

# Adroit<sup>®</sup> DV51 DV51CH

Instruction Manual

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**NOTE**

You can sign into your Adroit account at: [www.airflowadroitcontrol.com](http://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](http://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.

### 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.

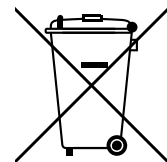


### WARNING

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.

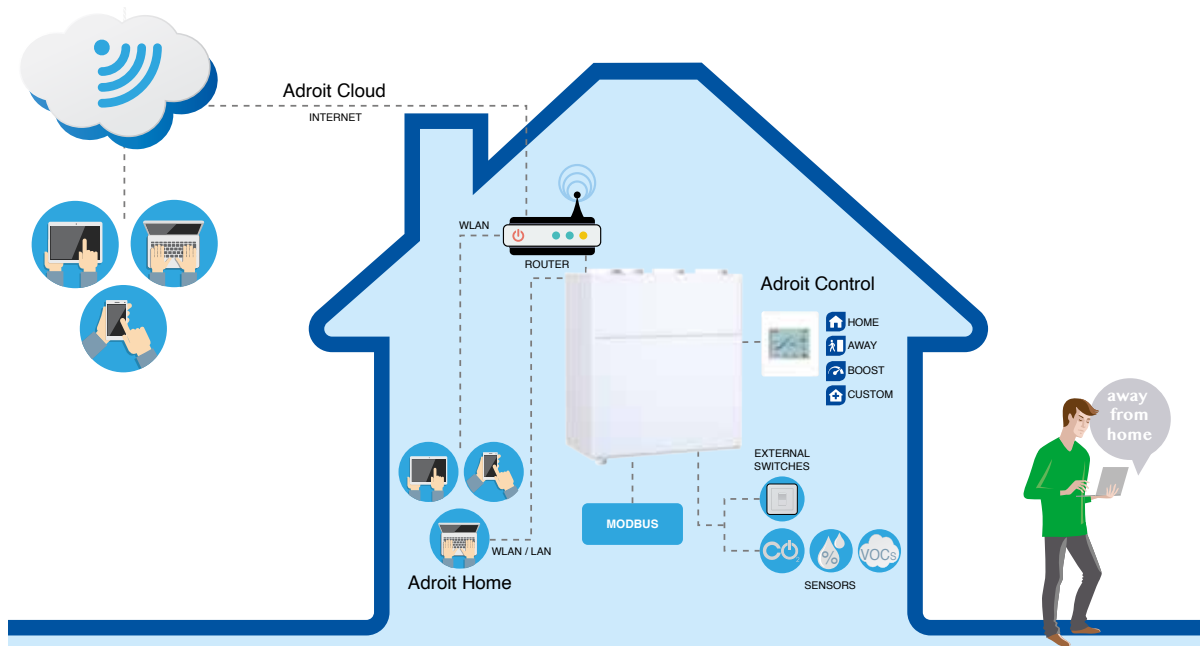
Such persons can use the unit under supervision or by following the instructions of someone who is responsible for their safety.

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



# Adroit® DV51 DV51CH

## 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 latest 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.

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.



Adroit controller

## 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-borne 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® DV51 DV51CH

## 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](http://www.airflow.com).



### NOTE

For the Adroit Cloud complete instructions, please go to [www.airflow.com](http://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](http://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.



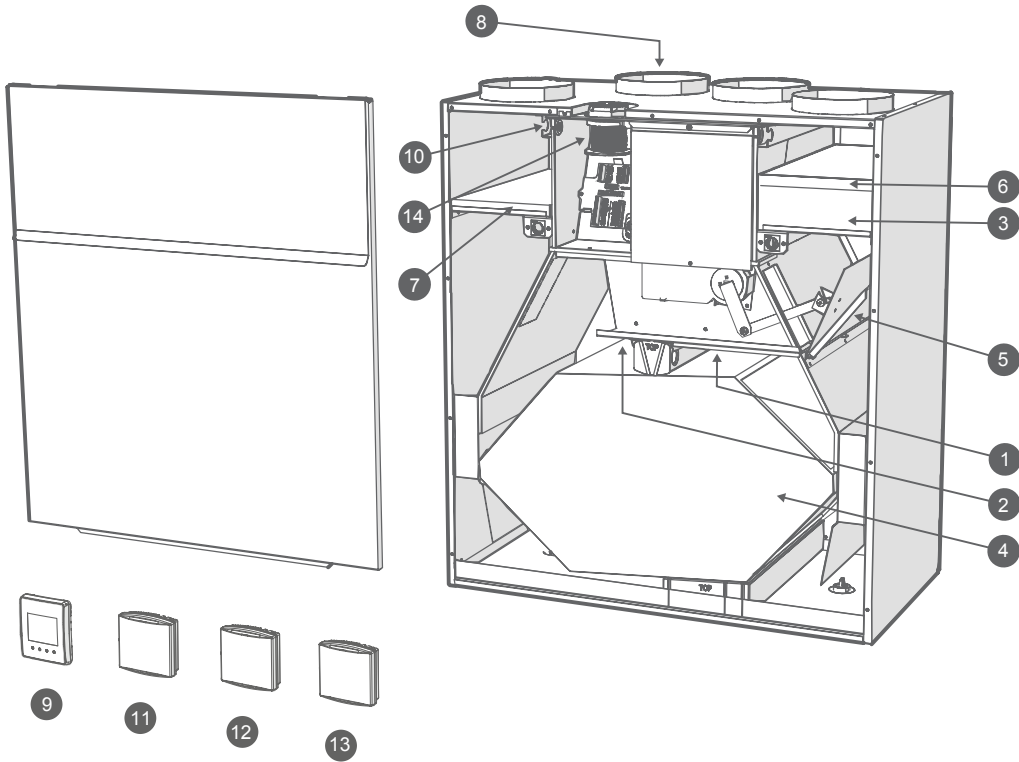
### CAUTION

- 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.



# Adroit® DV51 DV51CH

## MAIN PARTS

### Adroit DV51



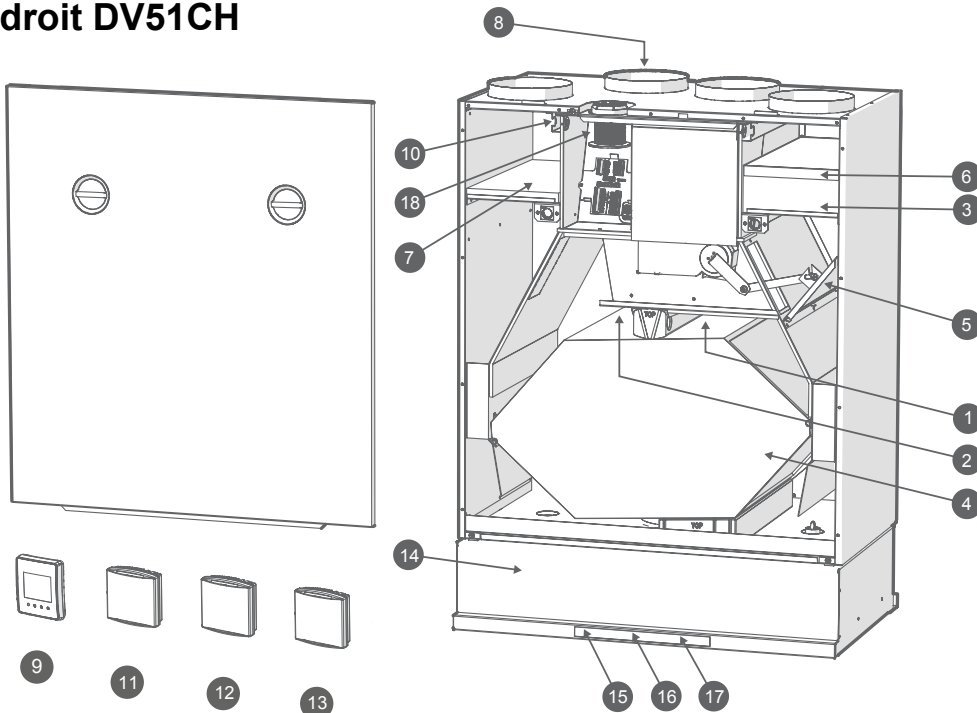
R model in the figure.  
In the L model, the parts are mirrored.

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



## MAIN PARTS

### Adroit DV51CH



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

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

# Adroit® DV51 DV51CH

## MOUNTING ON THE WALL



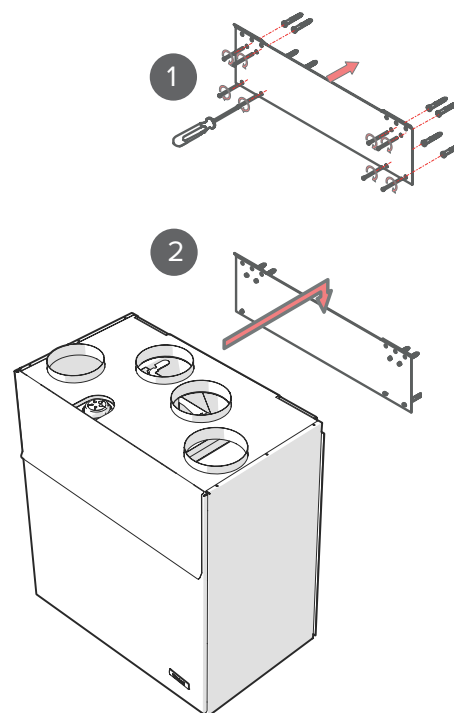
**NOTE**

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.

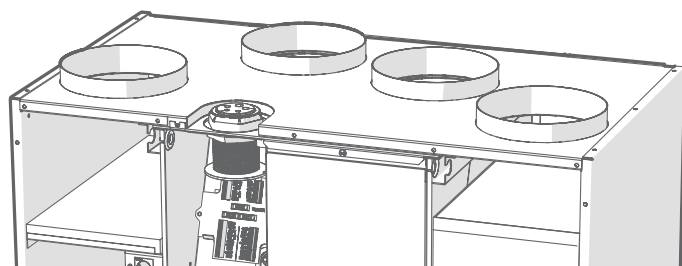
Mount the ventilation unit on the wall with a mounting bracket, as shown in the adjacent figure. Make sure that the unit is horizontally level after mounting.

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.



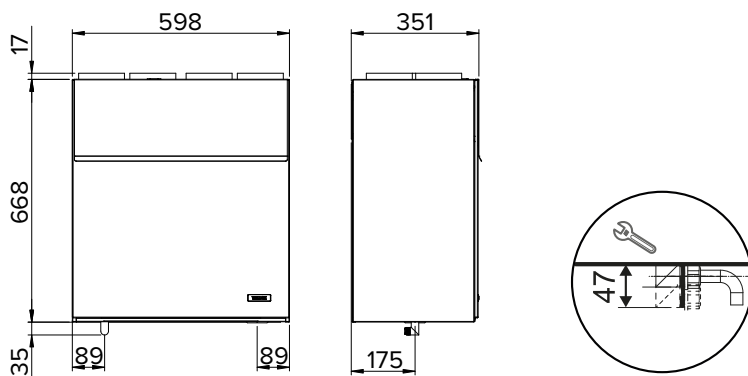
**NOTE**

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](http://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.

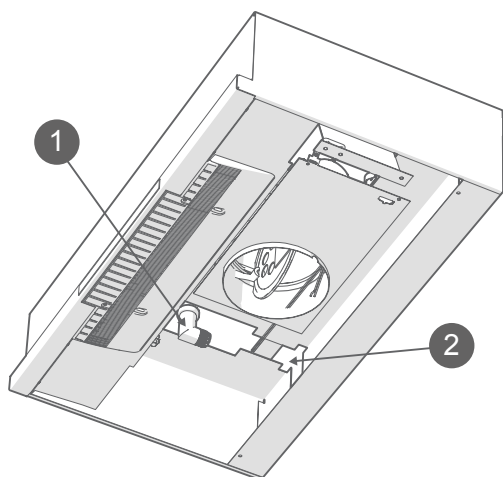
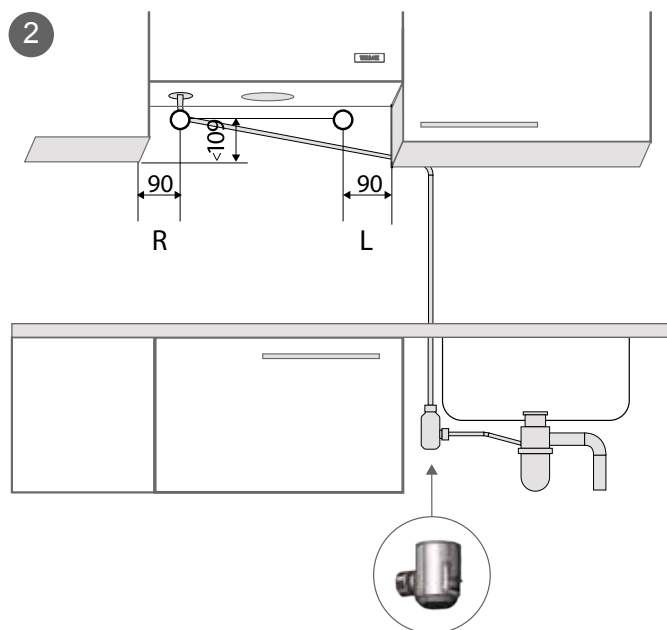
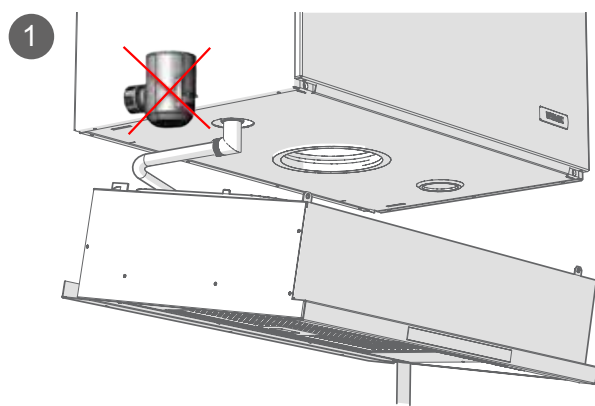
1. Install the elbow at the bottom of the ventilation unit without the siphon (Figure 1). Install the siphon in the condensing water tube before the drain or odour trap (Figure 2). The Silent Klick siphon helps prevent noise disturbance caused by the removal of condensing water.
2. The condensing water 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.



Observe in the figure:

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

# Adroit® DV51 DV51CH

## INSTALLATION OF THE COOKER HOOD

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

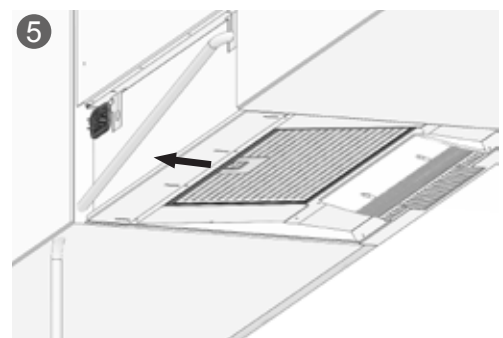
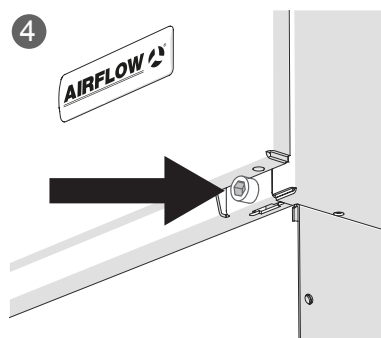
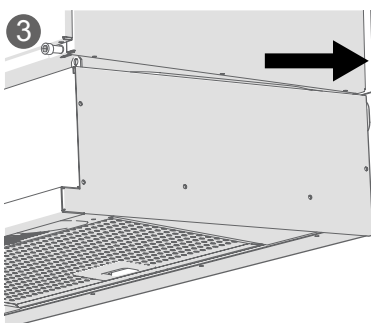
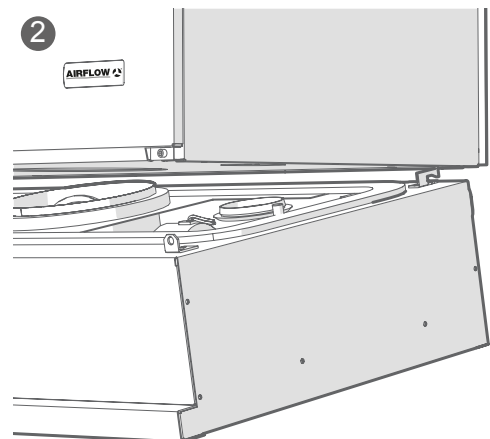
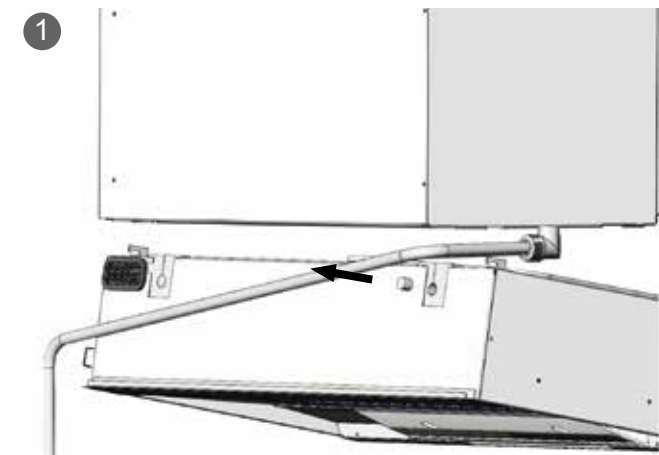
1. Remove the plug from the feedthrough seal of the condensing water tube of the cooker hood (Figure 1).
2. Lift the cooker hood and fit the hooks at the rear of the cooker hood into the holes at the bottom of the ventilation unit. Push in place (Figure 2).
3. Ensure that the feedthrough seal of the 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).



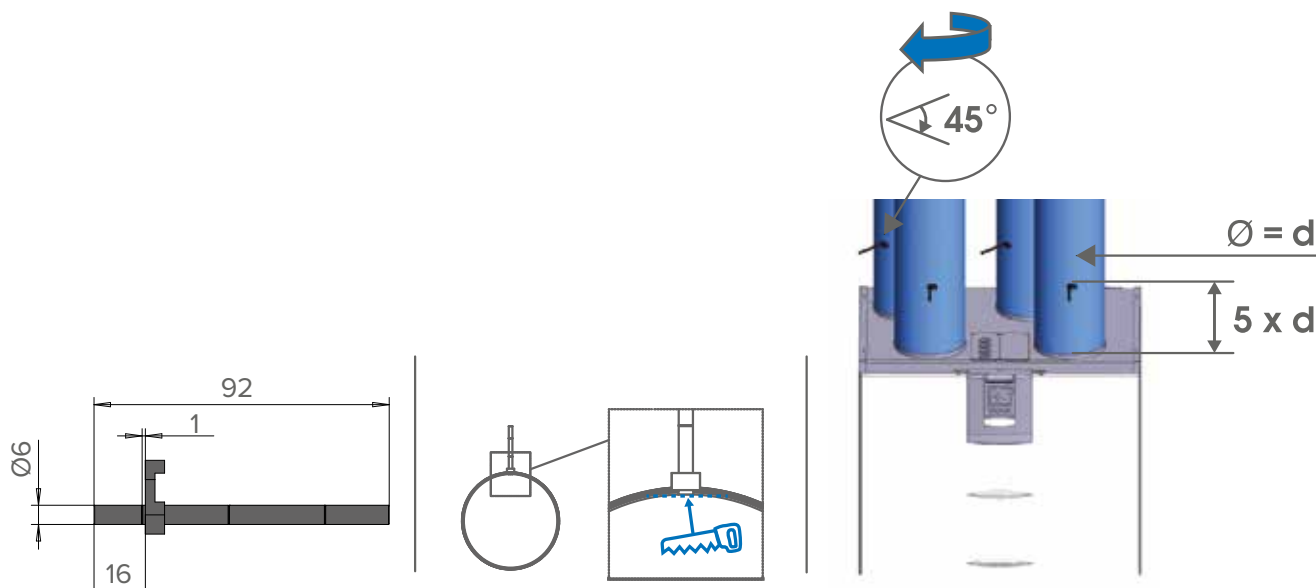
### CAUTION

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.

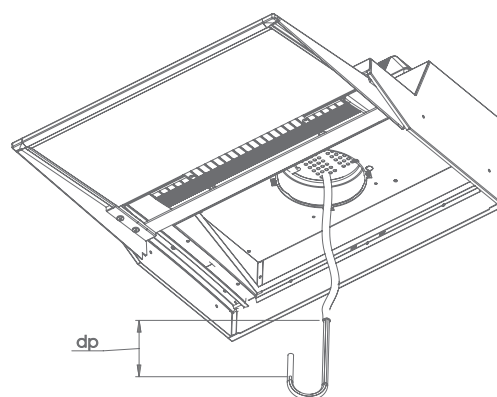


## MEASURING AND ADJUSTING THE AIR FLOW RATES OF THE COOKER HOOD

### 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:

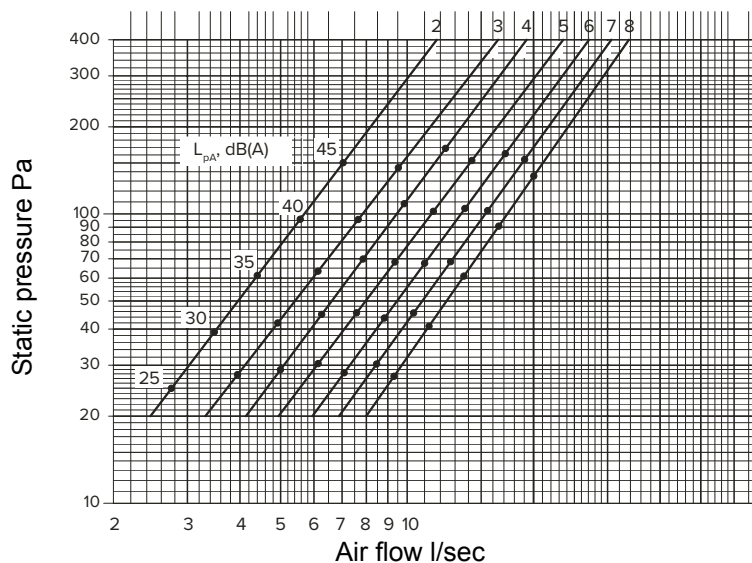
- Cover the required number of holes in the damper with the magnetic strip that is delivered with the cooker hood.

# 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)

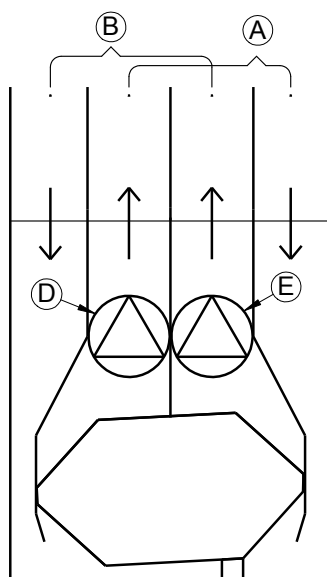


### Air flow rates measurement points

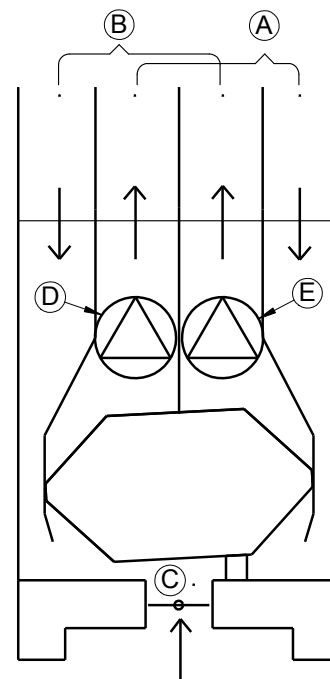
Air flow measuring tubes are placed in the ventilation ducts in accordance with the instructions. Standard air flow from the cooker hood is measured past the damper. The fan curves indicate the total pressure accounted for by duct losses.

- 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.



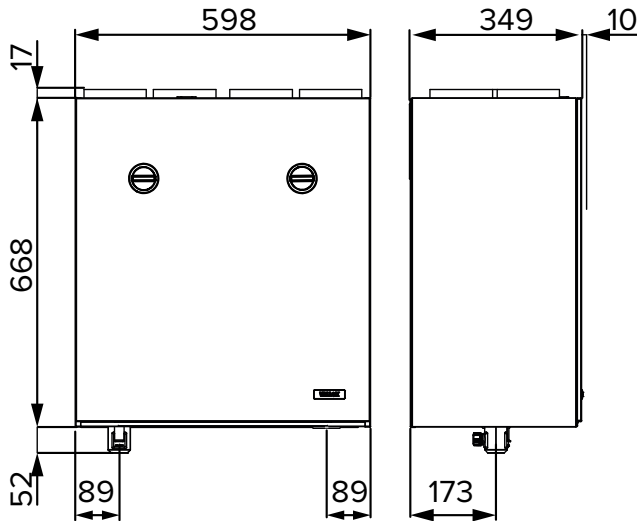
**Adroit DV51**



**Adroit DV51CH**

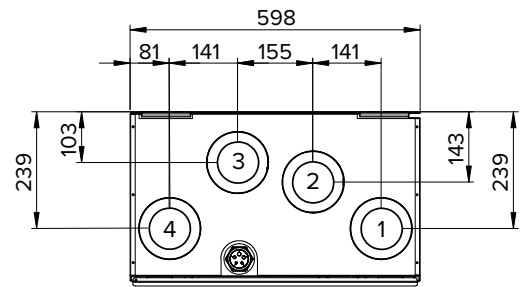
## DIMENSIONS AND DUCT OUTLETS

### Adroit DV51



### Dimensions

#### R model

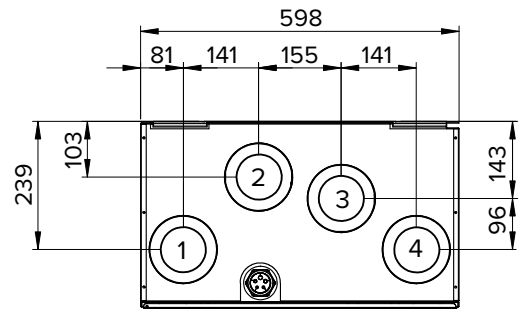


### Duct outlets

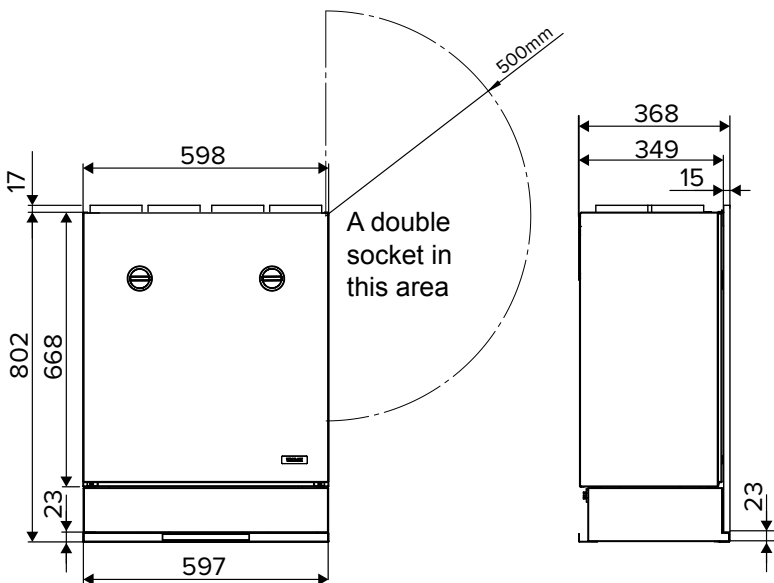
Inner diameter of the female collar: 125mm

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



### Adroit DV51CH



# Adroit® DV51 DV51CH

## 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.

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

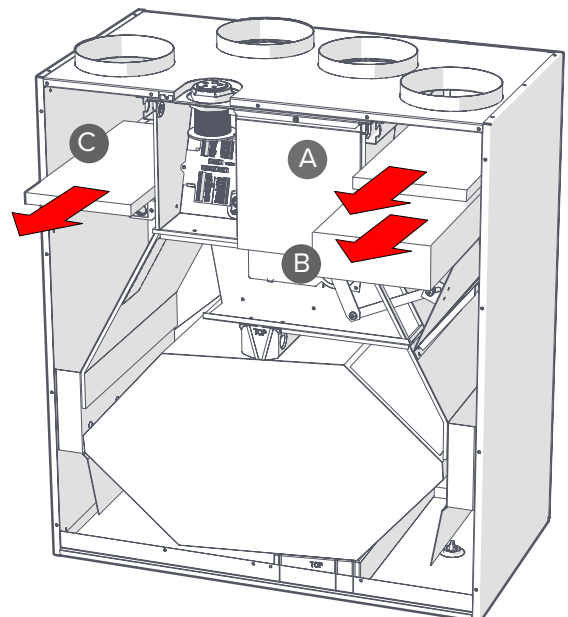
The door is heavy.

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.



### 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](http://airflow.com)





## 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:

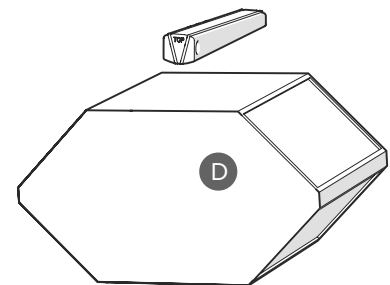
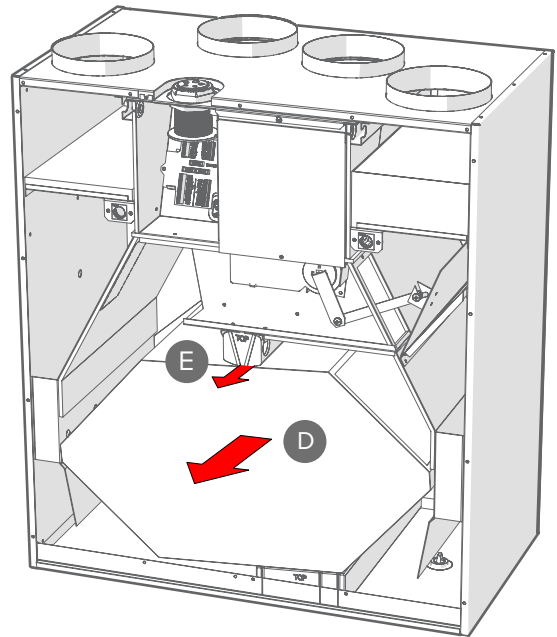
1. Disconnect the ventilation unit from the mains electricity supply.
2. Open the door of the ventilation unit by undoing the finger screws and by lifting the door off.

**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.

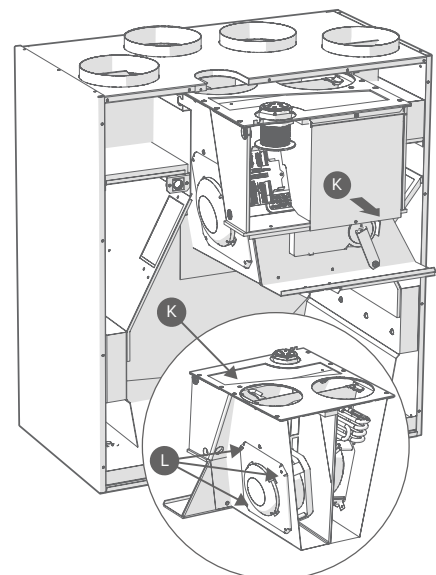
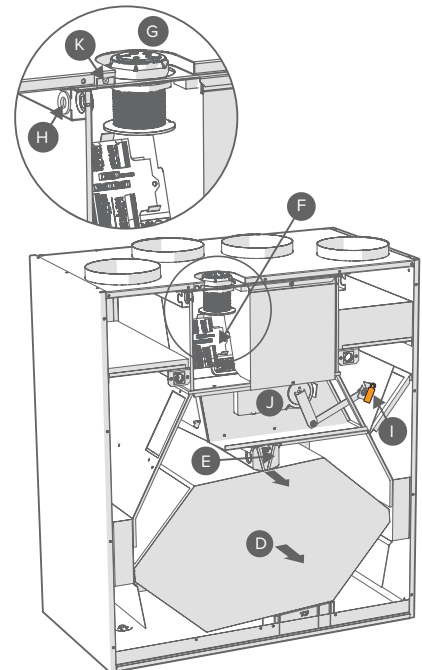
**NOTE!** Remember to reconnect the bar of the damper motor into the joint of the damper and to lock the connection with the orange magnet. Ensure that the sensors and their feedthrough rubbers are in correct locations. Also ensure that all the connections have been correctly implemented and the earthing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

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.

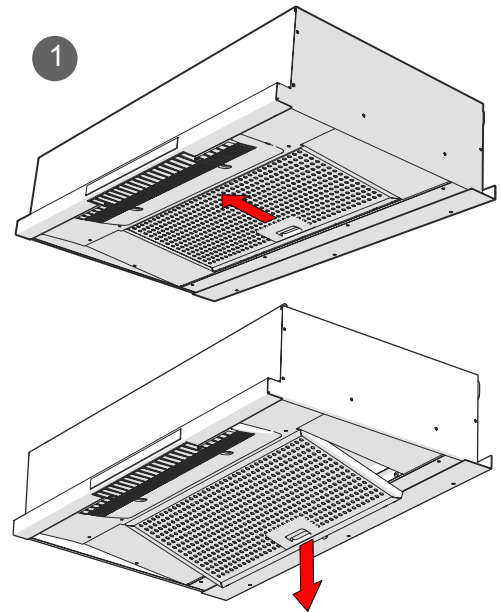
### Removing and mounting the grease filter

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.

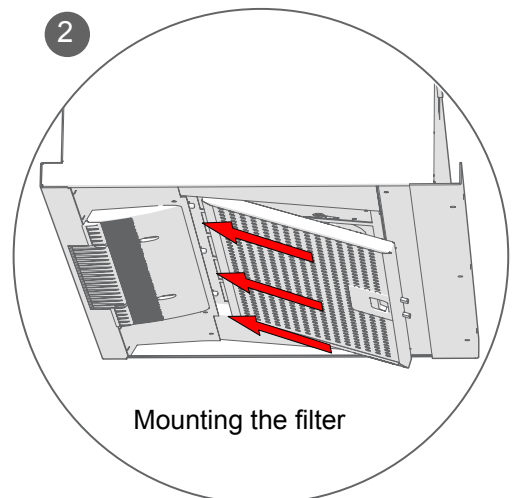
**NOTE!** Ensure that the locking device points downwards.



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



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

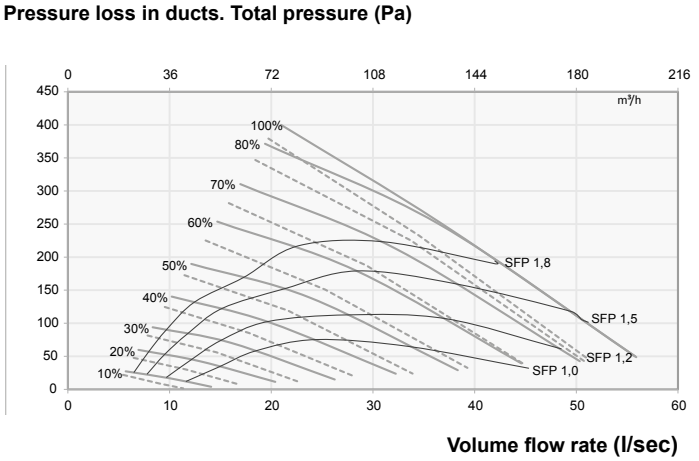
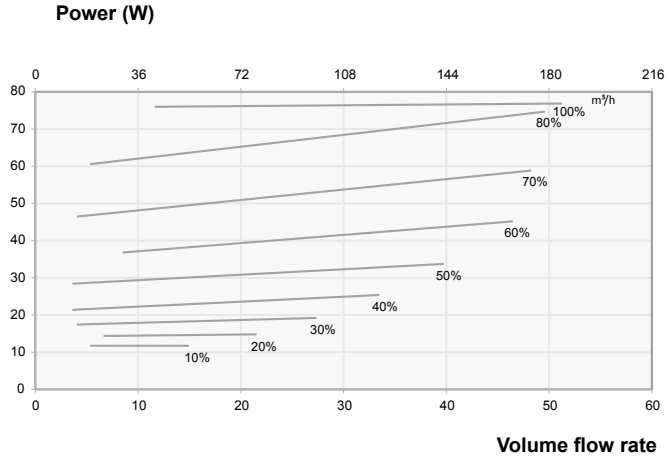
<b>Product title</b>	Adroit DV51CH Adroit DV51		
<b>Air volumes</b> Supply air Extract air	46 l/sec, 100 Pa 51 l/sec, 100 Pa	<b>Fans</b> Supply air Extract air	0.035 kW 0.35 A EC 0.035 kW 0.35 A EC
<b>Post-heating</b>	Electrical resistor, 900 W	<b>Electrical connection</b>	230 V, 50 Hz, 10A fuse rate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

## TECHNICAL SPECIFICATIONS ADROIT DV51CH

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

# AIR FLOWS AND SOUND VALUES

## FAN INPUT POWER      SUPPLY/EXTRACT AIR VOLUMES



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

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

————— extract air  
- - - - - supply air

## SOUND VALUES

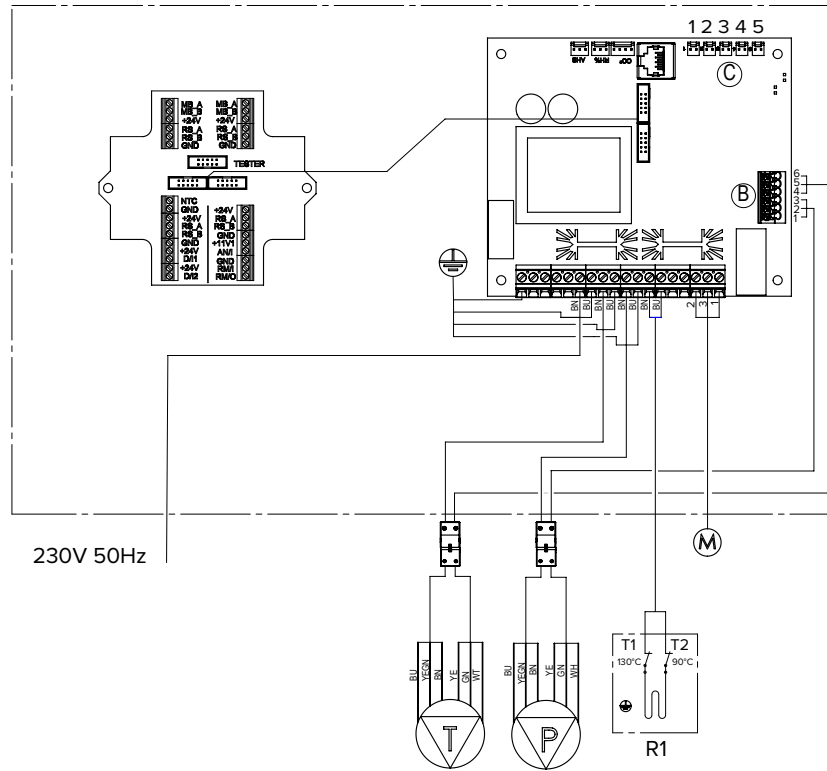
		Sound power level in the supply air duct (one duct) by octave band L <sub>w</sub> , dB										Sound power level in the extract air duct (one duct) by octave band L <sub>w</sub> , dB									
		Adjustment position										Adjustment position									
Adjustment position (%)		10	20	30	40	50	60	70	80	100	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	60	58	58	61	64	64	71	70	72		
	125	51	54	58	60	62	64	66	68	69	51	52	54	54	57	59	60	62	62		
	250	45	50	55	57	62	61	64	66	66	30	34	38	40	45	45	47	49	50		
	500	40	46	51	53	57	59	63	66	68	31	38	40	42	45	49	51	56	56		
	1000	32	39	45	47	51	55	59	64	64	21	26	30	33	36	40	42	45	46		
	2000	20	30	37	41	44	47	49	52	52	14	15	20	24	28	30	33	35	36		
	4000	18	22	29	35	40	44	47	50	51	18	17	17	17	18	20	22	24	25		
	8000	21	21	23	27	33	38	43	47	47	21	21	21	21	21	21	21	21	21		
L <sub>w</sub> , dB		58	62	66	67	70	72	75	80	82	61	59	59	62	65	65	72	71	73		
L <sub>WA</sub> , dB(A)		42	47	52	54	59	60	64	67	68	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	10	20	30	40	50	60	70	80	100		
L <sub>PA</sub> , dB (A)		21	24	28	29	32	35	38	40	40	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 <sub>PA</sub> , 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.

# Adroit® DV51 DV51CH

## INTERNAL ELECTRICAL CONNECTION

### Adroit 51 / Adroit DV51CH

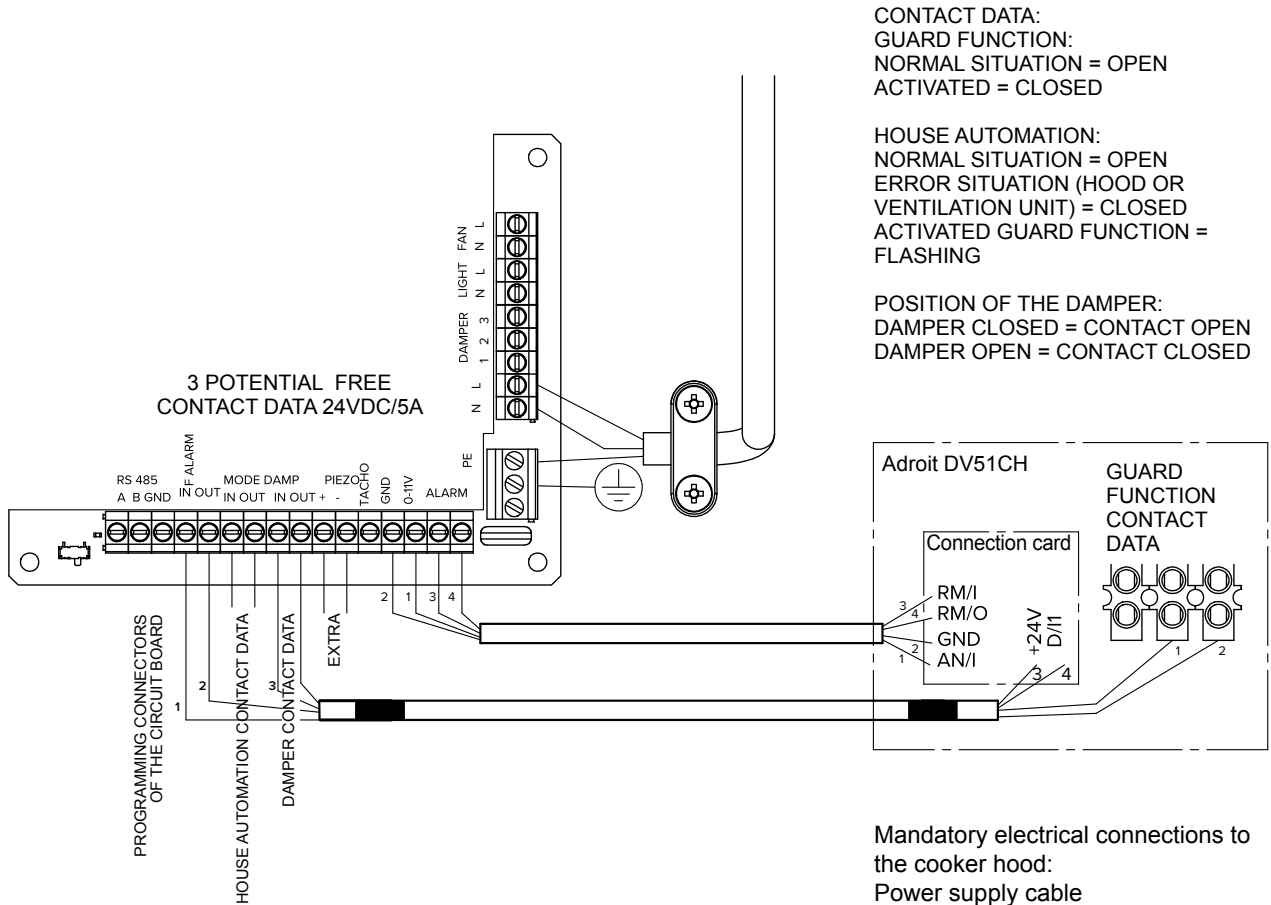


A	Motherboard	MB_A	External Modbus A signal	T	Supply air fan
B	1. Extract air fan tachometer (WT)	MB_B	External Modbus B signal	P	Extract air fan
	2. GND (GN)	+24V	+24V voltage (DC)	M	Damper motor
	3. Extract air fan PWM (YE)	GND	Digital and analog ground potential	AHS	Post-heating control
C	4. Supply air fan tachometer (WT)	RS_A	Local hardware Modbus A signal	CO <sub>2</sub>	Internal carbon dioxide sensor
	5. GND (GN)	RS_B	Local hardware Modbus B signal	RH%	Internal humidity sensor
	6. Supply air fan PWM (YE)	NTC	External temperature sensor connector	R1	Post-heating resistor with 90°C and 130°C overheating protection
D	1. Extract air	D/I1	Digital input 1		
	2. Outdoor air	D/I2	Digital input 2		
	3. Supply air	11V1	11.1 V operating voltage		
	4. Exhaust air	AN/I	Analog input 0-10VDC		
	5. Supply air from the HR cell	RM/I	24V relay input		
	LAN	RM/O	24V relay output		

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

## 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):

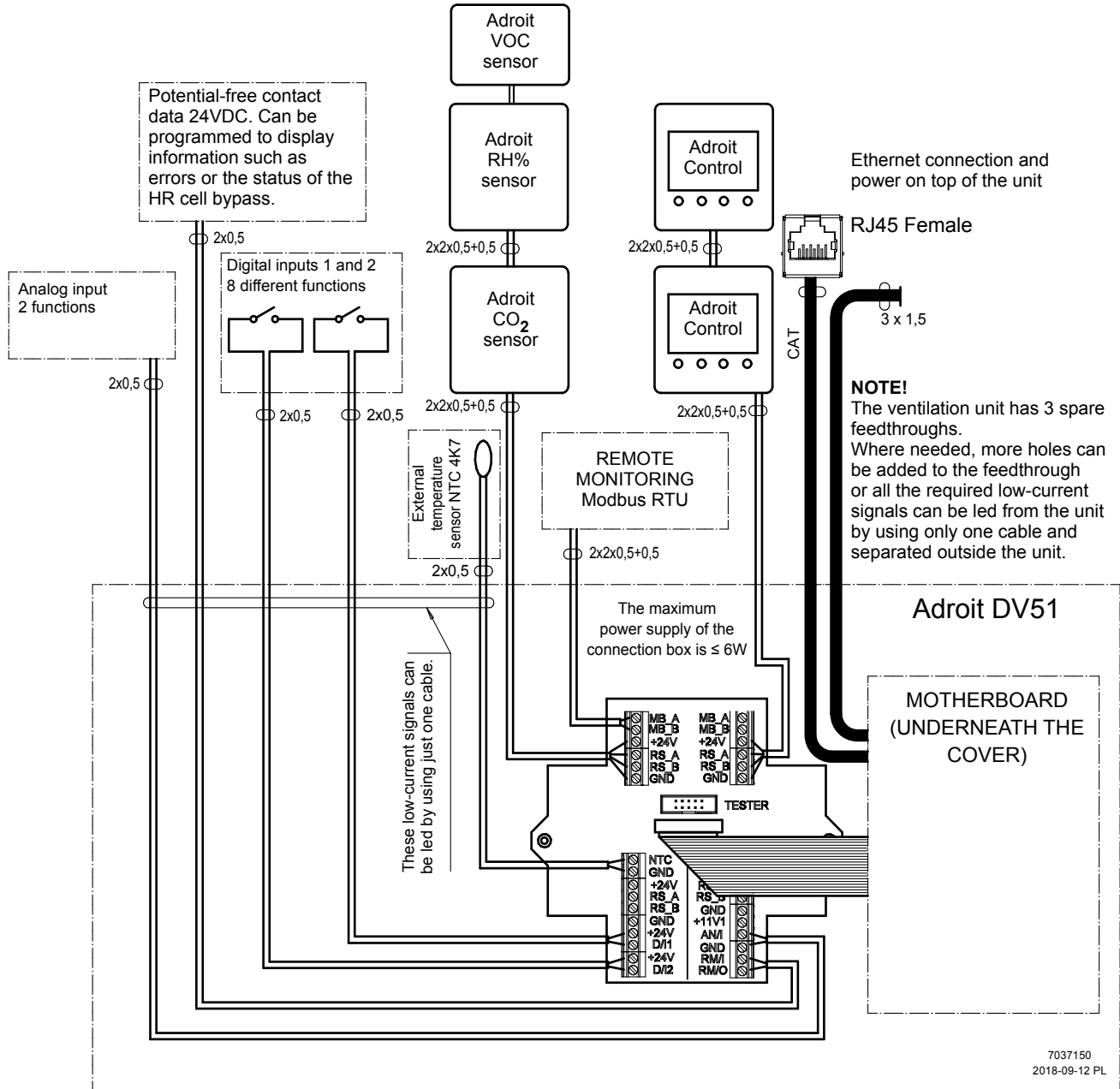
1. 0-11V – AN/I
2. GND – GND
3. ALARM – RM/I
4. ALARM – RM/O

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

# Adroit® DV51 DV51CH

## EXTERNAL ELECTRICAL CONNECTION

### Adroit DV51

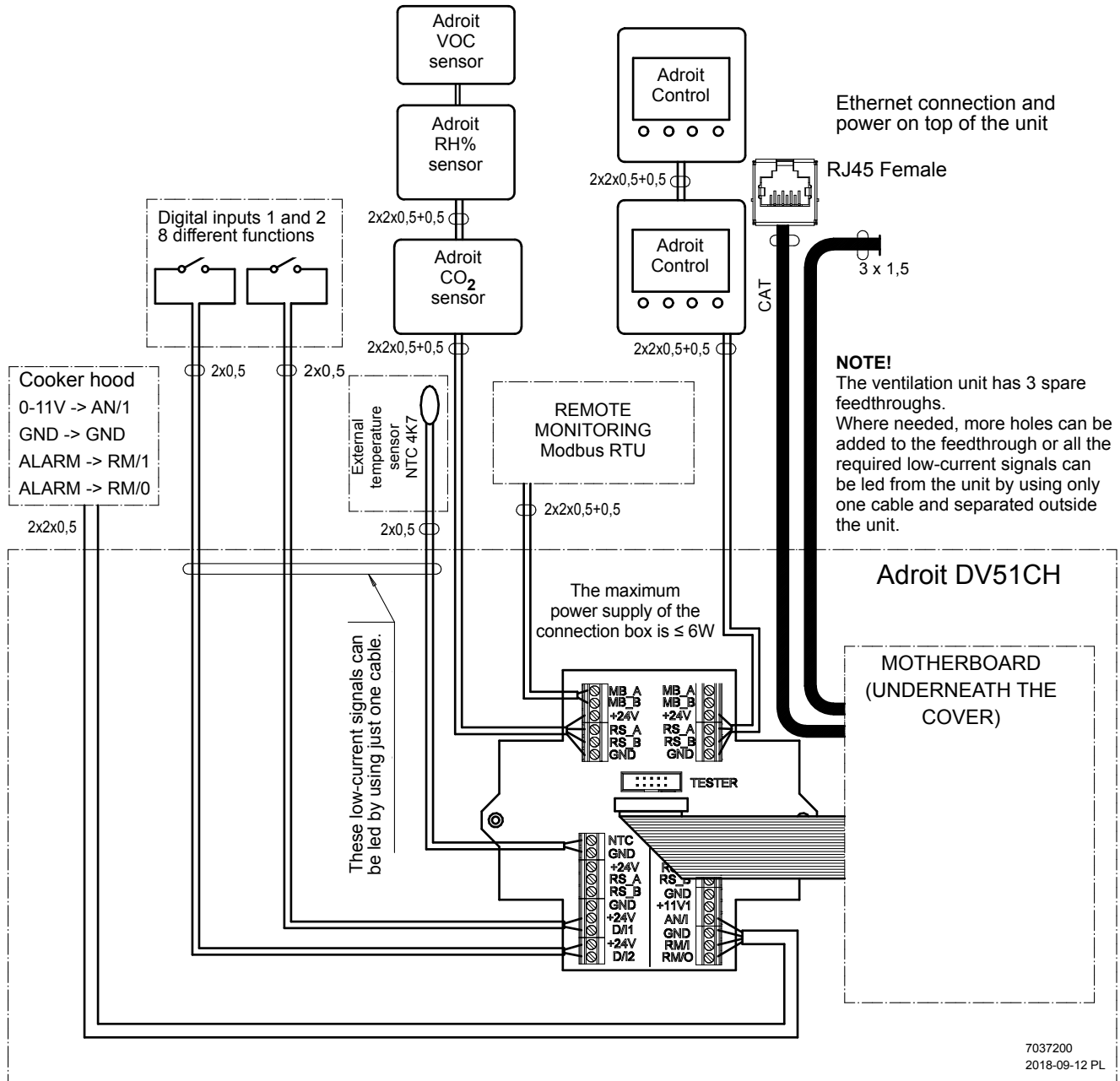


POWER SUPPLY		MB_A	External Modbus A signal	D/I1	Digital input 1
Maximum	≤6W	MB_B	External Modbus B signal	D/I2	Digital input 2
Adroit Control	1W	+24V	+24V voltage (DC)	11V1	11.1 V operating voltage
Adroit RH% sensor	0.3W	GND	Digital and analog ground potential	AN/I	Analog input 0-10VDC
Adroit CO <sub>2</sub> sensor	1.2W	RS_A	Local hardware Modbus A signal	RM/I	24V relay input
Adroit VOC sensor	2W	RS_B	Local hardware Modbus B signal	RM/O	24V relay output
Voltage	24 VDC	NTC	External temperature sensor connector		



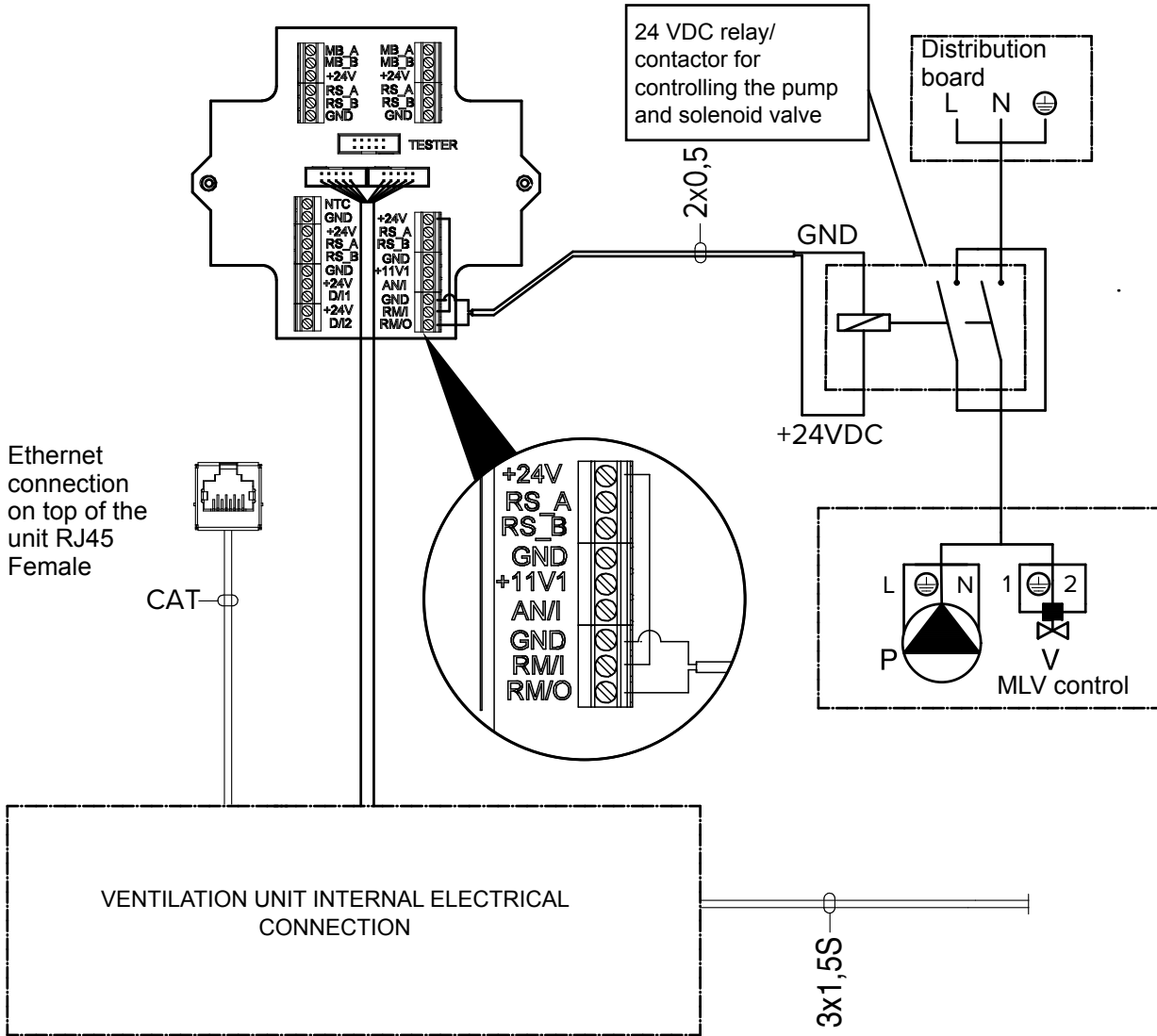
## EXTERNAL ELECTRICAL CONNECTION

### Adroit DV51CH



POWER SUPPLY		MB_A	External Modbus A signal	D/I1	Digital input 1
Maximum	≤6W	MB_B	External Modbus B signal	D/I2	Digital input 2
Adroit Control	1W	+24V	+24V voltage (DC)	11V1	11.1 V operating voltage
Adroit RH% sensor	0.3W	GND	Digital and analog ground potential	AN/I	Analog input 0-10VDC
Adroit CO <sub>2</sub> sensor	1.2W	RS_A	Local hardware Modbus A signal	RM/I	24V relay input
Adroit VOC sensor	2W	RS_B	Local hardware Modbus B signal	RM/O	24V relay output
Voltage	24 VDC	NTC	External temperature sensor connector		

## 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.

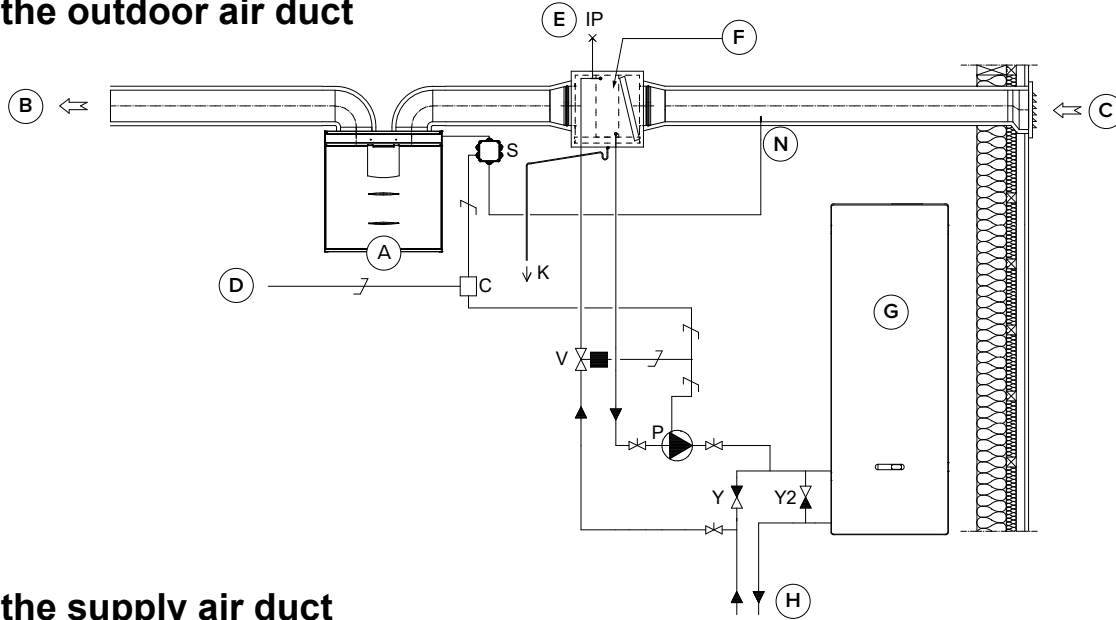


**NOTE:** Due to the risk of humidity damage, in a duct that has not been insulated for condensation the supply air temperature must not fall below +16 ... 20 °C.

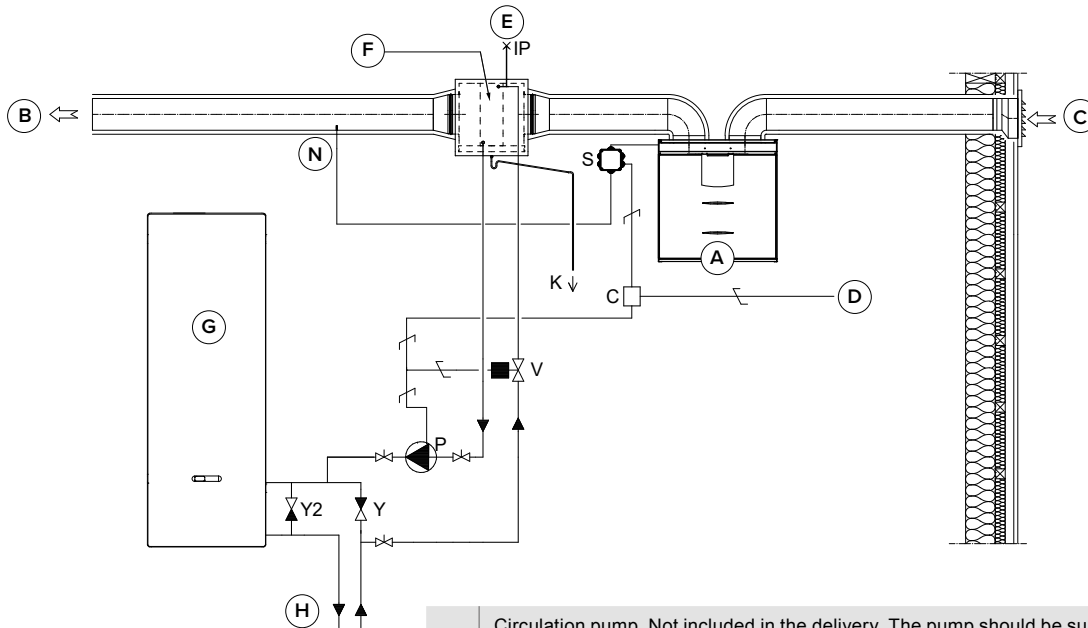
# Adroit® DV51 DV51CH

## BRINE HEAT EXCHANGER

### In the outdoor air duct



### In the supply air duct

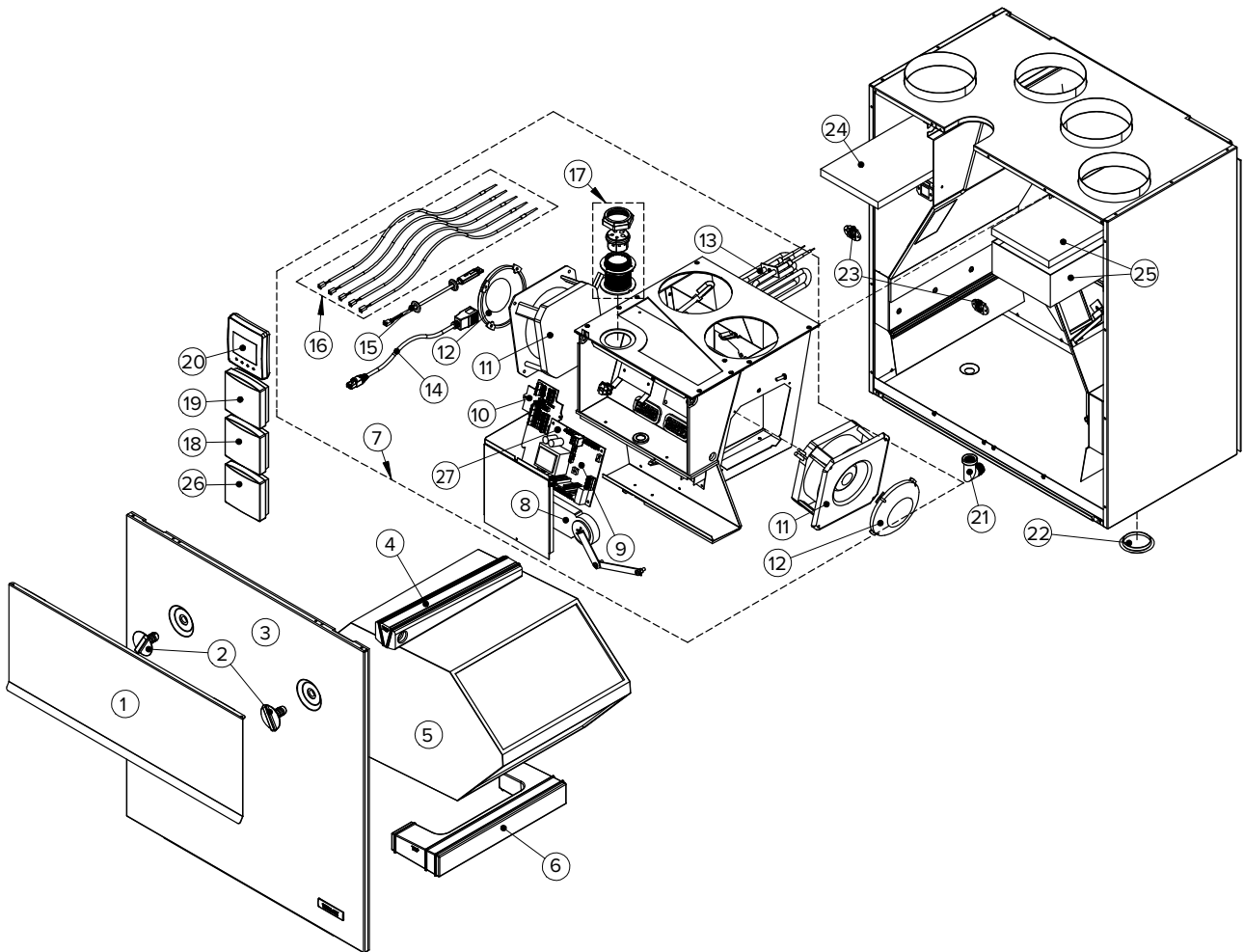


A	Ventilation unit
B	Supply air
C	Outdoor air
D	Feed from the distribution board
E	Air extraction
F	Brine heat exchanger (reverse connection)
G	Heat pump
H	Heat collection circuit
N	External NTC sensor

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/contacter 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

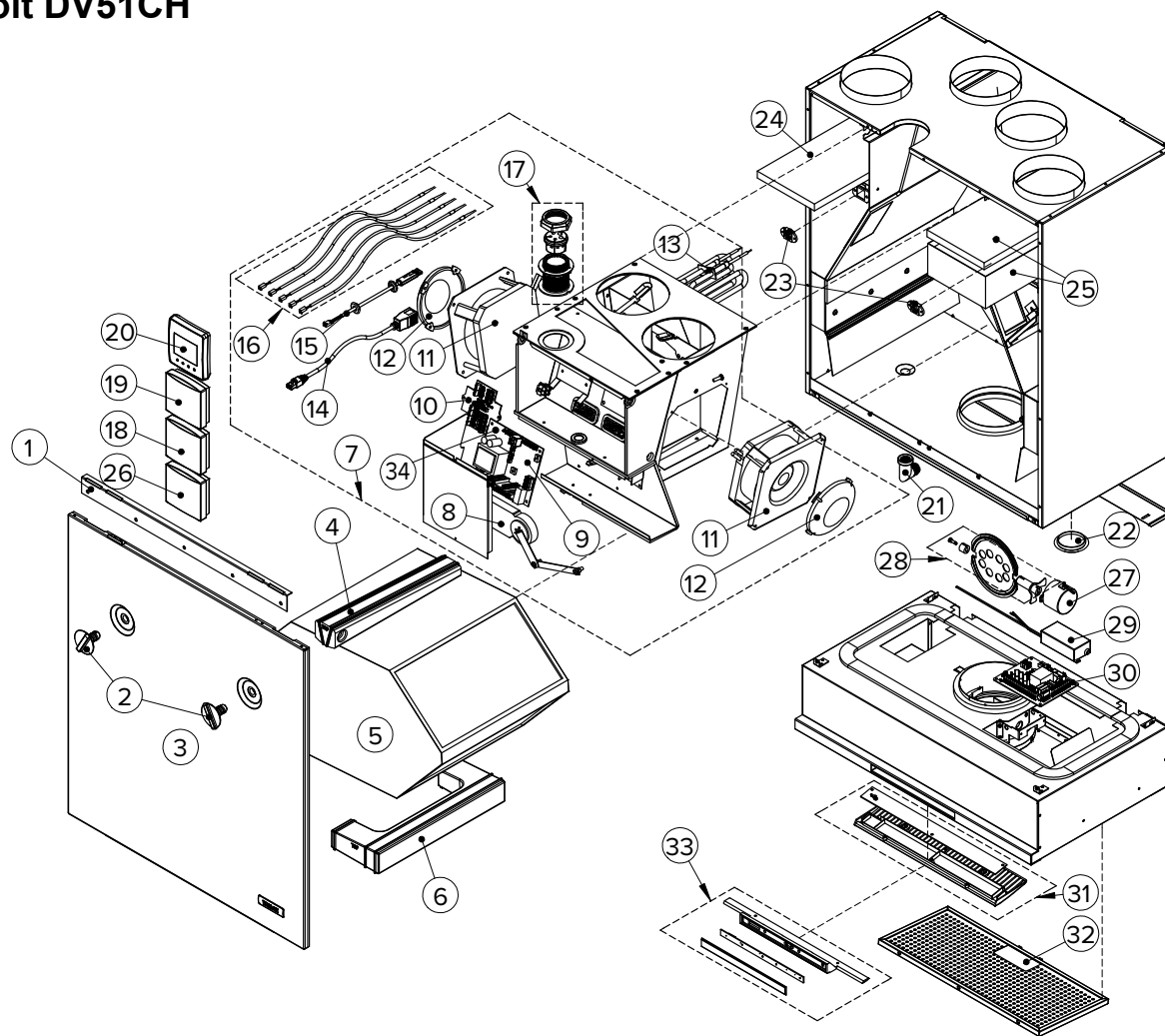
### Adroit DV51



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 <sub>2</sub> 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 <sub>2</sub> 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® DV51 DV51CH

## 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 <sub>2</sub> 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 <sub>2</sub> 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		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:**

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

**Applied Harmonised standards:**

<b>EN ISO 12100-1:2003+A1:2009</b>	Safety of machinery. General principles for design. Risk assessment and risk reduction
<b>BS EN 61000-6-4:2007+A1:2011</b>	Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments
<b>BS EN 60335-1:2012+A11:2014</b>	Household and similar electrical appliances. Safety. General requirements
<b>BS EN ISO 13732-1:2008</b>	Ergonomics of the thermal environment. Methods for the assessment of human responses to contact with surfaces. Hot surfaces
<b>BS EN ISO 3746:2010</b>	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:**

<b>Quality Assurance</b>	BS EN ISO 9001/2015 – Cert no – FM 00152
<b>Environmental Assurance</b>	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.

**Name:** Alan Siggins

**Date:** 10/06/2019  
**Position:** Managing Director

**Airflow Developments Limited**  
Aidelle House, Lancaster Road, Cressex Business Park  
High Wycombe, Buckinghamshire. HP12 3QP, U.K.  
T: +44 (0)1494 425252  
E: info@airflow.com W: airflow.com



## UKCA CERTIFICATE OF CONFORMITY



## 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:**

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

**Applied Harmonised standards:**

<b>EN 12100-1:2003+A1:2009</b>	Safety of machinery. General principles for design. Risk assessment and risk reduction
<b>BS 61000-6-4:2007+A1:2011</b>	Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments
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<b>Quality Assurance</b>	BS ISO 9001/2015 – Cert no – FM 00152
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**Name:** Alan Siggins

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## PRODUCT STATEMENT OF COMPLIANCE



Aidelle House, Lancaster Road, Cressex Business Park,  
High Wycombe, Buckinghamshire,  
HP12 3QP, United Kingdom

## Product Security and Telecommunications Infrastructure Statement of Compliance

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 requirements of the UK Product Security and Telecommunications Infrastructure (Product Security) regime.

**Designation of Equipment:** Airflow Ventilation Equipment

### Series / Type:

- Adroit with Cloud Connectivity functionality Series
- Entro-V with Modbus Series
- Duplexvent AHU Units Series (Multi, Multi V, Multi N Rooftop, Multi Eco, Multi Eco V, Multi Eco N Rooftop, Rotary, Rotary N Rooftop, Flexi, DUPLEXhome PS, DUPLEXhome PT, DUPLEXbase PS, DUPLEXbase PT) with RD5 or RD6 Control System
- iCONsmart

### Applied Legislations:

**PSTI Act 2022** Part 1 of the Product Security and Telecommunications Infrastructure

**Security Requirements for Relevant Connectable Products Regulations 2023** The Product Security and Telecommunications Infrastructure

The requirements are based on three of the original guidelines in the 2018 Code of Practice, and provisions in ETSI EN 303 645, on a statutory footing.

The minimum time that Airflow provides security updates for is 2 years from the date of installation/commissioning.

Information on how to report security issues related to the products listed above: please contact Airflow on the telephone number shown below and describe the security issues encountered.

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

Signed:

Date: 28/03/2024

Name: Alan Siggins

Position: Managing Director

Telephone: (Int +44) (UK 0) 1494 525252; Fax: (Int +44) (UK 0) 1494 461073  
E-mail: [info@airflow.com](mailto:info@airflow.com); Website: [www.airflow.com](http://www.airflow.com)

Form No:- 080  
Issue:- 002  
Date Revised:- 09/06/2015



# 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.



Call: 01494 525252

Visit: [airflow.com](http://airflow.com)



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