



# Climate Systems



## BRINK Renovent HR Installation and Operation Manual

# **Installation instructions**

## **Heat recovery unit Renovent HR Medium/Large**



STORE NEAR THE APPLIANCE



# **Climate Systems**

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An appliance from the updated Brink Renovent HR series is a heat recovery unit with an efficiency of 95% and energy-saving constant-volume fans. The new generation stands out for its:

- steplessly adjustable air flow rates through a control panel;
- filter indication on the appliance and the possibility for filter indication on the multiple switch;
- completely new frost protection system that ensures optimum performance of the appliance, even at very low atmospheric temperatures;
- limited sound production due to pressure fluctuation.

The appliance comes ready for use. All control equipment has been mounted and checked in the factory.

On installation, the appliance must be connected to the air ducts, the condensate discharge, the mains supply and the multiple switch.

The installer can change the desired air flow for every setting with the aid of the control panel on the appliance. See Chapter 4 for a detailed description 4.

The possibilities of the Renovent HR can be extended using the separately available option pcb that the installer can place in the appliance. For a description of the possibilities of the option pcb, see section 4.6 and wiring diagram section 9.4.

This option pcb is described in more detail in the installation instructions that come with the option pcb.

It is possible to connect a Brink preheater to the basic pcb of the Renovent HR without having to install an option pcb (see section 9.4).

The Renovent HR is available in two versions as regards ventilation capacity:

- “Renovent Medium” has a ventilation capacity of up to 300 m<sup>3</sup>/h at 150 Pa resistance in the duct system;
- “Renovent Large” produces a maximum of 400 m<sup>3</sup>/h at 150 Pa resistance in the duct system.

Both versions are available in various versions as regards ducts connections and filter door position, and with or without bypass unit.

The Renovent HR comes ready to plug in with a 230 V mains plug and a connection for the low-voltage multiple switch on the outside of the appliance.

### 2.1 Ducts connection options

The Renovent HR is available in three versions as regards ducts connections:

- all connections at the top; type 4/0
- “to dwelling” at the bottom; type 3/1
- “to dwelling” and “from dwelling” at the bottom; type 2/2

For pictures and dimensions of these appliances, see sections 5.6.1 to 5.6.4.

### 2.2 Filter door position options

The appliance is available ex factory in a right-hand or left-hand version.

That changes the position of the duct connections.

The right-hand version has the filter door on the right-hand side of the appliance and the left-hand appliance has the filter door on the left-hand side of the appliance.

It is possible to convert a right-hand appliance into a left-hand one. The filter door can be moved to the left-hand side by reversing the appliance, exchanging front and rear covers and moving the display. Similarly, a left-hand version can be converted into a right-hand one.

### 2.3 Bypass

The appliance can be supplied ex factory with a nearly 100% bypass, which can be used to interrupt the heat recovery, if desired, to supplied fresh, cool outside air. The information and diagram in these installation instructions refer to the 100% bypass that is supplied ex factory; in this version the heat exchanger is equipped with a sliding grate that shuts off the air-flow through the exchanger. In the right-hand Renovent HR the

supply air is shut off; in the left-hand version the discharge air is shut off. When a bypass has been retrofitted, it is no longer possible to mount a sliding grate.

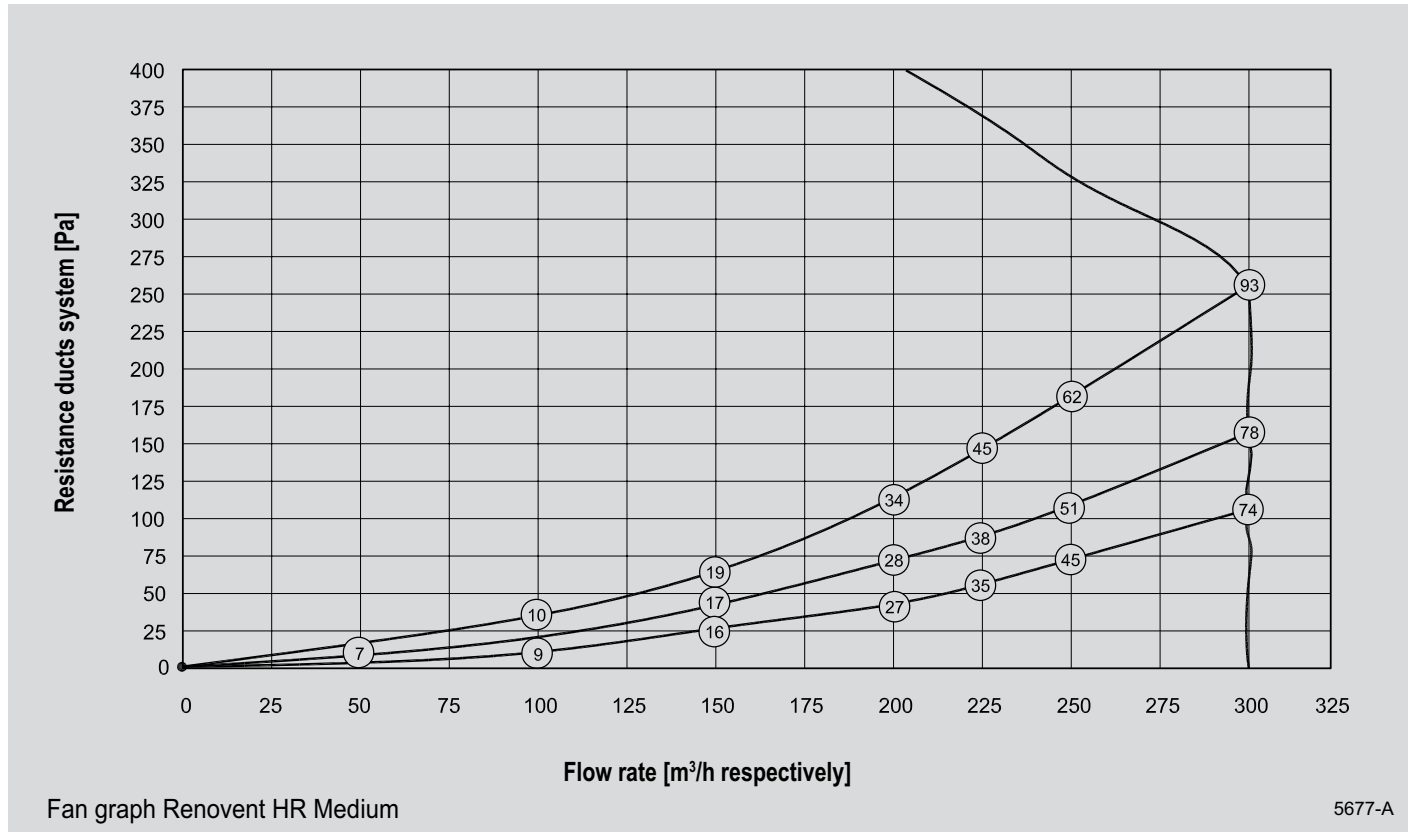
The operation and preconditions of the bypass control are explained in more detail in section 4.3. The bypass unit that is retrofitted to the appliance has the same control system as the factory-fitted bypass.

## 2.4 Technical information

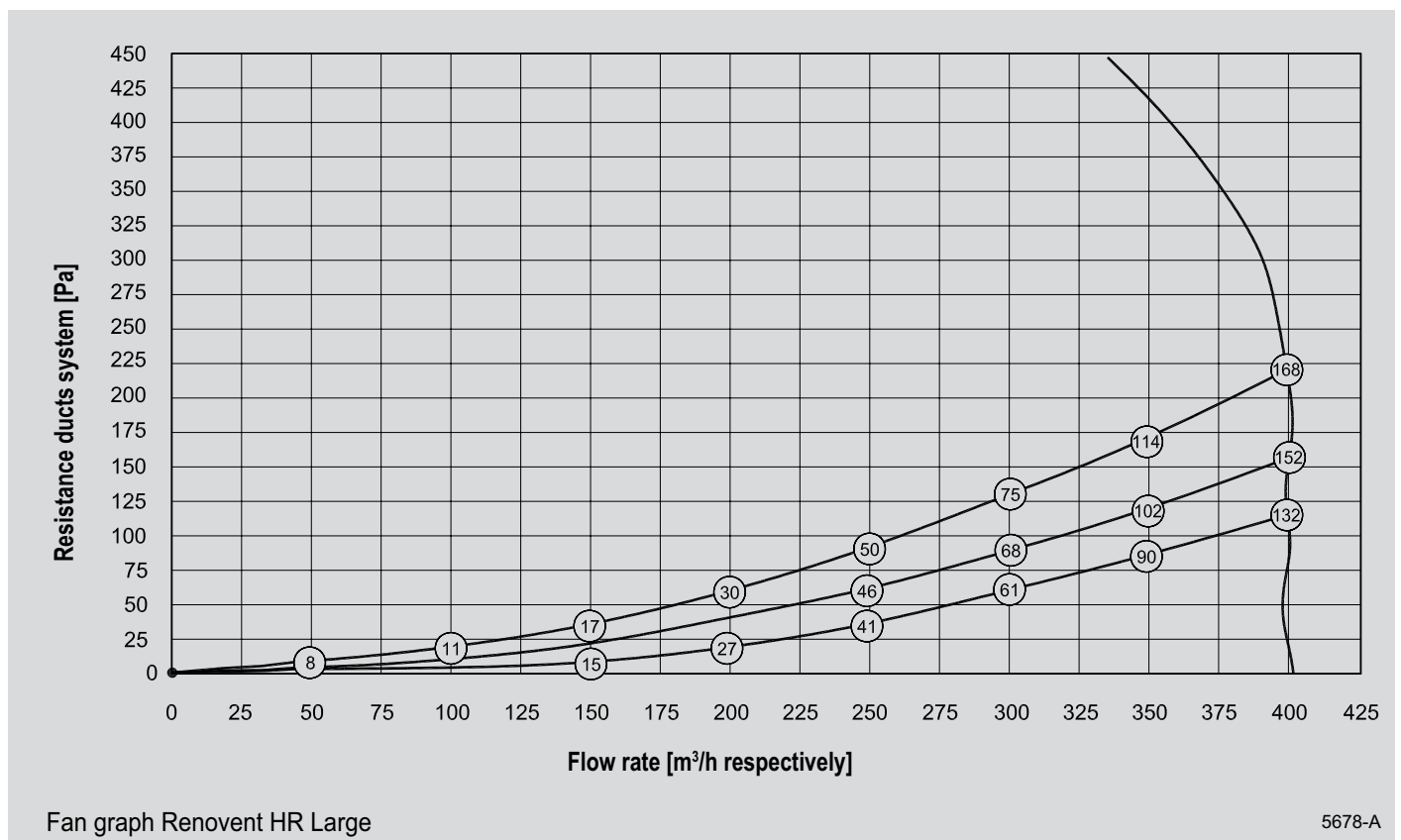
		Renovent HR Medium			Renovent HR Large		
Supply voltage [V~/Hz]		230/50					
Protection degree		IP31					
Dimensions (w x h x d) [mm]		675 x 602 x 420			675 x 602 x 430		
Duct diameter [mm]		Ø160			Ø180		
External diameter condensate discharge [mm]		Ø20					
Massa [kg] (Excl. bypass unit of 3.5 kg)		31			32		
Filter class		G3 (F6 optional)					
Fan setting		1	2	3	1	2	3
Ventilation capacity [m³/h respectively]		100	150	225	100	200	300
Permissible resistance ducts system [Pa]		15 - 31	31 - 66	64 - 138	8 - 17	31 - 59	67 - 128
Rated power [W]		18 - 20	32 - 38	70 - 90	20 - 21	53 - 60	121 - 149
Rated current [A]		0.13 - 0.14	0.22 - 0.26	0.49 - 0.59	0.2	0.42 - 0.60	0.9 - 1.09
Cos φ		0.60 - 0.61	0.62 - 0.63	0.63 - 0.66	0.54	0.61 - 0.62	0.61 - 0.62
Noise capacity level Lw (A)	Static pressure [Pa]	40	80	160	40	80	240
	Housing emission [dB(A)]	28.5	38	46.5	<32	42	52.5
	Duct “from dwelling” [dB(A)]	<24	33	41	<30.5	38	46.5
	Duct “to dwelling”	48.5	56	66	51.5	61.5	69

		bypass unit					
Supply voltage [V/Hz]		230/50					
Protection degree		IP31					
Dimensions (w x h x d) [mm]		675 x 602 x 85					
Weight [ kg]		3.5					
Rated power [W]		0.5					
Rated current [A]		0.02					

## 2.5 Fan graphs



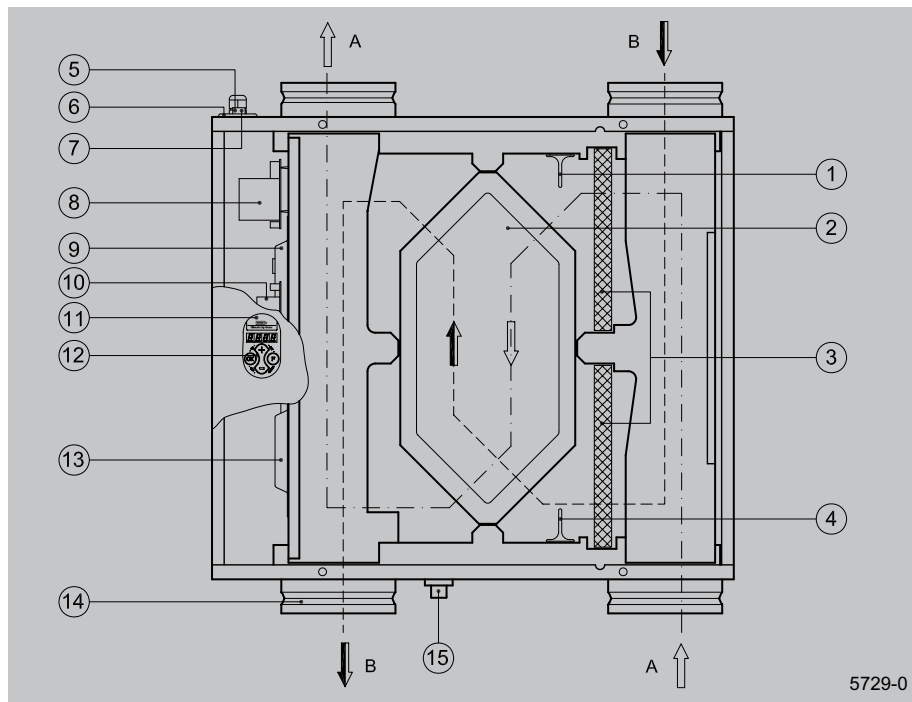
Note: The value stated in the circle is the capacity per fan (in Watt)



Note: The value stated in the circle is the capacity per fan (in Watt)



### 3.1 Exploded view appliance



A= Output air flow  
B= Input air flow

### 3.2 Function components

1	Interior temperature sensor	Measures the temperature of the air from the dwelling.
2	Heat exchanger	Ensures heat transfer between input and output air
3	Filters	Filter both air flows.
4	Atmospheric temperature sensor	Measures outside air temperature.
5	Communication port	Connections for cable to multiple switch, if desired with filter indicator.
6	Metric swivel	Swivel for feeding through power cable 230 Volt
7	OpenTherm connection	Two-pole connector for OpenTherm control
8	Option pcb (non-standard)	Contains various additional control inputs and outputs for provisions such as a pre-heater, a postheater, two control valves, CO <sub>2</sub> sensor, H <sub>2</sub> O sensor and emergency setting.
9	Input fan	Feeds fresh air into the dwelling.
10	Basic pcb	Contains the control electronics for the basic functions.
11	Computer port	Computer connection for service purposes.
12	Control panel	Interface between user and control electronics.
13	Output fan	Discharges fouled air from the dwelling to the atmosphere.
14	Duct spigots	Connections for the input and output ducts.
15	Connection condensate discharge	Connection condensate discharge.

### 4.1 Outline description

An appliance from the Renovent HR series is a highly advanced heat recovery unit, specially designed for minimum energy consumption and maximum comfort. This is achieved with the aid of various electronic control systems. A control unit with microprocessor controls and monitors the safe operation of the appliance and ensures that the air quantities remain constant

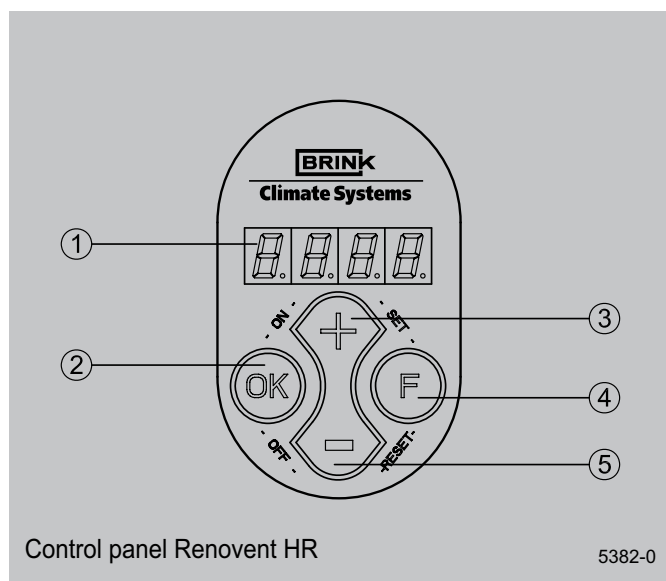
and at the preset values.

The Renovent HR comes with an control panel with display, enabling stepless adjustment of the volume without having to open the appliance. Moreover, information regarding the operation can be read out from the outside of the appliance.

### 4.2 LED display system and control panel

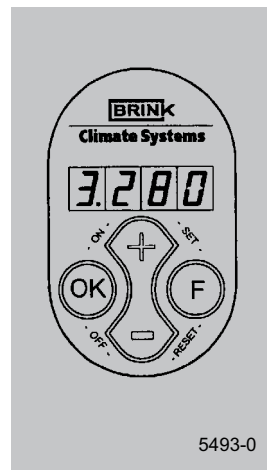
The Renovent HR appliance is fitted with a control panel. It can be used to retrieve and modify the settings in the control unit program.

The control panel has four keys and a display.



- 1 = Display
- 2 = Key "OK" (confirm, ready, filter indication reset)
- 3 = Key increase parameter
- 4 = Function key
- 5 = Key reduce parameter

On the left the display indicates the ventilation setting or the parameter type. On the right it shows the readout value, for instance the preset volume.



#### Example:

The display now shows that the appliance is running at ventilation setting 3 at a flow rate of 280 m<sup>3</sup>/h.

The 4 keys have the following functions:

- F Function key / switching on and off parameter menu
- + Next parameter / increase value
- - Previous parameter / decrease value
- OK Switching on and off settings menu / manual fault reset/ filter indication reset

Other commands can be entered with key combinations.

- F & + (set), confirm parameter value
- F & - (reset), parameter value back to factory setting
- OK & + (ON), O switch on appliance
- OK & - (OFF), F switch off appliance

Wherever this booklet states that a key has to be pressed, the key in question is printed in quotation marks and in bold.

Example: - press key "**OK**".

### 4.3 Bypass conditions

The bypass, if mounted, makes it possible to supply fresh outside air that is not heated by the heat exchanger. Particularly during summer nights it is desirable to supply cooler outside air. Then the hot air in the dwelling is replaced by cooler outside air in so far as possible. The bypass damper opens when the interior temperature exceeds an adjustable temperature (standard

22 °C) while the outside air is warmer than an adjustable temperature (standard 10 °C) but colder than the interior air. Outside air supplied through the bypass is still being filtered, so the air quality is optimal, irrespective of the bypass setting. The installer can set the bypass for different situations at adjustable parameter I8 (also see §6.4).

#### 4.4 Frost safety

The frost protection system ensures that the secondary side of the heat exchanger (outlet side) does not freeze up by introducing an imbalance between the inlet and outlet air flows,

dependent on the outside air temperature and the pressure across the heat exchanger.

#### 4.5 Filter indication

The appliance is fitted with a filter indication system. It indicates on the display when the filter is fouled. For more detailed information refer to sections 7.2 and 8.1.

#### 4.6 Option pcb

The Renovent HR appliance can be equipped with an option pcb (article code 289990). It provides the following functions.

##### Input 0-10 V for a carbon dioxide sensor

When several people are present in the dwelling, more CO<sub>2</sub> is produced and then this sensor automatically increases the ventilation quantity.

##### Input 0-10 V for a moisture sensor

When the moisture content in the dwelling increases, for instance when someone is taking a shower, this sensor automatically increases the ventilation quantity.

##### Switching input for bedroom valve.

With this input (make contact) the bedroom valve can be controlled, for instance using a time switch.

##### Switching output for bedroom valve 24 VAC

The option pcb has a built-in control for a 24 VAC bedroom valve. Such a valve can directly be connected to the pcb. The valve can be controlled from the switching input for the bedroom valve.

##### Switching output for 24 VAC flue gas safety valve

If it is recommended to combine the discharge of the central heating and the Renovent HR appliance, the Renovent connection to the joint discharge must be protected with a flue gas safety valve. The valve can directly be connected to this pcb

##### Control for preheater up to 1000 W

The preheater ensures that the input air is kept above 0°C, so the Renovent HR can continue the balanced ventilation also at very low atmospheric temperatures. The option pcb contains a control for a preheater up to 1000 W. The preheater can be connected to the option pcb without separate control. The hook-up wire of the preheater must be fed into the appliance; the 230 V power cable must separately be connected to the option pcb.

##### Control for postheater up to 1000 W

The postheater ensures that the supply air that is blown into the dwelling can be kept at the preset temperature. That way additional warmth can be brought into the dwelling. The option pcb contains a control for a postheater up to 1000 W. The postheater can be connected to the option pcb without separate control. The hook-up wire of the postheater must be fed into the appliance; the 230 V power cable must separately be connected to the option pcb.

##### Two freely programmable make contact inputs

These inputs make it possible :

- to open the bypass without regard for the temperature conditions;
- to switch the inlet or outlet low or high, to circumvent the frost protection;
- to switch the inlet low when the bypass opens.

##### Switch input for emergency.

For instance a fire alarm can be connected to this input. As soon as the fire alarm is triggered, the appliance switches to emergency mode.

As standard that is set to switch off the fans.

### 5.1 Installation general

The appliance installation procedure can be summarised as follows:

1. Placing the appliance (§5.2)
2. Connecting the ducts (§5.3)
3. Connecting the condensate discharge (§5.4)
4. Electric connection:  
Connecting the multiple switch and, if necessary, the mains power and the OpenTherm connector (§5.5)

The Renovent HR must be installed in accordance with:

- Quality requirements ventilation systems dwellings,
- Quality requirements balanced ventilation in dwellings,
- The regulations for ventilation of dwellings and residential buildings
- The safety regulations for low-voltage installations,
- The regulations for connection to interior sewers in dwellings and residential buildings,
- Any additional regulations of the local utilities
- The installation instructions for the Renovent HR.

### 5.2 Placing the appliance

An appliance from the Renovent HR series can directly be mounted to the wall using the suspension strips supplied for that purpose. For a vibration-free result the appliance must be mounted to a solid wall with a minimum mass of 200 kg/m<sup>2</sup>. A gypsum block or metal stud wall does not suffice! Additional measures such as double panelling or extra studs are required. If required, a mounting support for floor mounting is available (article code 217031). In addition, the following aspects must be taken into account.

- The appliance must be placed level.
- The installation room must be such that a good condensate discharge with air trap and pitch for condensate can be made.
- The installation room must be frost-free.
- Make sure there is a free space of at least 70 cm at the front of the appliance and a free headroom of 1.8 m for cleaning the filters and carrying out maintenance 1.8 m.

### 5.3 Connecting ducts

The air outlet duct does not have to be fitted with a control valve. The appliance itself controls the air quantities.

To prevent condensation on the outside of the outside air input duct and the air output duct from the Renovent HR, these ducts must externally be provided with a vapour barrier as far as the appliance. If Brink synthetic (EPE) pipe is used here, additional insulation is not necessary. Use Brink thermally insulated hoses for deviating diameters. For optimum fan noise damping, it is recommended to use Brink acoustic hoses with a length of 1 metre (Medium version) between the appliance and the ducts from and to the dwelling.

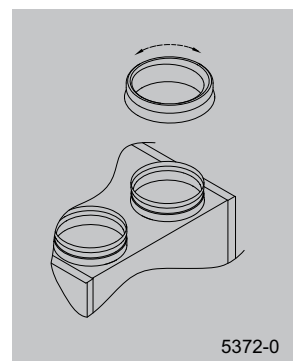
1.5 metre (Large version). Pay attention to crosstalk and installation noise, also for incorporated ducts. Design the duct with separate branches to the damper to prevent crosstalk. If necessary, the input ducts must be insulated, for instance when they are installed outside the insulated envelope. Preferably use Brink incorporated ducts. These ducts have been developed with a view to a low duct resistance.

A minimum duct resistance of 160 mm recommended for the Renovent Medium. A diameter of 180 mm is recommended for the Renovent Large.

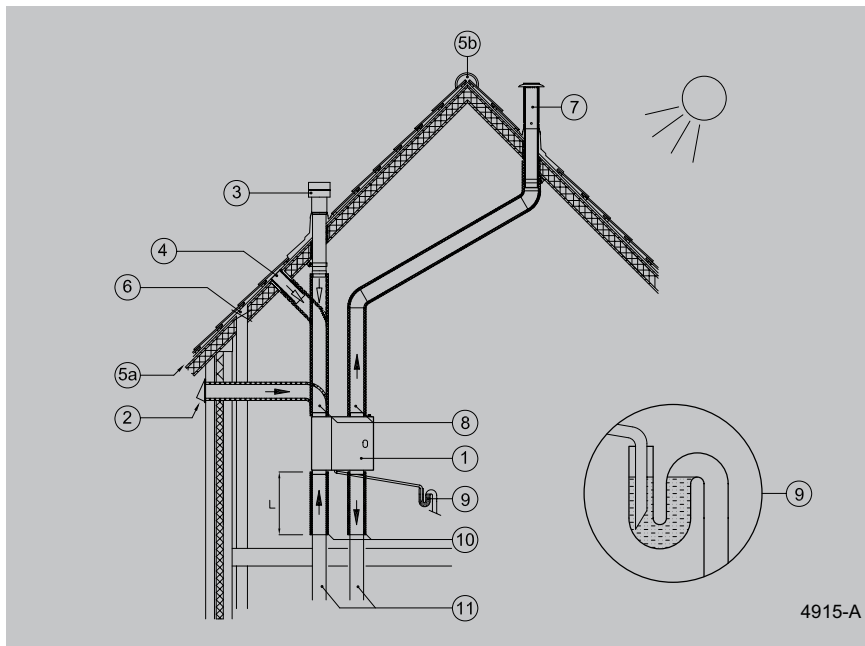
The duct must always have an adequate diameter, that is a diameter of Ø150 mm for air quantities up to 250 m<sup>3</sup>/h, a diameter of Ø160 mm for air quantities up to 325 m<sup>3</sup>/h and a diameter of Ø180 mm for air quantities up to 400 m<sup>3</sup>/h.

The duct spigots of the Renovent HR Medium are fitted with loose sealing rings Ø160 mm.

The duct spigots of the Renovent HR Large are fitted with eccentric adapters of Ø180 mm. The centre of the connecting duct can be shifted by rotating these eccentric adapters.



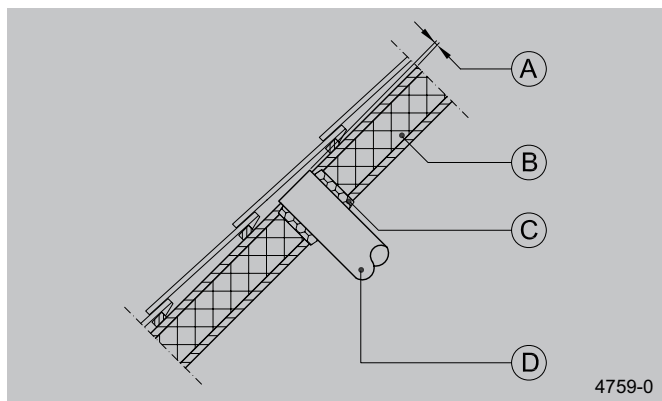
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- 1 = Renovent HR (place level)
- 2 = Recommended inlet air suction
- 3 = Input air suction through the roof area
- 4 = Input air suction under the tiles
- 5a = Free suction bottom roof area
- 5b = Free suction top roof area
- 6 = Sewer relief
- 7 = Recommended location ventilation air output; use Brink insulated sleeve.
- 8 = Brink synthetic high efficiency heat recovery pipe
- 9 = Condensate discharge
- 10 = Acoustic hose
- 11 = Ducts from and to dwelling

- Arrange the exterior air supply from the shadowed side of the dwelling, for instance from the wall or overhang. If the outdoor air is sucked in from under the tiles, it must be ensured that no condensation develops in the roof boarding and no water can run in. Ventilation air can be sucked in from under the tiles if air can access freely at the top and the bottom of the roof area and the sewage vent stack does not end under the tiles. This solution is not recommended for the Renovent with bypass.

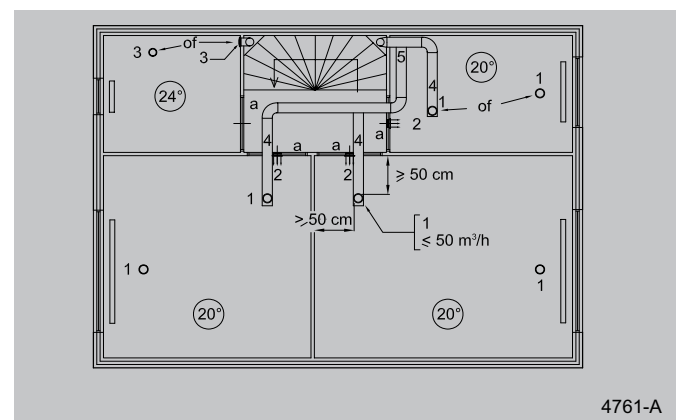
- Always use an insulated ventilation roof sleeve.
- The maximum permissible resistance in the duct system is 150 Pa at the maximum ventilation capacity. If the resistance of the duct system is higher, the maximum ventilation capacity will be lower.
- The location of the mechanical ventilation output and the sewer stack vent relative to the input must be chosen to prevent nuisance.
- Choose the location of the input valves to prevent fouling and draught. We recommend the use the Brink weak-inductive input dampers.



- A = Spacing 10 mm above roof deck
- B = Roof insulation
- C = Seal with foam
- D = Pipe for make-up air to be carefully insulated and provided with vapour barrier

- Feed the output duct through the roof boarding in such a manner that no condensation develops in the roof boarding.
- Install the output duct between the Renovent HR and the roof sleeve in such a manner that surface condensation is prevented.

Install sufficient overflow openings, door gap 2 cm.



- 1 = Brink low-inductive supply valves
- 2 = Input from wall
- 3 = Suction valve in ceiling or high in wall
- 4 = Prevent crosstalk
- 5 = Preferably Brink incorporated ducts
- a = Gap under the door 2 cm.

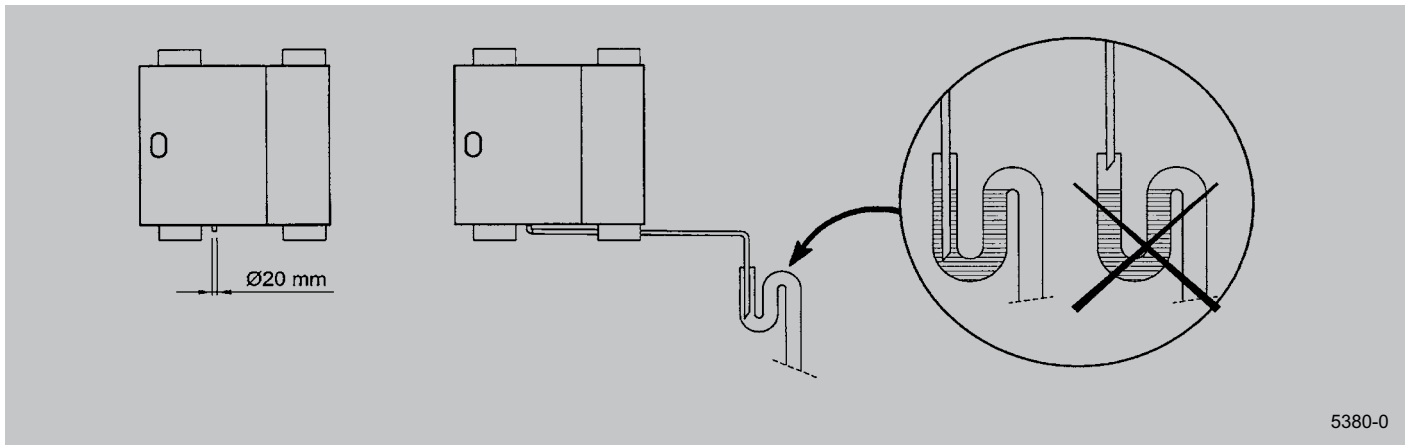
### 5.4 Connecting the condensate discharge

The condensate discharge line for the Brink Renovent HR is fed through the lower panel. The condensate must be discharged through a drainpipe. The drain must discharge under the water level in the U-trap. The condensate discharge comes separately with the appliance and the installer must screw it into the underside of the appliance. This condensate discharge connection has an external connecting diameter of 20 mm.

The condensate discharge line can be glued to it, if necessary using a square bend. The installer can glue the condensate discharge in the desired position in the lower part of the appliance.

See the drawing below for an example of a connection to a drainpipe.

Pour water into the drip tray to create an air trap



### 5.5 Electric connections

The appliance comes with a 230 V mains plug

#### 5.5.1 Connecting the multiple switch

The multiple switch (not supplied with the appliance) is connected to the modular connector type RJ12 that is placed at the top of the appliance. (See A figure below)

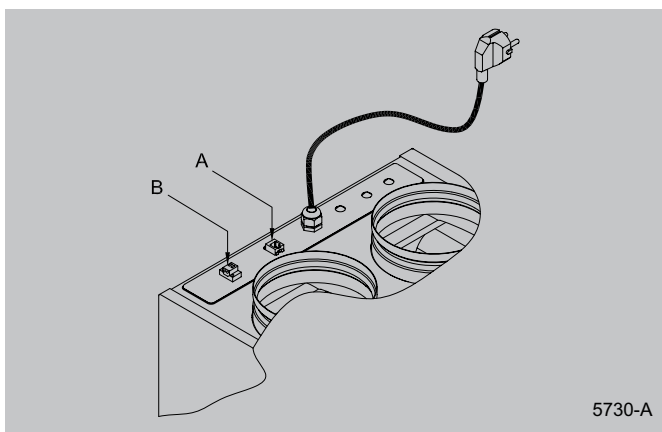
Dependent on the type of multiple switch that is used, a plug RJ11 or RJ12 can be connected to it.

- Application of a 3-way switch with filter indication in all cases requires an RJ12 plug in combination with a 6-core modular cable.

- Application of a 3-way switch without filter indication in all cases requires an RJ11 plug in combination with a 4-core modular cable.

Refer to the next page for examples of wiring diagrams.

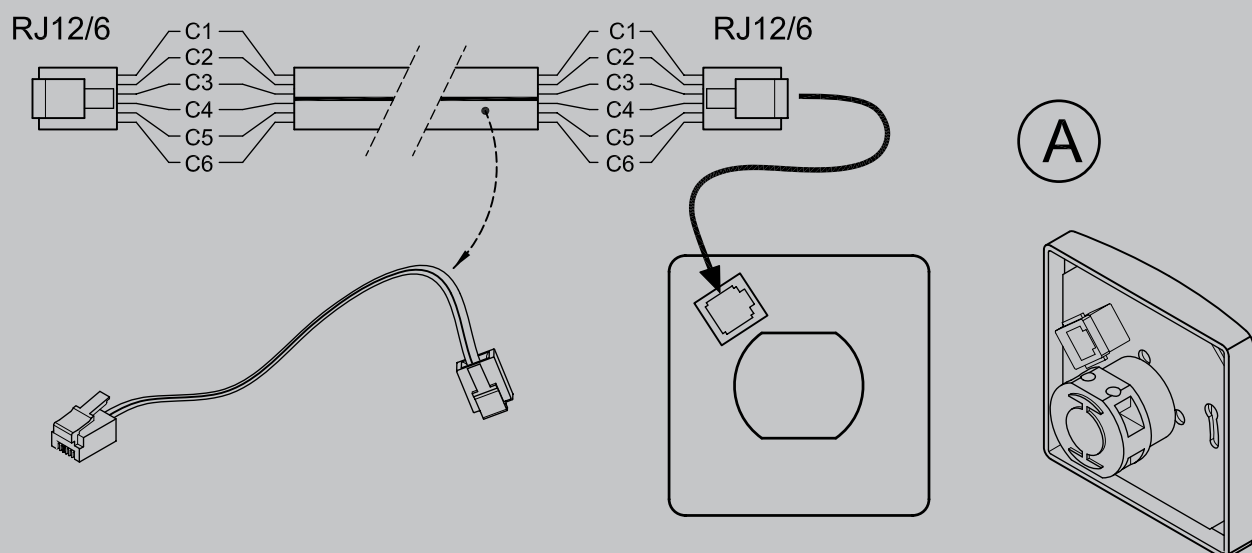
Connector B is a 2-pole screw connector which is used in combination with demand-controlled ventilation.



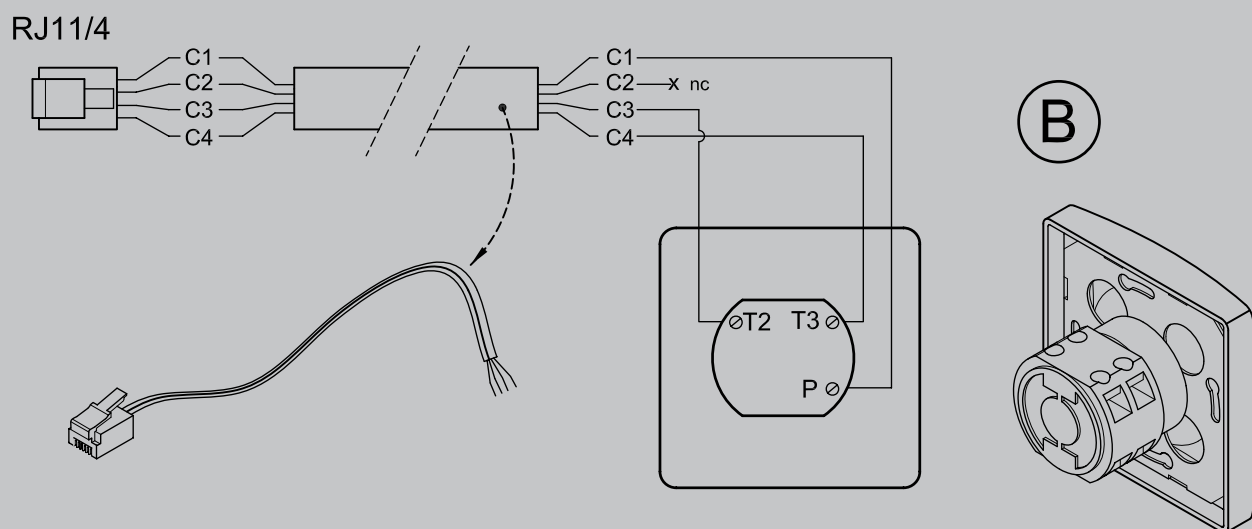
A = Modular connector  
B = OpenTherm connector

The figure below shows 2 options for connecting a 3-way switch, viz.:

- A. 3-way switch with filter indication; switch with modular connector (6-core cable, two modular connectors RJ12/6),
- B. 3-way switch without filter indication; switch with screw connector (4-core cable, one modular connector RJ11/4)



Wiring diagram 3-way switch with filter indication with modular connector  
(Note that for both modular connectors the “tab” must be mounted on the side of the mark on the modular cable)



Wiring diagram 3-way switch without filter indication

E2075-E

The colours of wires C1 - C6, and C1 to C4 respectively, indicated in the diagrams above may vary; that depends on the type of modular cable used.

### 5.5.2 Connecting the OpenTherm connector

In combination with demand-controlled ventilation, the appliance can also be controlled with the OpenTherm protocol instead of as low-voltage switch. OpenTherm allows continuous adjustment of the rpm for the flow rate. A 2-core low-vol-

tag cable with a core diameter of at least 0.8 mm must be used as connecting cable. Interchanging the cable connection to the 2-poe screw connector does not influence the appliance's performance.

### 5.5.3 Connecting the power plug

The appliance can be connected to an easily accessible, earthed wall socket with the plug that is mounted to the appliance. The electric installation must comply with the requirements of your power company.

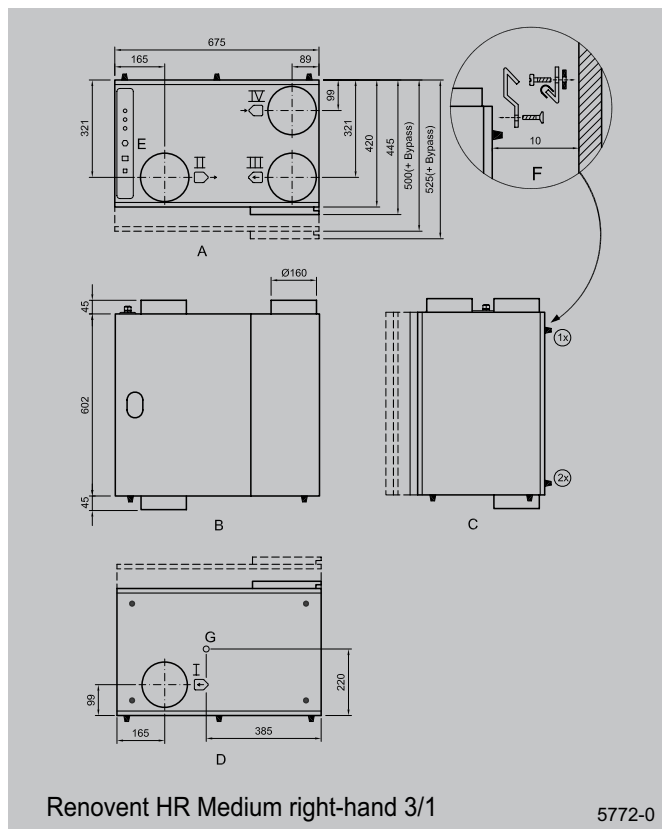
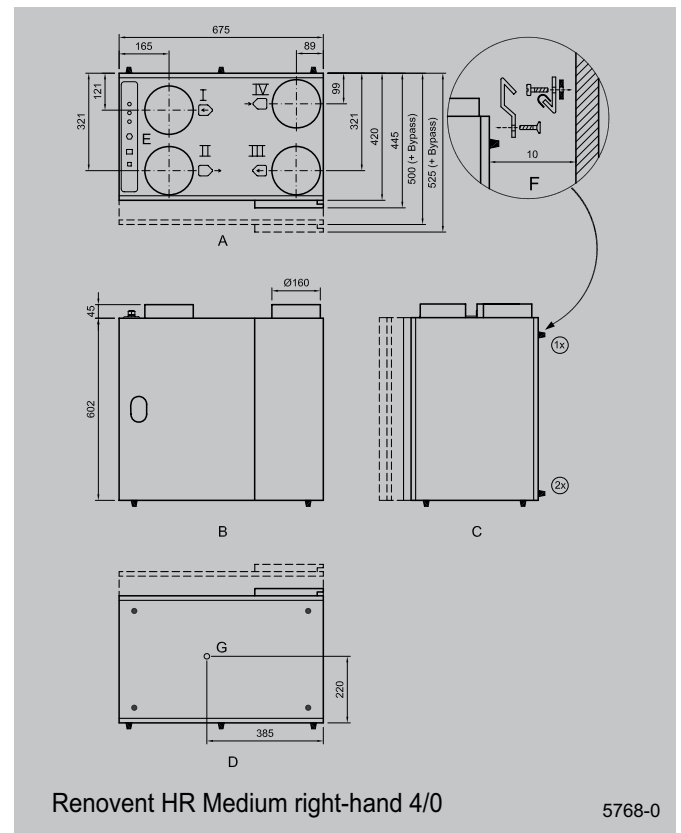
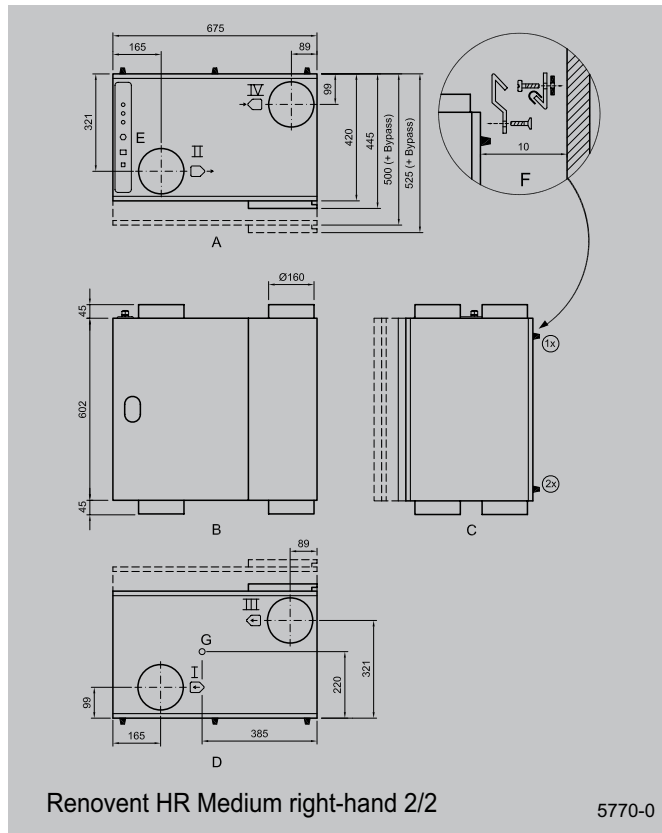
**Warning**





The fans and control print carry a high voltage. Always take the voltage from the appliance by pulling the mains plug when working on the appliance.



## 5.6 Connections and dimensions Renovent HR

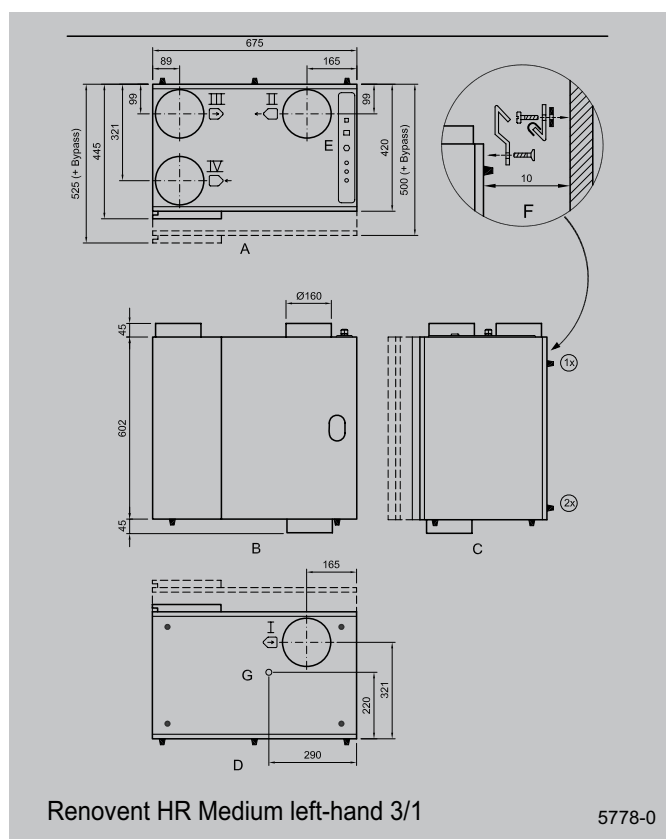
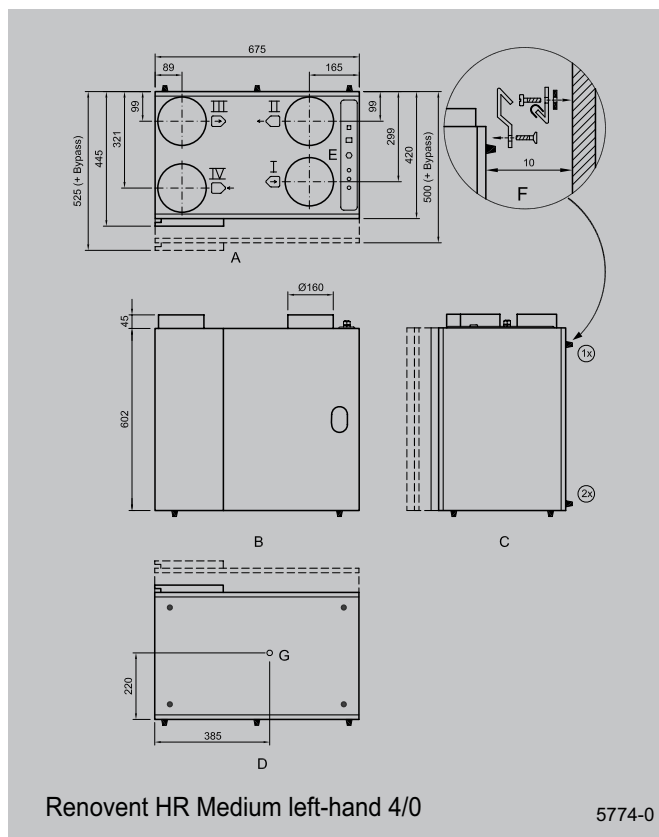
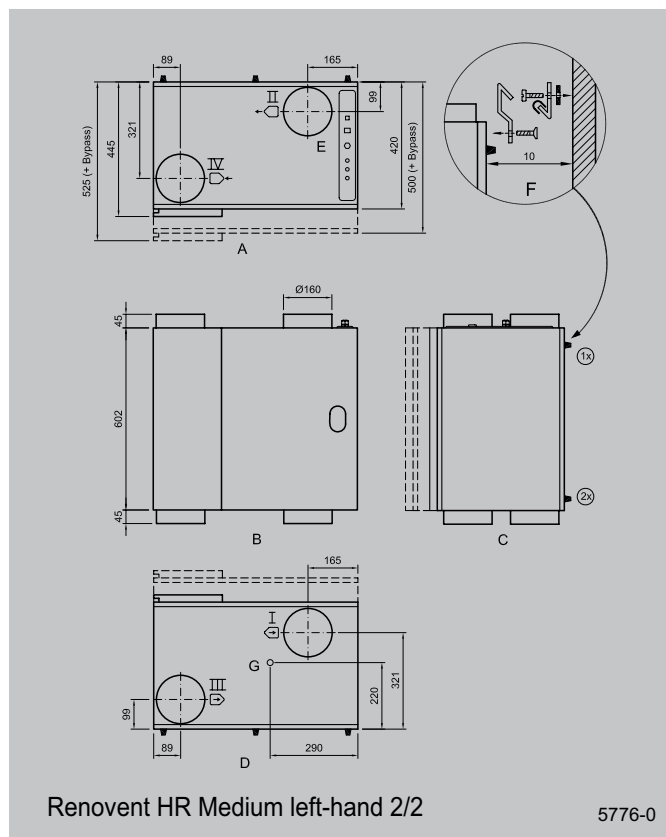
### 5.6.1 Connections Renovent HR Medium right-hand version







- I  = To dwelling
- II  = To atmosphere
- III  = From dwelling
- IV  = From atmosphere

- A = Top view
- B = Front view
- C = Side view
- D = Bottom view
- E = Electric connections
- F = Detail wall mounting (make sure to correctly place the rubber strip, washers and caps)
- G = Connection condensate discharge

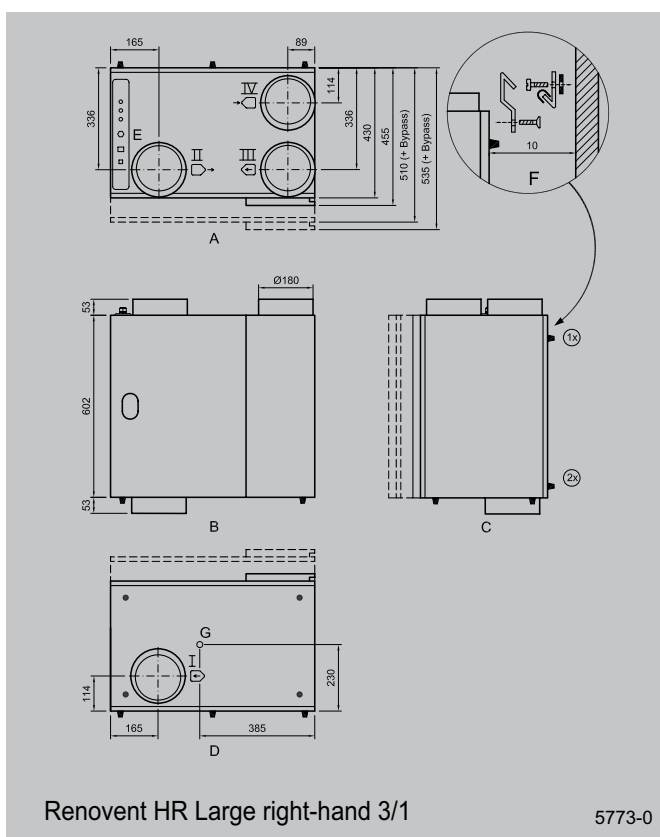
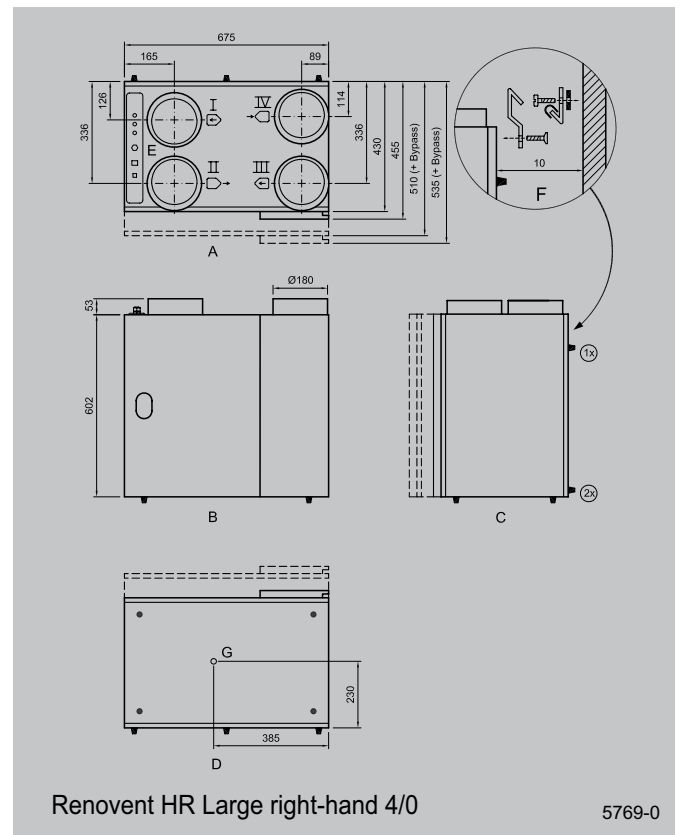
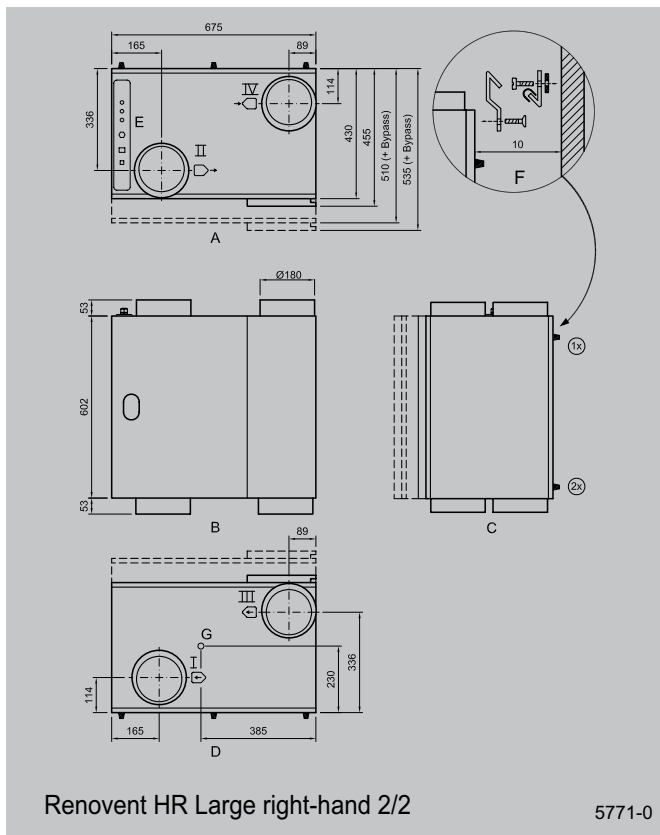
## 5.6.2 Connections Renovent HR Medium left-hand version







- I  = To dwelling
- II  = To atmosphere
- III  = From dwelling
- IV  = From atmosphere

- A = Top view  
 B = Front view  
 C = Side view  
 D = Bottom view  
 E = Electric connections  
 F = Detail wall mounting (make sure to correctly place the rubber strip, washers and caps)  
 G = Connection condensate discharge

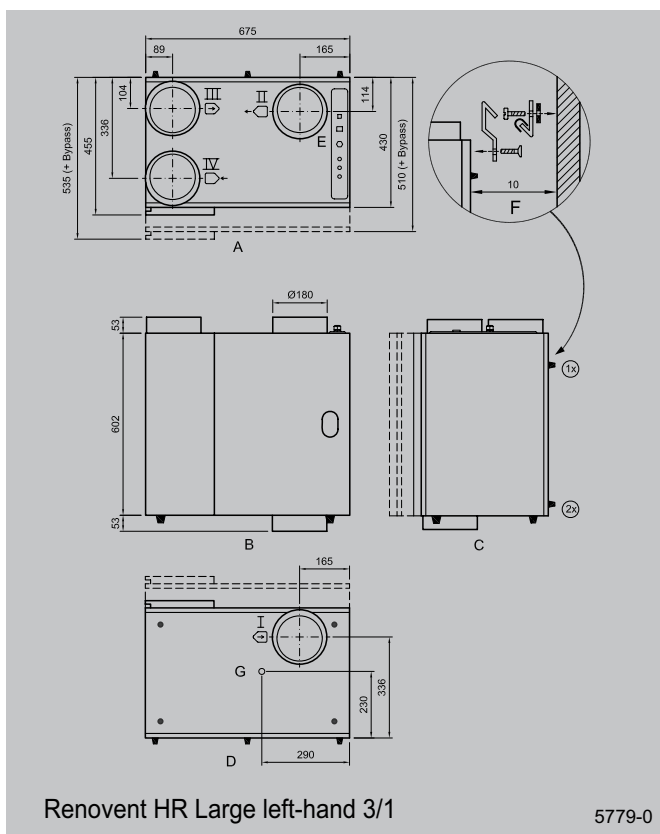
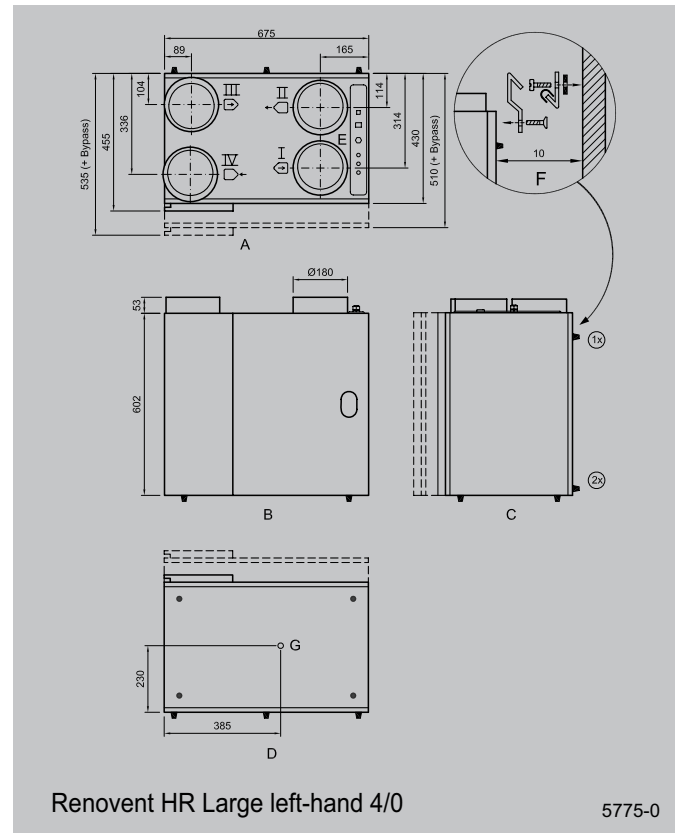
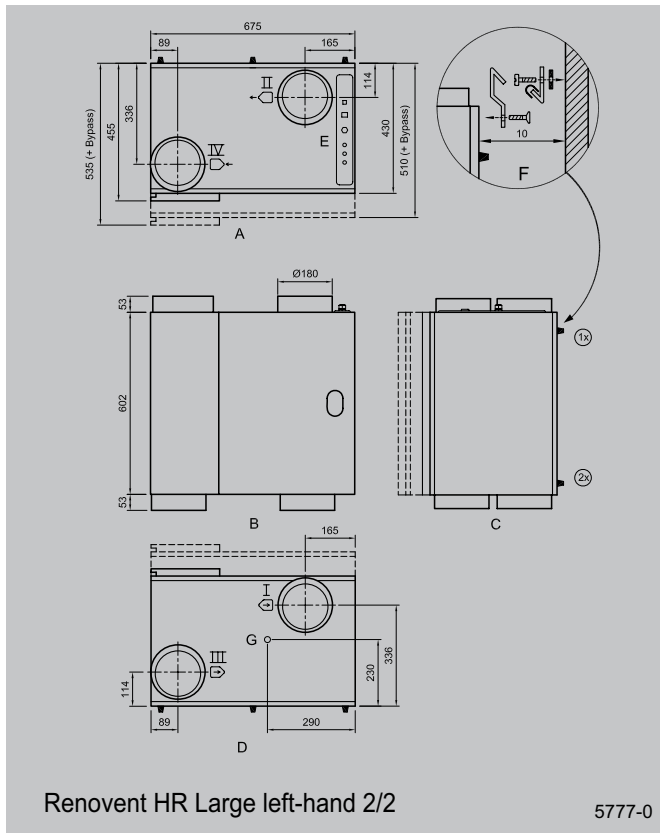
### 5.6.3 Connections Renovent HR Large right-hand version







- I  = To dwelling
- II  : To atmosphere
- III  : From dwelling
- IV  : From atmosphere

- A = Top view
- B = Front view
- C = Side view
- D = Bottom view
- E = Electric connections
- F = Detail wall mounting (make sure to correctly place the rubber strip, washers and caps)
- G = Connection condensate discharge

## 5.6.4 Connections Renovent HR Large left-hand version



- I  To dwelling
- II  To atmosphere
- III  From dwelling
- IV  From atmosphere

- A = Top view  
 B = Front view  
 C = Side view  
 D = Bottom view  
 E = Electric connections  
 F = Detail wall mounting (make sure to correctly place the rubber strip, washers and caps)  
 G = Connection condensate discharge

## 6.1 Switching the appliance on and off

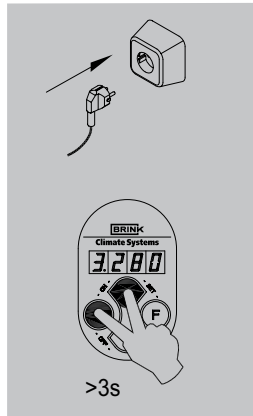
There are two methods to switch the appliance on or off.

1. Through software; the appliance remains connected to the mains, when switching off by software only the fans are stopped.
2. Removing the mains plug or inserting it into the wall socket; the voltage is taken from the appliance.

### Switching on

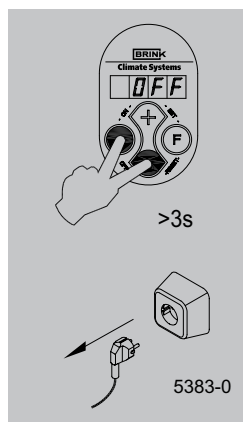
- Mains power: connect the mains plug to the electric installation
- Through software; simultaneously press keys "OK" and "+" to switch on the appliance through software (Only possible after the appliance has been switched off through software.)

The first digit on the display indicates the position of the 3-way switch.



### Switching off

- Through software; simultaneously press keys "OK" and "-" to switch on the appliance through software. The text OFF appears on the display.
- Mains power: pull the mains plug from the mains to take the voltage from the appliance.



### NOTE!

When working on the appliance, always take the voltage from the appliance by first switching it off through software and subsequently pulling the mains plug.

## 6.2 Setting the air quantity

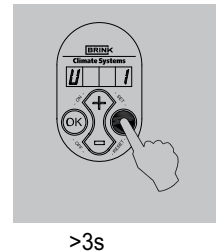
The air quantity of the Renovent HR Medium/Large for settings 1, 2 and 3 have been adjusted in the factory at 100, 150/200 and 225/300 m<sup>3</sup>/h. The performance of the Renovent depends on the quality of the duct system as well as on the filter resistance.

### Important:

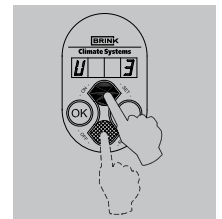
Setting 1: must always be lower than setting 2.  
 Setting 2: must always be lower than setting 3;  
 Setting 3: adjustable between 50 and 300/400 m<sup>3</sup>/h;  
 If these conditions are not complied with, the air quantity of the higher setting will automatically be adjusted.

The air quantities can be modified as follows (as an example here the air quantity for setting 3 will be changed from 300 to 280 m<sup>3</sup>/h):

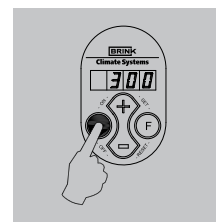
1. Press key "F" during 3 seconds to call up the settings menu.



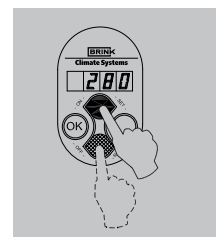
2. Use key "+" to select the desired parameter (U1 = setting 1: 1, U2 = setting 2: 2, U3 = setting 3; U4, U5 and U8 only apply when a bypass unit is used).



3. Press key "OK" during 1 second to read the selected parameter value.



4. The keys "+" or "-" can be used to modify the selected parameter value.



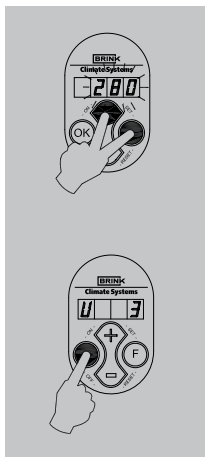
5. The modified setting can now be:

- A saved and stored;**
- B removed;**
- C put back to factory setting.**

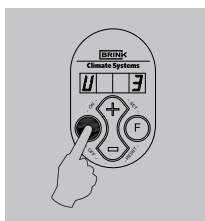
**A** Simultaneously press keys “F” and “+” (first F than +) to store the modified setting; the modified value will now blink 3x as confirmation. The display readout will remain at this modified value.

Press key “OK” to go back to the settings menu; if required, several settings can now be modified (see item 2 to 5 inclusive).

Now continue with item 6.



**B** Press key “OK” to go back to the settings menu without saving the modified setting; the previous setting will be maintained. If required, several settings can now be modified (see item 2 to 5 inclusive). Now continue with item 6.



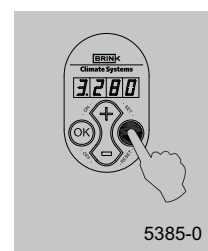
**C** Simultaneously press keys “F” and “-” to go back to the factory setting. The factory setting will blink 3x as confirmation. The modified setting is removed. The factory setting remains on the display.

Press key “OK” to go back to the settings menu; if required, several settings can now be modified (see item 2 to 5 inclusive).

Now continue with item 6.



6. Press key “F” during 1 second to leave the settings menu.



### 6.3 Other user settings

In addition to the air quantities per setting, the user can also adjust the following parameters.

- U4. Minimum atmospheric temperature bypass. This is the minimum atmospheric temperature at which the bypass opens, also when the indoor temperature satisfies the conditions.
- U5. Minimum indoor temperature for the bypass. This is the minimum indoor temperature at which the bypass opens, when the atmospheric temperature also satisfies the conditions.

U8 Not applicable

These setting possibilities are only relevant if the appliance is equipped with a bypass. These bypass settings are made in the same manner as described in section 6.2. Refer to the table in section 6.7.3 for the factory settings.

## 6.4 Installer settings

Various other settings of the control unit can also be modified. Because some settings have an influence on the correct operation of the appliance, these have been placed in a separate installer parameters set. Consequently, these parameters can only be modified by the installer. How to modify these is explained in section 6.7.2.

11. Fixed imbalance. This can be used to keep the pressure in the dwelling at a higher (+) or lower (-) level than the atmospheric pressure.

Positive imbalance (+): the output fan ventilates the set value in [m³/h] less than the input fan.

Negative imbalance (-): the input fan ventilates the set value in [m³/h] less than the output fan.

12. No contact step 11

This setting determines the ventilation position when no switch contact is connected to position 1; the appliance will start running at the ventilation position set here.

13. Not applicable.

14. Switch line 1 step.

Determines what position of the multiple switch matches line 1 on the control unit.

15. Switch line 2 step.

Determines what position of the multiple switch matches line 2 on the control unit.

16. Switch line 3 step.

Determines what position of the multiple switch matches line 3 on the control unit.

7. Imbalance permissible?

This determines whether for instance the frost protection may affect the imbalance.

- 18 Bypass mode.

There is a choice between 3 situations

Mode 0	The bypass valve is not operated
Mode 1 (standard setting)	The bypass valve - if installed - is opened when the temperature conditions are complied with
Mode 2	The inlet fan starts running at the lowest possible rpm if the temperature conditions are complied with

19. Hysteresis bypass.

Here it can be entered how much the indoor temperature may drop before the bypass closes or the inlet fan starts running at the normal rpm.

- I10. Constant pressure switched off.

Here it can be set whether in all cases the fans are running at constant flow or that they start running at constant pressure when a certain resistance is exceeded.

- I11. Preheater or postheater.

This indicates whether a preheater or postheater is connected is.

Setting I11	Situation
0	No preheater or postheater
1	Preheater connected to basic pcb
2 & 3	Only use this setting for option pcb

- I12. Temperature preheater.

This sets the offset temperature preheater.

- I13 Filter message.

Sets whether the filter message is shown on the display and the LED of the 3-way switch.

- I14 Presence option pcb.

This indicates whether an option pcb is mounted.

- I15 Heat recovery configuration.

Option setting when heat recovery is used in combination with central heating; only heat recovery or the combination central heating + heat recovery.

Only heat recovery = 0; Central heating + heat recovery = 1

- I16 Fan setting for central heating + heat recovery

Fan(s) off for central heating + heat recovery (only applicable if I15 = 1).

Setting I16	Situation fan(s)
1	Output fan off
2	Input fan off
3	Both fans off

- I17 Repeat time in hours for switching off the fan(s) selected under I16 for central heating + heat recovery.

- I18 Maximum switch-off time in seconds for the fan(s) selected under I16 for central heating + heat recovery.

- I19 Minimum switch-off time in seconds for the fan(s) selected under I16 after switching on 230V for central heating + heat recovery.

Refer to the table in section 6.7.3 for the factory setting

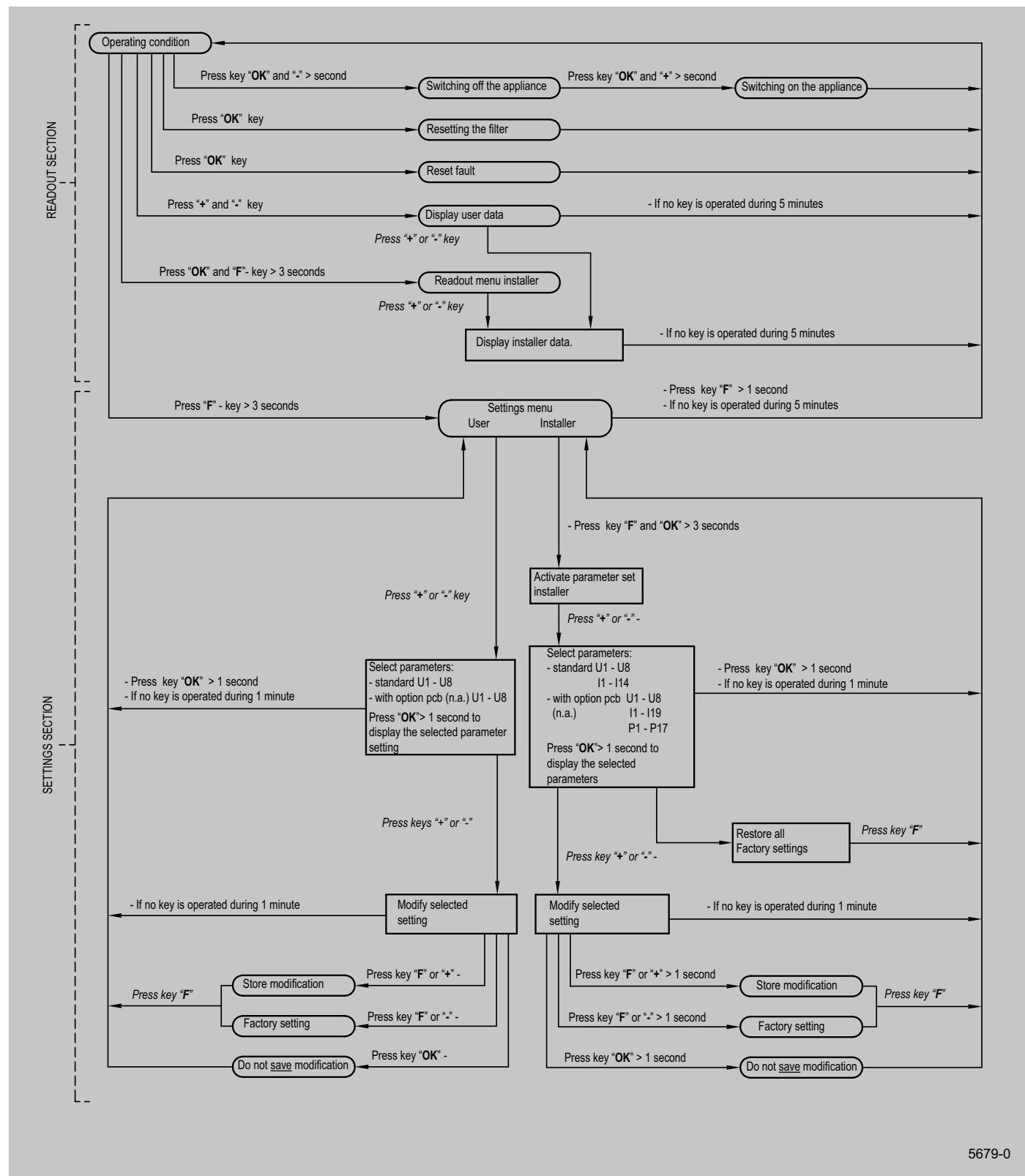
## 6.5 Menu structure display

The menu structure is divided into a readout section and a settings section.

The number of visible parameters depends on the parameter set. The user has the parameter set "user"; a more comprehen-

sive readout programme is available for the installer. It can be activated by simultaneously pressing keys "F" and "OK" during 3 seconds.

### 6.5.1 Diagram menu structure

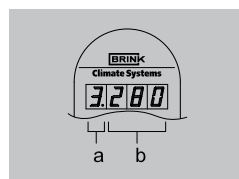


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## 6.6 Readouts settings

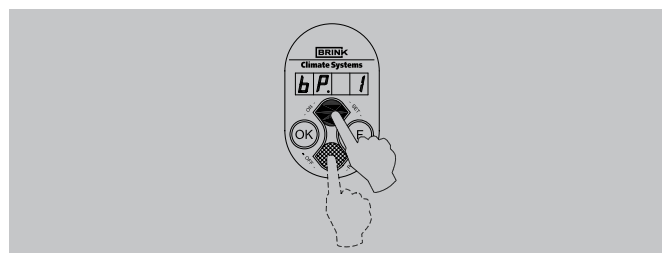
As standard the current position of the multiple switch and the connected output volume are shown (Operational mode). On the left the position of the multiple switch (position 1, 2 or 3) is shown and to the right of the dot the volume of the output fan is shown.



- a = Setting the multiple switch  
b = Volume output fan

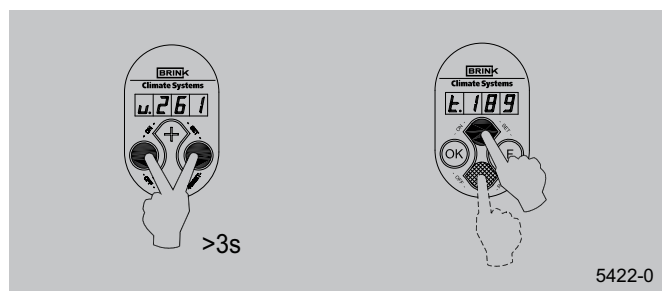
### 6.6.1 Reading out settings by the user

The user can read out other relevant data using keys "+" and "-" (step 0 to step 6). Step numbers are not shown on the display! See the table of section 6.6.2 for user readout; when no key is operated during 5 minutes, the display automatically returns to operational mode. Key "+" can be used to scroll through the menu; key "-" always takes you back to step 0. Modifying settings is not possible in this situation.



### 6.6.2 Reading out settings by the installer

A more comprehensive readout programme is available for the installer. Pressing keys "F" and "OK" during 3 seconds calls up all installer data. In this menu the values cannot be modified. Activating this menu always calls up step no. 7 (see table below); pressing key "+" calls up the installer and user data and pressing key "-" takes you back to step no. 1. After 5 minutes this menu automatically disappears and the display will show the operational situation again. In the event of an error, the error code appears on the display; see also chapter 7.



	Step number	Readout (example)	Description	Remark
User	No.1	2,200	Current position/outlet volume [m³/h]	
	No.2	C 0	Message code operating condition	C0 = No message C3 = The input fan runs in constant pressure mode C6 = The output fan runs in constant pressure mode C7 = Correction maximum air flow
	No.3	bP.1	Bypass status (only if mounted)	0 = bypass valve shut, 1 = bypass valve automatic 2 = input at minimum
	No.4	tP.9	Temperature from atmosphere [°C]	At negative temperature (below 0°C) then readout tP.9.
	No.5	tS.21	Temperature from indoors [°C]	
	No.6	In.0	n.a.	
installer	No.7	u.156	Current input volume [m³/h]	
	No.8	u.156	Current output volume [m³/h]	
	No.9	t.180	Current pressure input duct [Pa]	
	No.10	A.180	Current pressure output duct [Pa]	
	No.11	u0.0	Status frost protection	0 = none, 1 - 4 = imbalance, 5 = input fan off
	No.12	St.9	Temperature to atmosphere [°C] (Sensor not connected as standard)	If not connected St.75
	No.13	Pt.18	Temperature to indoors [°C] (Sensor not connected as standard)	If not connected Pt.75

## 6.7 Modifying settings

A number of settings can be modified by both user and installer to adapt the appliance to the specific situation.

### 6.7.1 Modifying settings by the user

The user can modify a limited number of settings, that is U1 to U8 inc. (see table section 6.7.3); how to modify these settings

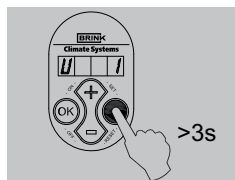
is described in detail in section 6.2 and is also shown in the diagram menu structure of section 6.5.

### 6.7.2 Modifying settings by the installer

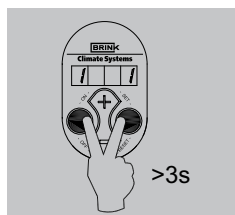
The installer can modify more settings. When parameters are set incorrectly, the appliance can no longer perform up to standard, so make sure no parameters are modified incorrectly. Also refer to the diagram menu structure section 6.5.. The following actions are required to modify the settings from operational mode:

(By way of example parameter 18 (bypass mode) is changed from 1 to 2.)

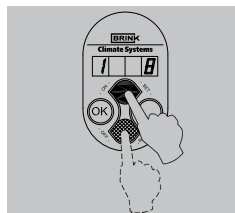
- 1 Press key "F" during 3 seconds to activate the settings menu.



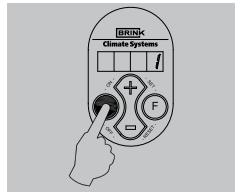
- 2 Press key "F" and key "OK" during 3 seconds to activate the comprehensive installer parameters set.



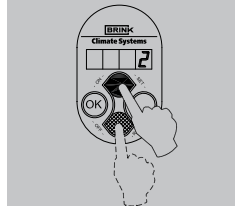
- 3 The desired parameter can be found with the aid of keys "+" and "-".  
(See table section 6.7.3)



- 4 Pressing key "OK" calls up this setting.



- 5 Use keys "+" and "-" to modify the value.

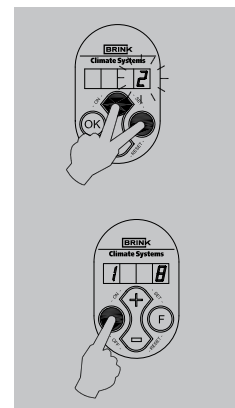


- 6 The modified setting can now:

- A be saved and stored**
- B be removed;**
- C be restored to factory setting.**

- Simultaneously press keys "F" and "+" (first press "F" and then "+") to store the modified setting; this value now blinks 3x to confirm that it has been stored; the value remains on the display.

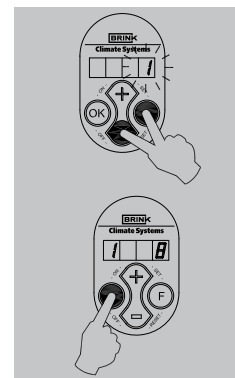
Press key "OK" to return to the settings menu; if required, other settings can now be modified (step 2 - step 5)  
Continue with step 7.



- Press key "OK" to go back to the settings menu without saving the modified setting; the previous setting will be maintained.  
Continue with step 7.



- Simultaneously press keys "F" and "-" (first "F" and then "-") to go back to the factory setting. The factory setting will blink 3 times and remain at that value. The modified setting has now been removed.  
Press key "OK" to return to the settings menu.  
Continue with step 7.



- 7 Press key "F" during 1 second to leave the settings menu.



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### 6.7.3 Adjustable settings table

De user-adjustable parameters are indicated with “U”; the installer-adjustable parameters are indicated with “I” (basic pcb) or “P”(option pcb).

	Adjustable parameter	Description	Setting range	Factory setting
User	U 1	Volume step 1	50..(max-10)	100
	U 2	Volume step 2	50..(max-5)	Medium 150 Large 200
	U 3	Volume step 3	50..300 (Medium) 50..400 (Large)	225 Medium 300 Large
	U 4	Minimum atmospheric temperature bypass	5 .. 20	10
	U 5	Minimum indoor temperature bypass	18 .. 30	22
	U 8	Not applicable	0.1	0 (off)
installer	I 1	Fixed imbalance	-100..+100	0
	I 2	No contact step	0,1,2,3	1
	I 3	Not applicable	2.3	2
	I 4	Switch line 1 step	0,1,2,3	1
	I 5	Switch line 2 step	0,1,2,3	2
	I 6	Switch line 3 step	0,1,2,3	3
	I 7	Imbalance permissible	0.1	1 (Yes)
	I 8	Bypass mode	0,1,2	1
	I 9	Hysteresis bypass	0 .. 5	2
	I10	Constant pressure switched off	0.1	0 (no)
	I11	Preheater or postheater	0, 1, 2, 3	0
	I12	Offset temperature preheater	-30 .. + 30	0.5
	I13	Filter message on/off	1.0	1 (on)
	I14	Option pcb present	1.0	0 (no)
	I15	Heat recovery configuration	0.1	0 (heat recovery)
	I16	Fan off	1,2,3	1 (Output fan)
	I17	Repeat time	1 .. 24	24 (hours)
	I18	Minimum switch-off time fan(s)	1 .. 240	60 (seconds)
	I19	Minimum switch-off time fan(s) after switching on 230V.	1 .. 240	1 (second)

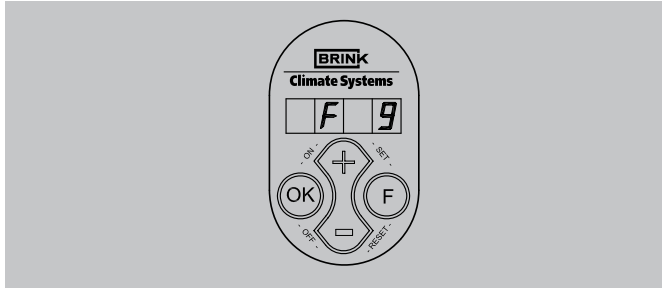
For a description of these settings refer to section 6.2 and 6.3 for U1 - U8 and section 6.4 for I1 - I19.

The description of parameters P1 - P17 that may be displayed are included in the installation instructions that come with the option pcb.

## 7.1 Trouble shooting

If the control system detects an error, this is shown on the display by means of a number, preceded by a letter **F** (Failure). If a 3-way switch with filter indication is mounted, the LED on the 3-way switch will also start blinking.

The examples shown here is the error **F9**; this means something is wrong with the wiring to the atmospheric temperature sensor or with the sensor itself.

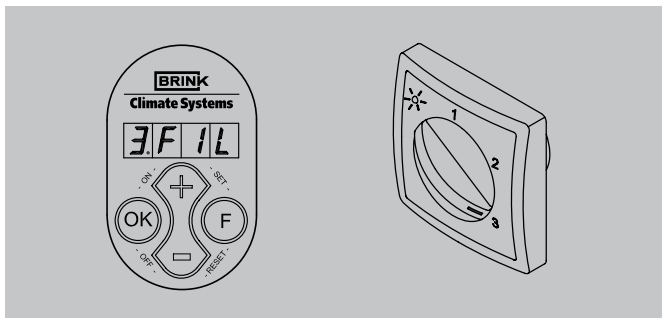


The appliance remains in this error mode until the problem in question has been solved. Then the appliance will reset itself (auto reset) and the display will once more show operational mode.

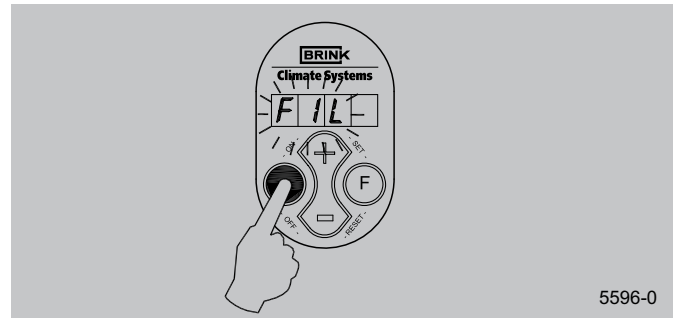
The table to section 7.3 gives an overview of the errors, possible causes and the actions to be undertaken.

## 7.2 Filter indication

If the display shows the message "**FIL**" then this means the filters have to be cleaned. If a multiple switch with filter indication has been mounted (= option), then simultaneously with this message on the display, the LED on the switch will light up.



After the filters have been cleaned or replaced, the key "**OK**" must be pressed during 1 second to reset the filter indication. The text "**FIL**" will blink for a moment and then the display will return to operational mode.



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## 7.3 Display codes

Table fault codes

Fault code	Cause	Action user	Action installer
<b>F2</b>	The inlet fan has stopped.	• Contact the installer.	• Replace the inlet fan; it is defective.
<b>F5</b>	The outlet fan has stopped.	• Contact the installer.	• Replace the outlet fan; it is defective.
<b>F9</b>	The temperature sensor that measures the temperature of the input air is defective. The appliance operates as expected, but the bypass is out of operation.	• Contact the installer.	• Check the wiring from the sensor to the basic pcb. • Check the sensor connection to the wiring. Replace the sensor.
<b>F10</b>	The temperature sensor that measures the temperature of the output air is defective. The appliance operates as expected, but the bypass is out of operation.	• Contact the installer.	• Check the wiring from the sensor to the basic pcb. • Check the sensor connection to the wiring. Replace the sensor.

**Note!**

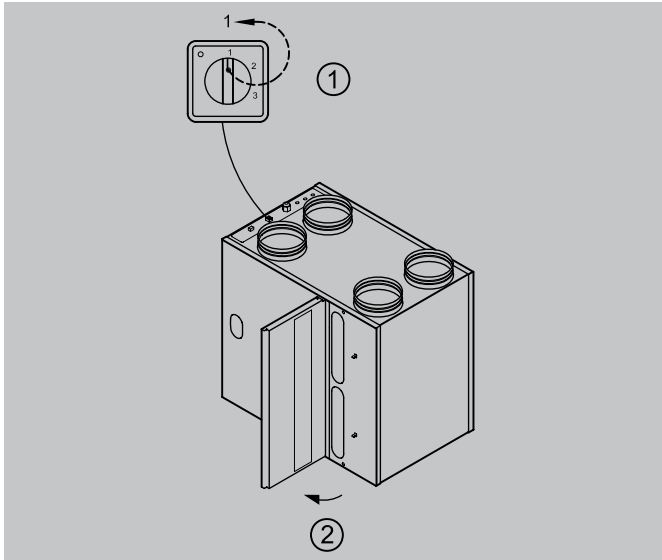
If setting 2 does not work with a mechanical rpm control device such as a multiple switch, the RJ connector has been connected the wrong way round. Cut off one of the RJ connectors

to the rpm control and mount a new connector the other way round .

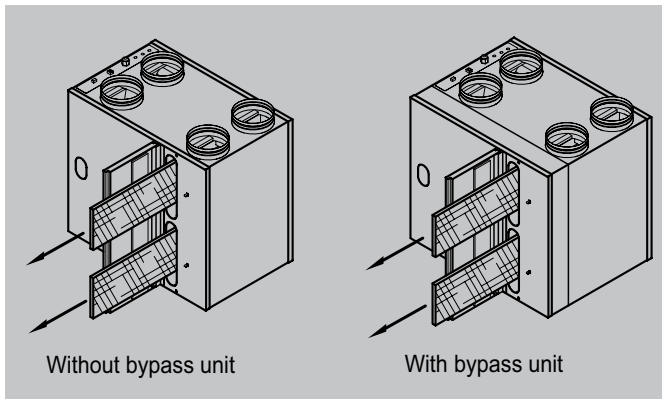
### 8.1 User maintenance

User maintenance is limited to periodically cleaning or replacing the filters. The filter only has to be cleaned when that is indicated on the display (it shows the text "FIL") or, if a multiple switch with filter indication is mounted, when the red LED at the switch lights up. The filters must be replaced every year. It is not permitted to use the appliance without filters.

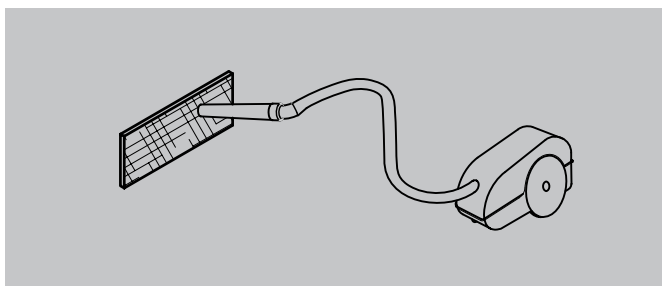
- 1 Put the 3-way switch at setting 1 to let the appliance's fans run at low speed. Open the filter door.



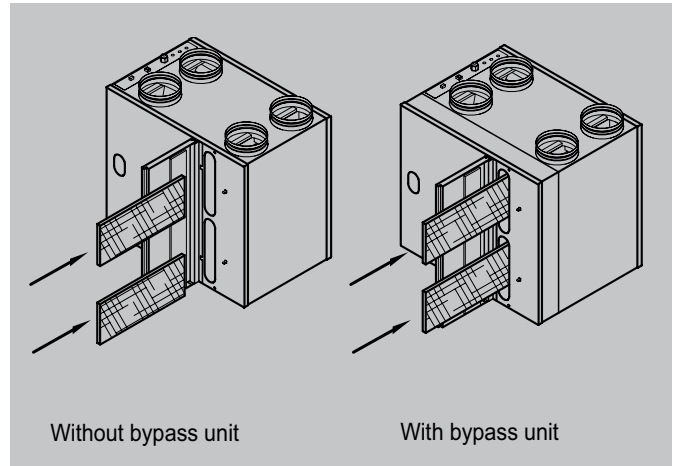
- 2 Remove the filters. Remember in what way the filters are taken out.



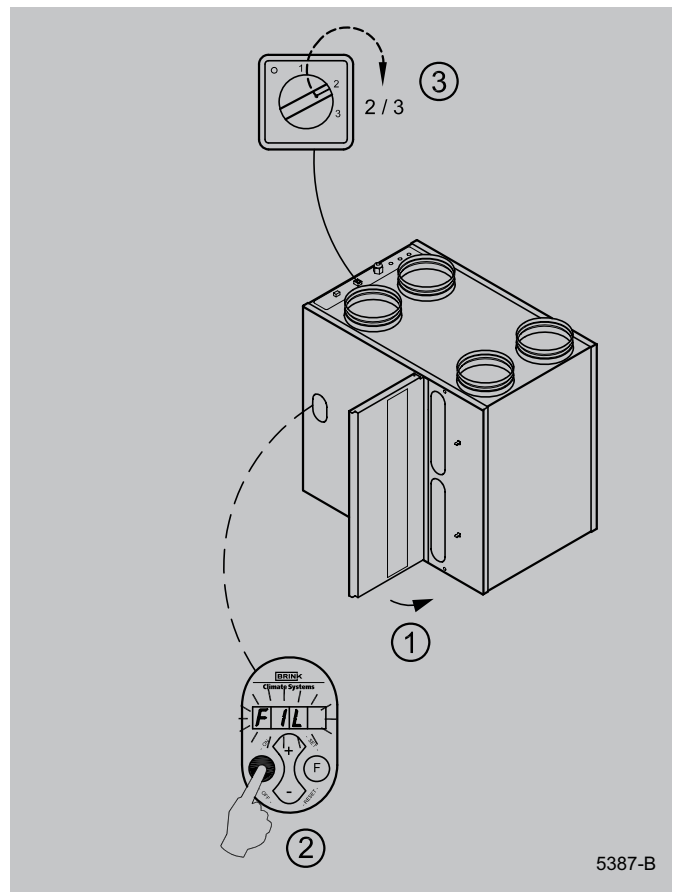
- 3 Use a vacuum cleaner to clean the filters.



- 4 Place the filters back the same way as they were taken out.



- 5 Close the filter door.  
After cleaning the filter or placing a new filter, the filter indication must be reset by pressing key "OK" during 1 second. The display will blink for a moment to confirm that the filter has been reset. The appliance will return to operational mode.  
Put the 3-way switch back to the original setting.

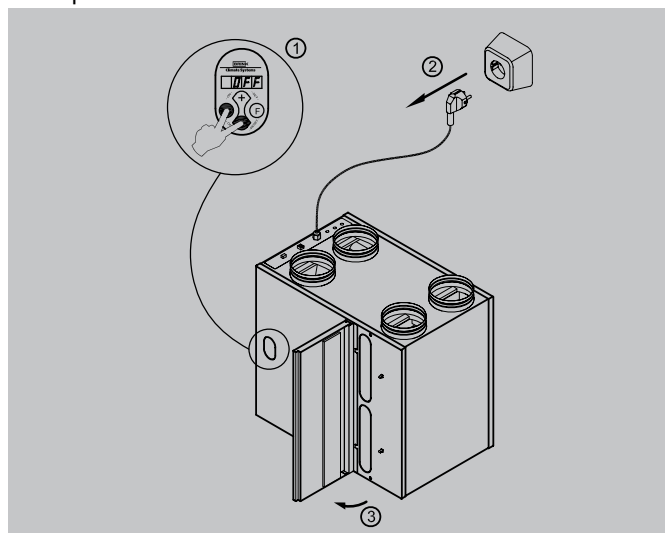


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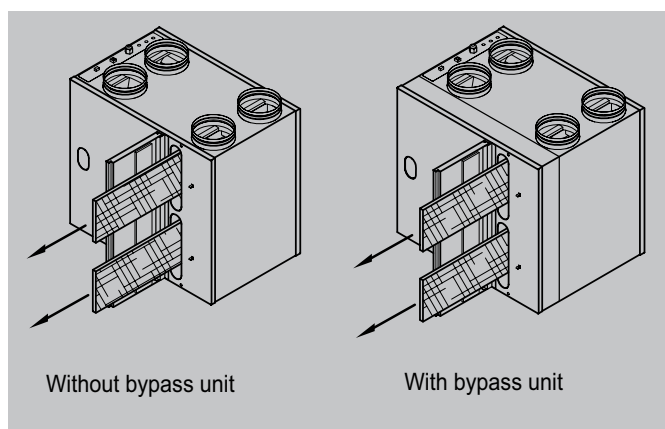
## 8.2 Installer maintenance

Installer maintenance includes cleaning the heat exchanger and fans. Dependent on the conditions, this must be done about once every three years.

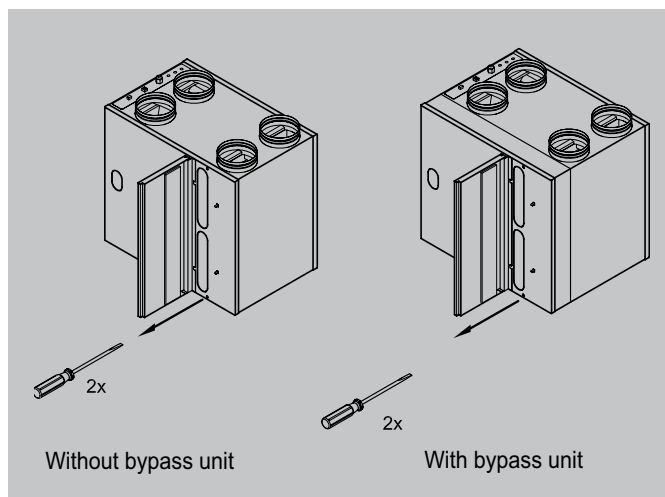
- 1 Switch off the appliance on the control panel (simultaneously press keys "OK" and "-" and "-" during 3 seconds) and switch off the power supply.  
Open the filter door.



- 2 Remove the filters.

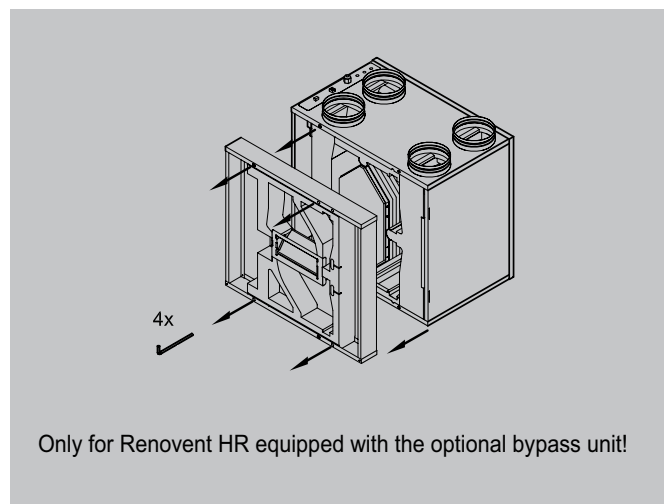


- 3 Remove the move the front cover.

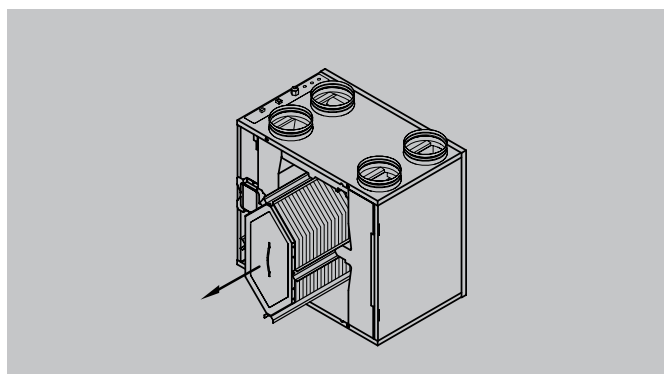


- 4 If the appliance is equipped with the optional bypass unit, it must now be removed.

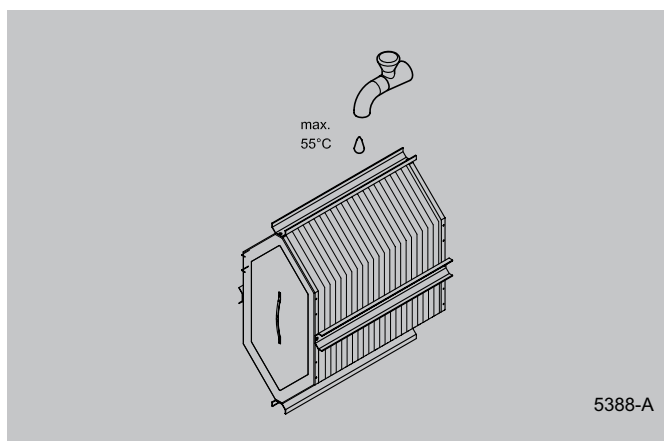
First remove the display (see item 7 for appliance without bypass unit) and unscrew the four hexagon socket bolts M6 x 16; pull the connectors and take the bypass unit from the appliance.



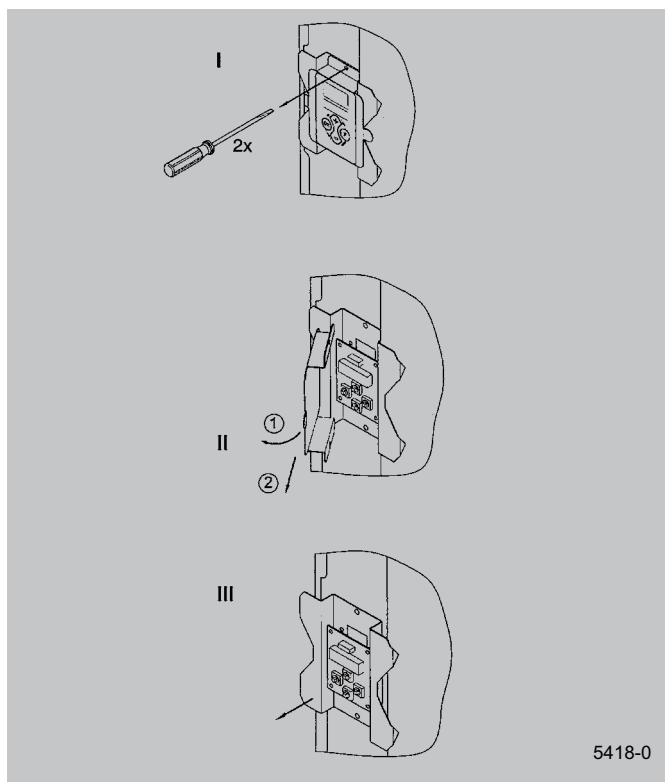
- 5 Remove the heat exchanger. Be careful not to damage the foam parts in the appliance.



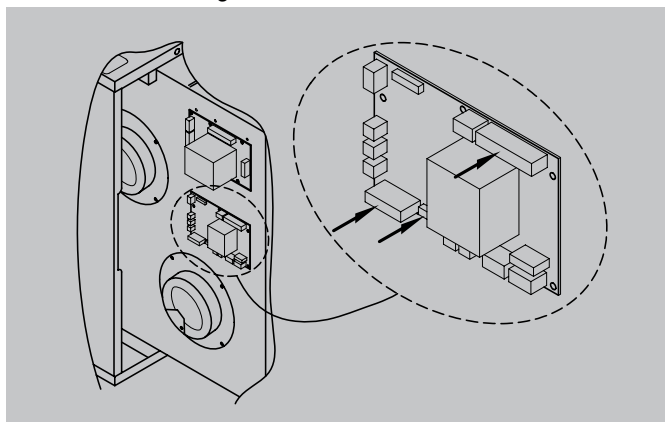
- 6 Clean the heat exchanger using hot water (55°C max.) and a regular detergent. Rinse the exchanger with hot water. If the appliance came ex factory with a bypass, then first remove the valve control device from the sliding grate.



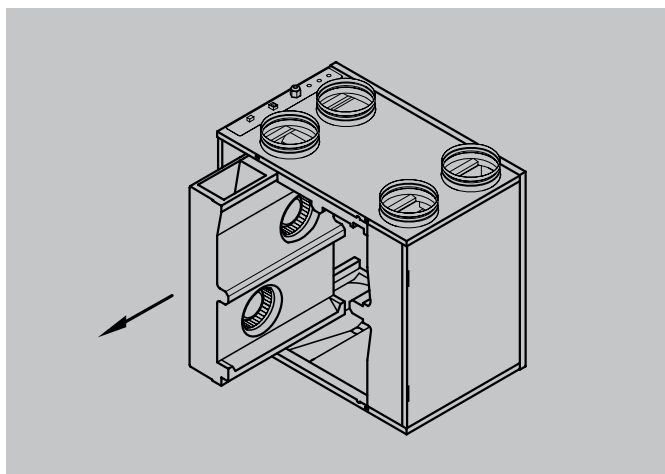
- 7 Remove the control panel.



- 8 Pull all connectors from the basic pcb. Take the earth wire from the housing.

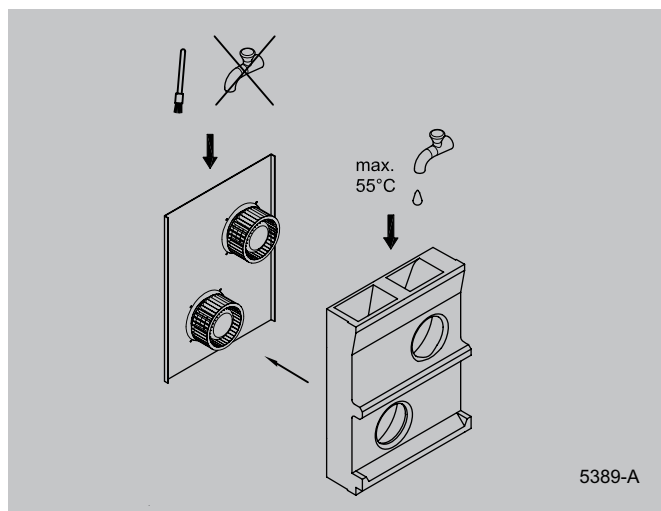


- 9 Remove the fan unit.



- 10 Remove the spiral casing.

- 11 Clean the fan with a soft brush. Make sure the balancing weights do not shift.



- 12 Place the spiral casing back on the fan unit.

- 13 Place the fan unit back in the appliance.

- 14 Place the earth wire back and replace the connectors that were pulled.

- 15 Mount the control panel.

- 16 Place the heat exchanger back into the appliance.

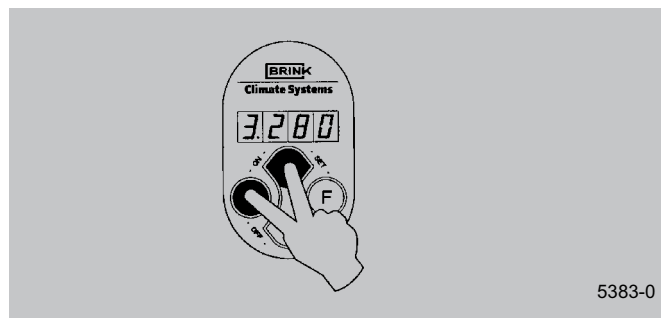
- 17 Place the front cover and, if applicable, the bypass unit back.

- 18 Place the filters back into the appliance with the clean side facing the exchanger.

- 19 Close the filter door.

- 20 Switch on the power supply.

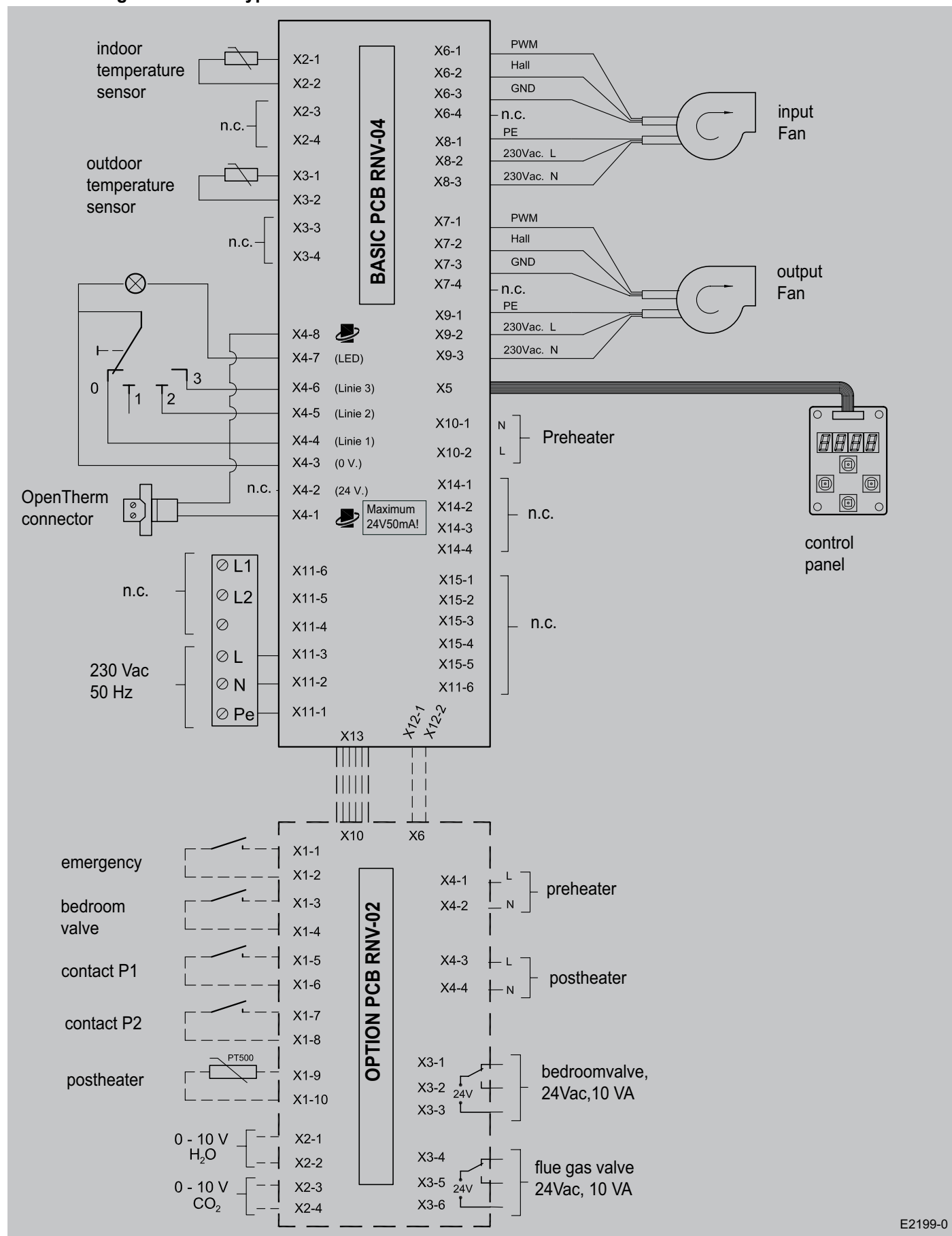
- 21 Switch off the appliance on the control panel (simultaneously press keys "OK" and "+" during 3 seconds).



- 22 After cleaning the filter or placing a new filter, the filter indication must be reset by pressing key "OK" during second

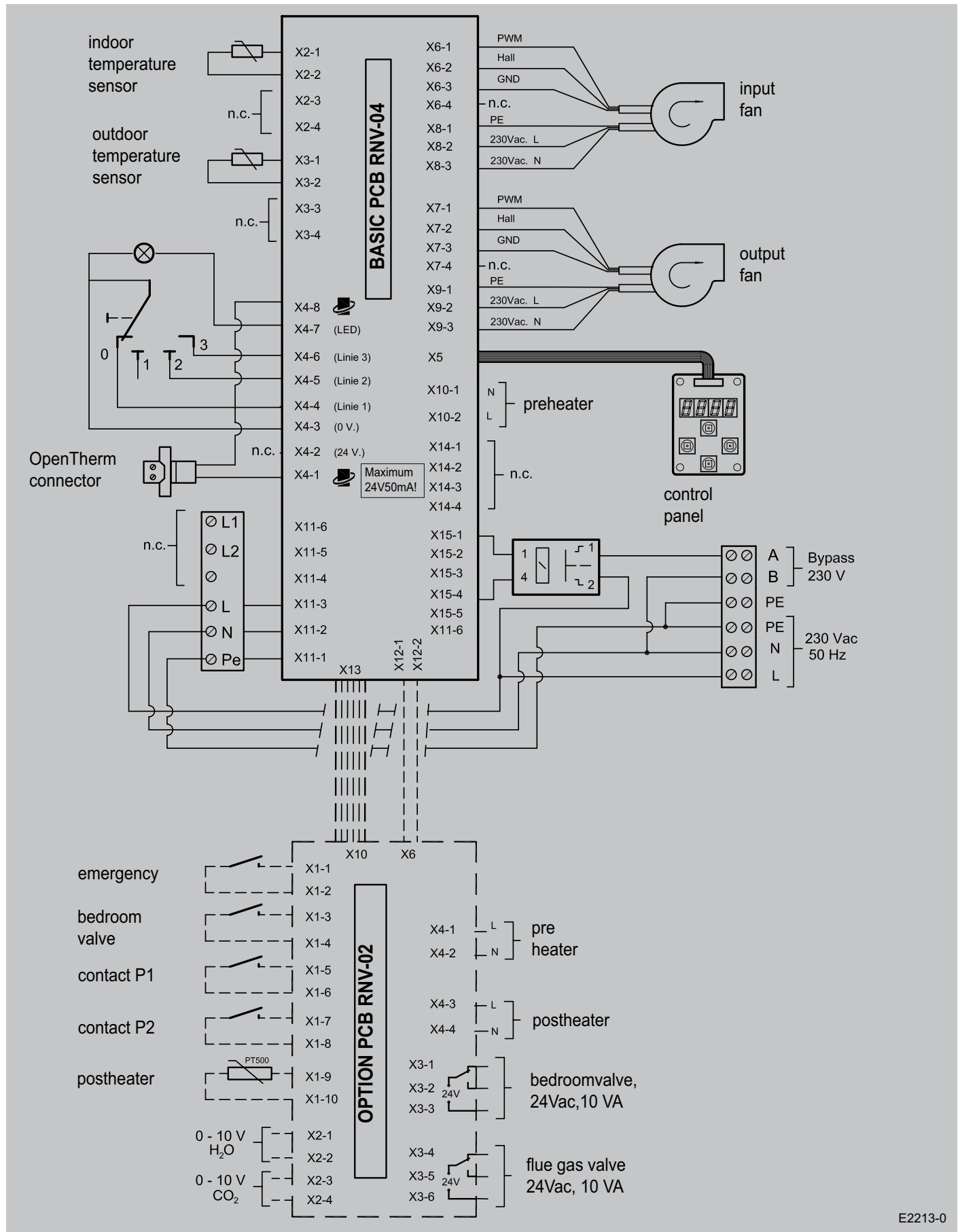


## 9.1 Basic diagram without bypass



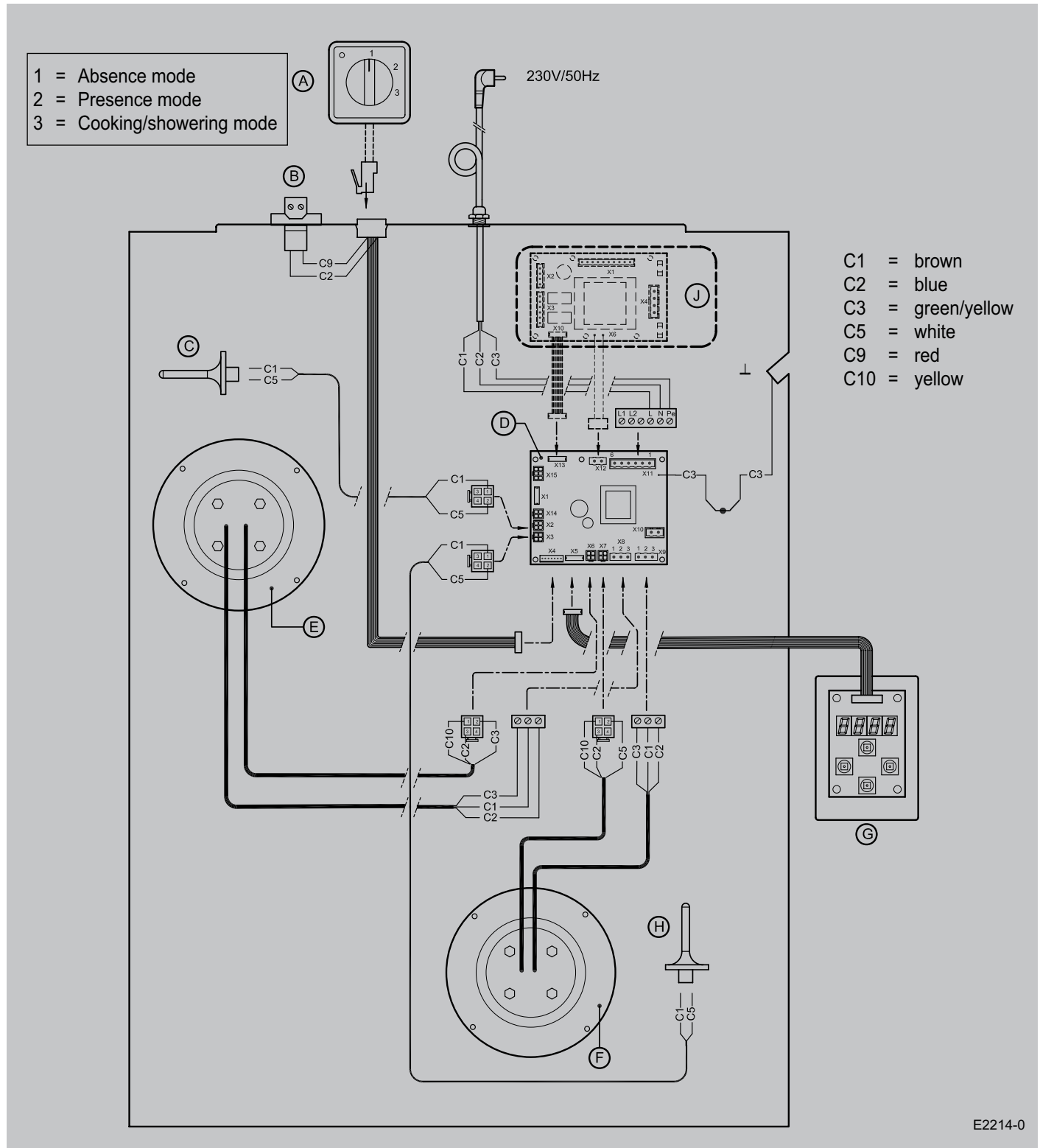
E2199-0

## 9.2 Basic diagram with bypass



E2213-0

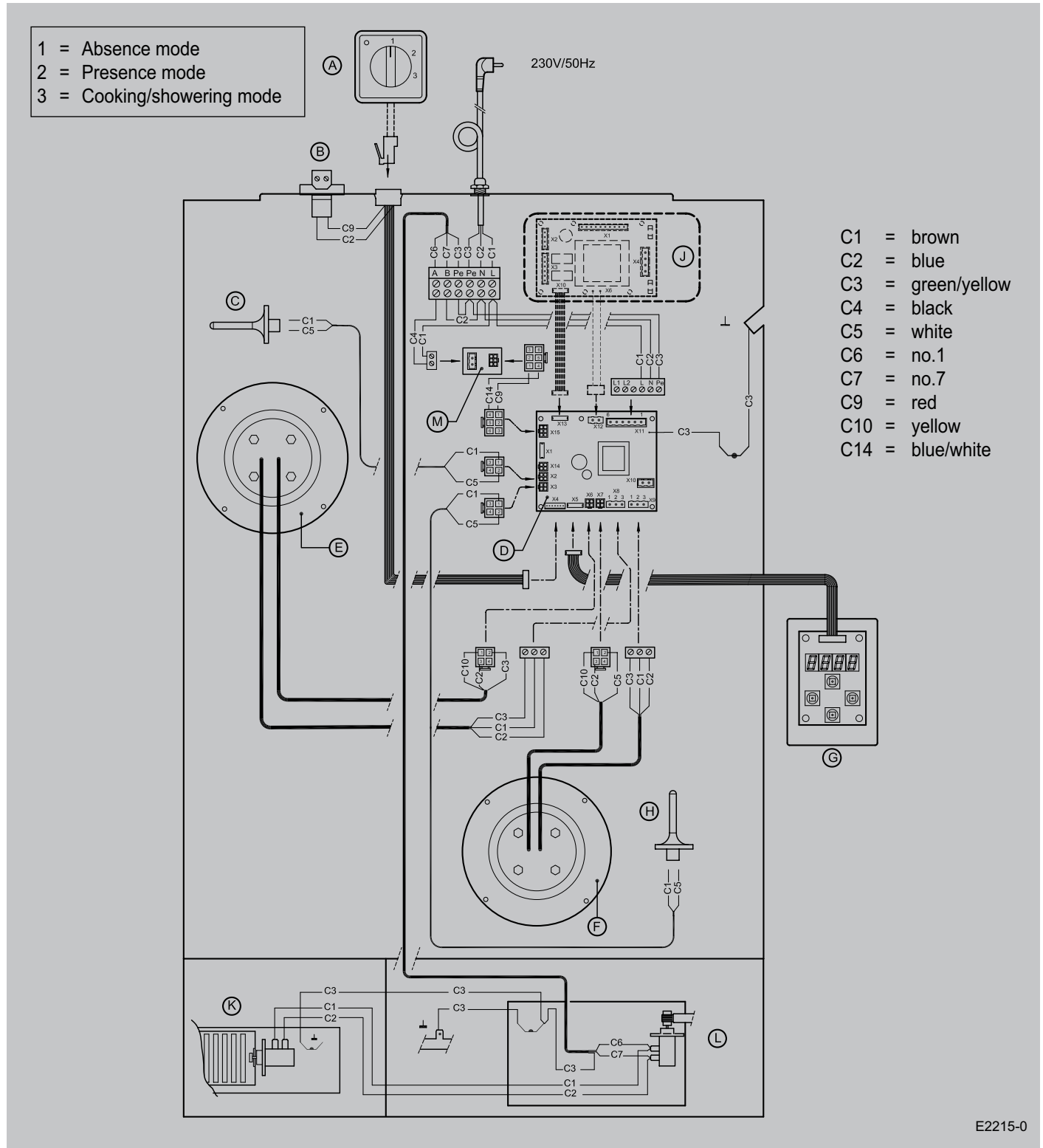
## 9.3 Wiring diagram without bypass



a = 3-way switch  
B = OpenTherm connector  
C = Interior temperature sensor  
D = Basic pcb  
E = Input fan

F = Output fan  
G = Control panel  
H = Atmospheric temperature sensor  
J = Option pcb (not mounted as standard)

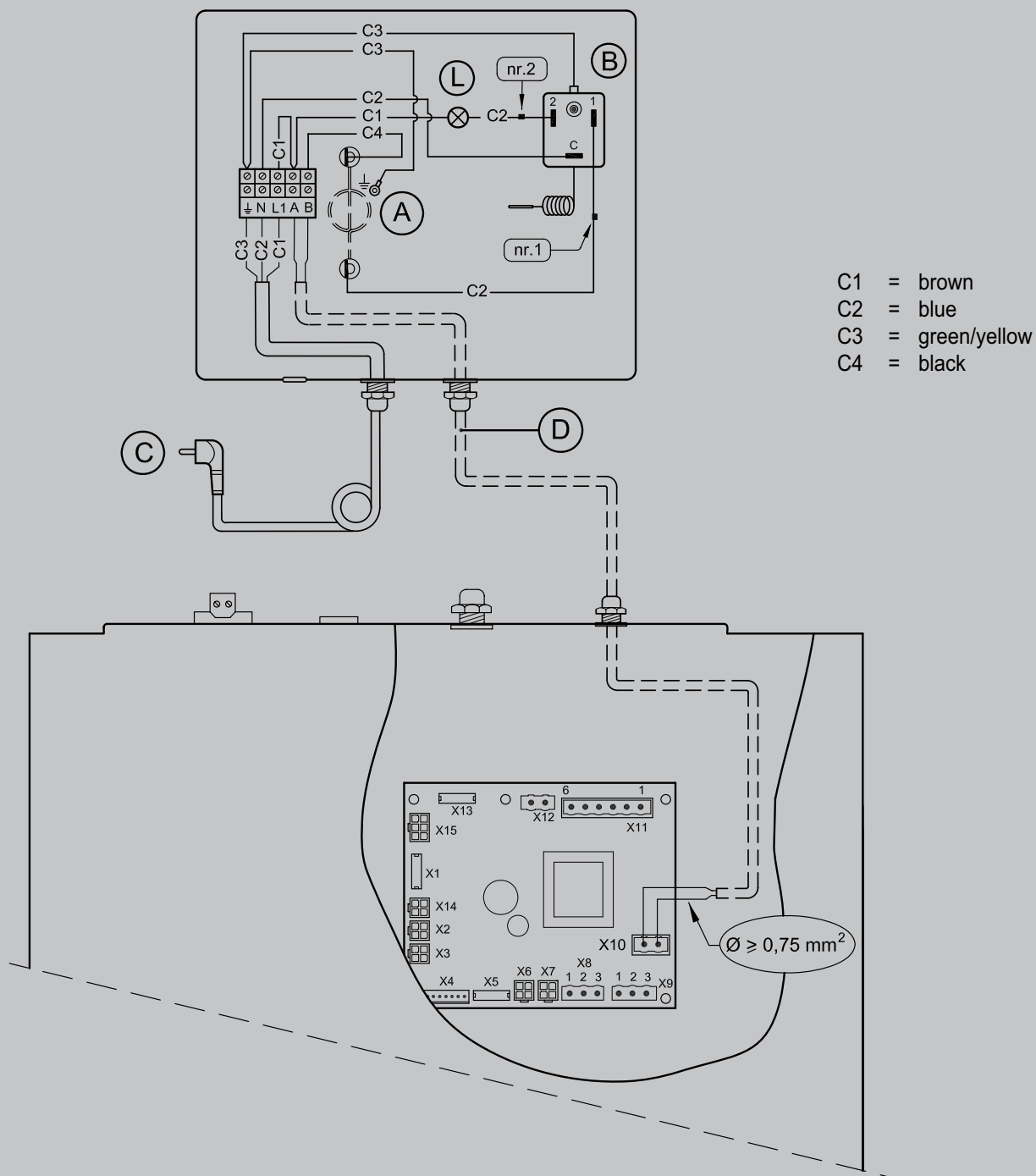
## 9.4 Wiring diagram with bypass



A = 3-way switch  
B = OpenTherm connector  
C = Interior temperature sensor  
D = Basic pcb  
E = Input fan  
F = Output fan

G = Control panel  
H = Atmospheric temperature sensor  
J = Option pcb (not mounted as standard)  
K = Valve control device sliding grate (only for bypass ex factory)  
L = Valve control device bypass valve (only if bypass is mounted)  
M = Bypass pcb (not mounted as standard)

## 9.5 Wiring diagram connection preheater to Renovent HR without option pcb



E2216-0

- A = Heating coil
- B = Maximum safety with manual reset
- C = Connecting plug 230V50Hz
- D = Cable to be connected by installer
- L = LED maximum safety; lights up when activated

**Note!**

Parameter l11 must be set at "1" when connecting the preheater to the basic pcb!  
See section 6.4

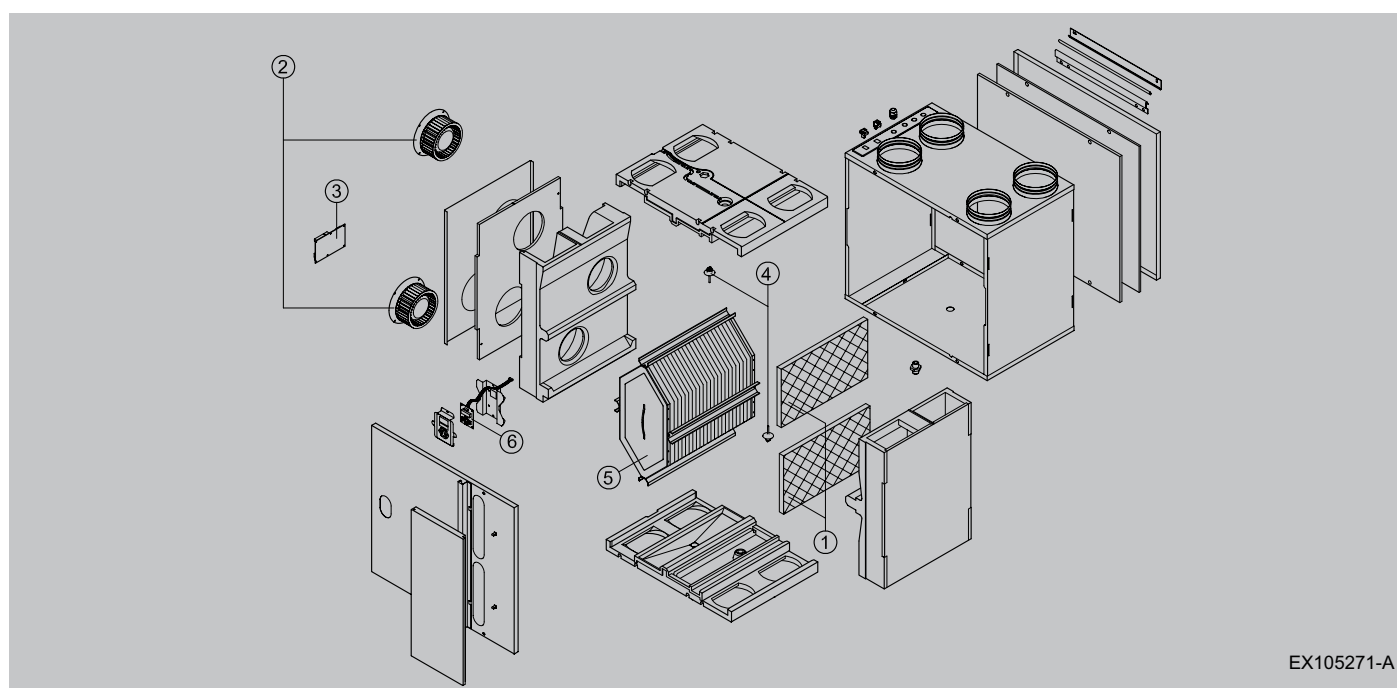
### 10.1 Exploded view Renovent HR Medium/ Large

When ordering parts, in addition to the article code number (see exploded view), please state the type of the heat recovery appliance, the serial number, the year of production and the name of the part:

Example	
Appliance type	: Renovent HR 4/0 R Medium
Serial number	: 290002091801
Year of construction	: 2009
Part	: Fan
Article code	: 531496
Quantity	: 1

#### N. B.:

Appliance type, serial number and year of production are stated on the identification plate on top of the appliance.



EX105271-A

### 10.2 Article codes service parts Renovent HR Medium/Large

No.	Article description	Article code
1	Filter kit (standard version)	531101
	Filter kit (version with bypass)	531286
2	Fan Medium	531496
	Fan Large	531565
3	Basic pcb Medium	531566
	Basic pcb Large	531567
4	Temperature sensor	531451
5	Heat exchanger or	531107
	Heat exchanger with grid (only for factory-mounted bypass)	531453
6	Control panel with display	531452

#### Modifications reserved

Brink Climate Systems B.V. continuously strives after improvement of products and reserves the right to change the specifications without prior notice.

## DECLARATION OF CONFORMITY

*The heat recovery appliances type*

**Renovent HR Medium/Large,**

*manufactured by Brink Climate Systems B.V. in Staphorst, the Netherlands,*

*bear the CE label*

*and satisfy the machine directive 89/392/EEC, the low voltage directive 73/23/EEC,*

*the materials directive ROHS 2002/95/EC and the EMC directive 89/336/EEC.*

*Brink Climate systems B.V. warrants that the Renovent HR Medium/Large*

*heat recovery appliances are manufactured from high-quality materials and that*

*continuous quality control ensures that they comply with the above directives.*

*Brink Climate Systems B.V.*



*W. Hijmissen, Managing director*

Member of



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