

For the owner and expert technician

Operating and  
Installation Manual  
**recoVAIR/3**



Domestic ventilation unit with heat recovery and  
remote control

**recoVAIR VAR 275/3**  
**recoVAIR VAR 350/3**



For the owner

# Operating manual recoVAIR/3

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# General information

## 1 Notes on the documentation

### General information

The domestic ventilation unit consists of a central ventilation unit ensuring the air exchange with heat recovery. The unit is connected to an air guiding piping system equipped with silencers and fresh-air and exhaust-air louvres.

Fresh air vents take fresh air to the living areas and used air is dissipated from the kitchen, bathroom and WC.

With the digital remote control the user is able to automatically switch and adapt the domestic ventilation unit power to its specific requirements.

The unit ensures:

- A constant air exchange in the building
- The hygienic minimum air exchange in accordance with §5 EnEV
- Energy savings thanks to high efficiency heat recovery
- High hygienic standard thanks to a reduction of damage to the building structure due to humidity and mould

The exact model description of the unit is to be found on the identification plate positioned below the unit.

### 1 Notes on the documentation

The instructions below are intended to help you throughout the entire documentation.

Further documents apply in combination with this operating and installation manual.

**We accept no liability for any damage caused by failure to observe these instructions.**

#### 1.1 Document storage

Please store this operating manual and other applicable documents where they are accessible at all times.

#### 1.2 Symbols used

When operating the unit, please observe the safety instructions in this operating manual!



**Danger!**  
**Immediate danger to life and limb!**



**Danger!**  
**Danger of death from electric shock!**



**Caution!**  
**Potentially dangerous situations for the product and the environment!**



**Note**  
**Useful information and instructions.**

- Symbol indicating the required action.

### 1.3 CE label

The CE label shows that the ventilation unit recoVAIR complies with the basic requirements of the following directives and guidelines:

- Low-voltage Directive 73/23/EEC, modified with Directive 93/68/EEC
- EMC-Directive 89/336/EEC, modified by the Directive 91/263/EEC, 92/31/EEC and 93/68/EEC

### 1.4 Identification plate

The identification plate is positioned below the unit. The indications given on the identification plate have the following meaning:

Description		Meaning
	1 N/P/E 230V~ 50 Hz	Mains voltage
$P_{max}$	240 W	Maximum power consumption
$V_{max}$	275 m <sup>3</sup> /h	Maximum air volume flow
$dP_{max}$	160 PA	Permitted pressure loss in the unit at $V_{max}$
$T_{max, in max}$	60 °C	Outside air inlet temperature
$T_{max, Amb max}$	40 °C	Maximum permitted ambient temperature

Table 1.1 Identification plate (recoVAIR 275/3)

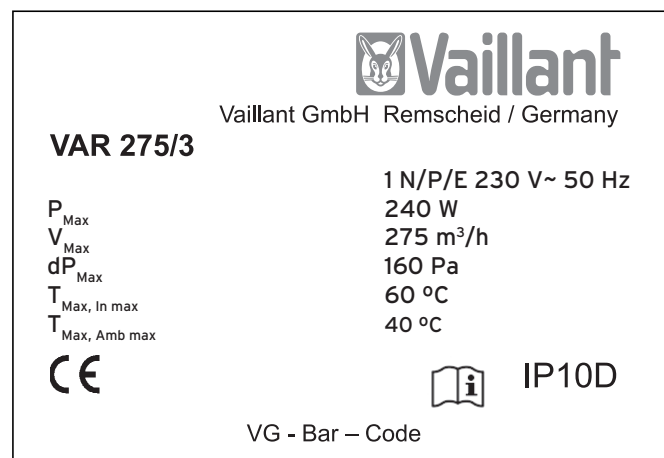


Fig. 1.1 Identification plate (recoVAIR 275/3)

## 2 Safety instructions and regulations

### 2.1 Safety instructions

Always observe the following safety instructions and regulations.

#### 2.1.1 Assembly and installation

The unit may only be installed by a suitably competent person. He/she will be responsible for the correct installation and start-up.

He/she will also be charged with inspection and repair of the system as well as maintenance of the set air flow rates.

If the unit is to be operated with open flued combustion locations, it must be checked by the regional controlling authority. It is mandatory to prevent flue gas leakage from the combustion locations.

#### 2.1.2 Operation

The unit must only be operated with the supplied filters installed. Regularly check whether the filters are dirty and damaged.

We recommend to visually check the filters every 6 months and to replace them every 12 months, or after 2000 operating hours at the latest.

#### 2.1.3 Modifications to the domestic ventilation unit



#### Caution!

**Do not make any changes to the unit or casing which might impair the system functions!**

Do not modify

- The unit,
- The outside air, fresh air, exhaust and discharge air ducts, the pipes for condensation water and the unit mains connection.

This also applies to alterations to structural elements in the vicinity of the unit which might affect its operational safety.

- Do not obstruct the air inlets and outlets with doors, ceilings, windows and walls even temporarily. Do not cover the air inlets and outlets, e.g. with clothes or similar. When laying floor materials do not block or reduce the vent apertures at the bottom of the doors.

For alterations to the unit or to its environment, you must refer to the suitably qualified expert technician which is responsible for it.

Only expert technicians are authorised to execute repair and maintenance work (with exception of replacing the filters).

### 2.2 Caution notes



#### Danger!

**Risk of fatal electric shock from touching live connections.**

**Before working on the unit always pull the mains plug and ensure that the unit cannot be restarted.**

In case of failures during operation, proceed in accordance with the fault finding table of chapter 5 of this document. In case it is not possible to eliminate the fault, please contact an expert technician.

## 3 Information on the installation and operation

### 3 Information on the installation and operation

#### 3.1 Vaillant warranty

Vaillant provides a full parts and labour warranty for this unit.

The unit must be installed by a suitably competent person in accordance with the Gas Safety (Installation and Use) Regulations 1998, and the manufacturer's instructions. In the UK 'CORGI' registered installers undertake the work in compliance with safe and satisfactory standards.

All unvented domestic hot water cylinders must be installed by a competent person to the prevailing building regulations at the time of installation (G3).

Terms and conditions apply to the warranty, details of which can be found on the warranty registration card included with this unit.

Failure to install and commission this unit in compliance with the manufacturer's instructions may invalidate the warranty (this does not affect the customer's statutory rights).

#### 3.2 Intended use

The Vaillant domestic ventilation units are built and designed according to accepted safety rules and regulations. Nevertheless, improper use may cause danger to life and limb of the user or third parties and could impair the operation of other units and objects.

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

Children must be watched to ensure that they do not play with the unit.

The domestic ventilation unit must be installed by a expert technician. He will be held responsible for observing compliance with all current rules, regulations and directives.

Due to high level of dust, operation during the construction phase is not allowed.

The domestic ventilation units are specifically designed for the ventilation of residential spaces.

Any other use or use exceeding the above-mentioned applications shall be considered as improper use. The domestic ventilation unit is not suitable for ventilating swimming pools. The manufacturer/supplier shall not be responsible for any damages resulting from such improper use.

The user alone bears the risk.

Intended use includes the observance of the operating and installation manual and all other applicable documents, as well as adherence to the maintenance and inspection conditions.



#### **Caution!**

**Any improper use is forbidden.**

#### 3.3 Requirements to the positioning of the unit

- These ventilation units may be internally installed in flats, cellar spaces, storage or multipurpose rooms as well as in attic spaces.
- The unit must be mounted wall-hung. Please observe the permitted load carrying capacity of the wall.
- There must be enough space for mounting the air duct connections, for a 230V mains voltage partition provided by the customer as well as a drain outlet with a siphon.
- The installation site should be frost-proof.
- The partition must always be easily accessible.

#### 3.4 Care

- Clean the cladding of your unit with a damp cloth and a little soap.



#### **Note**

**Do not use any scouring or cleaning agents which might damage the steel casing.**

#### 3.5 Recycling and disposal

The ventilation unit as well as the packaging consist mainly of recyclable raw materials.

##### 3.5.1 Unit

The filters used with the unit may be disposed of with the normal household waste. Do not dispose the unit and the other accessories with normal household waste. Please ensure that the old unit and accessories are properly disposed of.



#### **Note**


**Observe the national waste disposal regulations.**

##### 3.5.2 Packaging

Leave the disposal of the transport packaging to the expert technician company which installed the unit.

### 3.6 Energy saving tips

Although this unit is used to increase comfort and energy savings, it is possible to maximise energy savings if you observe the following.

 **Note**

**With low outside temperatures, i.e. below the room temperature, you will reach maximum energy savings if you keep the windows closed and ensure the required air exchange by operating the domestic ventilation unit.**

It goes without saying that venting the room is always possible by opening the windows.

## 4 Operation

### 4.1 Structure of the domestic ventilation unit

Description	Explanation
Fresh air	From the ventilation unit into the living space
Exhaust air	From the living space into the ventilation unit
Outside air	Fresh air from outside is transported to the ventilation unit
Outgoing air	The extracted (stale) air from the ventilation unit is transported outside

Table 4.1 Designation of the ventilation ducts

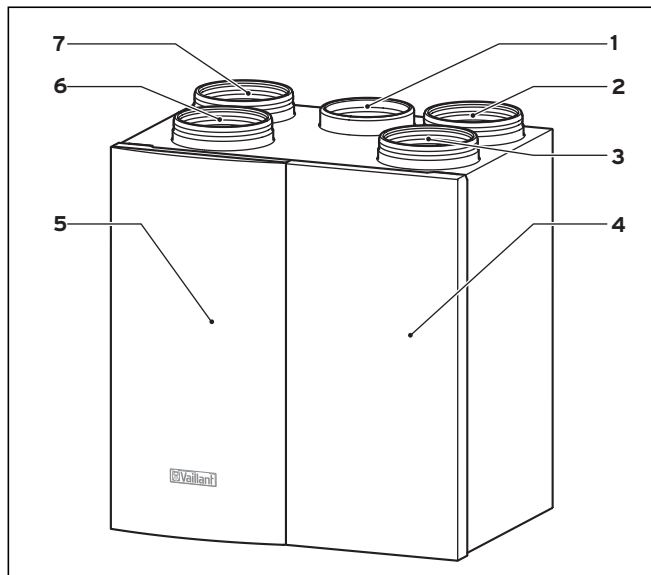


Fig. 4.1 recoVAIR VAR 275/3 and 350/3

**Key**

- 1 Bypass connection
- 2 Discharge air duct connection
- 3 Fresh air duct connection
- 4 Front cladding
- 5 Door in cladding
- 6 Exhaust air duct connection
- 7 Outside air duct connection

### 4.2 Bypass (optional)

The unit may be equipped with a bypass situated on top of the unit (see illustration 4.2).

With a bypass installed the user may operate the so-called "free cooling mode" during the summer months with the outside temperature falling below room temperature during the night. In this case, the relatively cold outside air is not heated by the unit before it is led into the room. We recommend to use an outside air filter G3 or better to protect the unit from any contamination. The filter must be mounted by the customer in the outside air duct as near as possible to the air input opening.

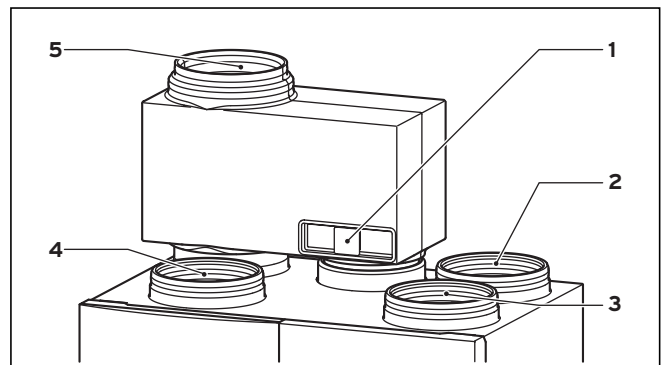


Fig. 4.2 Bypass

**Key**

- 1 Filter
- 2 Discharge air connection
- 3 Fresh air connection
- 4 Exhaust air connection
- 5 Air supply from outside

### 4.3 Switching on/off the unit

The domestic ventilation unit is supplied with electrical power via a 230V mains line.

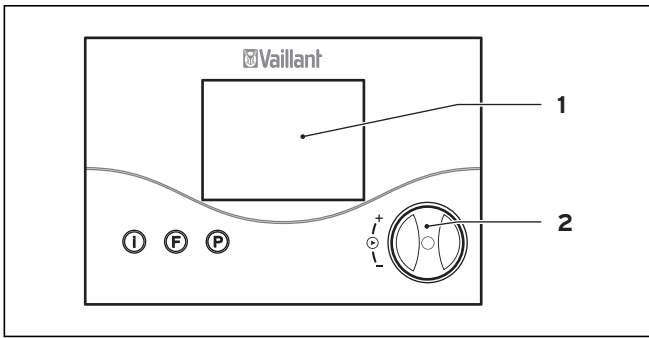
- Insert the mains plug in a 230V plug socket. The unit electronics will start. The display shows the unit type (display "RECO 275 or 350") and then, after about 3 seconds, the indication switches to the basic display.
- To switch off the unit just pull the mains plug out of the plug socket.

### 4.4 Functional overview of the digital remote control

The domestic ventilation unit is equipped with a digital remote control to operate the unit.

The remote control has three buttons as well as a dial (Vaillant operating concept "turn and click") to set various operating programs. In addition, you can set special functions as well as a time-controlled function of the ventilation unit.

# 4 Operation



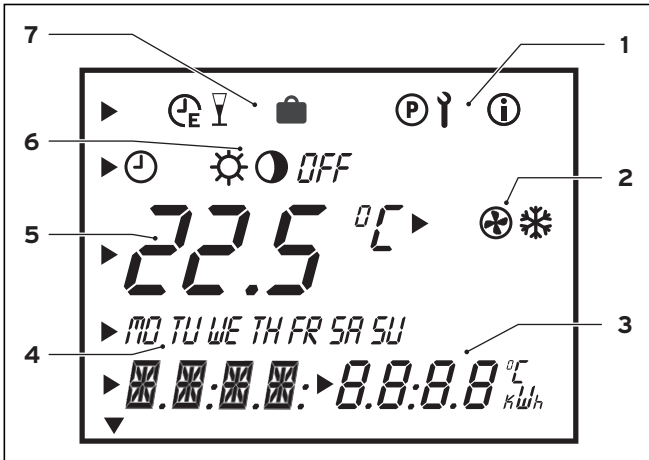
**Fig. 4.3 Digital remote control recoVAIR**

**Key**

- 1 Display
- 2 Dial ("turn and click")
- i Info key
- F Special functions button
- P Programming button (installer level)

### 4.5 Overview of the display

The display shows either the current operating mode in the basic display or, if activated, the special function. In addition, the display shows the current room temperature, the day of the week, the time and the outside temperature.



**Fig. 4.4 Overview of the display**

**Key**

- 1 Operator levels
- 2 Displays for fans/bypass
- 3 Multi-function display
- 4 Days of the week
- 5 Actual values
- 6 Operating modes
- 7 Special functions

### 4.5.1 Symbols

The following symbols may appear in the display:

Symbol	Meaning
	Special function Energy-saving
	Special function Advance
	Special function Holidays
	Static: 2nd fan stage (day mode) Flashing: 3rd fan stage (HIGH) Off: 1st fan stage (night mode)
	Static: Cooling required Flashing: Bypass open (summer mode) Off: Bypass not fitted or closed
	Automatic mode
	Day mode (2nd fan stage)
	Night mode (1st fan stage)
<i>OFF</i>	Mode with fan stage holidays (minimum)
<i>22.5 °C</i>	Actual room temperature
<i>MO TU WE TH FR SA SU</i>	Day of the week
<i>▣.▣.▣.▣.</i>	Multi-function display left (time ...)
<i>▣.▣.▣.▣.</i>	Multi-function display right (KWh)
	Information level
	Time programming level
	Installer level
	Service/diagnostics level

**Table 4.2 Symbols**

### 4.6 Settings from the basic display

From the basic display you can select and then change the major functions with the "turn and click" dial:

**With the "click"** - you go from one menu point to the next. From the basic display press the dial several times in order to reach the desired function. The parameter to be changed will flash and in addition there will be an indicator arrow.








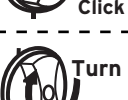


**With "turning"** - you can change the flashing value.



**Note**

**Once you have made the desired settings there is no need to confirm these changes. 10 seconds after the last input the indicated function is automatically activated and then the display returns to the basic display.**



Action	Setting of
	<b>Operating mode</b> Selected symbol is flashing
	<b>Turn the dial</b> in order to change the operating mode. You can select the following settings:  ☀ <b>Day mode:</b> Independently of the timer program the remote control switches the fans to the 2nd stage.  🌙 <b>Night mode:</b> Independently of the timer program the remote control switches the fans to the 1st stage.  🕒 <b>Automatic mode:</b> The system switches from day to night mode (time-controlled). In addition, the current operating mode is displayed.  <i>OFF</i> <b>Minimum operation</b> Independently of the timer program the remote control switches the fans to the lowest stage.
	<b>Fan stage 3</b> Display HIGH
	<b>Turn the dial</b> in order to set the period of time. The 3rd fan stage is active at this time. <b>To deactivate this function, set the period of time to "0.0".</b>
	<b>Bypass in stand-by</b> Display ❄  <b>If no bypass unit is connected, this menu point will be left out!</b>
	<b>Turn the dial</b> to set the number of days during which the bypass shall be in stand-by mode. Under the correct temperature conditions the bypass engine switches to summer mode.
	<b>Check and setting of the time</b> <b>Press the dial several times</b> in order to select days of the week, hours and minutes as required. The selected category flashes in the display.
	<b>Turn the dial</b> to change days of the week, hours and minutes.
	<b>Check and setting of the year clock</b> <b>Press the dial several times</b> in order to select the day, the month and the year. <b>If the clock is not activated, this point will be left out!</b>
	<b>Turn the dial</b> in order to change the day, the month and the year.




Action	Setting of
	<b>Check and reset of the filter timer</b> Display FILT  The timer indicates the number of days after the last reset since the filter has been used.
	<b>Turn the dial</b> to the left to reset the timer to 0. Turn the dial to the right to reset the previous value.
	<b>Return to basic display</b>  If no new setting is executed for more than 10 seconds, the display will automatically return to the basic display.

Table 4.3 Operation from the basic display

#### 4.7 Programming the timer

With the programming button you can change the times for the timer mode. With activated timer, function recO-AIR will switch between the first and the second stage (time-controlled)

- Outside the time window: Stage 1 = Night mode
- Within the time window: Stage 2 = Day mode

It is possible to set up to three different switching-on and -off times (time windows) for each day of the week. In the display of the remote control these time windows are called H1, H2 and H3.

You can combine individual days in groups or a week block. The following groups are possible:  
MO - SU; MO - FR; SA - SU.


The following operating times are factory-set:

Time window	Day of the week/Block	Start time	End time
H1	MO-FR	6:00	22:00
H1	SA	7:30	22:30
H1	SU	7:30	22:00

Table 4.4 Factory-set operating times

The operating times are set as follows:

- Start with the P button to programme the times.
- Select the time window.
- Select a day or a week block.
- Determine the starting time.
- Determine the end time.
- Terminate programming of the operating time with the P button.

 **Note**  
**In the programming level you navigate by means of the turn and click method.**

## 4 Operation

**With the "click"** - you change within the programming level from one menu point to the next. Push the dial several times in order to reach the desired function. The parameter to be changed will flash and in addition there will be an indicator arrow.

**With "turning"** - you can change the flashing value.










Action	Setting of
	<b>Activation of the programming level</b> Display 
 Click	<b>Select the time window</b>
 Turn	<b>Turn the dial</b> to select the time window H1 to H3.
 Click	<b>Select the days of the week resp. the blocks for the week</b>
 Turn	<b>Turn the dial</b> in order to select the individual days resp. week blocks.
 Click	<b>Select On and Off times</b> You select successively the hours and minutes for the switching time by pressing the dial several times.
 Turn	<b>Turn the dial</b> in order to change the hours or minutes of the switching times.
	<b>Return to basic display</b> If no new setting is executed for more than 5 minutes, the display will return as well to the basic display.

Table 4.5 Programming the time windows

### 4.8 Special functions

With the F button (special functions) you can start the individual special functions.

You select the function by pressing the F button several times



#### Note

**Once you have made the desired settings there is no need to confirm these changes. 10 seconds after the last input the indicated function is automatically activated and then the display returns to the basic display.**

By once pressing the "F" button

you can deactivate an active special function.

The deactivation takes 2 seconds. By selecting another special function the currently activated special function is terminated.

It is only possible to operate one special function at a time.







Action	Special function
	<b>Energy-saving function symbol in the display:</b>  With the energy-saving function the activated fan stage is set to night mode (stage 1) for a limited period of time. The user indicates the period in hours and minutes (minimum 2:30 h). Then the remote control switches back to the timer mode. Also see figure 4.5.
	<b>Advance function symbol in the display:</b>  The advance function is used to bridge the set timer program and activate day mode (stage 2). The function will remain activated till the next programmed switch-over to day mode starts. Also see figure 4.5
	<b>Holiday function symbol in the display:</b>  In case the holiday function has been selected, the fan stage is set to a minimum value for a period to be set (in days). At 0:00 hours, a day is subtracted from the set period.

Table 4.6 Special functions

### 4.9 Info level

① Press the information button to reach the info level. In addition to identifying the controller, the information level is used to quickly and easily check the set operating times. Each time window may be individually opened.

If there is no setting action for more than 10 seconds, the display will return to the basic display.







Action	Special function
	<b>RECO 275/350</b> Display of the unit type
	<b>FILT</b> <b>Filter days</b> Indication of the days for which the filter has been operated since the last filter reset.
	<b>AIR</b> Current air flow supply in m <sup>3</sup> /h
	<b>BYP</b> Display of the fresh air temperature in °C, if a bypass has been installed.
	<b>DATE</b> The current date is displayed. Prerequisite is to activate the calendar first.
	<b>Timer programme</b> for the activated heating times  You can call the timer program by pressing the information button repeatedly.  If the current day of the week is <b>not</b> indicated in the display, the controller is in the daily program.

Table 4.7 Info level

## 5 Troubleshooting

Do not try to remedy any other failure than those indicated in table 5.1. For all other failures contact an expert technician.

Malfunction	Cause	Remedy
No function	Mains voltage interrupted	With the mains voltage re-established the unit will automatically switch on.
Reduced air flow	Filter is heavily soiled	Clean or replace the soiled filters as described in chapter 6.

Table 5.1 Troubleshooting



### Danger!

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

- For troubleshooting it is mandatory to pull the mains plug in order to disconnect the unit from the power supply.

Never interfere or manipulate the domestic ventilation unit or other parts of the system. Only restart the domestic ventilation unit after all failures and malfunctions (which must not be eliminated by you yourself) will have been remedied by an expert technician.

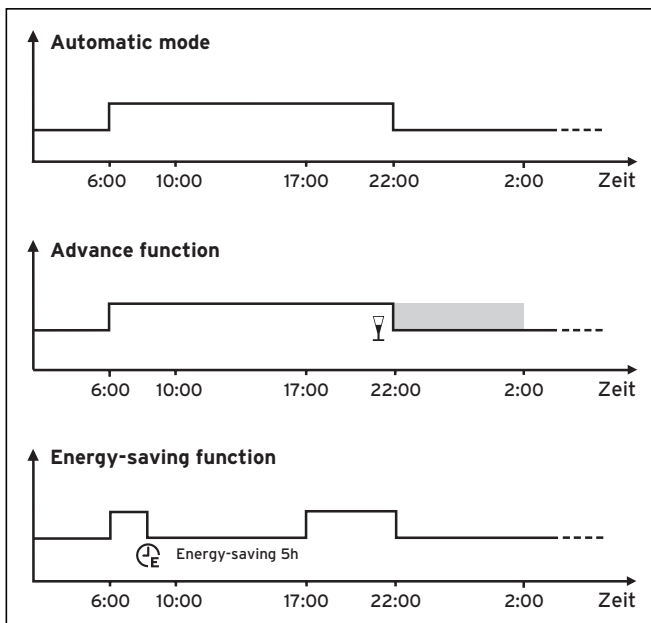


Fig. 4.5 Comparison of automatic, advance and energy-saving mode

### 6 Maintenance and Customer Service

Continued efficient operation, reliability and a long service life as well as safety, require inspections and maintenance work to be regularly carried out by an expert technician on an annual basis.

You must employ a qualified technician to complete such work.

We recommend making a maintenance agreement. The operational reliability of the device can be impaired, resulting in damage to property or personal injury, if maintenance work is not carried out.

The following must be checked:

- Soiling of the filters (cleaning or replacing the filters)
- Condensate discharge
- Function of the installed bypass unit

You as the owner or user may execute the following maintenance work yourself:

- Clean and replace the filters in the domestic ventilation unit
- Clean and if required replace the flat filters in the bypass unit (if installed)
- Clean the fresh air or exhaust air valves in the living space
- Reset the time interval for filter replacement in accordance with section 4.6 "Settings from the basic display"

It depends on the contamination degree how often the filters must be cleaned or replaced. We recommend to regularly check the filters during the initial operational period and assess the need to clean them e.g. every three months. If you then feel that the filters are only slightly contaminated or dirty, you may extend the interval.

We recommend to replace the filters at least once per year or max. 2000 operating hours.

You can clean the filters with a vacuum cleaner. If this is not enough, the filters must be replaced. Cleaning the filters with water or other liquids is expressly prohibited. Dispose the used filters with the domestic waster.

#### 6.1 How to clean or replace the filter in the domestic ventilation unit

For checking and cleaning the filters, please proceed as follows:



**Danger!**  
**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

- Open the left front flap.
- Pull the filter out of the unit.
- Remove the filter handles from the filters.
- Observe the descriptions in the inner side of the door.

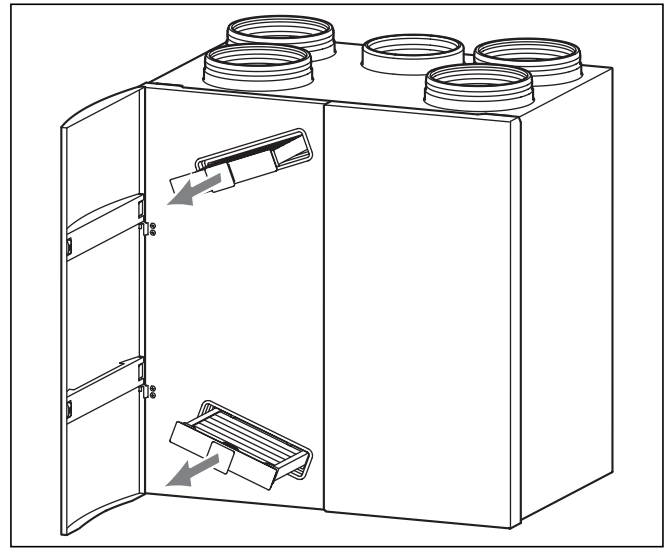


Fig. 6.1 Replacing the filters

- The filters are to be cleaned or replaced depending on the degree of soiling.



**Caution!**  
**Before inserting the filters, please ensure the correct positioning in order to avoid damaging of the filters.**

- Position the filter handles on the clean or new filters. On the one side, the filter handles are fitted with guides which must be pushed into the grooves in the unit.
  - The upper filter is mounted with these guide pointing to the **bottom**.
  - The lower filter is mounted with the guide pointing to the **top**.
  - Push the filters back into the unit.
  - Close the front flap.
  - Plug in the mains plug into the plug socket.
- The unit is now ready for operation.

## 6.2 How to clean or replace the filter in the bypass unit

For checking and cleaning the bypass filter, please proceed as follows:



### Danger!

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

- Pull the filter out of the unit.
- Remove the filter handles from the filters.
- The filter is to be cleaned or replaced depending on the degree of soiling.

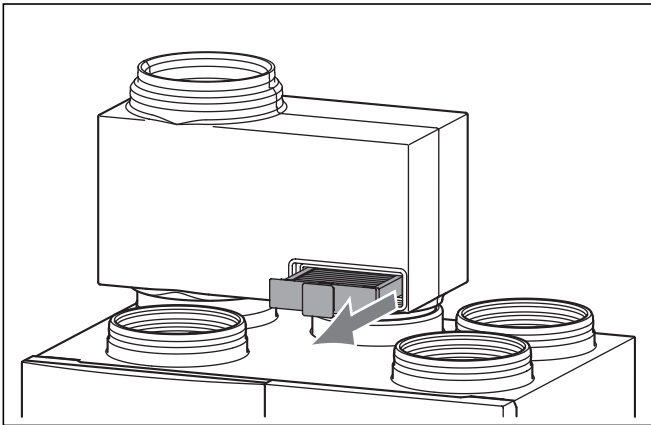


Fig. 6.2 Removing the bypass filter



### Caution!

**When mounting the bypass filter please ensure the correct positioning in order to avoid damaging the filter.**

- Position the filter handle on the clean or new filter. On the one side, the filter handle is equipped with guides which must be pushed into the grooves in the unit. The filter is mounted with the guides pointing to the **bottom**.
- Push the filter back into the unit.
- Plug in the mains plug into the plug socket.

## 6.3 Filter

Only use the original Vaillant filters.

In addition to the standard filters there are as well available special fine filters. If you intend to use such filters, please contact an expert technician.

Description	Filter class	Article number
Filter set for recoVAIR VAR 275/350	G3	0020023930
Filter set for bypass	G3	0020023931
Fine filter set for recoVAIR VAR 275/350	F6	0020026061
Fine filter set for bypass	F6	0020026118

Table 6.1 Filter



For the expert technician

# Installation instructions

## recoVAIR/3

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# 1 Notes on the documentation

## 2 Unit description

### 1 Notes on the documentation

The instructions below are intended to help you throughout the entire documentation. Further documents apply in combination with this installation instructions. The manufacturer expressly rules out any liability for damages arising from the non-observance of these instructions.

#### 1.1 Document storage

Please pass on this operating and installation manual as well as all other applicable documents and potentially required aids to the plant operator, whose responsibility it is to ensure the manuals and auxiliary equipment are available whenever required.

#### 1.2 Symbols used

When operating the unit, please observe the safety instructions in this operating manual!

 **Danger!**  
**Immediate danger to life and limb!**

 **Danger!**  
**Mortal danger due to electric shock!**

 **Caution!**  
**Potentially dangerous situations for the product and the environment!**

 **Note**  
**Useful information and instructions.**

- Symbol indicating the required action

### 2 Unit description

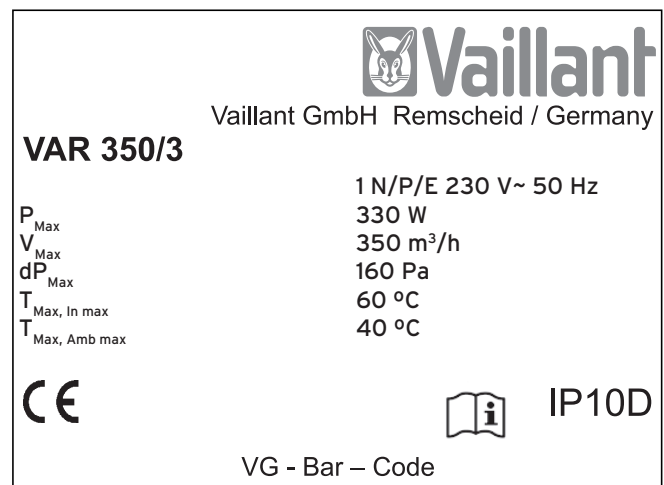
#### 2.1 Identification plate

The identification plate is positioned below the unit.

The indications given on the identification plate have the following meaning:

Description		Meaning
	1 N/P/E 230V~ 50 Hz	Mains voltage
$P_{max}$	330 W	Maximum power consumption
$V_{max}$	350 m <sup>3</sup> /h	Maximum air volume flow
$dP_{max}$	160 PA	Permitted pressure loss in the unit at $V_{max}$
$T_{max, In max}$	60 °C	Outside air inlet temperature
$T_{max, Amb max}$	40 °C	Maximum permitted ambient temperature

**Table 2.1 Identification plate (recoVAIR 350/3)**



**Fig. 2.1 Identification plate (recoVAIR 350/3)**

For further information please read section 9 "Technical data".

#### 2.2 CE label

The CE label shows that this unit complies with the following directives:

- Low-voltage Directive 73/23/EEC, modified with Directive 93/68/EEC
- EMC-Directive 89/336/EEC, modified by the Directive 91/263/EEC, 92/31/EEC and 93/68/EEC



### 2.3 Intended use

The Vaillant domestic ventilation units are built and designed according to accepted safety rules and regulations. Nevertheless, improper use may cause danger to life and limb of the user or third parties and could impair the operation of the unit and other objects.

The domestic ventilation unit must be installed by an expert technician. He will be held responsible for observing compliance with all current rules, regulations and directives.

The domestic ventilation units are specifically designed for the ventilation of residential spaces.

The remote control including the operating mode selector and the timer must only be used for controlling the domestic ventilation unit as described hereunder, it is not designed for any other purpose.

Due to high level of dust, operation during the construction phase is not allowed.

Any other use or use exceeding the above-mentioned applications shall be considered as improper use. The manufacturer/supplier shall not be responsible for any damages resulting from such improper use.

The user alone bears the risk.

Intended use includes the observance of the operating and installation instructions and all other applicable documents, as well as adherence to the maintenance and inspection conditions.

 **Caution!**  
Any improper use is forbidden.

### 2.4 Connections

#### 2.4.1 Ventilation unit

Necessary connections :

- recoVAIR VAR 275/3: 4 x air duct connections  $\varnothing$  150 mm, or alternative  $\varnothing$  160 mm and  $\varnothing$  180 mm
- recoVAIR VAR 350/3: 4 x air duct connections  $\varnothing$  180 mm, or alternative  $\varnothing$  200 mm
- Condensate discharge with siphon  $\varnothing$  32 mm
- Electrical connection above mains voltage socket with 230V 50Hz mains voltage

#### 2.4.2 Digital remote control recoVAIR

On the remote control installation location, the following additional connections are required:

- Control line run from the remote control to the ventilation unit. The wiring should be twin-core with a CSA of 0.75 mm<sup>2</sup>. Maximum cable length must not exceed 300 m

The connection must comply with the valid local & national rules and regulations.

### 2.5 Functioning

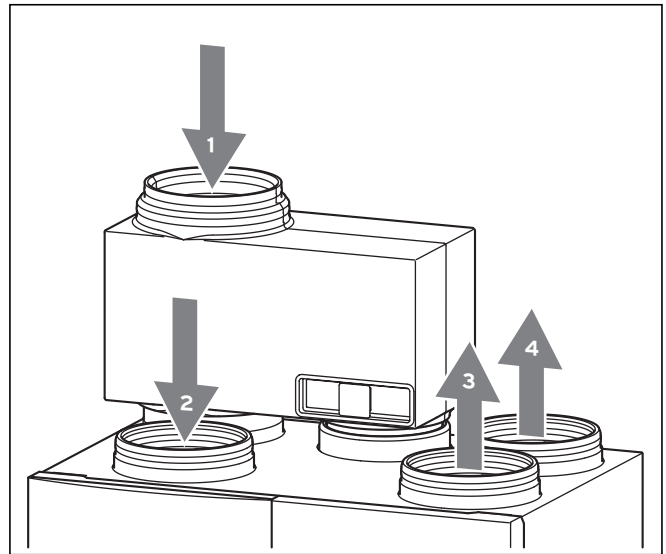


Fig. 2.2 Schematic view of the air flow

#### Key

- 1 Outside air (from outdoors)
- 2 Exhaust air (from the living rooms)
- 3 Fresh air (to the living rooms)
- 4 Discharge air (to the outside)

## 3 Safety instructions and regulations

### 3.1 Safety instructions

The unit may only be installed by a suitably competent person. He/she will be responsible for the correct installation and start-up.

He/she will also be charged with inspection and repair of the system as well as maintenance of the set air flow rates.

### 3.2 General requirements

#### 3.2.1 Preliminary remarks for heat recovery ventilation products

This appliance should only be used in conjunction with a propriety ductwork system installed in accordance with HVCA guide DW144 (steel ductwork) & DW154 (plastic ductwork).

## 3 Safety instructions and regulations

### 4 Assembly and installation

#### 3.2.2 Related documents

The installation of the heat recovery ventilation unit and any associated ductwork and outlets must be in accordance with the relevant requirements of the Health and Safety Document No. 635 (The Electricity at Work Regulations 1989), BS7671 (IEE Wiring Regulations). It should also be in accordance with the relevant requirements of the Local Authority, Building Regulations, The Building Regulations (Scotland), The Building Regulations (Northern Ireland) and the relevant recommendations of the following British Standards:

- BS 5588 - Fire precautions in design construction and use in buildings
- BSEN 13141 - Ventilation for buildings. Performance testing of components/products for residential ventilation.
- BS EN 1506 - Ventilation for buildings. Sheet metal air ducts and fittings with circular cross-section.
- BS EN 13142 - Ventilation for buildings. Components/products for residential ventilation. Required and optional performance characteristics
- BS EN 12236 - Ventilation for buildings. Ductwork hangers and supports. Requirements for strength

#### 3.3 Regulations

If the system is to be operated with boilers or other gas appliances which are dependent on the ambient air, the ventilation must be balanced in accordance to the needs of the appliance.

The following laws, rules, regulation standards and guidelines in the valid version must be complied with for the installation:

- Safety instructions and regulations for low-voltage installations EN 1010
- EST Good Practice guide 268 - Efficient ventilation of buildings - A guide to specifiers
- Rules and regulations for air circulation in flats and habitable areas and residential buildings EN 1087
- Rules and regulations for ventilation systems DIN 1946
- Any pertaining rules and regulations of the local or national building authorities
- The present instructions for installation

#### Controls

All wiring must be in accordance with Building Regulations Part P and BS 7671 (IEE Wiring Regulations), and must be carried out by a suitably qualified person.

## 4 Assembly and installation

#### 4.1 Scope of delivery

- Ventilation unit
- Digital remote control recoVAIR
- Mounting set consisting of:
  - Fixing brackets 405 x 60 mm
  - Hose connection for condensate discharge  $\varnothing$  15 mm

Accessories (optional)

- Bypass recoVAIR
- Fine filter set

#### 4.2 Requirements of the installation site

The installation site of the domestic ventilation unit must be constantly frost-free and dry. The system installation must be planned in detail. Especially pay attention to the positioning of the fresh air and exhaust air ducts and to include sufficient sound insulation.

##### 4.2.1 Installation site of the ventilation unit

Please note the following instructions before choosing where to install the boiler:

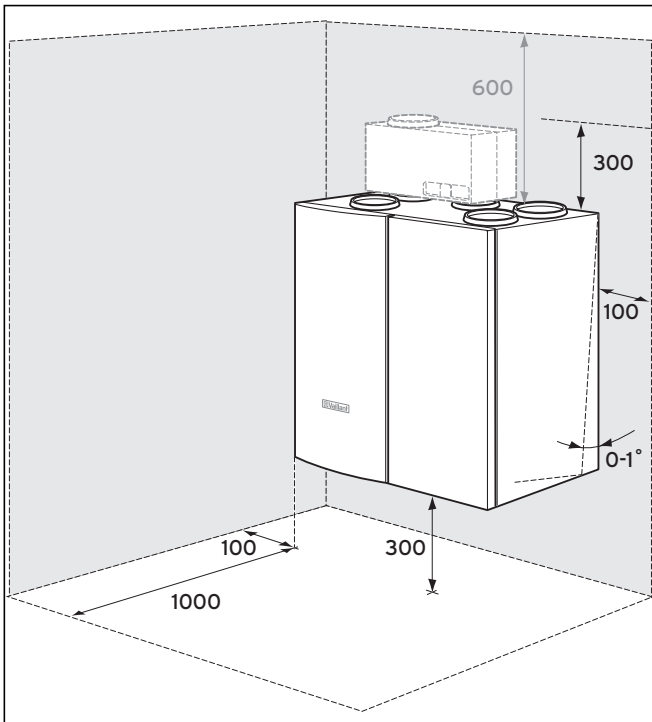


#### Caution!

**When mounting the system it is absolutely necessary to ensure the horizontal positioning of the ventilation unit and an angle of  $> 0^\circ$  and  $< 1^\circ$  in vertical position to ensure that the condensation water can easily flow out of the unit.**

The domestic ventilation unit is wall-mounted, preferably close to a drain outlet for the condensation water drain.

- The ventilation unit must be installed with due consideration of the requirement for adequate and practical air ducting and services (fresh air and exhaust air, electrical line). Ensure enough space is provided on top of the unit and at its sides to be able to mount the required air ducts, additional silencers and bypass unit.
- The installation site must be selected such that the ductwork distances to and from the ventilation unit are as short as possible.
- The wall to which the domestic ventilation unit is to be mounted must offer sufficient load-carrying capacity for the weight of the commissioned ventilation unit.
- It is possible that the supplied fixing elements do not meet the requirements of the installation wall. The suitable fixing elements must be provided by the customer.
- The condensation water drain must be connected to a drain outlet with a siphon (see figure 4.6).



**Fig. 4.1 Required minimum separation/installation clearances**

- The hose of the condensation water drain must be transparent to allow any contamination to be recognised from the outside.
- The hose must be laid with a minimum siphon of 8 cm. The siphon compensates the pressure between unit and installation room. Therefore it must always be filled with clean water.
- For hygienic reasons, the hose must not be connected permanently to the siphon of the wastewater system. Plan a free draining path of at least 20 mm (as e.g. for expansion relief valves in hot water installations).
- For mounting the unit, the minimum side clearance is 10 cm.
- For replacing the filters and maintenance work you require at least 1 m free space in front of the ventilation unit.
- If the ventilation unit is mounted in a cylinder, do not select a location directly above bedrooms due to possible sound transfer. Always choose a location above a non-occupied room such as a hall or bathroom.
- With wood-joint ceilings or similar you can provide additional sound insulation by adding a concrete slab insulated on the bottom side.
- Always ensure that the condensation water drain is free running.
- To avoid annoyance by excessive noise select a sound-absorbing hose for connections from the unit to the air outlets.
- Install a silencer. This will help to neutralise possible noise transmission between the unit and the air ducting and reduce annoyance by noise.

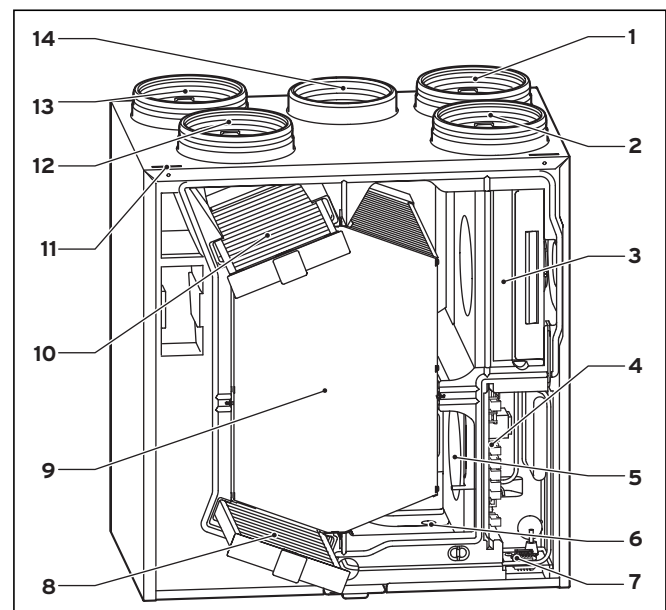
- Keep the air supply pipeline at a sufficient distance from discharge air, exhaust air and drain ventilation. Comply with the legal building rules and regulations.
- When installing the fresh air input and discharge air ducts you will have to ensure sufficient separation to avoid that the discharged air being re-circulated into the fresh air input. According to VDI 6022 the minimum separation is 10 m.

#### 4.2.2 Positioning of the remote control

- The remote control must be mounted such that there is enough space around it to complete the electric wiring as well as easy operation of the control.
- The remote control must be installed inside the living space in an easily accessible place. For further details see section 4.8.

### 4.3 Structure

#### 4.3.1 Ventilation unit



**Fig. 4.2 Structure recoVAIR VAR 275/3 and 350/3**

#### Key

- |   |                                       |
|---|---------------------------------------|
| 1 Discharge air duct connection               | 8 Outside air filter                  |
| 2 Fresh air duct connection                   | 9 Heat exchanger                      |
| 3 Fresh air fan                               | 10 Exhaust air filter                 |
| 4 PCB   | 11 Fixing point of the front cladding |
| 5 Exhaust air fan                             | 12 Exhaust air duct connection        |
| 6 Condensate discharge                        | 13 Outside air duct connection        |
| 7 Electrical connection of the 3-stage switch | 14 Bypass connection                  |

The unit is equipped with a frost protecting sensor. This sensor measures the temperature of the discharge air. If this temperature falls below 1°C, the fresh air fan will be switched to the minimum speed and then if the temperature drops to 0°C it will be switched off.

## 4 Assembly and installation

The flow of the outside air may be significantly cooler than the temperature of the discharge air measured by the frost protection sensor before activation of the anti-freeze monitoring device. Its operation is possible up to  $-7^{\circ}\text{C}$  outside temperature.

### 4.3.2 Remote control

The control elements of the remote control are explained in the operating manual in section 4.4.

### 4.3.3 Bypass

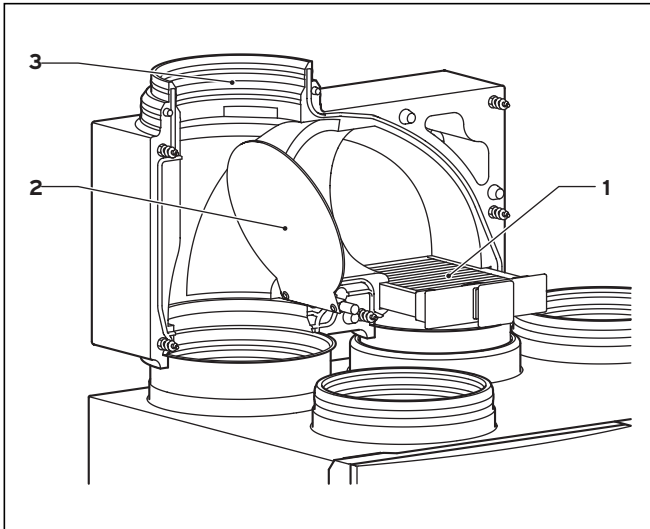


Fig. 4.3 Bypass structure

#### Key

- 1 Filter
- 2 Air flap
- 3 Air supply from outside

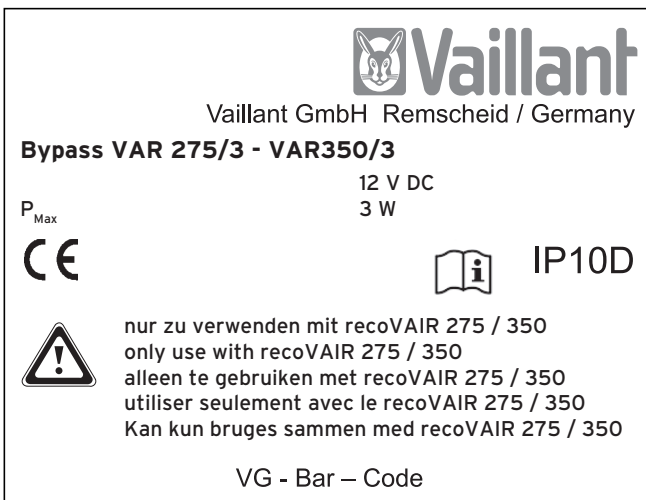


Fig. 4.4 Bypass identification plate

Description	Meaning
12 V DC	Mains voltage
$P_{\text{max}}$ 3 W	Maximum power consumption

Table 4.1 Identification plate

4.4 Dimensions

4.4.1 Dimensions recoVAIR VAR 275/3 and 350/3

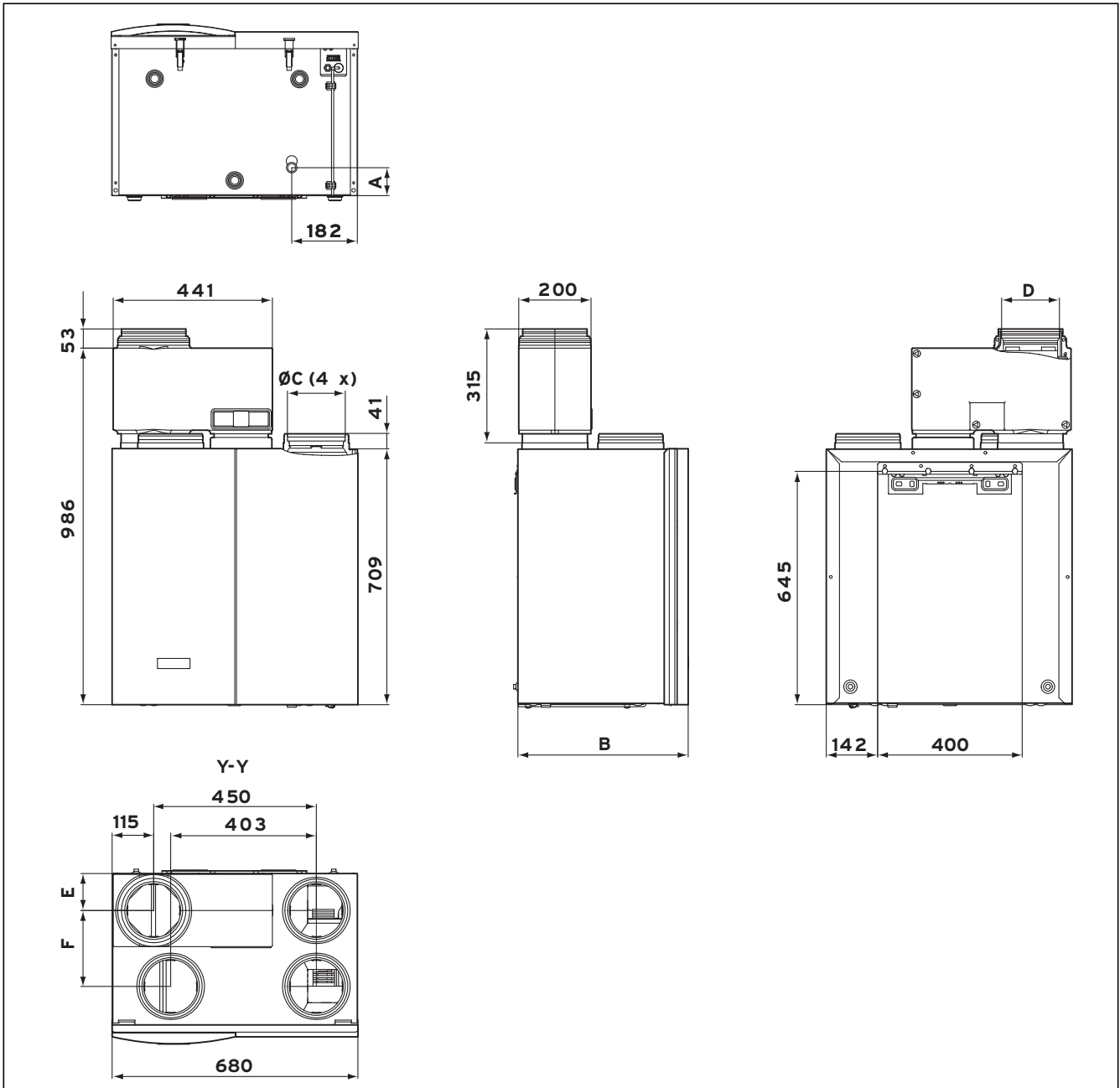


Fig. 4.5 Dimensions recoVAIR VAR 275/3 and 350/3

	recoVAIR VAR 275/3	recoVAIR VAR 350/3	Remarks
A	77	127	
B	471	521	
C	∅ 150/∅ 160/∅ 178	∅ 180/∅ 198	Pipe diameter to be selected for all 4 air connections
D	∅ 150 / ∅ 160 / ∅ 178 / ∅ 198	∅ 150 / ∅ 160 / ∅ 178 / ∅ 198	Pipe diameter to be selected for the bypass connection
A	102	122	
F	210	240	

Table 4.2 Table of dimensions recoVAIR VAR 275/3 and 350/3 (dimensions in mm)

## 4 Assembly and installation

### 4.5 Assembly and installion the domestic ventilation unit

- First mount the ventilation unit and the remote control, and then proceed to the electrical connections. (Exception bypass: in this case you connect the electrical connection first!)
  - Ensure there is enough space for mounting work at the sides of the ventilation unit (at least 10 cm).
- This domestic ventilation unit is solely intended for vertical wall mounting.

#### 4.5.1 Mounting the fixing brackets

A fixing bracket is supplied for the wall mounting of the unit, the unit is hooked onto it.



#### Caution!

**When mounting the system it is absolutely necessary to ensure the horizontal positioning of the ventilation unit and an angle of  $> 0^\circ$  and  $< 1^\circ$  in vertical position to ensure that the condensation water can easily flow out of the unit.**

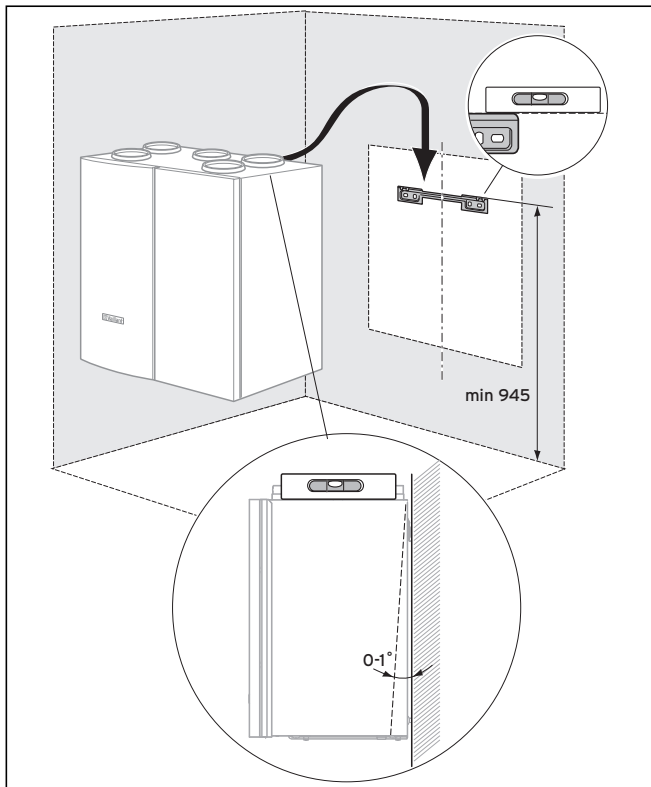


Fig. 4.6 Assembly of the fixing brackets

- Determine the assembly site, see section 4.2 "Requirements of the installation site".
- Drill the holes for the fixing screws and position the wall plugs.
- Screw the fixing bracket horizontally to the wall.

### 4.5.2 Hooking the domestic ventilation unit



#### Danger!

**If not mounted correctly, the unit may fall off. Ensure that the wall offers the appropriate load carrying capacity and that the proper fixing means are used for secure mounting. The wall must be able to carry the total weight of the unit (about 35 kg). It is possible that the attached mounting set with the fixing screws and wall plug is not suitable for every wall.**

#### Danger!

**The ventilation unit has got a weight of about 35 kg. Thus, when hooking the unit onto the fixing bracket, never lift the unit alone.**

- Position the ventilation unit above the bracket and then hook it onto the clips.
- The unit must have fitted absolutely horizontal and vertical.

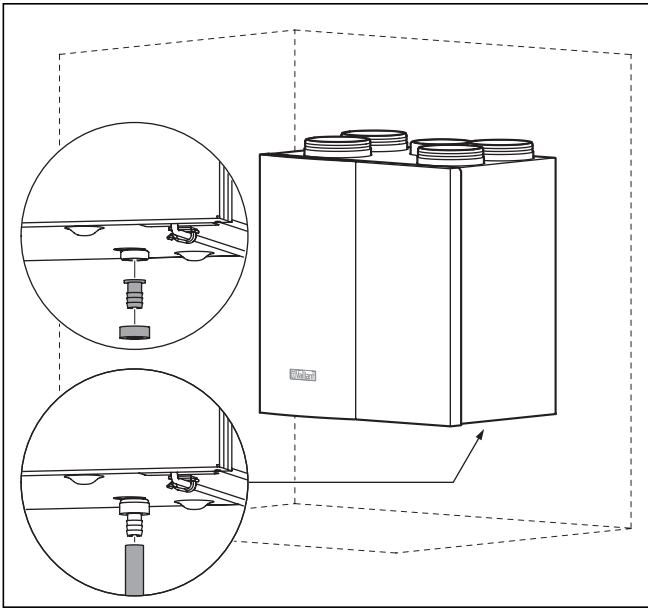
### 4.5.3 Connecting the condensation water drain

- Screw the drain bushing for the condensation water drain into the opening at the bottom of your domestic ventilation unit.
- Connect a DIN 15 hose to the drain bushing. The hose must be transparent to allow any contamination to be recognised from the outside.
- The hose must be laid with a minimum siphon of 8 cm. The siphon compensates the pressure between unit and installation room. Therefore it must always be filled with clean water.



#### Danger!

**For hygienic reasons, the hose must not be connected permanently to the siphon of the wastewater system. Plan a free draining path of at least 20 mm.**



**Fig. 4.7 Condensation water connection**

- Loose the screw on the left toggle-type fastener below the unit (fig. 4.7, pos. b). Then open both toggle-type fasteners (fig. 4.7, pos. c).
- Pull the lower part of the front cladding close to you (fig. 4.7, pos. d).
- Now lift the front cladding above the fixing points (fig. 4.7, pos. e).

To close the ventilation unit proceed vice versa.

#### 4.5.4 Final ductwork connection

- Before executing the final connection check the air ducts are still clean. If necessary, clean the air ducts.
- Now connect the air ducts to the ventilation unit.
- Connect the air ducts individually as shown to the connections on top of the unit.



#### **Caution!**

**The insulation for outside air and discharge air pipelines must be vapour-diffusion tight.**

#### 4.6 Opening and closing the ventilation unit

The domestic ventilation unit is equipped with a fixed front cladding with a pivoting door to the left. Behind this door there are the filters. For mounting and maintenance work on the unit it is necessary to remove the front cladding. This is how to do it:



#### **Danger!**

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**



#### **Note**

**First remove the filters from the unit because they are fastened in the front cladding.**

- Open the left door on the unit front.
- Pull both filters out of the unit and then close the door (fig. 4.7, pos. a)

## 4 Assembly and installation

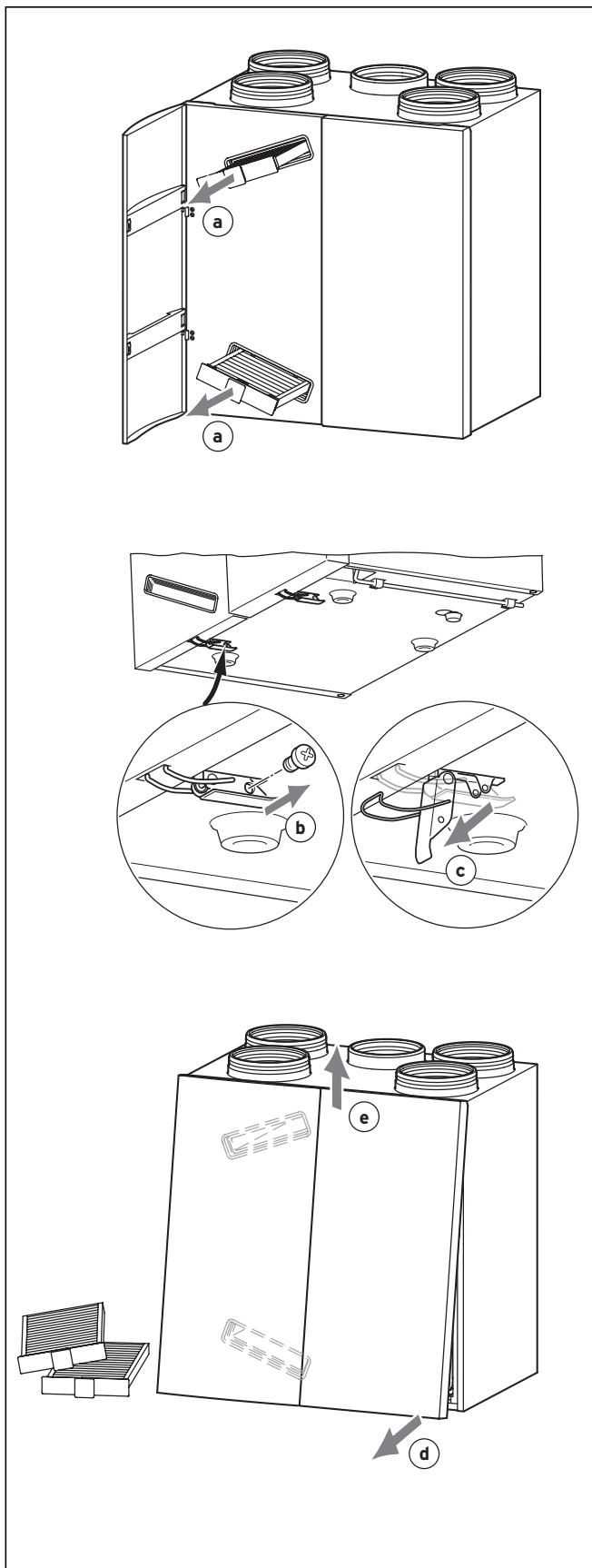


Fig. 4.8 Opening and closing the ventilation unit

### 4.7 Assembly and electrical connection of the bypass (optional)

The bypass must be mounted in accordance with the installation scheme (see section 2.5 "Functioning") into the outside air flow in order to bypass the ventilation unit.



#### **Danger!**

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**



#### **Note**

**You will first have to connect the bypass to the electric mains because after the final mounting the electrical lines will not be accessible anymore.**



#### **Danger!**

**Improper electric installation may cause accidents. Therefore it is absolutely mandatory to have a competent person complete the electric installation.**

- Open the ventilation unit as described in section 4.6
- Remove the plug of the centre air connection by pressing it from inside upwards (illustration 4.8). In the ventilation unit, inside of the bypass air connection, there is a 10-pole connector to which the bypass plug is connected. The plug is located in a EPP pocket. The plug is removed from the EPP pocket.
- Remove the cable with the 10-pole connector from the casing wall and then connect the bypass plug to the connector (illustration 4.8).

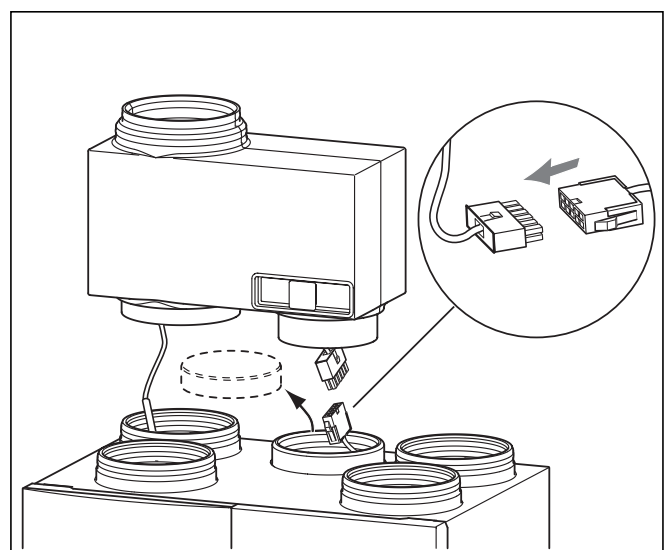


Fig. 4.9 Electrical connection of the bypass

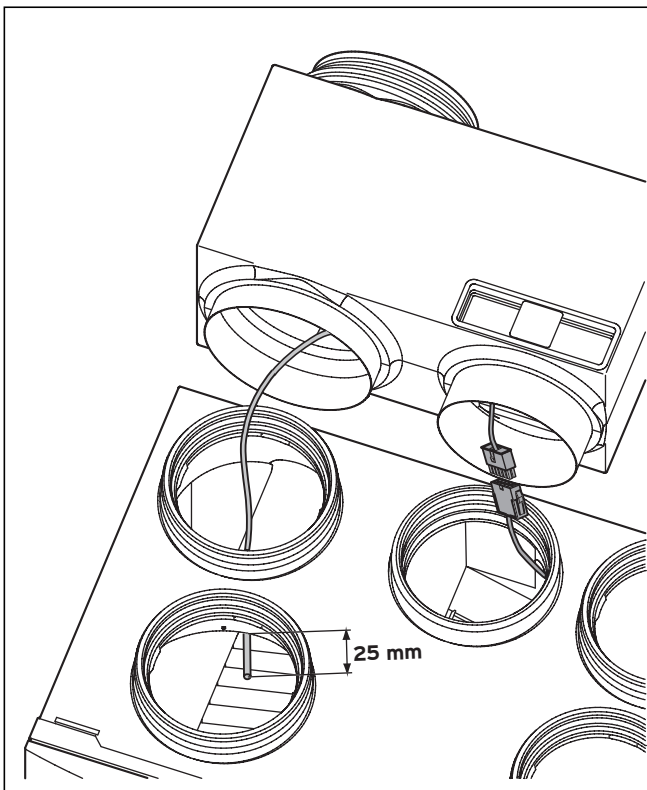


To mount the temperature sensor, please proceed as follows:

- Remove the plug from the sensor hole in the outside air duct.
- Push the temperature sensor through the hole into the exhaust air duct.



**Caution!**  
To ensure the correct bypass function the temperature sensor must project at least 25 mm into the exhaust air flow.



**Fig. 4.10 Positioning of the temperature sensor**

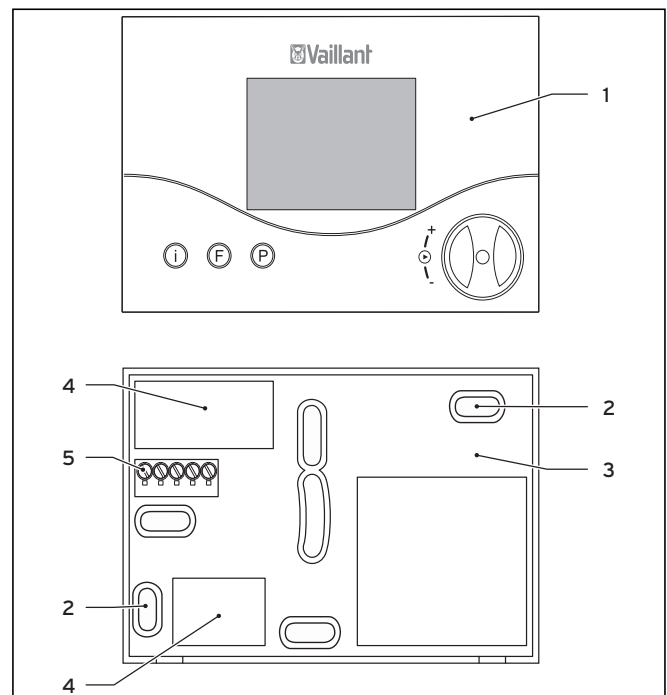
After completing the electrical connection of the bypass, you can mount the bypass unit.

- Push the bypass in/above the unit outside air connections as shown in illustration 4.8.
- Ensure that the filter unit is facing outward to you.
- Check that the bypass is completely inserted.
- Plug in the mains plug into the plug socket.

## 4.8 Assembly and installation of the remote control

Normally the best siting of the remote control is in the main living space at an inside wall at a height of about 1.5 m. There the controller is able to detect the circulating ambient air clearly and unimpeded from furniture, curtains or other external influences. The position should be selected so that neither air drafts from the door or the window nor heat sources such as radiators, chimney wall, TV or solar irradiation may directly influence the controller.

The connection to the ventilation unit is made via a 2-core connection line.



**Fig. 4.11 Mounting of the remote control**

### Key

- 1 Casing
- 2 Fixing holes
- 3 Wall base
- 4 Cable ducts
- 5 Terminal connection strip

- Pull the casing (1) of the remote control from the wall base (3).
- Drill two fixing holes (2) (diameter 6 mm) (see illustration 4.10) and insert the supplied wall plugs.
- Pull the connection cable through one of the cable ducts (4).
- Fasten the wall base to the wall using the two supplied screws.
- Connect the cable to the corresponding terminals (eBUS "+" and "-") on the terminal connecting strip (5).
- Place the casing (1) on to the wall base (2) such that the pins at the back of the upper part locate into the seats.
- Press the casing to the wall base till it locates.

## 4 Assembly and installation

### 4.8.1 Electrical connection of the remote control



**Danger!**

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

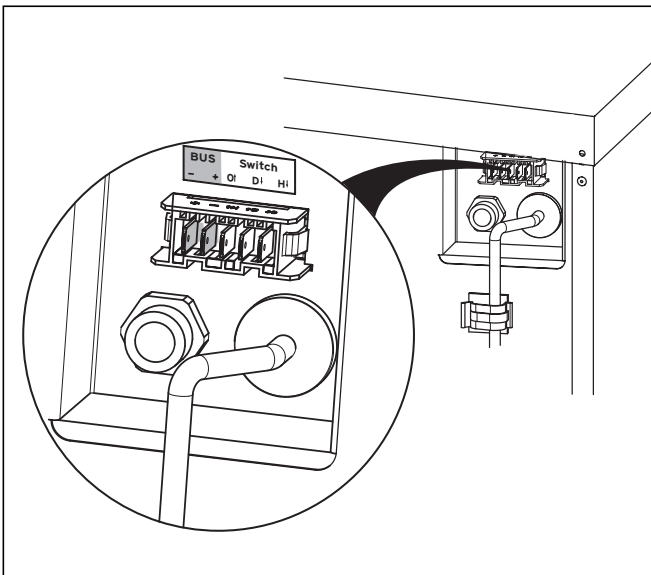


**Note**

**The electric installation must be executed by a competent person in order to prevent accidents.**

The remote control is connected to the ventilation unit via a two-core cable. Communication is done via a 2-pole eBUS. The eBUS connector is sized to accommodate wiring of  $2 \times 0.75 \text{ mm}^2$  (recommended). It is possible to interchange the connections without affecting communication. This connection is at the bottom of the unit.

- Connect the control cable in accordance with illustration 4.11 to the eBUS terminals “+” and “-”.



**Fig. 4.12 Electrical connection of the remote control**

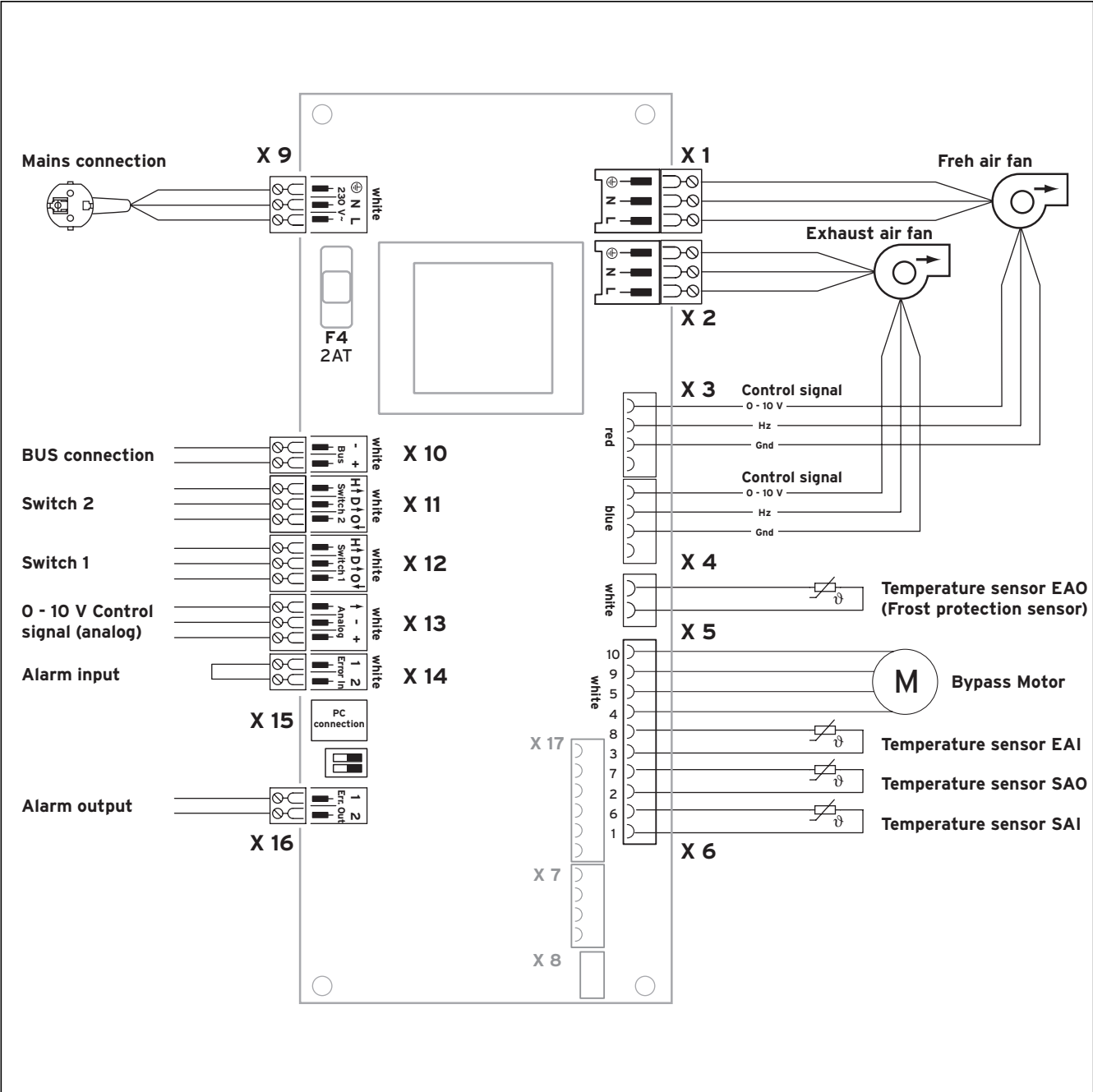


Fig. 4.13 Wiring scheme

## 4 Assembly and installation

### 4.9 Electrical connection of the 3-stage switch (optional)

In addition to the standard control unit, you can also use an universal 3-stage switch to control the ventilation unit. This must be potential-free (no voltage).

- Connect the three lines in accordance with illustration 4.13 to the terminals "O↓", "D↑" and "H↑".

The following switch positions are possible:

Position	Function	Electrical contact
1 ("O")	Control system with remote control	O↓ open
2 ("D")	Day position (fans stage 2)	O↓ connected to D↑
3 ("H")	HIGH position (fans stage 3)	O↓ connected to H↑

Table 4.3 Switch positions of the 3-stage switch

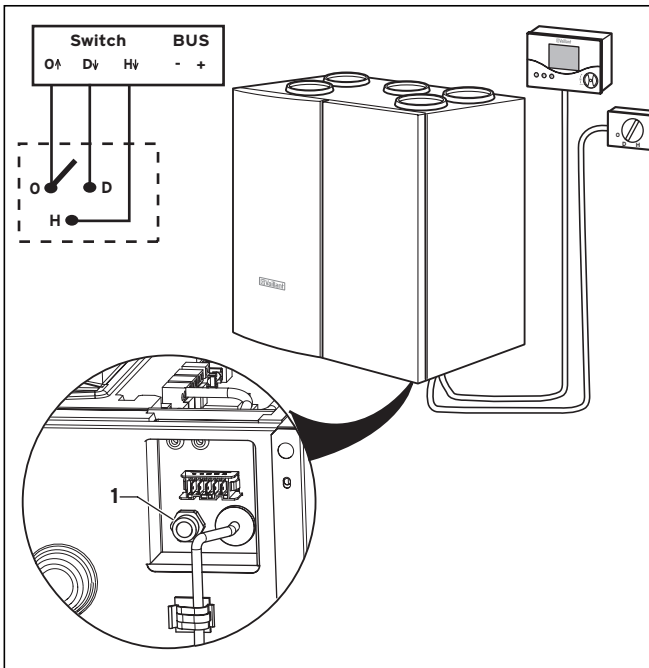


Fig. 4.14 Electrical connection of the 3-stage switch

#### Key

- 1 Alarm output strain relief

### 4.10 Alarm input (optional)

The alarm input (connection "X 14" on the board) is bridged when the unit is delivered. If the connection is undone with an external potential-free switching contact (break contact), both fans will be switched off. On the display of the remote control you will find the message "LOCK".

This function allows an interlock circuit to be formed, e. g. in conjunction with a heat-producing unit dependent on room air.



#### Danger!

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

- Remove the unit front cladding as described in section 4.6.
- Now place the 2-core cable (minimum 0.35 mm<sup>2</sup>) in the respective cable routing to the PCB.
- Connect the lines to the connection "X 14" (alarm input) in accordance with figure 4.12 "Wiring scheme".



#### Note

**If the contact is opened, the display indicates "LOCK". The ventilation unit fans are then switched off.**

### 4.11 Alarm output (optional)

The alarm output (connection "X 16" on the board) is made of a potential-free switching contact with a resistive load (Ohm) of maximum 2 A.

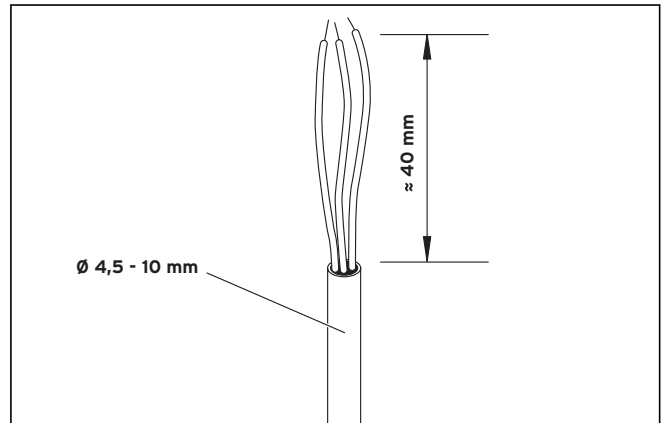


Fig. 4.15 Removing cable insulation

- Remove cable insulation as shown in illustration 4.14.
- Pass the cable through the strain relief (see illustration 4.13) and screw it.

An alarm will be triggered

- If the time set for the filter replacement has expired. The duration is set under the installer level option on the remote control.
- If one of the error messages described in section 7.1 is indicated in the remote control display.



#### Danger!

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

- Remove the unit front cladding as described in section 4.6.
- Now place the 2-core cable (minimum 0.35 mm<sup>2</sup>) in the respective cable routing to the PCB.
- Connect the lines to the connection "X 16" (alarm output) in accordance with figure 4.12 "Wiring scheme".

#### 4.12 Functional check

Once all supply lines are correctly installed in accordance with the wiring scheme, please check the functions of the remote control, the ventilation unit and the bypass (see section 5.1.3).

In the sections 4.4 to 4.8 of the operating manual you will find in detail all the settings for the individual operating modes and the special functions. For testing functions proceed as follows:

- Select the operating mode "night" and check whether the fans in the ventilation unit operate at low output.
- Set the operating mode "day" and check whether the fans in the ventilation unit operate with medium output.
- Activate the special function "advance". Check whether the fans in the ventilation unit operate at medium output.
- If the output stages are not correctly switched, you will have to check the wiring at the terminals of the remote control and the ventilation unit.

## 5 Start-up

The start-up and the operation of the unit as well as instruction to the user must be done by a competent person.

As part of the start-up it is necessary to adjust the domestic ventilation unit.

The domestic ventilation units are delivered ex factory with basic setting of both fans. As each fresh air and exhaust air installation is different and thus offers different external resistance in the air ducting you will have to separately adjust the fresh air and the exhaust air fan to suit.

The ventilation unit can be adjusted with the remote control. Below are the necessary steps.

### 5.1 Setting the digital remote control

To optimally match the system parameters to the required conditions it is necessary to set these parameters with the remote control. The system parameters are located in an upper operation level and should only be set by an expert technician.



#### 5.1.1 Installer level








Hold down the P button for about 10 seconds to go to the installer level. The  $\gamma$  symbol appears on the display. Then, by pressing the dial, it is possible to select the functions. The functions shown in table 5.1 can be scrolled through one after the other.






To change the parameters just turn the dial.

If you want to return to the basic display, shortly press the P button.

The adjustable air volume flows apply jointly to fresh air and exhaust air.

Action	Display	Meaning	
 press for 10 sec.	AIR1	<b>Set volume flow night 1st stage</b>	
		recoVAIR VAR	<b>275/3 350/3</b>
		Default setting m <sup>3</sup> /h	95 120
		Min m <sup>3</sup> /h	50 70
		Max m <sup>3</sup> /h	AIR2 AIR2
Set volume flow for the <b>non</b> -programmed periods.			
 Click	AIR2	<b>Set volume flow day 2nd stage</b>	
		recoVAIR VAR	<b>275/3 350/3</b>
		Default setting m <sup>3</sup> /h	195 240
		Min m <sup>3</sup> /h	AIR1 AIR1
		Max m <sup>3</sup> /h	HIGH HIGH
Set volume flow for the programmed periods.			

Action	Display	Meaning
	<b>HIGH</b>	<b>Set volume flow, 3rd stage</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting m³/h      295      360
		Min m³/h      AIR2      AIR2
		Max m³/h      325      400
Set volume flow after activation in the operating mode programming level		
	<b>AIR4</b>	<b>Set volume flow holiday</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting m³/h      65      80
		Min m³/h      50      70
		Max m³/h      AIR2      AIR2
Set volume flow after activation of the special function "holidays" with the F button, additionally in "OFF" mode.		
	<b>AIR5</b>	<b>Min. volume flow with activated bypass</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting m³/h      130      160
		Min m³/h      AIR1      AIR1
		Max m³/h      HIGH      HIGH
Minimum volume flow when the connected bypass switches to summer mode (without heat recovery).		
	<b>STOV</b>	<b>Protective switching against negative pressure</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting      OFF      OFF
		<b>ON</b> = the fan air flow is kept at the same level even in frost protection mode (both fans will then operate at a lower speed), in case of a failure of one fan the other will be switched off as well. This protective switching prevents negative pressure being caused if just the supply fan is disconnected.
	<b>HEAT</b>	<b>No function</b>
	<b>FILT</b>	<b>Days till the next filter replacement</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting/days      180      180
		Min days      30      30
		Max days      180      180
Adjusted in 30 day steps to which the indication "FILT" is shown on the remote control display. (Alarm output is closed)		
	<b>POL1 POL2</b>	<b>No function</b>



Action	Display	Meaning
	<b>C-AIR</b>	<b>Set volume flow correction</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting in %      -5      -5
		Min in %      -15      -15
		Max in %      +5      +5
Adjustment of the set volume flow for fresh air in order to produce a slightly negative pressure in the building. At low temperatures it prevents ice formation due to condensation water on the doors and windows.		
	<b>C-RT</b>	<b>Room temperature correction</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting in %      0      0
		Min in %      -3      -3
		Max in %      +3      +3
Correction of the room temperature indicated on the display of the remote control.		
	<b>DAY</b>	<b>Desired value of the current day*</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting      0      0
		Min      0      0
		Max      31      31
	<b>MON</b>	<b>Desired value of the current month*</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting      01      01
		Min/month      01      01
		Max/month      12      12
	<b>YEAR</b>	<b>Desired value of the current year*</b>
		recoVAIR VAR <b>275/3 350/3</b>
		Default setting      2005      2005
		Min/year      2000      2000
		Max/year      2159      2159












**Table 5.1 Functions in the installer level**

\* Setting will be required if the automatic switching from summer to winter time is to be activated.

### 5.1.2 Service/diagnostics level

The service/diagnostics level is intended to support the expert technician with service and repair work. Keep the P button and the dial simultaneously pressed for about 3 seconds to reach the service/diagnostics level. The display will show the symbols @∞. By pressing the P button you will return to the basic display. You can display the following functions / information:

Action	Display	Meaning
 3 Sec.	<b>BYP ON</b>	Bypass switches to summer mode
	<b>ALAR ON</b>	Alarm output is activated (contact closed).

Action	Display	Meaning
 Turn	<b>HEAT</b> ON	Not activated
 Turn	<b>SAO</b> /* xx °C	Display of fresh air temperature (Supply Air Out)
 Turn	<b>EAO</b> / xx °C	Display of the discharge air temperature at the frost protection sensor (Exhaust Air Out)
 Turn	<b>EAI</b> * xx °C	Display of the exhaust air temperature (Exhaust Air In)
 Turn	<b>SAI</b> /* xx °C	Display of the outside air temperature (Supply Air In)
 Click	<b>AIR</b> / xx m <sup>3</sup> /h	Display of the current air volume flow in the ventilation unit. By turning the dial it is possible to change the air quantity during the test mode.
 Click	<b>APPL</b> / 3 / 4	Display of the unit type 3 = recoVAIR VAR 275/3 4 = recoVAIR VAR 350/3
 Click	<b>Display</b>	Display test: All symbols of the display are indicated, however, not all symbols of recoVAIR have a meaning.
 Click	<b>VER1</b> / x.xx	Display of the software version of the remote control User INTERFACE
 Click	<b>VER2</b> / x.xx	Display of the software version of the recoVAIR PCB
 Click		Return to basic display

**Table 5.2 Functions of the service/diagnostics level**

\* These values can only be called with a bypass unit installed.

### 5.1.3 Testing the bypass and the other functions

Go to the service/diagnostics level as described in section 5.1.2. Now test successively all functions in accordance with table 5.2. If the bypass is not connected or if a sensor is defective, the display will show the symbol "-".

### 5.1.4 Restoring the default settings

- Press the P button for 15 seconds to reset the controller to the default setting.  
As soon as the display lights up twice, the controller is completely reset to its default settings. This means that you will have to perform all individual settings again.

### 5.1.5 Switching from week to day mode

The remote control is factory-set to a week program. It may be switched if required to the day mode.

- Press the F button for 10 seconds to change the setting of the remote control to day mode.

## 5.2 Adjusting the domestic ventilation unit

### 5.2.1 How to proceed for adjustment

First of all ensure that the overall air flow calculated for the flat is reached by the system. Then adjust the air flow rates for the individual living spaces. Then finally adjust the individual air flow distribution per living space.

### 5.2.2 How to adjust the overall air flow

First adjust the desired air quantity calculated when the system was dimensioned with the remote control for all operating modes (installer level). Proceed step by step in accordance with table 5.1 in section 5.1.1. In the above-mentioned table you will find the information for the desired values.



#### Note

**The planned air quantities must be reached in the day mode (2nd stage) because this is the standard operation mode.**

### Adjusting the air quantities at the system

- Set all valves for fresh air and exhaust air in the living spaces to a medium opening of about 50%. Then proceed in accordance with the instructions given in the manufacturer operating manual.  
The air speed must not exceed 1.5m/s at a distance of 50 cm from the valve.
- Ensure that all flaps possibly installed in the existing air duct distributors are completely open.
- Switch the domestic ventilation unit with the remote control to the operating mode "day".
- Measure the partial air quantities in the ducts with the control valves if they exist. Correct these settings if required by adjusting the control valves.
- If required, open the fresh air/exhaust air valves if the planned overall air quantity is not reached.
- Increase the fan speeds by means of the values given in table 5.1 if the overall air flow is too low.
- With the remote control (installer level), press the P programming button for about 10 seconds.
- Press the dialer as long as to ensure that the display shows "C-AIR".
- Correct the fresh air flow by turning the dial till the fresh air and the exhaust air volume flows are identical (see table 5.1).

### 5.3 Handing over to the operator

Completely fill in the attached measurement report (see chapter 10) and hand it over to the operator.

### 6 Inspection and maintenance

The functional operation of the domestic ventilation unit requires it to be serviced once per year. This includes the following:

- Check the general condition of the unit.
- Remove any dirt and soiling at the unit.
- Clean or replace soiled filters.
- Check that the condensation water drains are not blocked.
- Clean soiled fans.
- Check the function of the unit, the remote control and the bypass.

We recommend to replace the filter once per year or after 2000 operating hours at the latest, see section 6.6 "Spare parts and accessories".

We also recommend periodical inspections by an institute for hygiene. The first inspection should be performed 3 months after start-up.

#### Note

**To avoid damaging the unit due to improper work the following maintenance work must be executed by competent and trained personnel.**

#### 6.1 Removing and cleaning the unit filters

If the filters are not strongly soiled, you may clean them with a normal vacuum cleaner.

If this is not enough, the filters must be replaced. Cleaning the filters with water or other liquids is expressly prohibited.

In the operating manual in section 6.1 you will find a detailed description on how to replace the filters.

#### 6.2 Removing and cleaning the heat exchanger

To clean the heat exchanger it must be removed.



#### Danger!

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**



#### Caution!

**When removing and replacing the heat exchanger take care not to damage it. Do not grab with your hand or with any objects directly holding the heat exchanger fins. Any damage will lead to premature wear in the system.**

- Open the ventilation unit and remove the filters and the front cladding as described in section 4.6.
- Take the heat exchanger with both hands at the edges without damaging the fins.
- Then carefully pull out the heat exchanger.

- Clean the heat exchanger with a washing liquid with neutral pH and lukewarm water. Then rinse it again with clear lukewarm water.
- Leave the heat exchanger dry before replacement.



#### Caution!

**To clean the heat exchanger use only a washing liquid with neutral pH and lukewarm water. Other detergents, especially acidic detergents (such as vinegar cleaner), damage the unit.**

With the removed heat exchanger check as well if the condensation water drain (section 6.3) is dirty.

- Slide the heat exchanger back into the unit. Take care that the heat exchanger correctly fits into the guide rails at the top and bottom of the housing and that it does not cant.

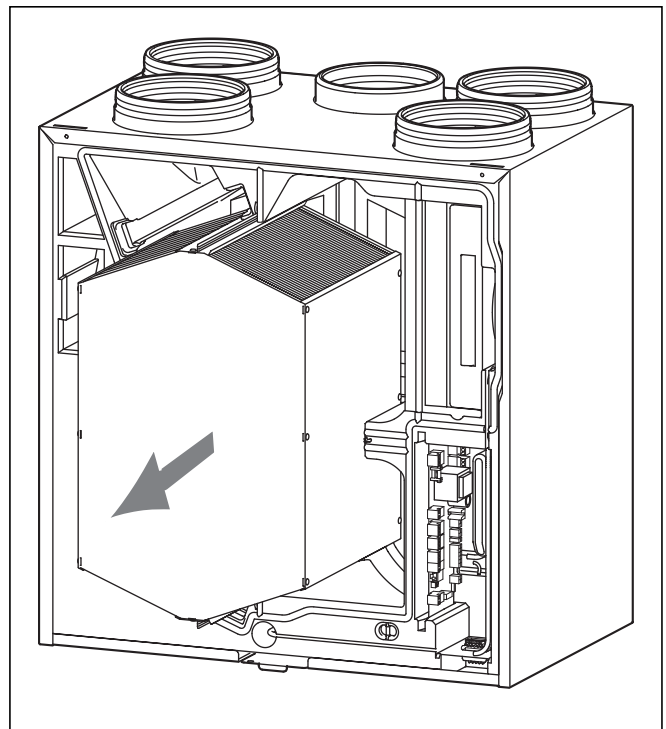


Fig. 6.1 Removing the heat exchanger



### 6.3 Cleaning the condensation water drain

To clean the condensation water drain, firstly remove the heat exchanger (see section 6.2)

- Unscrew the condensation water hose from the bottom of the unit.
- Check that the drain hose is not blocked. If it is choked, renew it.
- If required, clean any dirt in the draining pan.
- Screw the drain hose again to the unit.
- Check whether the siphon is filled with water. If necessary fill the siphon with drinking water.

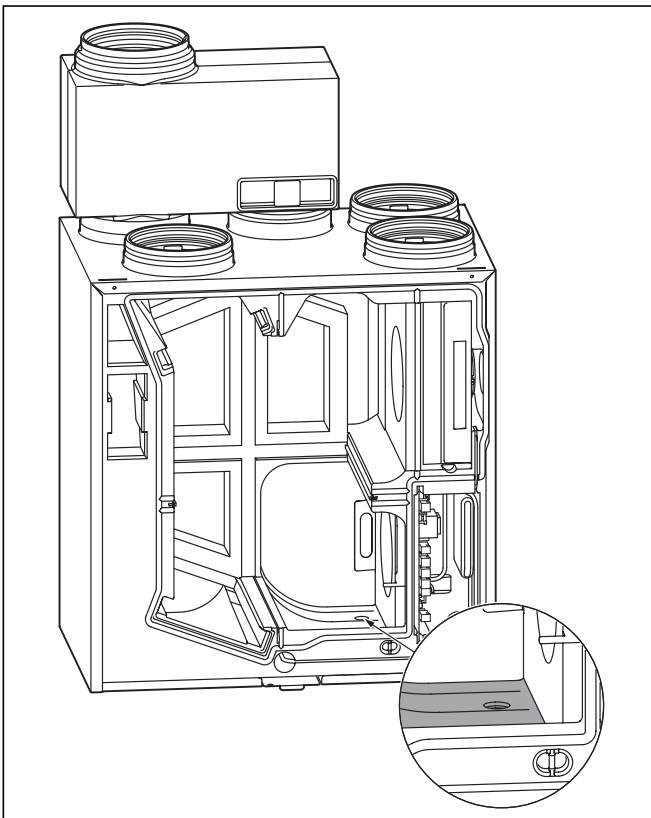


Fig. 6.2 Condensation water drain

### 6.4 Cleaning or replacing the bypass filter



**Danger!**

**Risk of fatal electric shock from touching live connections. Before working on the unit always pull the mains plug.**

The ventilation unit may be equipped with a bypass. In section 6.2 of the operating manual you will find a detailed description of how to remove, check and clean the bypass filter.

### 6.5 Test operation and recommissioning

After the inspection/maintenance work check the correct functioning of the unit:

- Check that the unit cladding is correctly closed.
- Insert the mains plug into the plug socket and start the unit.
- Check the correct function of the unit.
- Check the correct function of the remote control.

### 6.6 Spare parts and accessories

In order to continuously ensure the correct function of the Vaillant unit and not to change series-production status it is absolutely mandatory only to use genuine Vaillant spare parts for the maintenance and maintenance work.

Description	Filter class	Ordering number
Bypass for recoVAIR	-	0020023929
Filter set for recoVAIR VAR 275/3 and 350/3	G3	0020023930
Filter set for bypass	G3	0020023931
Fine filter set for recoVAIR VAR 275/3 and 350/3	F6	0020026061

Table 6.1 Accessories

## 7 Troubleshooting

### 7 Troubleshooting

The faults listed below may only be rectified by an expert technician.

- Make sure the parts are correctly fitted and that their original position and alignment are retained.
- Troubleshooting is successful if the unit operates correctly.
- Only use genuine spare parts for repairs.

Malfunction	Cause	Remedy
The unit does not operate	Temporary interruption of the mains voltage supply or no supply at all. Fuse F1 in the unit is defective.	After a mains failure the unit automatically restarts once the mains voltage is re-established. Check that all cables are properly connected and undamaged. If necessary, replace the fuse F1 on the PCB.
Unit operation is very loud even at the minimum fan speed	No silencers in the fresh air and exhaust air ducts. Wrong silencers, or silencers are too short.	Mount additional silencers in accordance with the system design. Reduce the air quantity to the minimum fan stage.
None or insufficient fresh air supply	Filters are extremely soiled. Fresh air valves closed too much. Exhaust air or fresh air ducts obstructed. Fresh air input louver too small. Incorrect wiring. Fan defective.	Clean the filters. Open the fresh air valves. Adjust the system again. Clean the exhaust air and fresh air ducts. Fit a larger louver. Check the wiring. Replace the fan if necessary.
No or insufficient exhaust air flow (i.e. in the bathroom the mirror stays fogged up)	Filters are extremely soiled. Exhaust air valves closed too much. Exhaust air or fresh air ducts obstructed. Fresh air input louver too small. Incorrect wiring. Fan defective.	Clean the filters. Open the exhaust air valves. Adjust the system again. Clean the exhaust air and fresh air ducts. Fit a larger louver. Check the wiring. Replace the fan if necessary.
Bypass summer mode does not work	Bypass function not activated or set days for summer mode expired. Wrong positioning of the temperature sensor. Flap position and/or engine for bypass defective. Defective bypass engine wiring.	In the programming level of the remote control, set or activate the bypass function. Correctly position the temperature sensor. Check the flap position and the engine and, if required, replace them. Check that the plug to the flap engine is correctly positioned. Check in the Service/Diagnostics menu whether the sensors are detected at the remote control. See section 5.1.2
Noise in the condensation water drain	Siphon incorrectly connected.	Connect the drain in accordance with section 4.5.3.
Water dripping from the unit	Exhaust air and fresh air ducts are not vapour-tight.	Insulate exhaust air and fresh air ducts air-tight or use specially insulated pipes.
Fresh air too cold	Exhaust air and fresh air flows not balanced. Wrong flap position or bypass engine defective.	Adjust the unit in accordance with section 5.2. Check the flap and the engine. Clean the flap and its seat, replace the bypass engine if necessary.
No fresh air or exhaust air (only one fan running)	Frost protection activated. With outside temperatures below -7°C, correct operation. With temperatures exceeding 0°C the frost protection sensor is defective.	Check the resistance of the frost protection sensor based on table 7.3. If necessary, replace the frost protection sensor.
Odours from the kitchen/WC enter into other rooms	Junctions for fresh air and exhaust air are too close to each other.	Extend the distance between the junctions for fresh air and exhaust air. We recommend to position these junctions in different parts of the roof.
Sound transmitted between the rooms	No crosstalk absorbers mounted.	Additionally install crosstalk absorbers. Adjust the unit in accordance with section 5.2.
Planned air flow not reached at the start-up	System is not air-tight.	Seal all pipe connections properly if necessary.
Noise in the unit after replacing the fan.	Wrong mounting of the fans.	Check the correct positioning of the fans.

**Table 7.1 Troubleshooting**

### 7.1 Error messages on the remote control

Indication on the display	Check/ component	Cause	Remedy
COM Err	Fans turn with 20% PWM	Communication error between the PCB, the unit and the remote control. 230 V eBUS line laid parallel in pipe or cable channel.	Pull the mains plug and insert it again. If this does not help to eliminate the error, contact the Vaillant Customer Service.
LOCK	Both fans inoperative	Alarm input "X 14" opened.	Check whether a separate switch is connected to "X 14". Check why the switch is open. If this does not help to eliminate the error, contact the Vaillant Customer Service.
SAI Err*	Temperature sensor outside air	Temperature sensor defective (interrupted or short-circuited). Wiring interrupted.	Contact the Vaillant Customer Service.
EAI Err*	Temperature sensor exhaust air	- See above -	- See above -
EAO Err	Temperature sensor discharge air	- See above -	- See above -
SAO Err*	Temperature sensor fresh air	- See above -	- See above -
SFAN Err			Contact the Vaillant Customer Service.
EFAN Err			Contact the Vaillant Customer Service.
FILT	Check all filters for soiling.	Time for programmed filter timer expired.	Set the filter timer (in the installer level) to RESET.

Table 7.2 Error messages on the remote control

\* Error message only with installed bypass.

### 7.2 Resistance values of the temperature sensor

Temperature in °C	Resistance in Ω
-20	95862
-10	54892
0	32510
10	19862
20	12486
25	10000
30	8060
40	5330

Table 7.3 Resistance values of the temperature sensor

## 8 Vaillant Customer Service

### Vaillant Service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

## 9 Technical data

### 9.1 Ventilation unit

Description	Unit	recoVAIR VAR 275/3	recoVAIR VAR 350/3
<b>Air specifications</b>			
Maximum air volume flow	m <sup>3</sup> /h	275	350
Maximum pressure loss	Pa	170	265
Filter class	EU / G	3	3
Filter surface area	m <sup>2</sup>	0,25	0,25
<b>Thermal specifications</b>			
Thermal efficiency	%	95,3	95,1
Frost protection mode active	°C	-7	-7
Maximum ambient temperature	°C	40	40
Minimum ambient temperature	°C	5	5
<b>Mechanical specifications</b>			
Dimensions height x length x depth	mm	708 x 680 x 471	708 x 680 x 521
Weight (gross)	kg	46	48
Air connections	mm	ø 150, ø 160 and ø 180	ø 180 and ø 200
Heat exchanger material		Aluminium	Aluminium
Noise (at 1 m from the unit)	db(A)	48	52
<b>Electric specifications</b>			
Voltage supply	V/Hz	230 / 50	230 / 50
Power consumption 30%	W	25	30
Power consumption 60%	W	55	85
Power consumption 100%	W	175	295
Minimum power consumption	W	25	30
Maximum power consumption	W	175	320
Maximum current consumption	A	0,77	1,29
Protection class	IP	10D	10D

**Table 9.1 Technical data of the ventilation unit**

### 9.2 Remote control

Description	Unit	
Operating voltage U <sub>max</sub>	V	24
Permitted ambient temperature	°C	40
Current consumption	mA	< 17
Minimum cross-section of the connection lines	mm <sup>2</sup>	0,75
Level of protection	IP	20
Protection rating for controller		III
<b>Dimensions</b>		
Height	mm	97
Width	mm	146
Depth	mm	40

**Table 9.2 Technical data of the remote control**

### 9.3 Bypass

Description	Unit	
Voltage supply	V DC	12
Maximum ambient temperature	°C	40
Minimum ambient temperature	°C	5
Current consumption	mA	200
Protection rating for controller		IP 10d
Dimensions height x length x depth	mm	280 x 441 x 200
Air connections	mm	ø 150, ø 160, ø 180, ø 200

**Table 9.3 Technical data of the bypass**

9.4 Performance diagrams

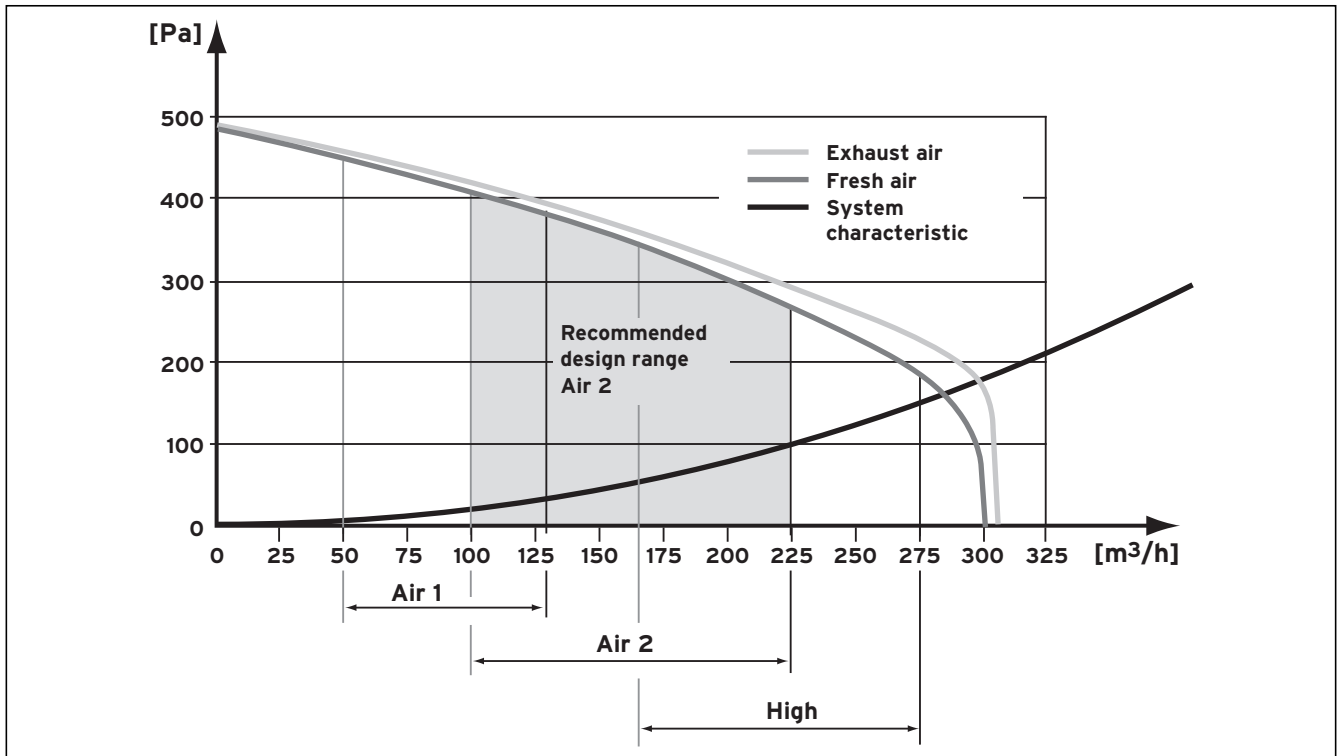


Fig. 9.1 Performance diagram recoVAIR VAR 275/3

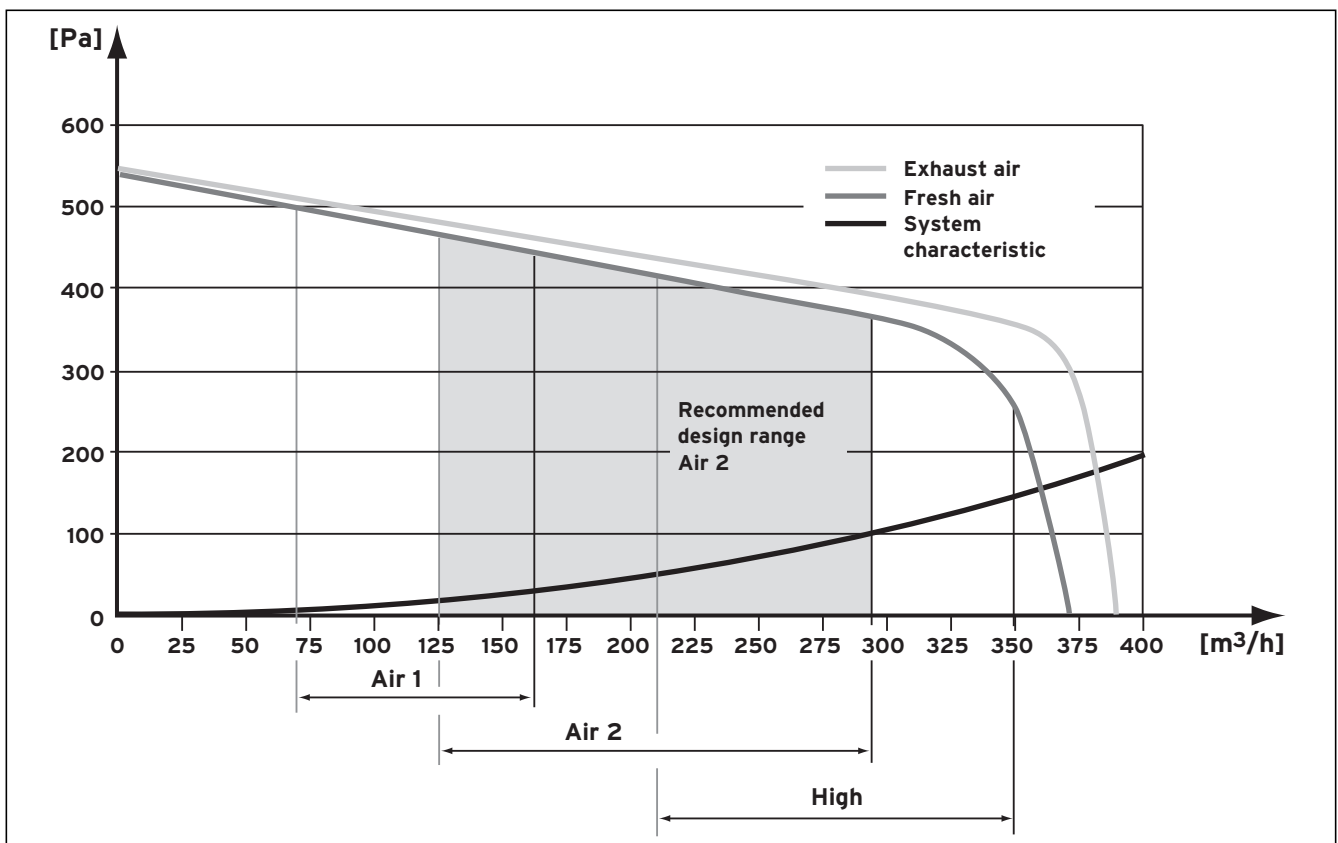


Fig. 9.2 Performance diagram recoVAIR VAR 350/3





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