INSTRUCTION MANUAL

AIRFLOW

Adroit®
DV51 DV51CH

Instruction Manual

NOTE
You can sign into your Adroit account at: www.airflowadroitcontrol.com

DIFFERENCES BETWEEN THE UNITS

- Size
- DV51CH is equipped with a cooker hood.
- DV51 is not equipped with a cooker hood but an Adroit cooker hood can be added later on.
- Weight

NOTE
For further information, go to www.airflow.com

GENERAL SAFETY INSTRUCTIONS

For safe and proper handling, it is necessary to know the basic safety regulations and the intended usage of the ventilation system. Read this manual before operating the ventilation unit. Keep this manual for later use. In case of loss, you can download the manual from our website.

This user manual contains all important tips for operating the system safely. This user manual must be observed by all persons, who operate and maintain the ventilation system.

Furthermore, observe all local accident prevention regulations.

Installation

Installation and setup should be carried out only by competent person. Electrical installations and connections must be carried out only by an approved electrician and in compliance with local regulations.

WARNING
The unit is not intended for use by children under 8 or by persons with reduced sensory, physical or mental capabilities, or whose lack of knowledge and experience do not ensure safe operation of the unit.

Such persons can use the unit under supervision or by following the instructions of someone who is responsible for their safety.

Children must be supervised and not be allowed to play with the device.

Installation options

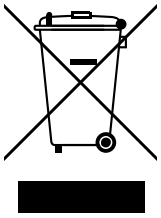
There are two unit models available, left- (L) and right-handed (R). The right-handed version, outdoor air blows into the unit from the right. In the left-handed version, outdoor air blows into the unit from the left side. The location of the filters, bypass damper, and brine heat exchanger (not supplied as standard) is also mirrored in the left-handed model.

INTENDED USE

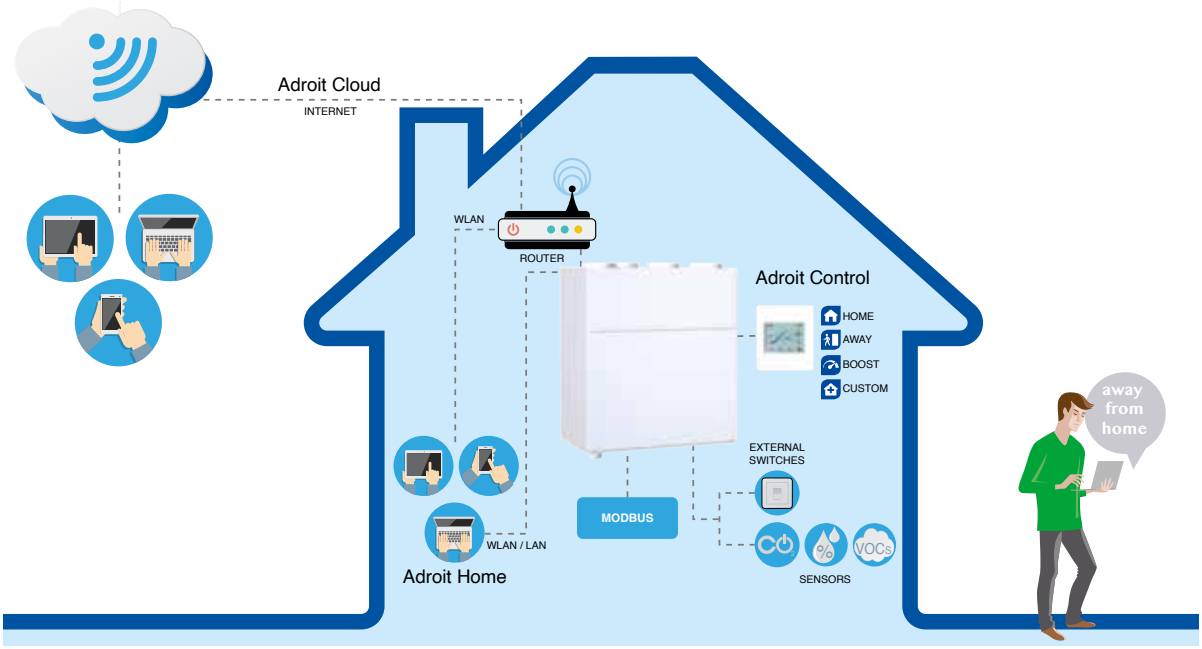
All Adroit units have been designed to provide appropriate and continuous ventilation, in such a way that people and structures will remain healthy.

DISPOSAL OF THE VENTILATION UNIT

Do not dispose of electronic devices with household waste. Follow local laws and regulations on safe and ecological disposal of the product.



SYSTEM DESCRIPTION



CONNECTING WITH ADROIT HOME

1. **Connect Adroit unit to the mains.**
2. **Connect one end of the network cable (RJ-45) to computer and the other end to network connector on the Adroit unit.**
3. **Select on your computer: Start ⟶ Computer ⟶ Network**
4. **Double click on the Airflow icon.**
5. **Now you are connected to the Adroit Home service, you are able to control the Adroit unit.**

NOTE

The Adroit unit can also be connected by network cable to a router. In this case the Adroit unit can be controlled via your laptop, tablet, smartphone etc using a network created by the router.

REGISTERING TO THE ADROIT CLOUD

1. Connect with Adroit Home (instruction above).
2. Select Settings.
3. Press connect button in Adroit Cloud Service section.
4. Registration Page is now opened.
5. Enter the following information
   a. Device name- enter the desired name for the device
   b. User name
   c. E-mail address
   d. Password
6. Press the create account button.
7. An e-mail with your log-in details will be sent to the e-mail given during the registration process.
8. A verification e-mail will be sent to the e-mail address given during the registration process.
9. Click on the link given in this e-mail to verify your e-mail address.
10. You are now connected to the Adroit Cloud.

NOTE

Following requirements:
Firefox, version 31 or higher
Opera, version 25 or higher
Chrome, version 31 or higher
Safari, version 7 or higher
The lastest browser versions on mobile devices.

VENTILATION UNIT CONTROL

Ventilation unit control options.

Ventilation has to be constant for the indoor air to stay healthy for the dwellers and the structures of the dwelling. Even for longer holidays, it is not advisable to stop the ventilation because the indoor air will become stuffy and during the heating season, the indoor air humidity may condense in the ventilation ductwork and structures, causing moisture damage.

Adroit controller

You can control and automate the ventilation unit operation in the following ways:

- By using an Adroit controller installed in the building
- Through the Adroit Home local network connection and the Web interface
- Through the Adroit Cloud Service and the Web interface
- Through a remote monitoring service or building automation by using voltage signals or Modbus messages
- By using the front panel of the cooker hood; this control option applies only to the DV51CH.

Changing the ventilation mode

Adroit DV51

The Adroit DV51 ventilation unit is controlled by using the Adroit controller. Press the left button of the controller (See icons below) repeatedly until the desired status is shown as the middle option on the display.

At home
Use this mode when the dwelling is occupied.

Away
Use this ventilation mode when the apartment is unoccupied, e.g. during a trip or other long absence.

Boost
Use this mode to increase the ventilation rate, e.g. when there are more people than usual in the dwelling and for rapid clearance of air-born contaminants.

Custom mode
Use this mode when starting a fire in the fireplace. The mode is primarily used to create a short period of overpressure in the dwelling, stopping spillage of smoke back into the property.

IMPORTANT
Apartment-specific ventilation units allows residents to adjust the ventilation efficiency. Ventilation is controlled based on the need e.g. through the cooker hood, ventilation controller, or a separate control centre. In order to ensure that the indoor air presents no harm to health and remains optimal also for the structures of the building, **ventilation must be kept on without disruptions.** It is recommended that ventilation is left turned on during long holidays also. This keeps the indoor air fresh and prevents humidity from condensing in the ventilation ducts and structures. It also reduces the risk of moisture damage.

Adroit DV51CH

The Adroit DV51CH ventilation unit is controlled by using the Adroit cooker hood that is connected to the unit. The cooker hood is designed to be used above the cooker top, as a general extraction valve in the kitchen and as a ventilation system controller.

The front panel of the cooker hood has four control buttons.

Position of the damper

The damper is opened by pressing the damper button (signal light turns on). The damper is closed (signal light turns off) by pressing the damper button or automatically after one hour (without a timer or adjustable from 45 to 120 min when programmed).

In normal circumstances, the damper must be closed (the signal light is off), which boosts the extract air flow from other premises.
The damper must be open (the signal light is turned on) **when the user wants to increase the extract air flow from the cooker hood e.g.**

- when the cooker top or the oven is used for cooking;
- the load in the kitchen is exceptional due to the use of strong detergents, presence of a large number of people or similar.

Cooker hood light
Turn the light on or off by pressing the light switch. The brightness of the light can be adjusted. See page 7.

Ventilation modes
Select the mode by pressing the fan speed button repeatedly until the signal light indicates the desired ventilation mode:

Away mode
Use this ventilation mode when the apartment is unoccupied, e.g. during a trip or other long absence.

At home mode
Use this mode when the dwelling is normally occupied.

Boost mode
Use this mode to enhance ventilation, e.g. when there are more people than usual in the apartment and for the rapid clearance of airborne contaminants

Selection button
The selection button is roughly 2 cm to the left from the light switch.

CAUTION
- Neglecting the cleaning of the grease filter can cause a fire hazard.
- The outer surfaces of the hood can become hot when the cooker or the oven is turned on.
- Flaming is forbidden underneath the cooker hood.
- Always follow the instructions provided on adjusting the efficiency of ventilation.
- A sufficient supply air flow must be ensured in the room if the cooker hood is to be used simultaneously with non-electronic devices.

Connecting the ventilation unit to the cloud service

The ventilation unit can be connected to the Cloud service. The cloud service allows for controlling ventilation remotely, using e.g. a smartphone or tablet. Also, the unit software is updated automatically through the cloud service. To connect to the cloud service, the ventilation unit must be connected to the Internet via LAN and registered with the cloud service. At the same time you create a MyAdroit Cloud account for yourself. Read more about the service at www.airflow.com.

NOTE
For the Adroit Cloud complete instructions, please go to www.airflow.com

Brightness of the cooker hood LED light

To adjust the brightness of the light:

1. Turn on the light, close the damper and set the ventilation to the Away mode.
2. Press the selection button for roughly 3 seconds until the setting mode signal light starts to flash.
3. Adjust the brightness of the light by pressing the light button until the brightness is adequate.
4. To save the setting, press the selection button for roughly 3 seconds until the setting mode light stops flashing.

To read about the other functions of the selection button, go to our website: www.airflow.com.

WARNING
- The outer surfaces of the hood can become hot when the cooker or the oven is turned on.
- Flaming is forbidden underneath the cooker hood.

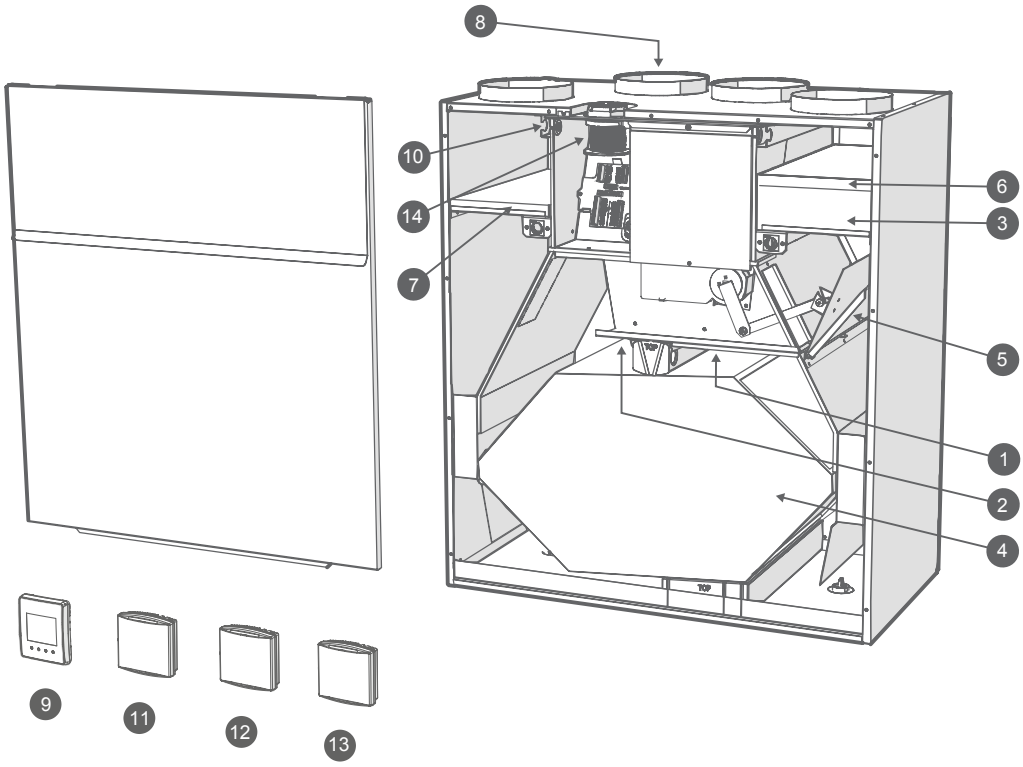
Guard function built-in safety

The cooker hood has a guard function that is activated when the temperature of the cooker hood exceeds +60 °C or after a sudden increase in temperature (> 8 °C/min). In such a case, all signal lights of the cooker hood and the LED light will flash, the fans of the ventilation unit will stop, and the damper of the cooker hood will close. If this kind of alarm is noticed before fire damage, it can be acknowledged by pressing any of the cooker hood buttons.

CAUTION
- Always follow the instructions provided on adjusting the efficiency of ventilation.
- Enable a sufficient supply air flow into the room if the cooker hood and non-electric devices are used simultaneously.

MAIN PARTS

Adroit DV51

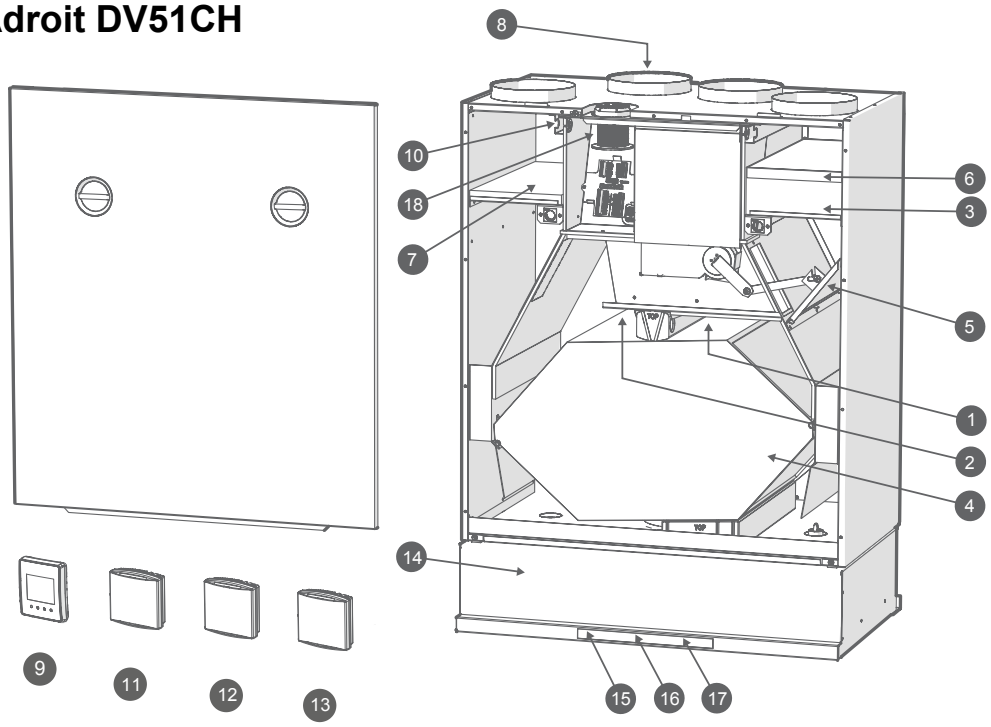


R model in the figure.
In the L model, the parts are mirrored.

- Extract air fan 1
- Supply air fan 2
- Fine filter for supply air 3
- Heat recovery cell 4
- Bypass damper 5
- Coarse filter for supply air 6
- Coarse filter for extract air 7
- Post-heating resistor 8
- Digital controller 9
- Internal humidity sensor 10
- Internal carbon dioxide sensor 10
- Humidity sensor (optional) 11
- Carbon dioxide sensor (optional) 12
- VOC sensor (Optional) 13
- Cable gland 14

MAIN PARTS

Adroit DV51CH



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- Extract air fan 1
- Supply air fan 2
- Fine filter for supply air 3
- Heat recovery cell 4
- Bypass damper 5
- Coarse filter for supply air 6
- Coarse filter for extract air 7
- Post-heating resistor 8
- Digital controller (Optional) 9
- Internal humidity sensor 10
- Internal carbon dioxide sensor 10
- Humidity sensor (optional) 11
- Carbon dioxide sensor (optional) 12
- VOC sensor (Optional) 13
- Cooker hood 14
- Damper button 15
- Fan speed adjustment 16
- Light switch 17
- Cable gland 18

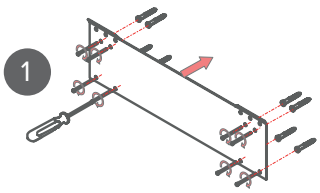
MOUNTING ON THE WALL

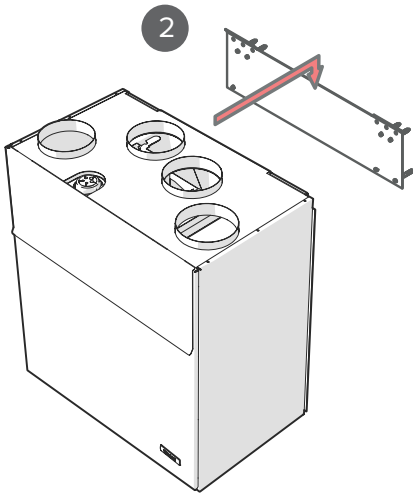
NOTE
Avoid mounting the unit on a hollow, echoing partition wall or on a bedroom wall, or prevent the conduction of sound.

Note that during mounting the unit rises 10 mm higher than the final height.

Mount the ventilation unit on the wall with a mounting bracket, as shown in the adjacent figure. Make sure that the unit is horizontally level after mounting.

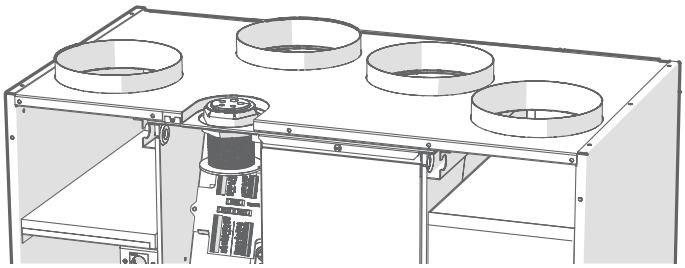
Adroit DV51CH must be mounted so that the clearance between the bottom of the cooker hood and the cooker top is at least 426 mm in case of an electric stove and 650 mm in case a gas stove. The clearance is 134 mm (i.e. the height of the cooker hood) more between the bottom of the ventilation unit and the cooker top.





EXTERNAL ELECTRICAL CONNECTIONS

External electrical connections are led to the ventilation unit through the ceiling bushing for electric connections. The length of the wires must enable pulling the fan chamber assembly out of the unit without having to disconnect any of the connections.

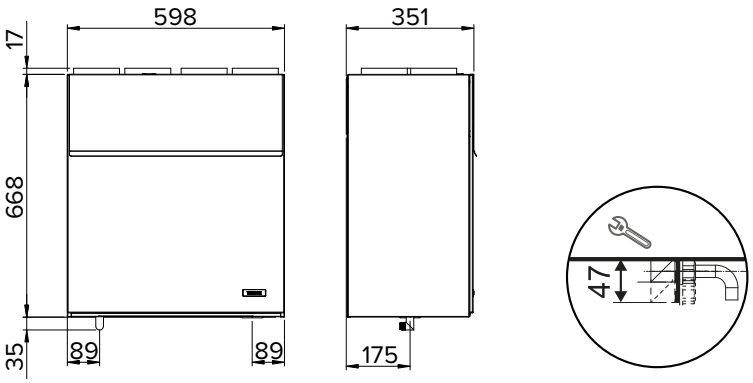


NOTE
A space of at least 330 mm must be reserved in front of the unit for maintenance purposes.

REMOVAL OF CONDENSING WATER

Adroit DV51

The Silent Klick siphon is installed in the bottom pool of Adroit DV51. The condensing water tube is led from the siphon e.g. to the siphon of the sink or to the floor drain. Alternatively, an elbow can be installed in the bottom pool, in which case the Silent Klick siphon is installed in the condensing water tube to enable maintenance measures.



NOTE
The Adroit Silent Klick siphon package is delivered with Adroit DV51CH and DV51. Installation instructions for the siphon are enclosed with the packaging, and can also be found online at www.airflow.com. When the alternative siphon installation method is used, the ring seal and the locking part must be moved to the pipe connection part that is mounted on the wall.

Adroit DV51CH

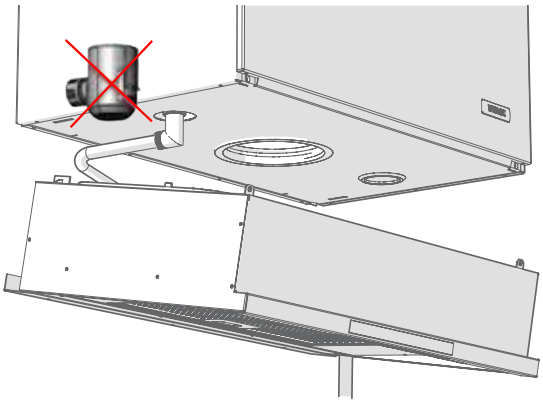
In Adroit DV51CH, an elbow is mounted on the bottom pool between the unit and the cooker hood. Condensing water tube is led from the elbow e.g. into the siphon of the sink or the floor drain. The siphon must not be installed inside the cooker hood. Instead, it must be installed in the condensing water tube so as to enable maintenance measures. There are approx. 2 mm wide holes at the rear of the bottom of the Adroit DV51CH ventilation unit marking the position where the condensing water tube must be installed.

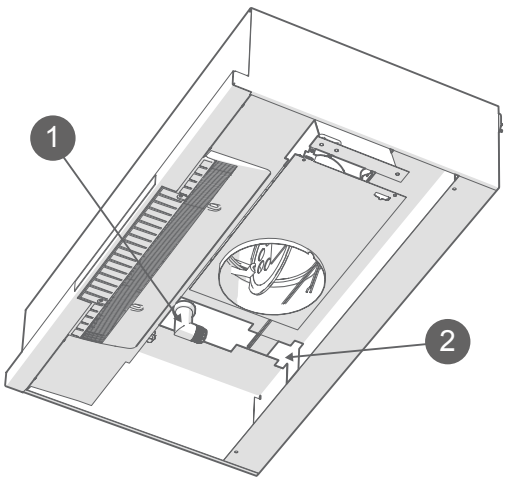
1. Install the elbow at the bottom of the ventilation unit without the siphon (Figure 1). Install the siphon in the condensing water tube before the drain or odour trap (Figure 2). The Silent Klick siphon helps prevent noise disturbance caused by the removal of condensing water.
2. The condensing water tube must be installed either directly backwards from the cooker hood through the wall, if there is a sewer connection behind the wall (see figure 2 for the dimensions of the tube location), or to the odour trap of the sink (Figure 2).
3. The condensing water pipe must be placed at an angle so that it always points downwards, enabling the condensation to drain away from the unit.

NOTE
The condensation drain on a right hand unit should be installed using the left hole located at the bottom of the unit. The heat exchanger would have an inclination towards the left as you look at the unit (front view).

For the left hand units, the condensation drain described above is mirrored.

1





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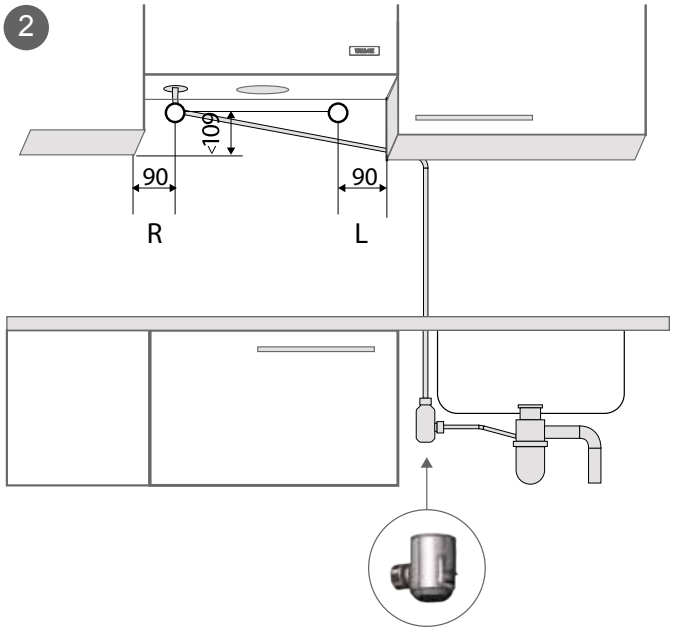


Observe in the figure:

1. Elbow.
2. Exit hole for the condensing water outlet.

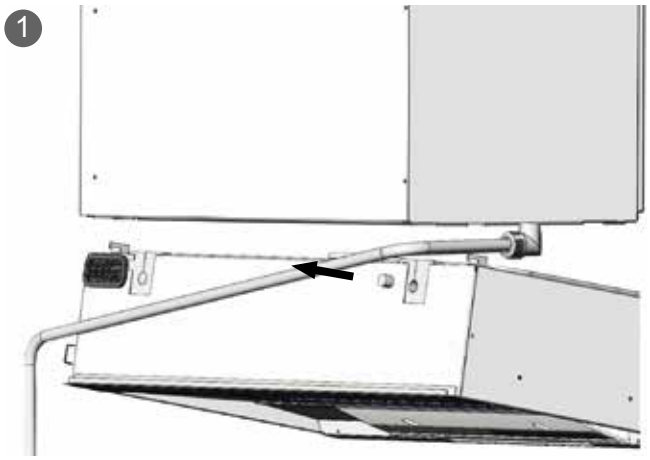
INSTALLATION OF THE COOKER HOOD

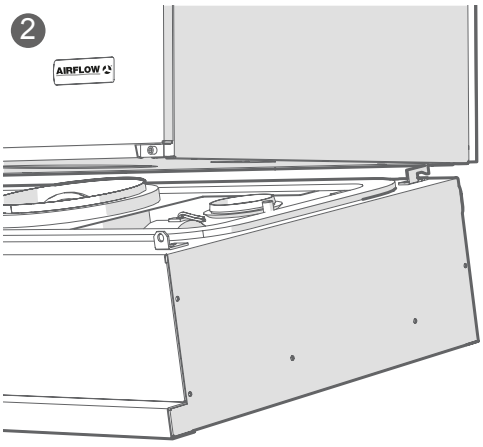
The cooker hood is installed on the bottom of Adroit DV51CH.

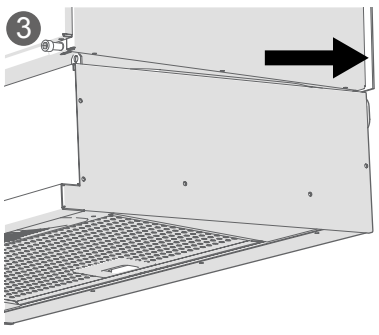
1. Remove the plug from the feedthrough seal of the condensing water tube of the cooker hood (Figure 1).
2. Lift the cooker hood and fit the hooks at the rear of the cooker hood into the holes at the bottom of the ventilation unit. Push in place (Figure 2).
3. Ensure that the feedthrough seal of the condensing water tube sits firmly around the tube.
4. Lift the front of the cooker hood to fit the mountings into the penetrations in the bottom of the ventilation unit (Figure 3).
5. Fasten the M5 hexagon screws (2) through the mountings (Figure 4).

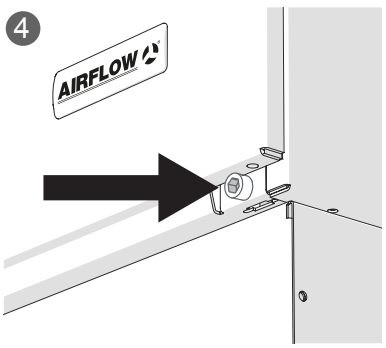
Lead the power cord and the control cable up along the cable channel (Figure 3). Wind approx. half a metre of the cables behind the cooker hood so that it can be removed for maintenance purposes where required. Move the metal cover backwards so that it covers the opening between the cooker hood and the wall (Figure 5).

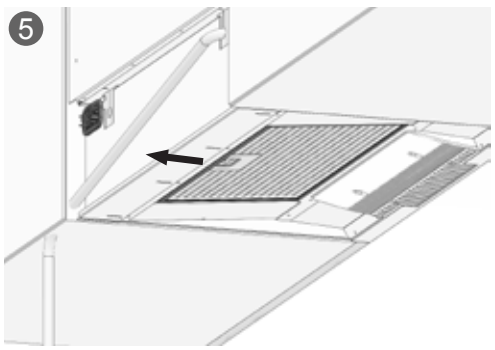
CAUTION
The minimum clearance between the bottom edge of the cooker hood and an electric stove is 426 mm.





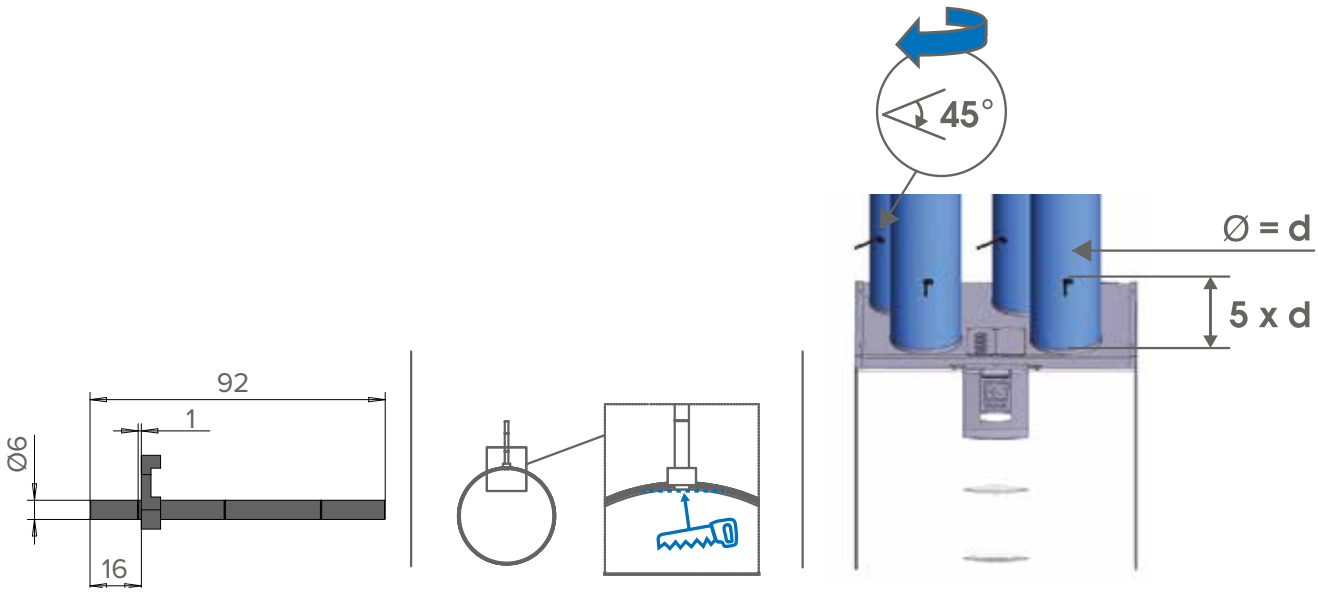






MEASURING AND ADJUSTING THE AIR FLOW RATES OF THE VENTILATION UNIT

The accessories delivered with the unit include four (4) air flow measuring tubes. These can be inserted in the ducts to allow for easier ventilation adjustment.

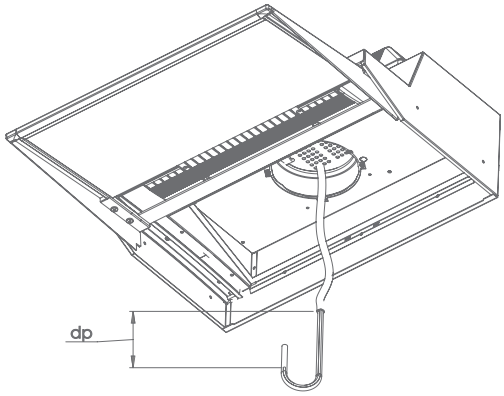


MEASURING AND ADJUSTING THE AIR FLOW RATES OF THE COOKER HOOD

Standard ventilation

The volume flow rate of the air inside the cooker hood is measured with the damper closed and, where required, adjusted based on the static pressure loss and the performance scheme of the cooker hood.

- The static pressure loss is measured from the hole in the damper using the measuring tube found in the accessory bag (see Figure).
- Determine the volume flow rate from the performance scheme based on the measured pressure and the number of open holes in the damper.



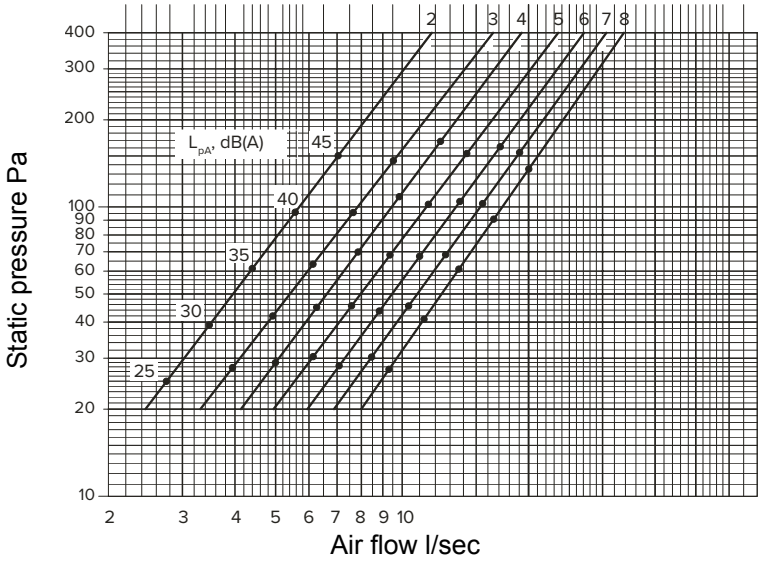
Adjustment:

- Cover the required number of holes in the damper with the magnetic strip that is delivered with the cooker hood.

Adroit DV51 DV51CH

DEFAULT VENTILATION SETTINGS OF THE COOKER HOOD	
Damper in the closed position	
Adjustment position	Holes of the damper open
2	2
3	3
4	4
5	5
6	6
7	7
8	8

Default ventilation settings (settings 2-8)

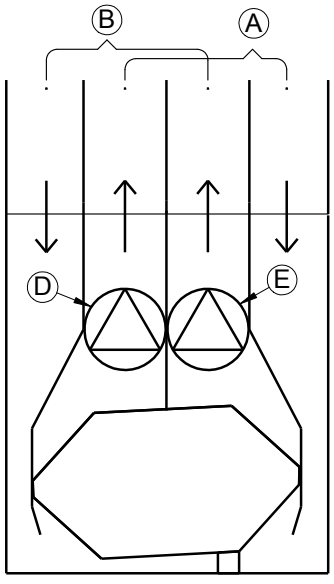


Air flow rates measurement points

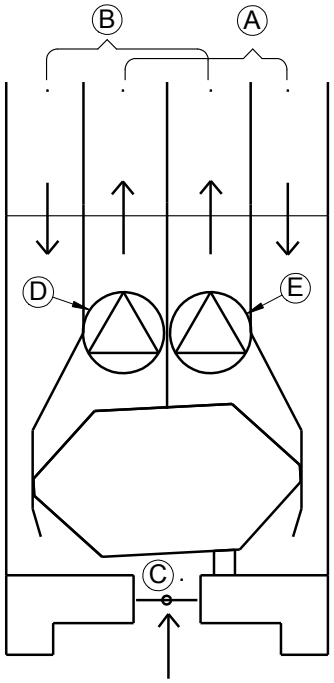
Air flow measuring tubes are placed in the ventilation ducts in accordance with the instructions. Standard air flow from the cooker hood is measured past the damper. The fan curves indicate the total pressure accounted for by duct losses.

A Supply air
B Extract air
C Cooker hood extract air
D Supply air fan
E Extract air fan

R model in the figures. In the L model, the order of the ducts is mirrored.



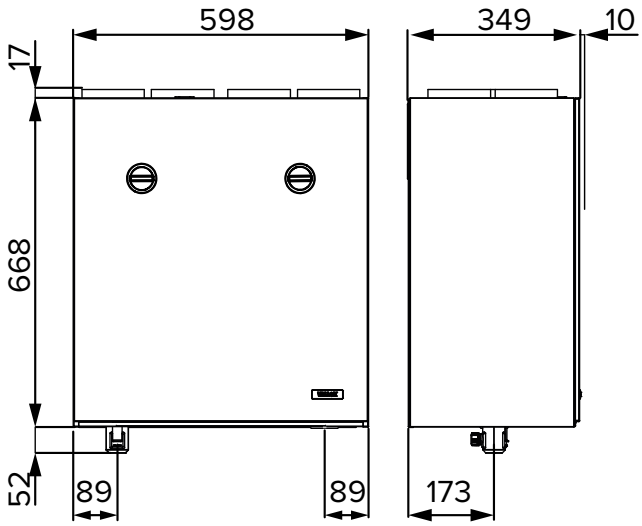
Adroit DV51



Adroit DV51CH

DIMENSIONS AND DUCT OUTLETS

Adroit DV51



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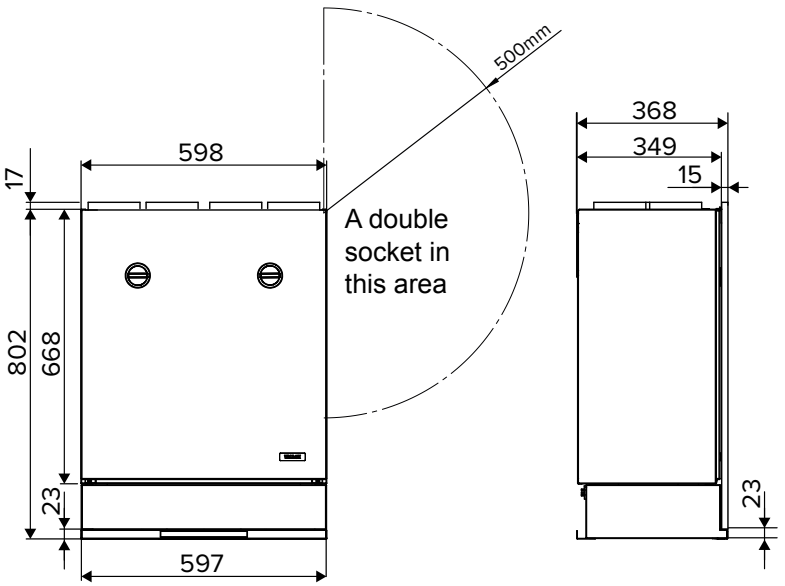
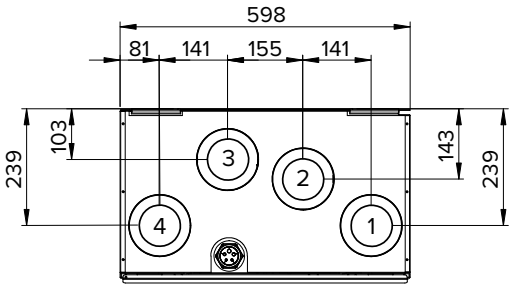


Dimensions

R model

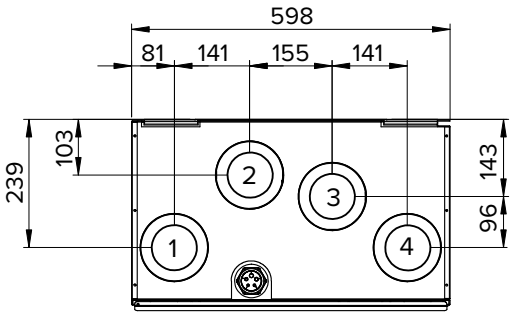


Duct outlets

Inner diameter of the
female collar: 125mm

1. Outdoor air to the unit
2. Exhaust air flowing outdoors from the unit
3. Supply air from the unit to the apartment
4. Extract air from the apartment to the unit

L model



BEFORE BEGINNING MAINTENANCE WORK

WARNING
Always disconnect the power before starting maintenance on the ventilation unit. The unit has no safety switch that would switch the power off when the door of the unit is opened.

NOTE
The service space in front of the ventilation unit must be at least 330 mm.

CHANGING THE FILTERS

The Adroit ventilation unit has three filters:

- Coarse filter for supply air filters insects, heavy pollen and other relatively large foreign objects out of the outdoor air.
- Fine filter for supply air filters microscopic pollen and dust particles out of the supply air.
- Coarse filter for extract air filters the extract air and keeps the heat recovery cell clean.

TIP
Using original Adroit filters ensures that the ventilation unit remains in top condition, giving the best results. To select and order filter packages, please go to: airflow.com

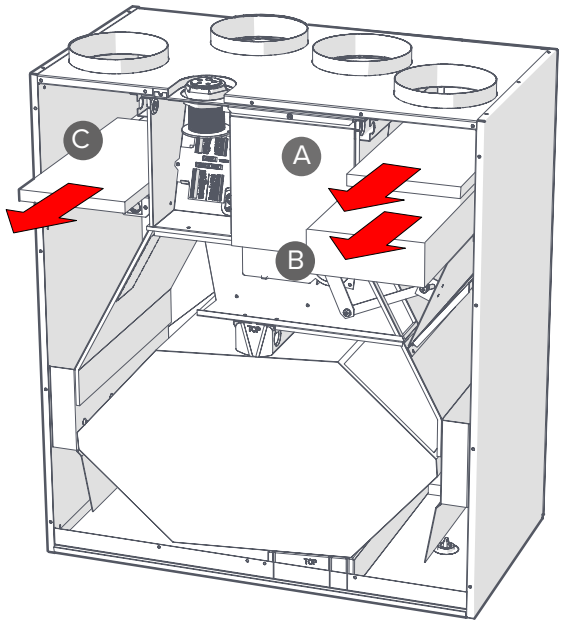
The filter replacement interval depends on the ambient particle concentration. It is recommended that the filters are replaced every spring and autumn or at the very least once a year.

To replace the filters:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Open the door of the unit.

CAUTION
The door is heavy.

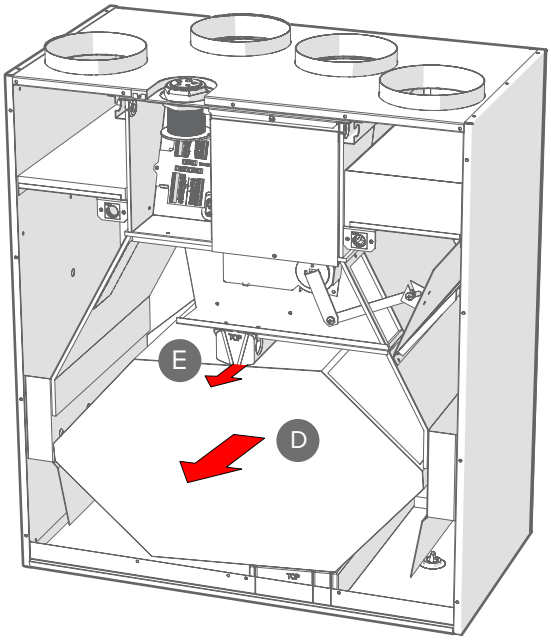
3. Remove the old filters (A, B, C) and discard them.
4. Install the new filters (A, B, C).
5. Close the door of the unit.
6. Connect the ventilation unit back to the mains.
7. The filters have now been successfully replaced.



CLEANING THE HEAT RECOVERY CELL

Check that the heat recovery cell is clean roughly once a year, or whenever the filters are being replaced. Clean by washing as required.

IMPORTANT
If the unit has an enthalpy cell, it must not be washed. Only aluminium or plastic cells can be washed.



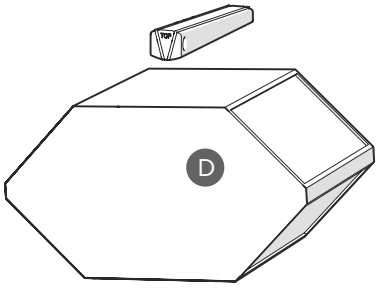
Cleaning the heat recovery cell:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Open the door of the ventilation unit by undoing the finger screws and by lifting the door off.

CAUTION
The door is heavy.

3. Pull out the black upper support of the cell (E) located above the heat recovery cell.
4. Lift and pull the heat recovery cell (D) out of the unit.

IMPORTANT
Handle the heat recovery cell carefully! Do not lift the heat recovery cell by the layers. The heat recovery cell layers are very thin and can be easily damaged.



5. If the heat recovery cell is dirty, clean it by immersing it in warm water, to which a small amount of a mild detergent has been added.
6. Rinse the heat recovery cell clean with a water spray. Do not use a high-pressure cleaner.
7. When all the water has drained from between the layers, reassemble the ventilation unit in the reverse order.
8. Close the door.
9. Connect the ventilation unit back to the mains. The heat recovery cell has now been cleaned.

CONDENSING WATER

In the heating season, the extract air humidity condenses into water. In new buildings, condensation discharge can form rapidly. Condensed water must be able to freely leave the unit.

At some time before the heating season begins (e.g. during autumn maintenance), check that the siphon or the condensing water outlet in the bottom pool are not clogged. To check this, pour some water into the pool. Clean as required.

NOTE
Some condensing water may have accumulated in the bottom pool of the unit; this is normal and requires no corrective action.

WARNING
Water must at all times be kept out of the electrical system.

CLEANING THE FANS

Check the cleanliness of the fans when servicing the filters and the heat recovery cell. Clean the fans as required.

Removing and cleaning the fans

To clean the fans:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Undo the door screws to open the door of the Adroit ventilation unit.
3. Lift the door off.

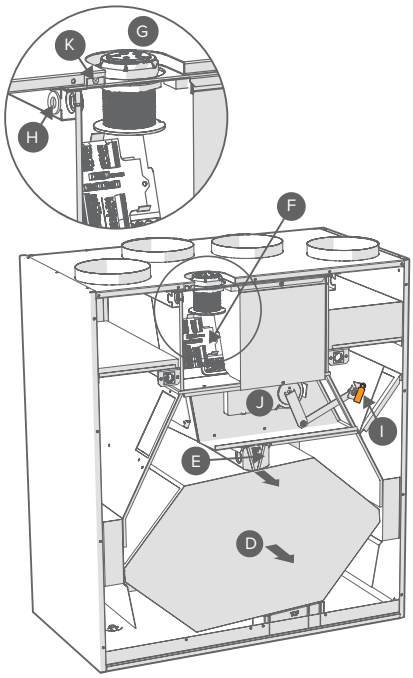
CAUTION
The door is heavy.

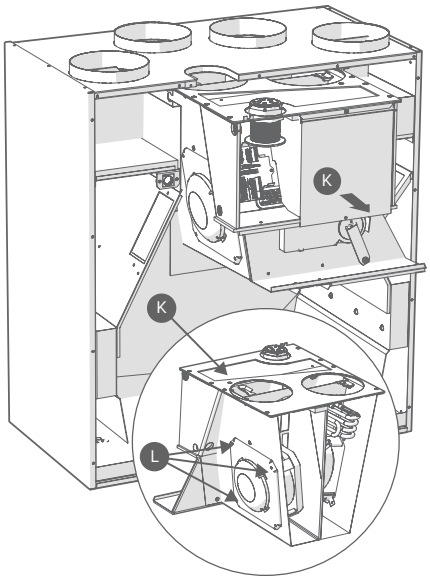
4. If the length of the cables that are led out of the unit through the ceiling bushing grommets (G) and connected to the connection card (F) in the electric box prevents moving the fan chamber sufficiently far from the ventilation unit, disconnect the cables. Pull these cables out of the unit through the ceiling bushing.
5. Detach outdoor and extract air temperature sensors from the ceiling mounts. Remove the round feedthrough rubbers (H) from the slots on the intermediate walls of the unit by pulling.
6. Undo the earthing screw (K) on the upper left corner of the electric box.
7. Release the damper motor (J) by placing an orange magnet (I) on the magnet icon on the damper motor. Observe the location of the magnet so that you will be able to return it to its original location after maintenance. Remove the bar from the joint of the damper. Turn the crank of the damper motor so that the bar comes off from the bypass damper and turn the damper into the heat recovery cell bypass position.
8. Pull out the upper support of the cell (E). Lift and pull the heat recovery cell (D) out of the unit.
9. Pull the fan chamber (K) out of the unit (contains the fans, electric box, and the bypass duct including the damper motor).
10. The fans are mounted on the fan chamber by means of three screws (L). Do not undo the earthing screw at the bottom edge on the rear wall side.
11. Disconnect the quick connectors of the fan cable.
12. Clean the fans. The fan can be cleaned with compressed air (wear protective goggles) or by brushing it gently.
13. To reassemble the ventilation unit, follow the above steps in reverse order.

    NOTE! Remember to reconnect the bar of the damper motor into the joint of the damper and to lock the connection with the orange magnet. Ensure that the sensors and their feedthrough rubbers are in correct locations. Also ensure that all the connections have been correctly implemented and the earthing screw is in place in the left corner.

IMPORTANT
The fans are extremely sensitive to external shocks. It is recommended that the fans be cleaned in place, i.e. without attempting to remove them. Handle the fan blades carefully.

It is recommended that the fans be cleaned by a professional.





CLEANING THE GREASE FILTER OF THE COOKER HOOD

WARNING
Neglecting the cleaning of the grease filter can cause a fire hazard.

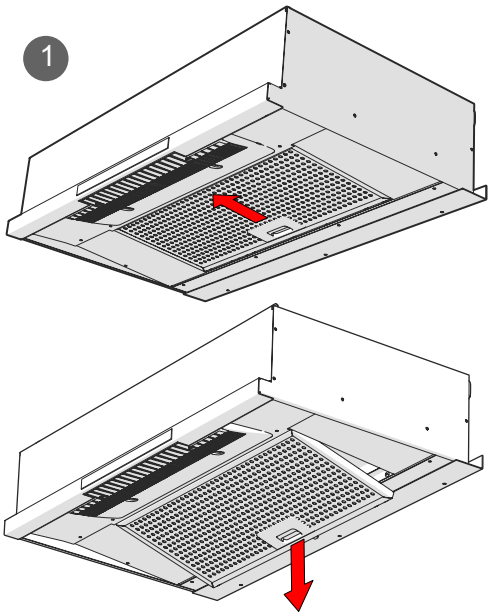
Keep the cooker hood clean. Wipe outer surfaces regularly with water containing a small amount of a mild detergent. Clean off any grease stains immediately. Do not use abrasive or corrosive detergents or tools.

Keep the grease filter clean to ensure an adequate extract air flow. The grease filter must be washed with warm water and detergent or in a dishwasher at least 1-2 times a month.

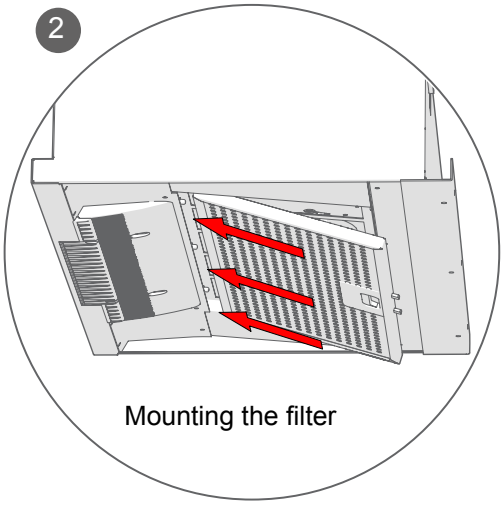
Removing and mounting the grease filter

1. Pull the locking device of the grease filter towards the front edge of the cooker hood while pulling the grease filter downwards until it comes off.
2. Clean the grease filter either by washing it with hot water and hand-washing detergent or in a dishwasher.
3. Mount the grease filter back in place. Push the front edge of the filter onto the shelf of the cooker hood and lift the rear edge in place with the locking device pressed down.

NOTE! Ensure that the locking device points downwards.



Removing the filter



Mounting the filter

Light

The cooker hood has a long-lasting LED lighting module. If the light is not working, contact a servicing company.

Adroit DV51 DV51CH

TECHNICAL SPECIFICATIONS ADROIT DV51

Product title	Adroit DV51CH Adroit DV51		
Air volumes Supply air Extract air	 46 l/sec, 100 Pa 51 l/sec, 100 Pa	**Fans** Supply air Extract air	 0.035 kW 0.35 A EC 0.035 kW 0.35 A EC
Post-heating	Electrical resistor, 900 W	**Electrical connection**	230 V, 50 Hz, 10A fuse rate recommended
Pre-heating	–	**Enclosure protection class**	IP34
Additional heating	–	**Heat recovery bypass**	Automatic
Filters Supply air Extract air	 ISO Coarse > 75 % + ISO ePM1 50% ISO Coarse > 75% - ISO 16890 compliant		
Specific energy consumption (SEC) in a cold climate in a temperate climate	 A+ A	**Operating efficiencies** Annual efficiency Supply air efficiency Specific Fan Power (SFP)	 77% A 84% 1.04 kW / (33 l/sec)
Dimensions (w x h x d)	598x668x349 mm	**Weight**	45 kg

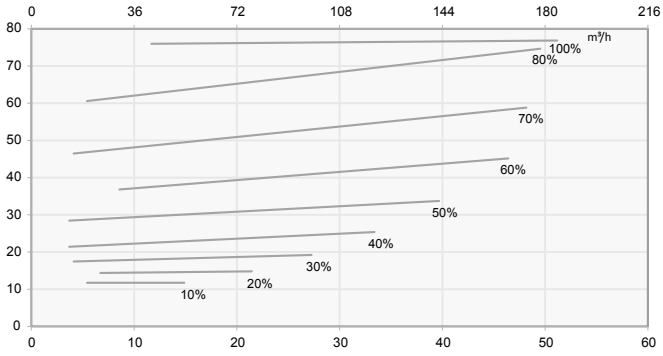
TECHNICAL SPECIFICATIONS ADROIT DV51CH

Product title	Adroit DV51CH R Adroit DV51CH L Adroit white hood Adroit stainless steel hood		
Air volumes Supply air Extract air	 46 l/sec, 100 Pa 51 l/sec, 100 Pa	**Fans** Supply air Extract air	 0.035 kW 0.35 A EC 0.035 kW 0.35 A EC
Post-heating	Electrical resistor, 900 W	**Electrical connection**	230 V, 50 Hz, 10A fuse rate recommended
Pre-heating	–	**Enclosure protection class**	IP34
Additional heating	–	**Heat recovery bypass**	Automatic
Filters Supply air Extract air	 ISO Coarse > 75 % + ISO ePM1 50% ISO Coarse > 75% - ISO 16890 compliant		
Specific energy consumption (SEC) in a cold climate in a temperate climate	 A+ A	**Operating efficiencies** Annual efficiency Supply air efficiency Specific Fan Power (SFP)	 77% A 84% 1.04 kW / (33 l/sec)
Dimensions (w x h x d)	598 x 802 x 349 mm	**Weight**	51 kg

AIR FLOWS AND SOUND VALUES

FAN INPUT POWER

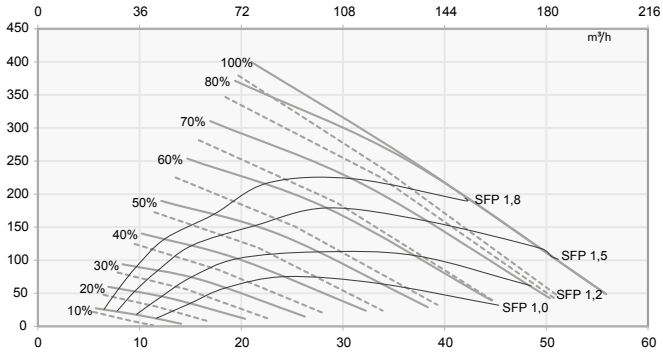
Power (W)



Volume flow rate

SUPPLY/EXTRACT AIR VOLUMES

Pressure loss in ducts. Total pressure (Pa)



Volume flow rate (l/sec)

$$\text{SFP} = \frac{\text{Input power (total) (W)}}{\text{Air flow (max) (l/sec)}}$$

SFP rate (Specific Fan Power)
recommended value <1.8 (kW m³/s)

extract air
supply air

SOUND VALUES

		Sound power level in the supply air duct (one duct) by octave band Lw, dB									
		Adjustment position									
Adjustment position (%)		10	20	30	40	50	60	70	80		100
Medium frequency of the octave band Hz	63	57	61	64	65	68	70	73	79		81
	125	51	54	58	60	62	64	66	68		69
	250	45	50	55	57	62	61	64	66		66
	500	40	46	51	53	57	59	63	66		68
	1000	32	39	45	47	51	55	59	64		64
	2000	20	30	37	41	44	47	49	52		52
	4000	18	22	29	35	40	44	47	50		51
	8000	21	21	23	27	33	38	43	47		47
L_W, dB		58	62	66	67	70	72	75	80		82
L_{WA}, dB(A)		42	47	52	54	59	60	64	67		68

	Sound power level in the extract air duct (one duct) by octave band Lw, dB									
	Adjustment position									
Adjustment position (%)	10	20	30	40	50	60	70	80		100
Medium frequency of the octave band Hz 63	60	58	58	61	64	64	71	70		72
125	51	52	54	54	57	59	60	62		62
250	30	34	38	40	45	45	47	49		50
500	31	38	40	42	45	49	51	56		56
1000	21	26	30	33	36	40	42	45		46
2000	14	15	20	24	28	30	33	35		36
4000	18	17	17	17	18	20	22	24		25
8000	21	21	21	21	21	21	21	21		21
L_W, dB	61	59	59	62	65	65	72	71		73
L_{WA}, dB(A)	38	40	42	43	46	49	52	55		55

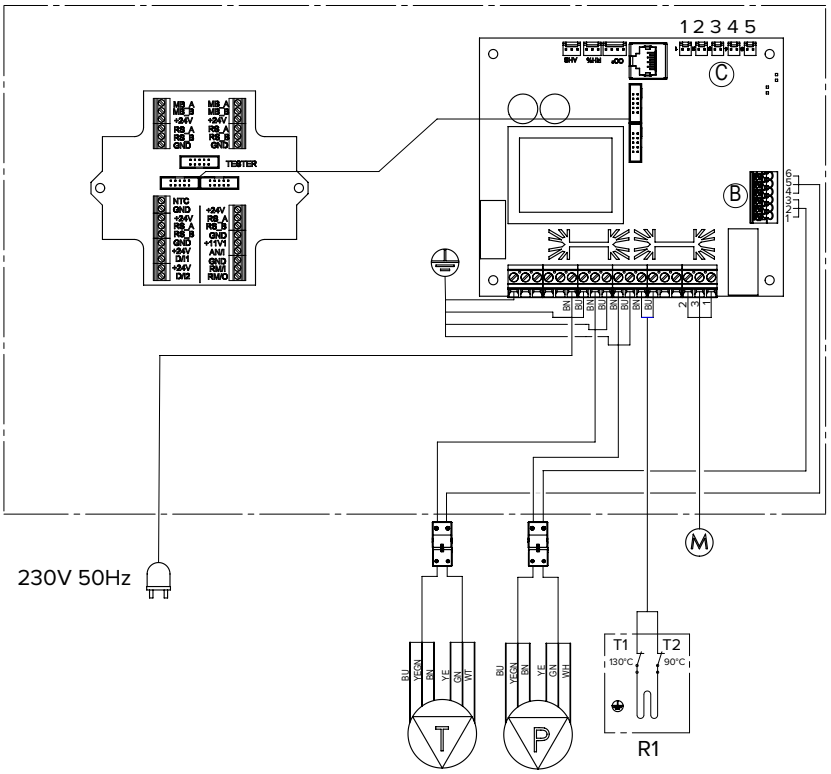
	Adroit DV51, Adroit DV51CH (no standard extraction through the hood in the kitchen) Sound pressure level coming through the envelope of the unit in the room in which it is installed (10m² sound absorption)									
	Adjustment position									
Adjustment position (%)	10	20	30	40	50	60	70	80		100
L_{pA}, dB (A)	21	24	28	29	32	35	38	40		40

	Adroit DV51CH (standard extraction 8 l/s through the hood in the kitchen) Sound pressure level coming through the envelope of the unit in the room in which it is installed (10m² sound absorption)									
	Adjustment position									
Adjustment position (%)		22		40						
L_{pA}, dB (A)		28		32						

Sound values have been measured at the measurement points of the facility curve (L) of the air flow graph. The values change very little when the pressure loss in the ducts is low and the fan settings remain unchanged. The sound values increase when the pressure loss in the ducts increase.

INTERNAL ELECTRICAL CONNECTION

Adroit 51 / Adroit DV51CH



A	Motherboard
B	1. Extract air fan tacho (WT) 2. GND (GN) 3. Extract air fan PWM (YE) 4. Supply air fan tacho (WT) 5. GND (GN) 6. Supply air fan PWM (YE)
C	1. Extract air 2. Outdoor air 3. Supply air 4. Exhaust air 5. Supply air from the HR cell
D	LAN

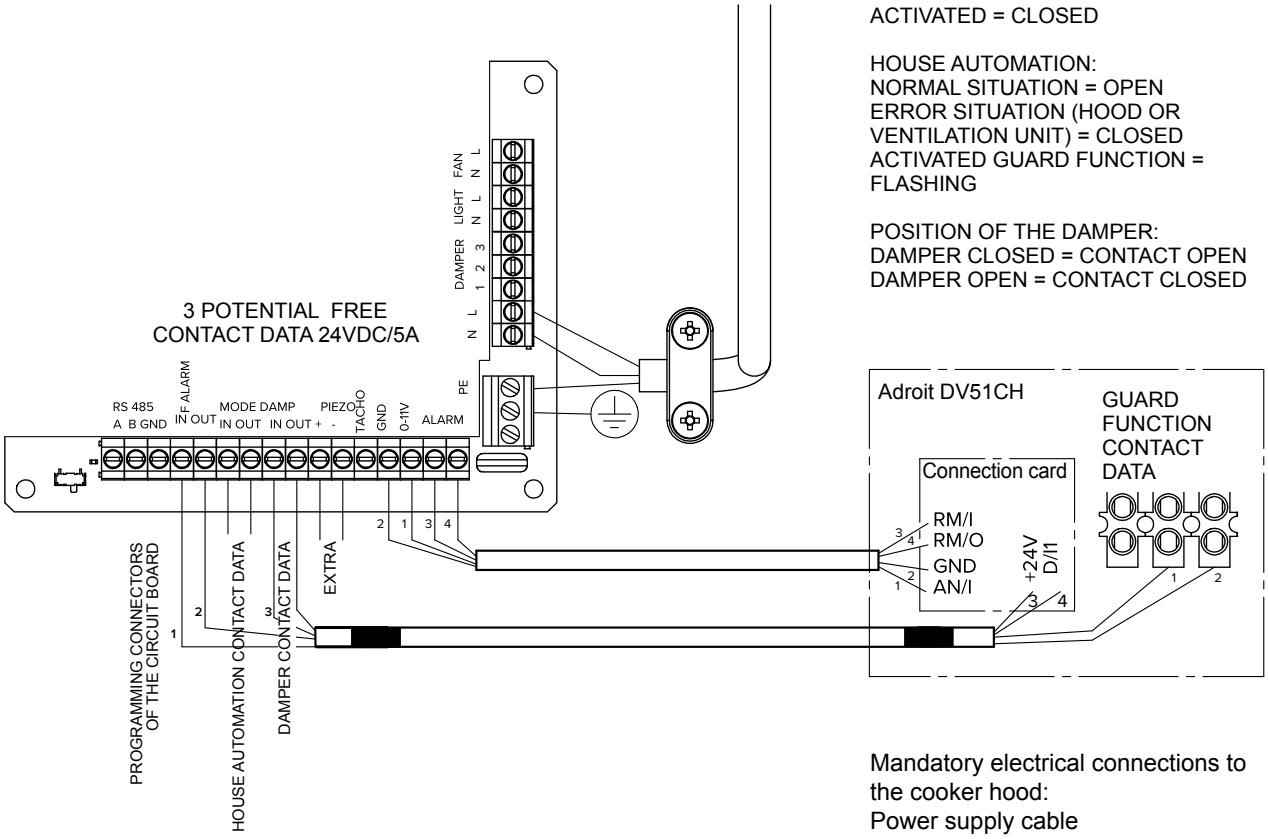
CABLE COLOURS	
BK	Black
BU	Blue
BN	Brown
WT	White
GY	Grey
YE	Yellow
YEGN	Yellow-green

MB_A	External Modbus A signal
MB_B	External Modbus B signal
+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
NTC	External temperature sensor connector
D/I1	Digital input 1
D/I2	Digital input 2
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output

T	Supply air fan
P	Extract air fan
M	Damper motor
AHS	Post-heating control
CO_2	Internal carbon dioxide sensor
RH%	Internal humidity sensor
R1	Post-heating resistor with 90°C and 130°C overheating protection

EXTERNAL ELECTRICAL CONNECTION

Cooker hood



CONTACT DATA:
GUARD FUNCTION:
NORMAL SITUATION = OPEN
ACTIVATED = CLOSED

HOUSE AUTOMATION:
NORMAL SITUATION = OPEN
ERROR SITUATION (HOOD OR VENTILATION UNIT) = CLOSED
ACTIVATED GUARD FUNCTION = FLASHING

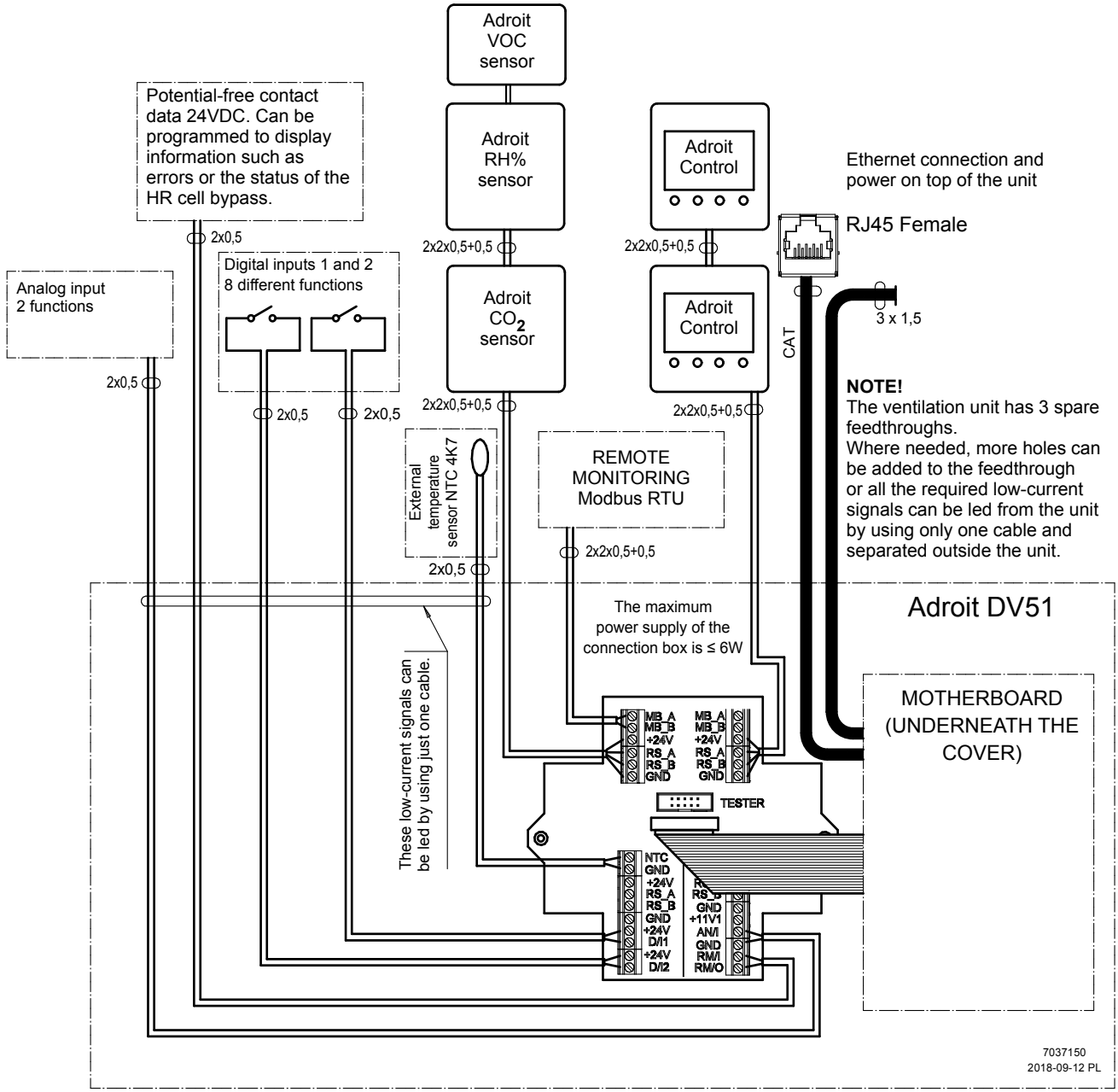
POSITION OF THE DAMPER:
DAMPER CLOSED = CONTACT OPEN
DAMPER OPEN = CONTACT CLOSED

Mandatory electrical connections to the cooker hood:
Power supply cable
Relay and analogue input cable (cooker hood – unit):
1. 0-11V – AN/I
2. GND – GND
3. ALARM – RM/I
4. ALARM – RM/O

Optional electrical connections to the cooker hood:
Digital input and cooker hood temperature guard function.

EXTERNAL ELECTRICAL CONNECTION

Adroit DV51



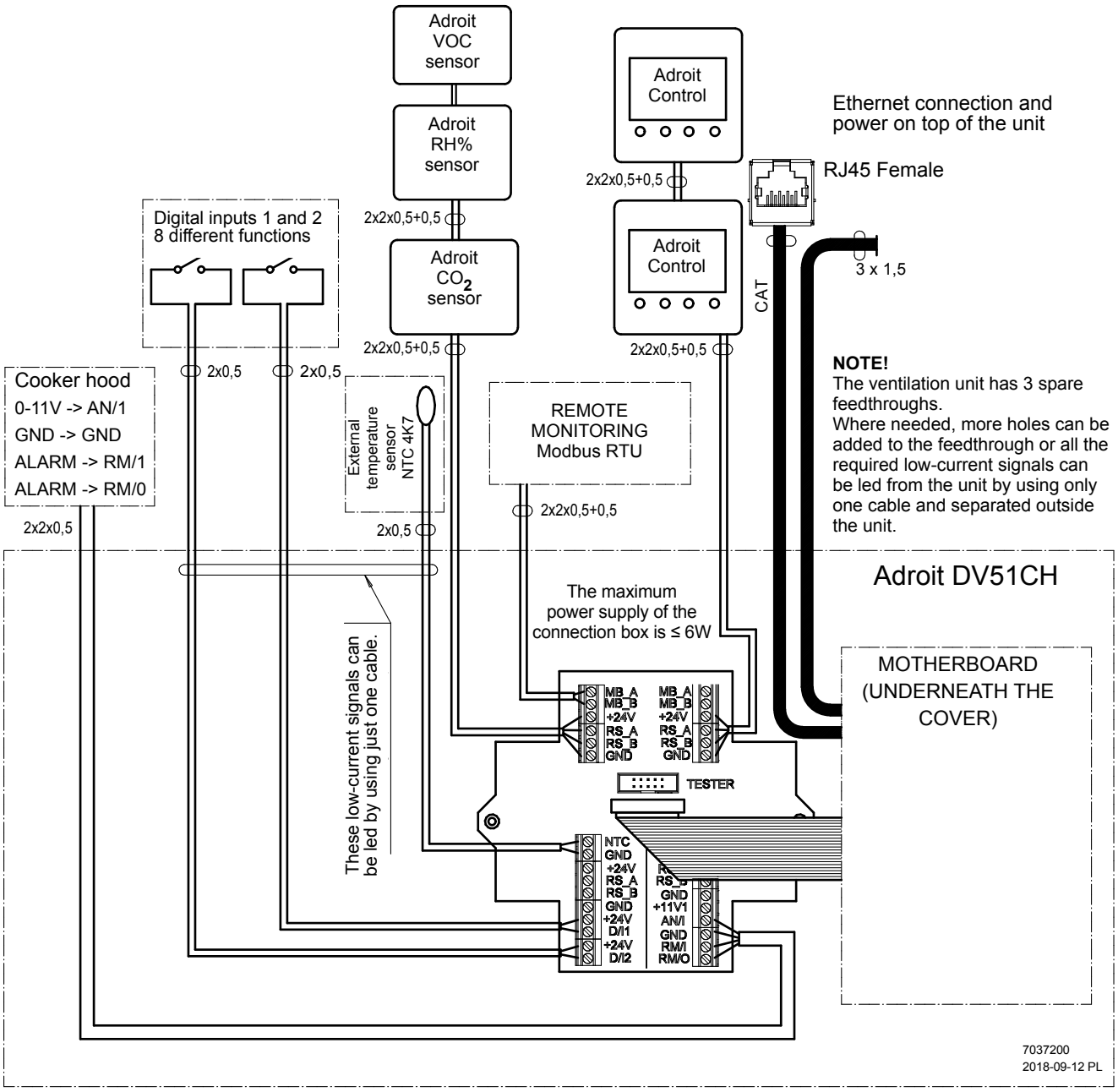
POWER SUPPLY	
Maximum	**≤6W**
Adroit Control	**1W**
Adroit RH% sensor	**0.3W**
Adroit CO_2 sensor	**1.2W**
Adroit VOC sensor	**2W**
Voltage	**24 VDC**

MB_A	External Modbus A signal
MB_B	External Modbus B signal
+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
NTC	External temperature sensor connector

D/I1	Digital input 1
D/I2	Digital input 2
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output

EXTERNAL ELECTRICAL CONNECTION

Adroit DV51CH

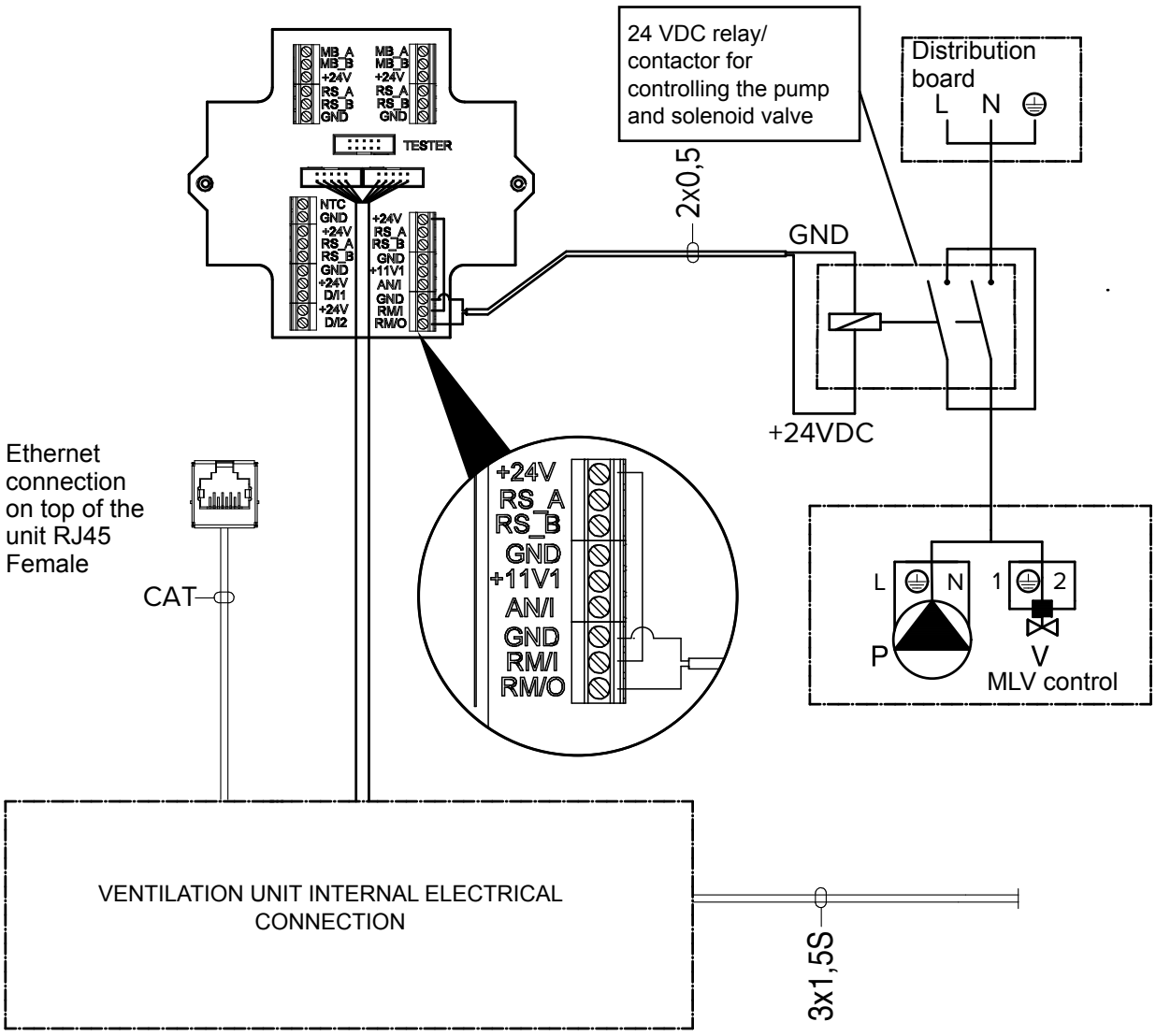


POWER SUPPLY	
Maximum	**≤6W**
Adroit Control	**1W**
Adroit RH% sensor	**0.3W**
Adroit CO_2 sensor	**1.2W**
Adroit VOC sensor	**2W**
Voltage	**24 VDC**

MB_A	External Modbus A signal
MB_B	External Modbus B signal
+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
NTC	External temperature sensor connector

D/I1	Digital input 1
D/I2	Digital input 2
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output

EXTERNAL ELECTRICAL CONNECTION FOR CONTROLLING THE BRINE HEAT EXCHANGER



+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output
P	Circulation pump
V	Solenoid valve

BRINE HEAT EXCHANGER

Always follow first and foremost the connection diagram provided by the HVAC designer or heat pump manufacturer. Also read the Brine heat exchanger.

The accompanying figure shows an example of the arrangement for connecting the heating/cooling radiator unit to the heat collection circuit.

Connect the radiator output pipe to the heat collection circuit return pipe. Direct the fluid returning from the radiator unit to the heat collection circuit return pipe. If you know that there is a large loss of internal pressure inside the heat pump, the heat pump should be bypassed. If this is done, the fluid circuit will come into operation when the heat pump comes to a halt. When this happens the pressure loss in the one-way bypass valve Y2 must be lower than the pressure loss in the heat pump.

Heating: The pump starts when the outdoor air temperature drops below the winter limit value set at the factory (-5 °C).

Cooling The supply air setpoint value for the active mode (for example, At home) controls the pump start-up. The pump starts when the supply air setting is below the temperature of the supply air that is blown into the apartment.

The duct radiator can be installed in both the supply air duct and the outdoor air duct. If the radiator is installed in the outdoor air duct, it can be used for both preheating and cooling, or for preheating or cooling alone.

The Brine heat exchange can be set to function either automatically or manually.

- **Automatic** - In summer, the supply air temperature will be maintained at the level specified in the temperature setting. In winter, the Brine heat exchanger will turn on when the outdoor temperature falls below the winter setting.
- **Manual** - In summer, the Brine heat exchanger will turn on when the outdoor temperature rises above the summer setting. In winter, the Brine heat exchanger will turn on when the outdoor temperature falls below the winter setting.

To prevent the risk of condensation in the supply air duct, you can set the adjustment of the supply air limit to automatic or manual.

- **Automatic** - The supply air limit is adjusted automatically based on the dew point of the extract air. When the supply air temperature falls too low, the Brine heat exchanger will turn off.
- **Manual** - The supply air limit can be set manually. When the supply air temperature falls down to the set value, the Brine heat exchanger will turn off.

If an external sensor is in use, it is selected from the settings of the external sensor whether it is used to control the outdoor air Brine heat exchanger or the supply air Brine heat exchanger.

NOTE: If the brine heat exchanger is used in the supply air duct, it can only be used for cooling.

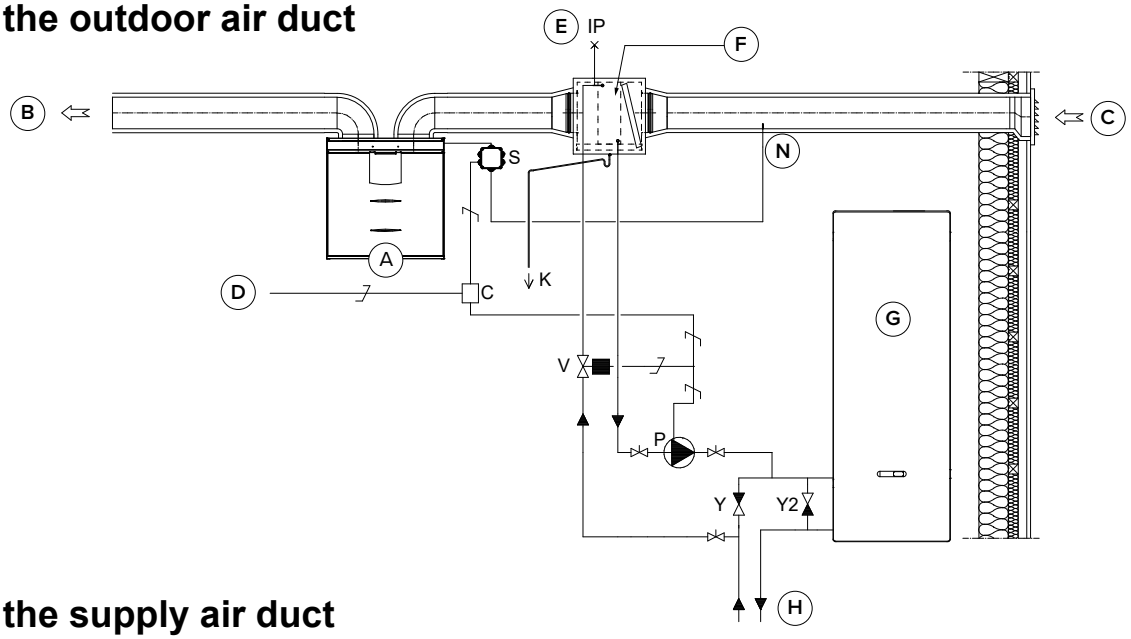
NOTE: When used to control the outdoor air Brine heat exchanger, the external NTC sensor is installed in the outdoor air duct before the radiator. When used to control the supply air Brine heat exchanger, the external NTC sensor is installed after the radiator.

NOTE:
When selecting the relay (C), take account of the maximum allowed combined power supply (6W) of the circuit board in the external electrical box, if the relay power supply comes from the circuit board's +24V connector.

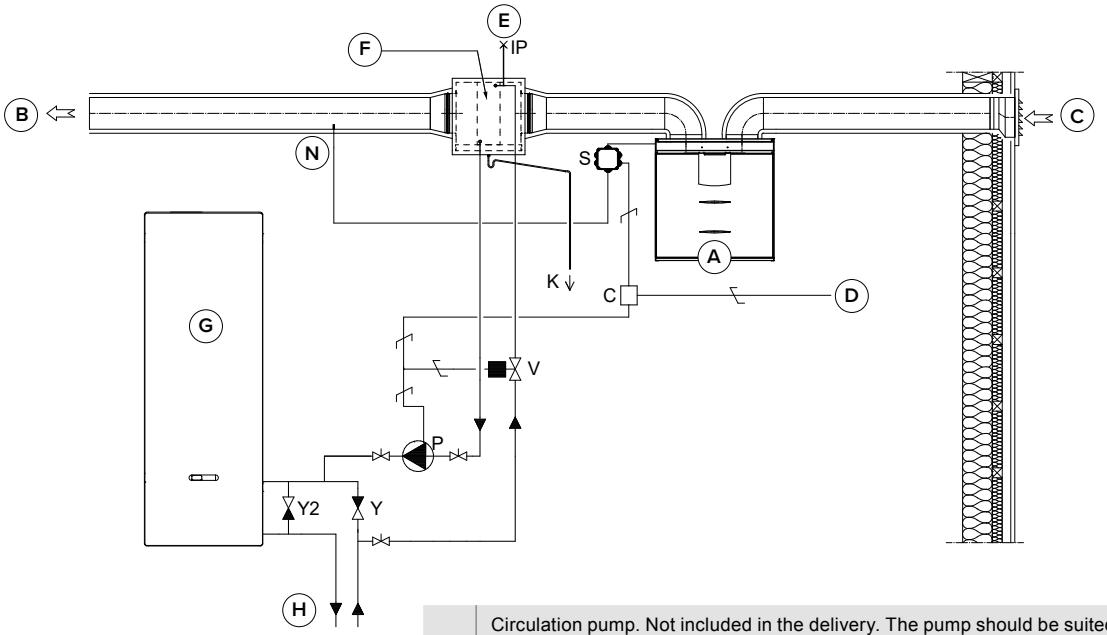
NOTE:
Due to the risk of humidity damage, in a duct that has not been insulated for condensation the supply air temperature must not fall below +16 … 20 °C.

BRINE HEAT EXCHANGER

In the outdoor air duct



In the supply air duct

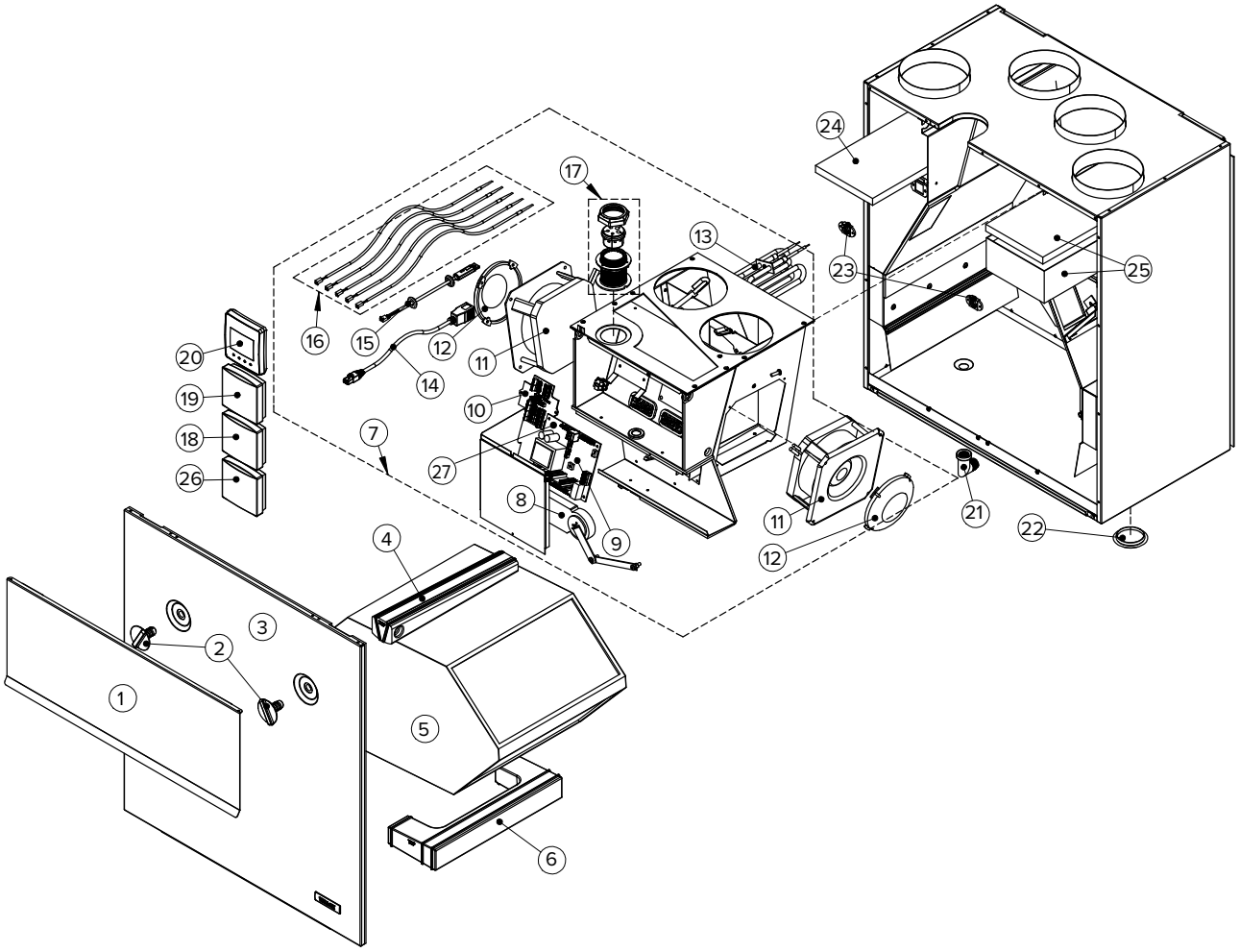


A	Ventilation unit
B	Supply air
C	Outdoor air
D	Feed from the distribution board
E	Air extraction
F	Brine heat exchanger (reverse connection)
G	Heat pump
H	Heat collection circuit
N	External NTC sensor

P	Circulation pump. Not included in the delivery. The pump should be suited to pumping liquid colder than the surrounding air, due to risk of condensation (for example, Grundfos Magna 1 25-80).
V	Solenoid valve. Not included in the delivery. The valve that is chosen must be compatible with the heat collection circuit fluid (for example, ELV05006, Stig Wahlström).
K	Condensing water tube. Not included in the delivery.
IP	De-aerator. Not included in the delivery.
S	External electrical junction box for the MV
N	External NTC sensor for Adroit MV ventilation units
C	24 VDC relay/contactor for controlling the pump and the solenoid valve. Not included in the delivery. (For example, ABB CR-P024DC2)
Y	One-way valve. Not included in the delivery.
Y2	One-way valve. Not included in the delivery. The pressure loss must be less than the pressure loss of the heat pump.

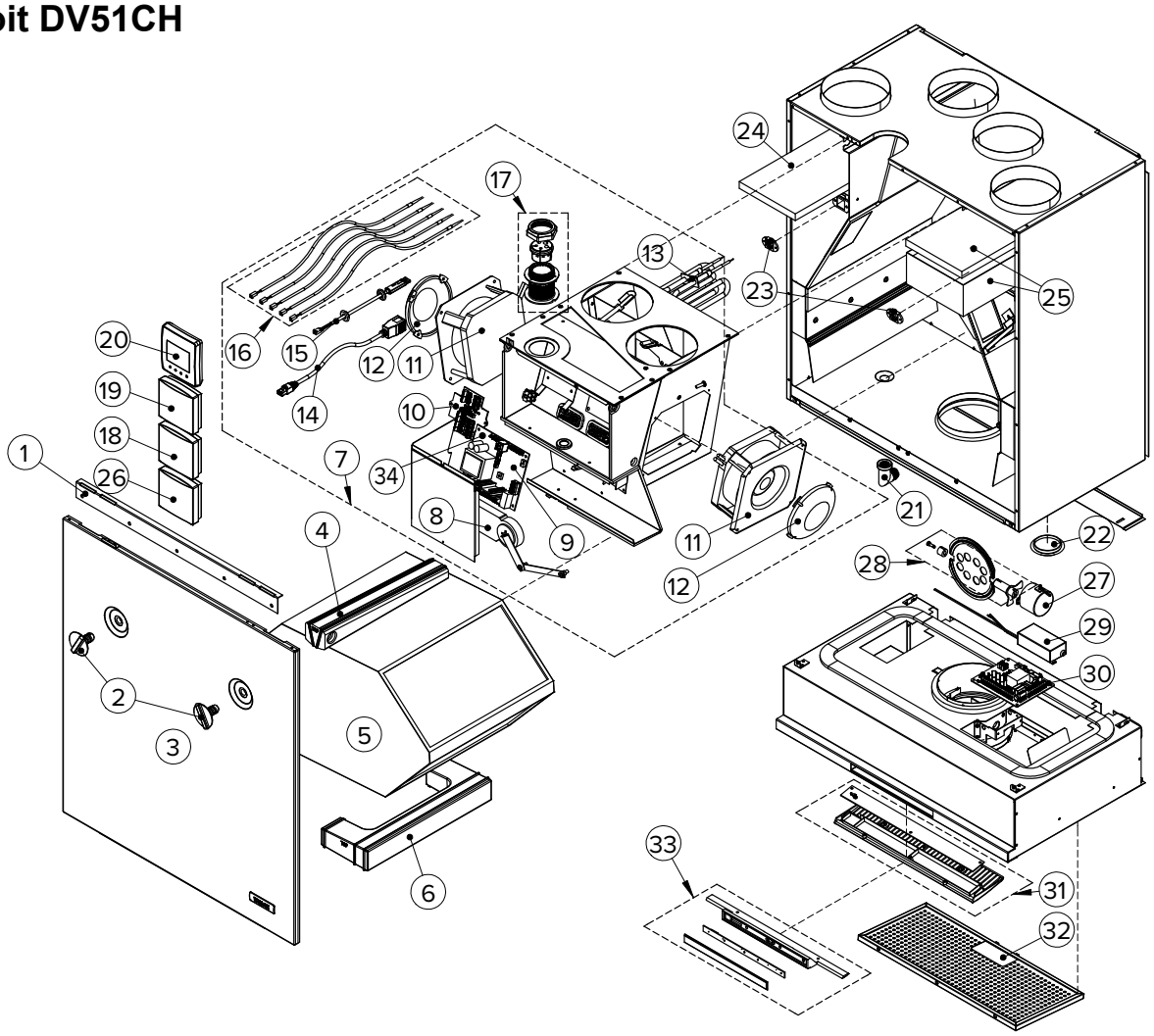
EXPLODED VIEW AND PARTS LIST

Adroit DV51



NO.	DESCRIPTION	PART NO.	NO.	DESCRIPTION	PART NO.	NO.	DESCRIPTION	PART NO.
1.	Door screw cover panel	60000582	10.	Connection card	60000588	19.	Adroit CO_2 sensor (optional)	90000613
2.	Door screw (supplied together with the lock nut of the door screw)	60000561	11.	Fan	60000567	20.	Adroit controller	90000610
3.	Door	60000562	12.	Fan attenuation grid	60000568	21.	Condensation drain kit	60000250
4.	Upper support for HR cell	60000564	13.	Post-heating resistor, L model Post-heating resistor, R model	90001262 90001263	22.	Plastic screw Cover plug	60000570 60000571
5.	HR cell	60000566	14.	RJ-45 extension cable	60000209	23.	Lock nut of the door screw (supplied together with the door screw)	60000561
6.	Lower support for HR cell	60000565	15.	Internal humidity and CO_2 sensor	60000563	24.	Coarse filter for extract air	90001264
7.	Fan chamber assembly, R Fan chamber assembly, L	60000583 60000584	16.	NTC sensor kit	60000569	25.	Coarse filter for supply air Fine filter for supply air	90001264
8.	Damper motor	60000206	17.	Ceiling bushing for electric wires Ceiling feed-through seal	60000585 60000586	26.	Adroit VOC sensor (optional)	90001241
9.	Motherboard	60000581	18.	Adroit humidity sensor (optional)	90000612	27.	Glass tube fuse 63mA slow 5x20mm	60000589

Adroit DV51CH



NO.	DESCRIPTION	PART NO.	NO.	DESCRIPTION	PART NO.	NO.	DESCRIPTION	PART NO.
1.	Cover door mounting strip	60000590	13.	Post-heating resistor, R model Post-heating resistor, L model	90001262 90001263	25.	Coarse and fine filter for supply air	90001264
2.	Door screw (supplied together with the lock nut of the door screw)	60000561	14.	RJ-45 extension cable	60000209	26.	Adroit VOC sensor (optional)	90001241
3.	Door	60000562	15.	Internal humidity and CO_2 sensor	60000563	27.	Damper motor	60000572
4.	Upper support for HR cell	60000564	16.	NTC sensor kit	60000569	28.	Damper assembly	60000573
5.	HR cell	60000566	17.	Ceiling bushing for electric wires Ceiling feed-through seal	60000585 60000586	29.	LED power source	60000574
6.	Lower support for HR cell	60000565	18.	Adroit humidity sensor (optional)	90000612	30.	Motherboard	60000575
7.	Fan chamber assembly, R	60000583	19.	Adroit CO_2 sensor (optional)	90000613	31.	Light fixture frame	60000576
8.	Fan chamber assembly, L	60000584	20.	Adroit controller	90000610	31.	LED light	60000577
9.	Damper motor	60000206	21.	Condensation drain kit	60000250	32.	Grease filter	60000578
10.	Motherboard	60000581	22.	Plastic screw Cover plug	60000570 60000571	33.	Front panel assembly white	60000579
11.	Connection card	60000588	23.	Lock nut of the door screw (supplied together with the door screw)	60000561	33.	Front panel assembly stainless steel	60000580
12.	Fan attenuation grid	60000568	24.	Coarse filter for extract air	90001264	34.	Glass tube fuse 63 mA 5x20mm	60000589

CERTIFICATE OF CONFORMITY

CE DECLARATION OF CONFORMITY

Airflow Developments Ltd, herewith declare that the air movement equipment designated below, on the basis of its design and construction in the form brought onto the market by us in accordance with the relevant safety and health requirements of the EC directive on Low Voltage.

Designation of Equipment: Mechanical Ventilation with Heat Recovery

Relevant EC council directives:

2014/35/EU	Low Voltage Directive
2014/30/EU	Electromagnetic Compatibility (EMC) Directive
2011/65/EU	Restriction on the use of hazardous substances (RoHS) Directive
2006/42/EU	Machinery Directive

Applied Harmonised standards:

EN ISO 12100-1:2003+A1:2009	Safety of machinery. General principles for design. Risk assessment and risk reduction
BS EN 61000-6-4:2007+A1:2011	Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments
BS EN 60335-1:2012+A11:2014	Household and similar electrical appliances. Safety. General requirements
BS EN ISO 13732-1:2008	Ergonomics of the thermal environment. Methods for the assessment of human responses to contact with surfaces. Hot surfaces
BS EN ISO 3746:2010	Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Survey method using an enveloping measurement surface over a reflecting plane

Applied National Standards and Technical Specs. In Particular Basis of self-attestation:

Quality Assurance	BS EN ISO 9001/2015 – Cert no – FM 00152
Environmental Assurance	BE EN ISO 14001/2015 – Cert No – EMS 569454

Any alterations or modifications made to the equipment, without prior consultation with Airflow Developments Ltd, invalidates this declaration.

Date: 10/06/2019

Name: Alan Siggins

Position: Managing Director

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UKCA CERTIFICATE OF CONFORMITY

AIRFLOW

UKCA DECLARATION OF CONFORMITY

Airflow Developments Ltd, herewith declare that the air movement equipment designated below, on the basis of its design and construction in the form brought onto the market by us in accordance with the relevant safety and health requirements of the EC directive on Low Voltage.

Designation of Equipment: Mechanical Ventilation with Heat Recovery

Relevant EC council directives:

2016 No.1101	The Electrical Equipment (Safety) Regulations 2016
2016 No.1091	The Electromagnetic Compatibility Regulations 2016
2012 No.3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
2008 No.1597	The Supply of Machinery (Safety) Regulations 2008

Applied Harmonised standards:

EN 12100-1:2003+A1:2009	Safety of machinery. General principles for design. Risk assessment and risk reduction
BS 61000-6-4:2007+A1:2011	Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments
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Adroit® DV51 DV51CH

COMMISSIONING THE SYSTEM

The Building Regulations 2010, Statutory Instrument Part 9, paragraph 42, imposes a requirement that testing and reporting of mechanical ventilation performance is conducted in accordance with an approved procedure.
Compliance with this requirement by an assessed and registered “Competent Person” should follow a “Best Practice” process and adopt air flow measurement, Method A - The Unconditional Method - using a suitable UKAS certified measuring instrument. Generically referred to as a “Zero Pressure Air Flow Meter” or “Powered Flow Meter”.
Further information on this method is detailed in NHBC Building Regulations Guidance Note G272a 10/13 and BSRIA “A Guide to Measuring Air Flow Rates” document BG46/2015

WARRANTY

Applicable to units installed and used within the United Kingdom.
Airflow Developments Ltd guarantees the DV51 / DV51CH Adroit unit for 5 YEARS from date of purchase against faulty material or workmanship. Motors are only covered for 1 YEAR from date of purchase against faulty material or workmanship.
In the event of any defective parts being found, Airflow Developments Ltd reserve the right to repair, or at our discretion, replace without charge provided that the unit:

- Has been installed and used in accordance with the fitting and wiring instructions supplied with each unit.
- Has not been connected to an unsuitable electrical supply.
- Has not been subjected to misuse, neglect or damage.
- Has not been modified or repaired by any person not authorised by Airflow Developments Ltd.
- Has been installed in accordance with latest Building Regulations and IEEE wiring regulations by a recognised competent installer.

Airflow Developments Ltd shall not be liable for any loss, injury or other consequential damage, in the event of a failure of the equipment or arising from, or in connection with the equipment, excepting only that nothing in this condition shall be construed as to exclude or restrict liability or negligence.
This warranty does not in any way affect any statutory or other consumer rights.

CE UKCA

AIRFLOW®

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Certificate No. EMS 569454 BS EN ISO 14001 : 2015
Certificate No. FM 00152 BS EN ISO 9001 : 2015