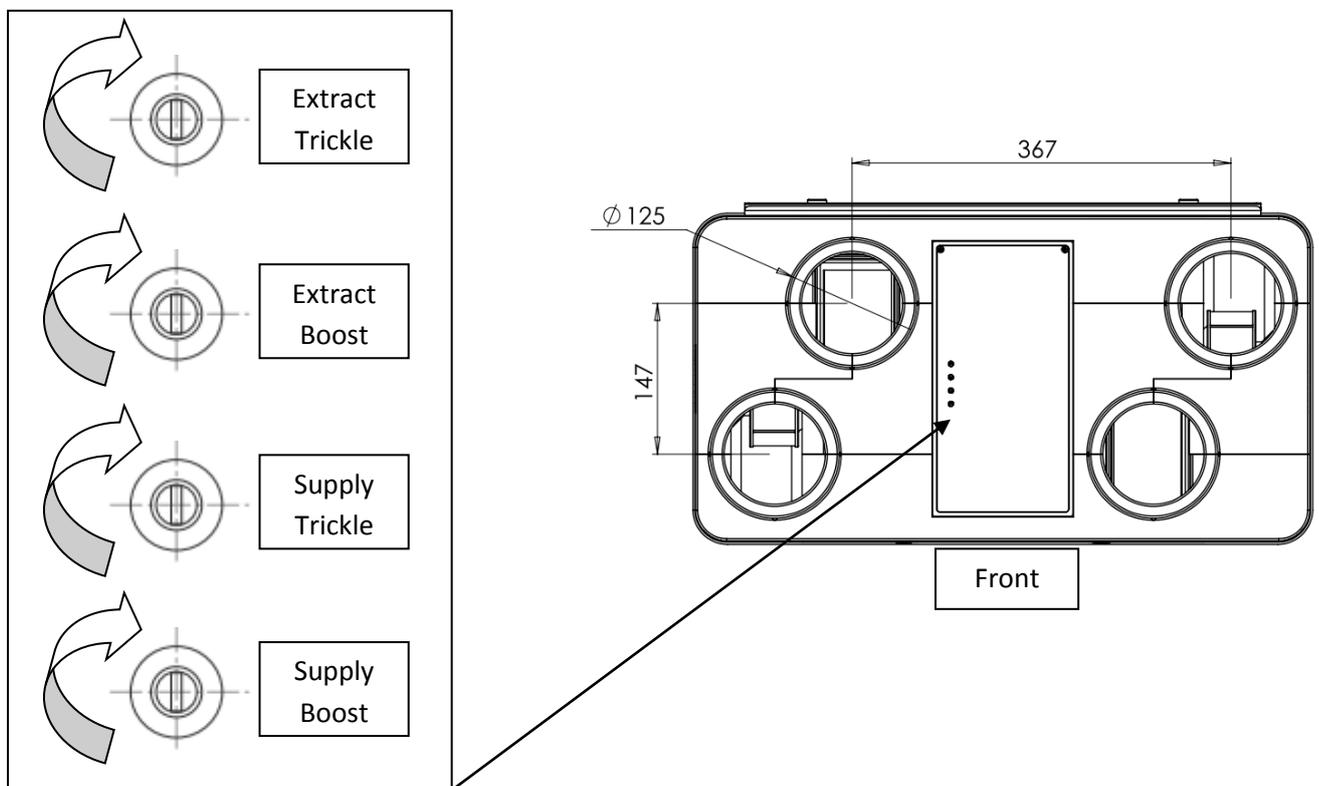
6.1 Fan Speed Control

The fan speeds of the unit are controlled by four potentiometers (Speed Pots) on top of the unit; these are clearly marked “Trickle” and “Boost”. These allow individual control of the trickle and boost rates for the supply and extract fans within the unit.

These separate speed options allow one speed to be set for normal day to day operation (I.e. Trickle) and an increased speed to be set (I.e. Boost) that operates only when the Grey switch wire is triggered by a 240v boost signal such as a Wall Switch or Passive Infrared Sensor.

If the Boost for either fan is required to be set, it should always be set higher than the Trickle.

Tuning these Speed Pots clockwise increases the fan speed.



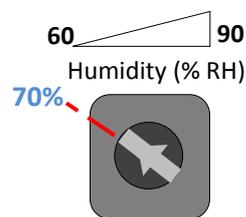


6.2 Humidity Control

Warning: Dangerous Voltage. Before accessing humidity controls isolate the unit from the mains and ensure all supply circuits are disconnected.

Removing the cover of the control box allows access to the humidity control potentiometer which is clearly labelled; this potentiometer is connected to a humidity sensor in the unit. This control can be adjusted by hand and can be set between 60%-90% Relative Humidity, causing the unit to boost when it senses the set humidity level.

The factory setting for humidity is 70% RH. Turning this Speed Pot clockwise increases the humidity level at which the unit will boost.

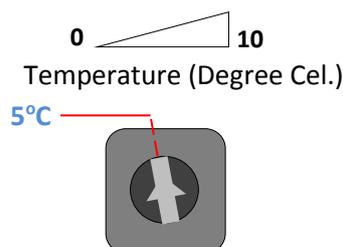


6.3 Frost Protection

Warning: Dangerous Voltage. Before accessing temperature controls isolate the unit from the mains and ensure all supply circuits are disconnected.

Removing the lid of the control box allows access to the temperature control potentiometer which is clearly labelled; this potentiometer is connected to a temperature sensor in the unit. This control can be adjusted by hand and can be set between 0°C - 10°C, causing the supply fan to turn off for 5 minutes every hour when it senses temperatures below the set level allowing the warm extract air from the home to pass through the core unaccompanied by the cold fresh in-take air. This action succeeds in regularly raising the overall temperature within the Heat Recovery System preventing the potential formation of ice particles which could potentially cause damage.

The factory setting for temperature is 5°C. Turning this Speed Pot clockwise increases the temperature level at which the frost protection system will activate.





6.4 Tempering Summer Bypass

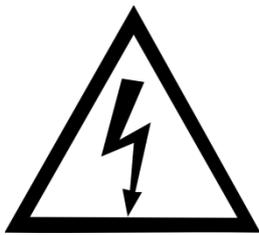
Feature available on selected models only:

AS 90-0102-WINS-01, AS 90-0102-WLS-01, AS 90-0102-CINS-01, AS 90-0102-CLS-01

The Tempering Summer Bypass feature, unique to Brookvent aircycle systems, functions via thermostatically responsive solenoid which operates on a linear scale between 20 Degrees Celsius (No Summer Bypass) and 27 Degrees Celsius (Full Summer Bypass); gradually increasing the amount of air directed around the Heat Recovery Core as the temperature of the extract air from the home rises thus comfortably regulating the indoor air temperature during warmer months.

This feature is factory set, automatic, and requires no maintenance.

7.0 Maintenance



Warning: Dangerous Voltage. Before completing any form of maintenance, ensure to isolate the unit from the mains and ensure all supply circuits are disconnected.

This HRV unit may contain connections/signal wires from multiple electrical circuits. **ISOLATING THE CONTROL BOX WILL NOT ISOLATE ALL CIRCUITS WITHIN THE UNIT- PLEASE ENSURE ISOLATION OF ALL CONNECTING CIRCUITS BEFORE ACCESSING THE UNIT.** Examples of other connecting circuits are: electric showers, lighting circuits, and humidistats. These connecting circuits may be used to trigger the auto-boost the system.

It is important to follow all guidelines relating to the maintenance of this HRV system to ensure the unit continues to perform to the levels required.



7.1 Filter Replacement

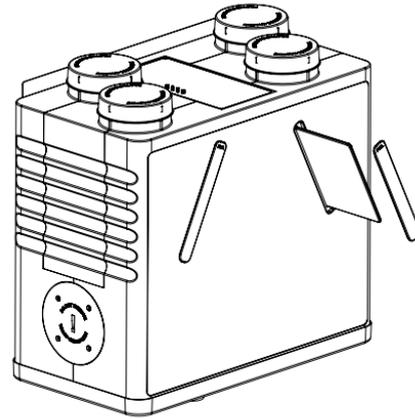
The filters of this HRV unit will usually need to be changed every 6 – 12 months depending on occupancy/ use, and the type of environment the dwelling is located in (i.e. urban/ rural, and their associated levels of airborne pollutants).

It is recommended that the filters are checked every 6 months. Replacement filters can be purchased by contacting the Brookvent Head Office.

To change the filters, simply remove the filter covers from the front of the unit, replace the filters, and replace the filter covers firmly.

Important: Blocked filters will shorten the life span of your fan and increase the energy consumption. Never run the HRV system without filters as this will allow unfiltered material to build up in the heat recovery core and connected ductwork.

In new build properties it may be prudent to check/ change your filters after the first 3 months of occupancy depending on the amount of residual 'building dust' present within the property



7.2 Additional Maintenance Checks

It is recommended that the following checks are also made when completing annual maintenance of the HRV unit:

- ◆ **Condensate Drain:** Ensure the condensation drain is firmly secured and is clear of any debris, remove/ clean if necessary.
- ◆ **Fixings:** Ensure that all of the unit fixings and the mounting fixings have not become loose over time and are kept sufficiently tight.



8.0 Commissioning

Commissioning is carried out to ensure that the required air flows are achieved throughout the property. The volume airflow at each point should be measured using a suitably calibrated Airflow Meter (anemometer), this should be fitted with an adapter/ hood to ensure all air is captured and measured by the device.

For the required airflow rates refer to the design specification for the property and or refer to Building Regulations (Part F: Means of Ventilation, Eng and Wales) or relevant equivalent dependent upon local guidelines.

If further guidance is required on the commissioning process please contact BROOKVENT directly.

9.0 User Operation

The Brookvent aircycle 1.2 is an extremely compact and highly efficient Mechanical Heat Recovery Ventilation (HRV/MHRV) system, specifically designed for smaller dwellings and apartments with restricted space.

The system should be run continuously 24 hours a day, and should only be disconnected by a competent person during service or maintenance.

The system works by drawing stale air from 'wet rooms' such as Bathrooms, WC's and Kitchens, recovering up to **93%** of the heat from this air using a highly efficient heat exchanger, before expelling the waste air outside the home. Simultaneously, fresh air is drawn into the home, filtered and warmed by the recovered heat and supplied into the 'habitable rooms' such as bedrooms, dining rooms and living rooms.

How your system is configured upon installation will influence how it can be operated at the user level. Please ensure to refer to the commissioning certificate provided by your installer for full details.

General Guidance

Your system may be set up to boost from trickle speed automatically via sensors (e.g. Passive Infrared Sensors) or manually via simple switch controls. These may be timed switches or push/pull switches. Boost options, if provided and if required, should be used when excess pollutants are being generated within the home (Cooking, Bathing etc.)

With certain dwellings the system may be configured to operate at what is known as a "constant ventilation rate". This means that there is no boost required to adequately ventilate the home and the system operates at one set level at all times requiring no user input/control.



9.1 Typical Automatic Control Options

Your system commissioning certificate completed by your system installer should detail your automatic control options (if any).

Passive Infra-red Sensors (PIR)

These are motion sensing switches; these sensors trigger the system into boost mode when activity/motion is detected in a particular room. They are typically put into sanitary accommodation or bathrooms.

Humidistat

These sensors detect humidity in the air and trigger the system into boost mode when humidity reaches a certain level. These are typically placed in bathrooms or in kitchens. Please note that the aircycle 1.2 system has an In-built humidistat that operates in the same fashion.

Light switch

The lighting circuit of the home can be used to boost the system meaning that when the occupier enters the room and turns the on the light, the system is triggered into boost mode. This is typically used in sanitary accommodation and bathrooms.

The items detailed above are examples of the types of Automatic Control Options that are typically used in conjunction with the Brookvent aircycle 1.2

9.2 Typical Manual Control Options

Your system commissioning certificate completed by your system installer should detail your manual control options (if any).

Spring loaded switch

This switch may be placed in any room within the house, however it is typically used in sanitary accommodation, bathrooms and or kitchens. When pressed, it will trigger the system into boost mode for a defined time.

Trickle and Boost switch

This is a simple on-off switch with no determined time delay. When the switch is flicked to boost the system goes into its boost state, the switch then must be put back to trickle by the occupier for standard operation. (Please note that the aircycle 1.2 system has a minimum boost overrun time of 15mins).

*The items detailed above are examples of the types of Manual Control Options that are typically used in conjunction with the Brookvent aircycle 1.2 *



10.0 Customer Support

At Brookvent we pride ourselves on providing Gold Standard after sales and support to all customers. Please feel free to contact one of our specialist team about any query you may have and we will be more than happy to assist you.

It is important to retain this manual and make a copy available to any person using or working with (maintaining) the system.

Brookvent operate a policy of continuous innovation and improvement and thus reserve the right to alter product specifications and appearances without notice.



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