



Sustainability through Technology

COMPLETION PACK

Mechanical Ventilation with Heat Recovery

Ref: 3002-0075

Flat 3
128D Milton Road
Gravesend
Kent
DA12 2PG

Contents:

End-User Guide
Commissioning Certificate
As-Built Drawings
MVHR Unit User Manual



15 The Glenmore Centre
Honeywood Parkway
Whitfield, Dover
CT16 3FH
01304-809880

info@thebuiltenvironment.co.uk
www.thebuiltenvironment.co.uk

Flat 3, 128D Milton Road

Your property has been installed with Mechanical Ventilation with Heat Recovery (MVHR); this is the most efficient and effective type of ventilation recommended by Building Regulations, where it is referred to as System 4.

How does MVHR work?

Fresh air is continuously drawn in from outside and filtered, before being ducted to your habitable rooms via ceiling diffusers; simultaneously, stale air is continuously extracted from your Kitchen, Utility & other "wet" areas and expelled to outside. The heat contained in the outgoing stale air, however, is transferred to the incoming fresh air – this is the Heat Recovery process and it is 90% efficient on average. During warmer months, when cooling becomes more important, your Heat Recovery Units can switch to Summer Mode – this will admit cooler, external air when your selected comfort temperature is exceeded, but only if external temperatures are lower.

Which Company has manufactured my MVHR Unit/s?

Your Heat Recovery Unit/s has/have been manufactured in the UK by Vent-Axia Ltd.

Where do I find my MVHR Unit/s?

Unit 1 location: Kitchen Cooker Hood

How do I operate my Heat Recovery Unit/s?

MVHR is designed to operate continuously in the background, with very little manual input from you and the normal airflow rate has been programmed in accordance with the requirements of Building Regulations. When moisture levels rise, airflow will be increased by an integral humidity sensor and manual boost control is also available.

Your MVHR Unit/s is/are fitted with a digital programmer, the functions of which are fully explained in the Operation & Maintenance Manual supplied; please let us know if you require any further assistance.

Maintenance:

Your MVHR Units are fitted with a pair of filters and it is essential that they are kept clean; please ensure that you vacuum your filters **every three months.**

Your filters must be replaced every **12 months.** If you wish to receive a filter replacement reminder, please e-mail your request to the address shown below, quoting your Project Reference Number.

Which spares will I require?

442356 Kinetic V, B, BH Spare Filters 2-pack

444199 Optional F5 Pollen Filter - V, B, BH

A full spares list is available if required.

An Annual Service is also available; please call our office 01304-809880 to request a quote.

Part 1 - System details and declarations

1.1 Installation Address Details			
Property name/number	Flat 3		
Address	128D Milton Road		
	Gravesend		
	Kent		
Post Code	DA12 2PG		
1.2 Installation Details			
System Classification	System 4 MVHR		
Manufacturer and Model	Location	Controller type	Location
Vent-Axia Sentinel Kinetic CR 447083	Kitchen	Integral	Integral
1.3 Installation Engineer's Details			
Engineer's Name			
Company			
Address Line 1			
Address Line 2			
Address Line 3			
Post Code			
1.4 Test Engineer Details (if different to 1.3)			
Engineer's Name	Sam Johnson		
Company	Built Environment Technology Ltd		
Address Line 1	15 The Glenmore Centre		
Address Line 2	Honeywood Parkway		
Address Line 3	Whitfield, Dover		
Post Code	CT16 3FH		
Telephone Number	01304 809880		

**Note. If a system has been installed that is not defined by Systems 1 to 4 in*

Approved Document F, further installation checks and commissioning procedures may be required. Seek particular guidance from the manufacturer for these systems

Part 2a - Installation details

2.1 Installation Checklist – General (all Systems)

Has the system been installed in accordance with manufacturer's requirements?	Yes	
Have relevant system installation clauses been followed as detailed in Tables 1, 3, 5, and 7 as applicable?	Yes	
Has the system been installed in accordance with the agreed design?	Yes	
Type of ductwork installed (e.g. rigid, semi-rigid radial)	Rigid	
If any deviation from Tables 1, 3, 5 and 7, these should be detailed here.		
Description of installed controls (e.g. timer, central control, humidistat, PIR, etc.)	Integral humidity sensor.	
Location of manual/override controls	Integral	

2.2 Installation Engineer's Declaration

Engineer's Signature	
Registration Number (if applicable)	
Date of Installation (completion)	

Part 2b – Inspection of installation

This section should be completed prior to completing Part 3.

2.3a Visual Inspections – General (all Systems)

Have the correct number and location of extract fans/ terminals been installed that satisfy Table 5.2a in ADF?	Yes	
Is the installation complete with no obvious defects present?	Yes	
Do all internal doors have sufficient undercut to allow air transfer between rooms (i.e. 10 mm over and above final floor finish)?	Yes	
Has all protection/packaging been removed (including background ventilators) such that system is fully functional?	Yes	
For ducted systems, has the ductwork installation been installed in such manner that air resistance and leakage is kept to a minimum?	Yes	
Are the correct number and size of background ventilators provided that satisfy ADF?	n/a	
Has the entire system been installed such that there is sufficient access for routine maintenance and repair/replacement of components?	Yes	

2.3b Visual Inspections – General (Systems 3 and 4 only)		
Have appropriate air terminal devices been installed to allow system balance?	Yes	
Has the heat recovery unit (System 4 only) and all ductwork been effectively insulated where installed in unheated spaces?	Yes	
Condensate connection is complete and drains to an appropriate location (System 4 only)?	Yes	
2.3c Other Inspections – General (Systems 1, 3 and 4 only)		
Upon initial start up, was any abnormal sound or vibration experienced, or unusual smells detected?		No
2.3d Inspector's Declaration		
Name	Sam Johnson	
Signature	<i>Sam Johnson</i>	
Registration Number	21/DV-2/288/1341	
Date of Inspection	Tuesday 2nd August 2022	

Part 3 - Air flow measurement test and commissioning details

3.1 Test Equipment

Schedule of air flow measurement equipment used, (model and serial)		Date of last UKAS calibration
1	TESTO Digital Vane Anemometer BET3	11th June 2021
2	Model 417	
3	Serial No. 61290956	

3.3 Air Flow Measurements (Extract) – Systems 3 and 4 only

Room reference (location of terminals)	Design Air Flow Low Rate (l/s) Refer to Table 5.1a in ADF	Measured Air Flow Low Rate (l/s)	Design Air Flow High Rate (l/s) Refer to Table 5.1a in ADF	Measured Air Flow High Rate (l/s)
Kitchen	13.0	13.5	16.0	16.3
Bathroom	8.0	8.4	10.0	10.1
Totals:	21.0	21.9	26.0	26.4

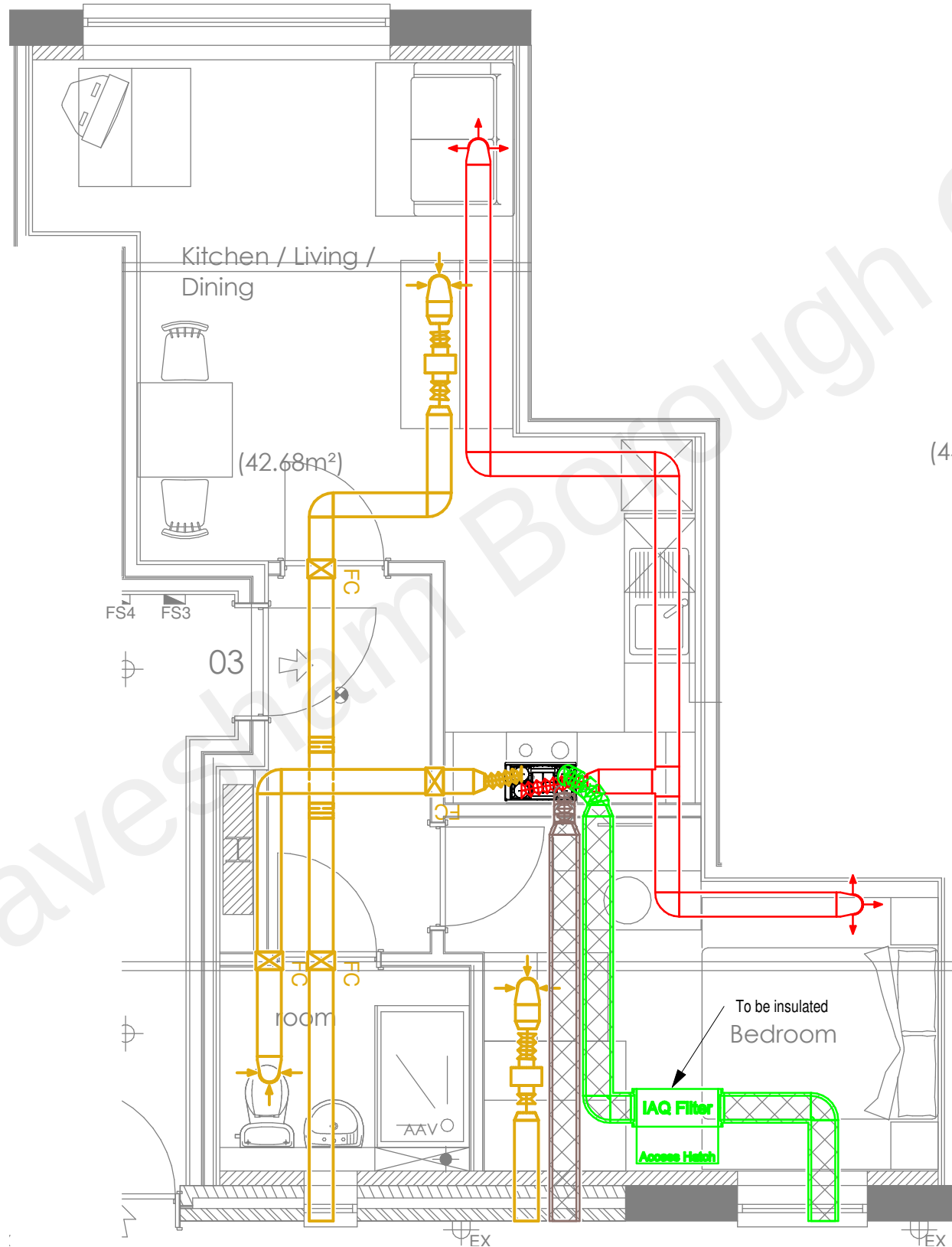
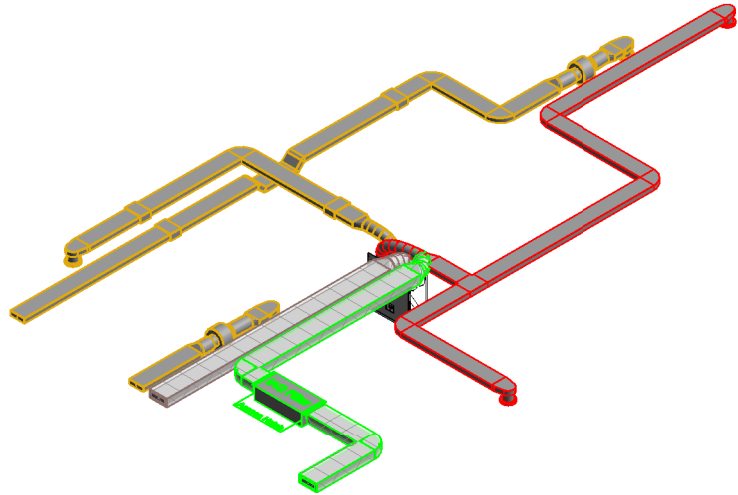
3.4 Air Flow Measurements (Supply) – System 4 only

Room reference (location of terminals)	Design Air Flow Low Rate (l/s) Refer to Table 5.1b in ADF	Measured Air Flow Low Rate (l/s)	Design Air Flow High Rate (l/s) Refer to Table 5.1b in ADF	Measured Air Flow High Rate (l/s)
Living Area	15.0	15.2	19.0	19.1
Bedroom 1	10.0	10.1	12.0	12.3
Totals:	25.0	25.3	31.0	31.4

3.5 Commissioning - System 3 and 4 only		
Have controls been set-up in accordance with the manufacturer's recommendations?	Yes	
Have all distribution grilles been locked to prevent unauthorised adjustment?	Yes	
3.6 Test Engineer's Declaration		
Engineer's Signature	Sam Johnson	
Registration Number	21/DV-2/288/1341	
Date of Test	Tuesday 2nd August 2022	

Summary:	
Unit Serial Number:	07 22 0457
Airflow summary:	%
Supply Normal:	46
Supply Boost:	58
Extract Normal:	31
Extract Boost:	40
Summer Bypass:	
Indoor temp (°C):	21°
Outdoor temp (°C):	10°
On/Off/Auto:	On
Filters:	
Maintenance demo:	No
Service reminder:	
Consent given?	No Service interval - 12 Months

Comments & Observations:



COMMISSIONING TABLE (l/s)

EXTRACT	Purge	Boost	Trickle
Kitchen	N/A	13.0	8.0
Bathroom	N/A	8.0	5.0
	N/A	21.0	13.0
SUPPLY	Purge	Boost	Trickle
Living Area	39.2	13.9	8.6
Bedroom 1	28.8	10.2	6.3
	68.0	24.1	14.9

(Flow rates to Doc F Building Regs)

NOTES:

THIS SYSTEM PROPOSAL HAS BEEN DESIGNED TO COMPLY WITH THE CURRENT BUILDING REGULATIONS - MEANS OF VENTILATION.

THE SYSTEM MUST BE INSTALLED AND COMMISSIONED WITH GOOD INSTALLATION PRACTICE AND AS PER THE DESIGN SPECIFICATION.

VENT-AXIA CANNOT GUARANTEE SYSTEM COMPLIANCE IF ALTERNATIVE DESIGN IS USED OR INSTALLED BY OTHERS. THE COMMISSIONED SYSTEM MUST COMPLY WITH THE LATEST EDITION I.E. BS1671 WIRING REGULATIONS.

VENT-AXIA WILL NOT BE RESPONSIBLE FOR CONSEQUENCES OUTSIDE OUR CONTROL CAUSED BY THE SYSTEM INSTALLATIONS E.G. PROPERTY ACOUSTICS, STRUCTURAL INTEGRITY ETC.

THIS DESIGN PROPOSAL HAS BEEN PRODUCED IN GOOD FAITH BUT IS SUBJECT TO APPROVAL BY THE PROJECT CLIENT.

THE DESIGN IS SUBJECT TO COPYRIGHT AND MUST NOT BE ALTERED, AMENDED OR INCORPORATED IN ANYWAY WHATSOEVER, NOR SHALL IT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS PERMISSION OF VENT-AXIA.

UNIT IS TO RUN AT CONTINUOUS TRICKLE WITH BOOST BEING ACTIVATED VIA A TRICKLE / BOOST CONTROLLER AND LOCAL BOOST SWITCHES (EG LIGHTS) IN ALL WET ROOMS. IF SWITCHING VIA LIGHTS, DOUBLE POLE SWITCHED OR RELAYS (E.G. VA 442030) WILL BE REQUIRED. LOCAL SWITCHING NOT SPECIFICALLY REQUIRED FOR INTEGRAL HUMIDISTAT UNITS.

EXHAUST AND INTAKE DUCTING TO AND FROM ATMOSPHERE AND ALL DUCTING IN COLD ROOF SPACE TO BE DUCTED VIA FULLY INSULATED RIGID PLASTIC DUCTING TO EXTERNAL TERMINATIONS (INSTALLED BY OTHER).

ALL CENTRAL MVHR UNITS AND MEV UNITS IN COLD ROOF SPACES TO HAVE A CONDENSATE DRAIN TO RUN TO THE NEAREST INTERNAL WASTEWATER SYSTEM (BY OTHER).

THE DESIGN ASSUMES THAT THE CEILING VOID IS SUFFICIENT TO ACCOMMODATE THE DUCTING.

- KINETIC COOKER HOOD UNIT
- ACM 150 FAN UNIT
- 204x80 EXTRACT DUCT
- 204x80 SUPPLY DUCT
- 204x80 INSULATED EXHAUST DUCT
- 204x80 INSULATED INTAKE DUCT
- 125mmØ INSULATED INTAKE DUCT
- 204x100 ATTENUATOR WITH 204x80 CONNECTORS
- 204x80 PLENUM ELBOW WITH 125mmØ SPIGOT
- 125mmØ EXTRACT DIFFUSER WITHIN 204x80 PLENUM ELBOW
- 125mmØ SUPPLY DIFFUSER WITHIN 204x80 PLENUM ELBOW
- FC 204x80 FIRE COLLAR

F	20.08.18	DGT	Plot 1-6 IAQ Filters added. Commissioning Tables amended
D	31.01.18	DGT	Terminationds revised to back of apartments
C	05.10.17	DGT	Terminations revised
B	07.10.16	LC	Revised as per email, new floor plans.
A	19.08.15	AD	Revised as per meeting with Vent-Axia Weds 5th Aug'
Rev	Date	By	Description

Vent-Axia
New Build Residential

Fleming Way, Crawley West
Sussex
Tel. +44(0)1293 441520
Fax. +44 (0)1293 539209

Project
Milton Road
Drawing
Apartment 03

Date 07.10.16 Scale 1 : 50 @A3 Design LC

Drawing No. CAS_4824 _03	Rev F
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Product Description

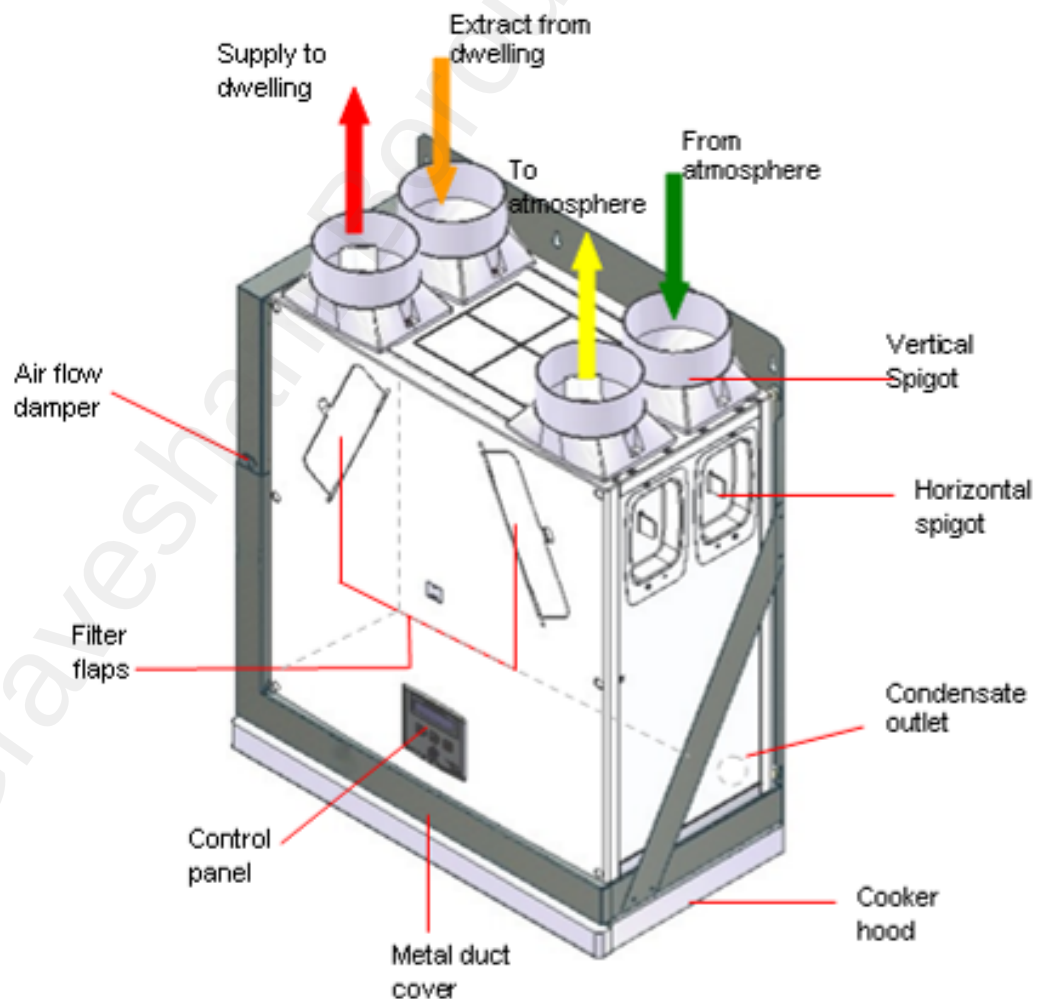
Sentinel Kinetic MVHR with Cooker Hood

The Vent-Axia **Sentinel Kinetic Mechanical Ventilation Heat Recovery (MVHR)** unit is a heat recovery unit with a Cooker Hood designed for the energy efficient ventilation of houses and similar dwellings, conforming to the latest requirements of the Building Regulations document F 2010.

In case of a fire or severe overheating on the hob, the unit is fitted with an intumescent fire damper to close the duct as required by BRE Digest 398 and a thermal fuse to switch off the electrical power.

The unit is designed to be mounted in the kitchen above a cooker hob in a standard cupboard space for continuous 24-hour exhaust ventilation of stale moist air from bathrooms, toilets and kitchens. The unit should be switched to boost mode by extending the cooker hood during cooking, or by use of any of the standard switches or sensors. As the stale air is extracted, a heat exchanger within the unit retains up to 90% of the heat and transfers it to the supply air entering the bedrooms and lounge.

Figure 1: Sentinel Kinetic with cooker hood (Right Hand version shown)



Models

- **441483, 441484, 441485, 441486 - Sentinel Kinetic with Cooker Hood** and with summer bypass. An internal damper is activated when the outside temperature is equal to, or greater than, the pre-set 'Comfort Temperature' (adjustable between 16 and 30°C). The damper opens allowing cooler fresh air to bypass the Heat Recovery Cell and reduce the internal temperature to the pre-set 'Comfort Temperature'. When the inside air temperature reaches the pre set 'Comfort Temperature' the bypass damper closes. (See page 10 within the Operation & Monitoring leaflet for further information). Note that when the cooker hood is extended the heat recovery cell bypass opens ensuring that grease and other contaminants from cooking do not reduce its efficiency during normal use.

Accessories

- **441838** - Plug-in integral humidity sensor.
- **441865** - Wireless enable kit (consists of wireless receiver and one wireless switch).
- **437827** - Additional wireless switch (up to four may be connected).
- **441780** - Vent-wise accessory pack.
- **443131** – Wired remote control.

A range of sensors can be used to manage system demand and control the ventilation rate. These include an internal humidity sensor, humidity sensors for independent mounting in rooms, wireless receiver and wireless boost switches, CO₂ sensor, manual switches and pull cords. For these alternative control options, see www.vent-axia.com

User Information

Operation of Cooker Hood

The unit is operated in boost mode when the telescopic hood is pulled out. Close it to return the unit to its Normal Flow Rate.

Important Note:

Do not hold on to or place any object on telescopic hood whilst is open, since this can cause damage to its functioning component parts

Operation of Cooker Hood Light

Access can be gained to the light switch when the telescopic hood is opened. The light may be left on with the hood closed if required. However, make sure you switch it off when you have finished using it.

Cleaning Instruction

Refer to page 15 of this document.

Technical Specification

Sentinel Kinetic with Cooker Hood Technical Specification

Performance	
Airflow	Refer to Sentinel Kinetic Installation & Commissioning Document page 5 Flow for cooker hood adjustable using the integral damper.
Sound levels (@ 3 m)	20 dB(A) (normal), 36 dB(A) (boost). Detailed sound spectra available from Vent-Axia.
Power	
AC Voltage Input	220-240 V AC (single phase)
AC Frequency Input	50 Hz nominal
Supply Fuse	3 A (located in fused spur)
Product Fuse	2 A (located on main PCB)
Rated Power	Total 176 W (max.) including (2x28W cooker hood low energy bulbs)
Physical	
Weight	28 kg
Spigot diameter	125 mm
Condensate pipe diameter	22 mm
Environmental	
IP Rating	IP22
Operating Temperature	-10°C to +45°C
Air Intake Temperature	As above
Operating Humidity	0% to 95% RH
Storage Temperature	-10°C to +45°C
Storage Humidity	0% to 95% RH

For all other technical details, please see the Product Catalogue or our website at www.vent-axia.com

Technical Specification

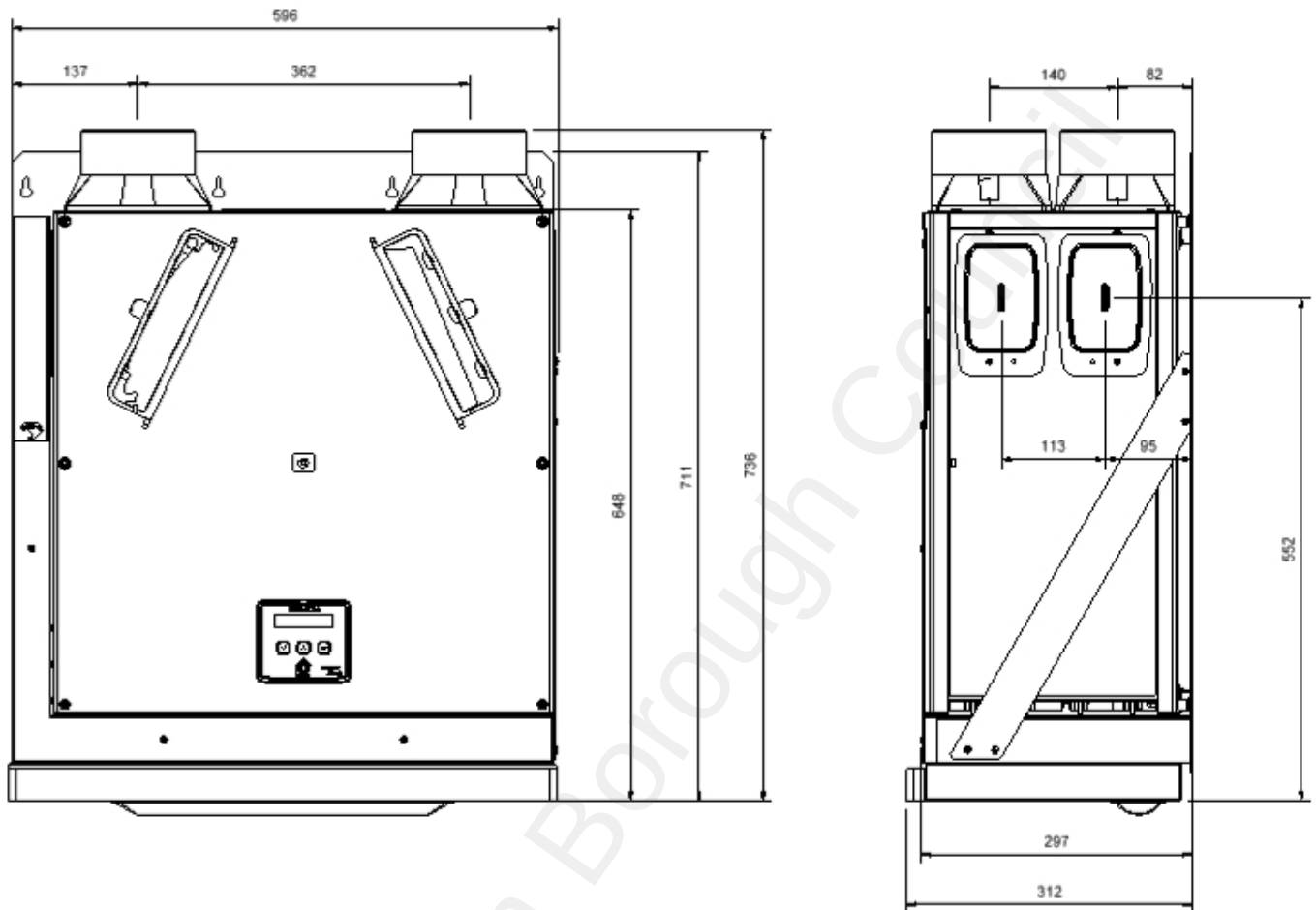


Figure 2: Sentinel Kinetic with Cooker Hood Dimensions

Maintenance

Caring for the Unit

Heat recovery units, by their very nature, require regular maintenance. The Sentinel Kinetic has been designed to facilitate access to enable maintenance to be carried out easily.



WARNING

THE FAN AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING MAINTENANCE.

Cooker Hood Cleaning Interval

For MVHR unit maintenance, refer to Sentinel Kinetic Installation & Commissioning and Operation & Monitoring documents.

Item	Action
Cooker Hood Filters	Clean Filters every six months or more frequently if the style of cooking requires it. For instruction how to remove filters see below.
Cooker Hood Adaptor	Switch off the unit at the wall isolator before cleaning any component. Remove cover and wipe the interior clean every six months or more frequently if the style of cooking requires it. After cleaning ensure that the cover is replaced correctly and screws tightened. Do not use water or spray cleaning agents for cleaning the space, however a damp or dry cloth may be used.

Removing Filters.

- Rear Filter – To remove the rear filter grip and pull inwards the grey levers at either side and slide the filter forwards and downwards.
- Front Filter – To remove the front filter grip and pull inwards the grey levers at either side and drop the filters downwards.
- The filters can be washed in a dishwasher or soapy water. Thoroughly dry the filters and reassemble in reverse order.



Spares

The following spares may be ordered from Vent-Axia:

Table 1: Spares

Part No	Description
441768	Main Power Board
441767	Control Panel
441774	Filters, 2-pack (bypass version 438222)
441764	Heat Recovery Cell (bypass version 438222)
441759	Supply Motor
441760	Exhaust Motor
441776	Summer Bypass
456510	Thermal Cut-out Fuse
441542	Low Energy Bulb
372777	Light Cover
372743	Cooker hood filters (set of two)

Troubleshooting

See the Sentinel Kinetic installation & commissioning documentation.

Appendix A: Options and Accessories

Humidistats

An optional internal humidistat is available as an accessory. (Part Number 441838). This adjusts the fan speed proportionally depending on the temperature and relative humidity levels in the extracted air whilst avoiding nuisance tripping at night time when temperatures drop and relative humidity naturally rises. The unit does not just look for relative humidity levels above a set point, which can be unreliable in products that extract from multiple rooms, but it also looks for a rapid increase in relative humidity typically generated by such activities as showering or cooking.

For further details on options and accessories, refer to Sentinel Kinetic installation & commissioning documentation.