

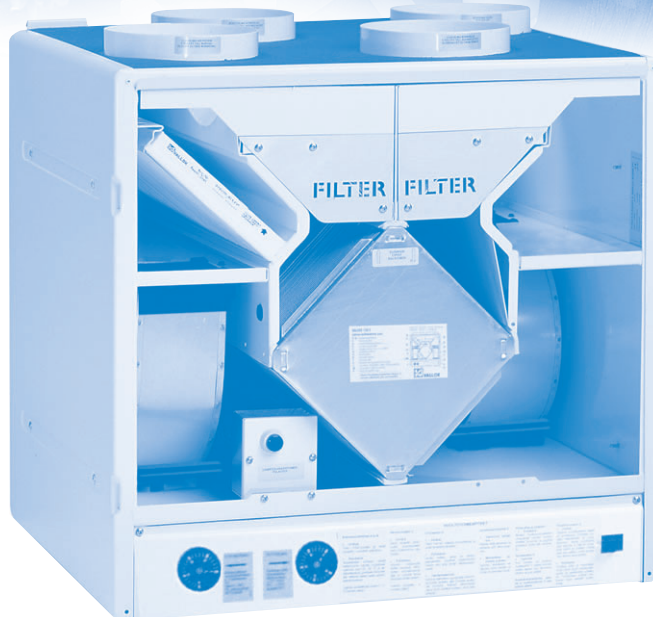


# VALLOX 130

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## INSTRUCTIONS FOR USE AND MAINTENANCE





# VALLOX 130E

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### EVERYDAY QUICK GUIDE

VALLOX 130E has been initially adjusted for normal circumstances in your home. Ventilation adjustment is needed mainly in the following circumstances:

#### • Taking a bath

Boost ventilation in bathing and washing facilities in order to ensure that the rooms get dry as quickly as possible. It is recommended to have boosted ventilation on for 2 to 3 hours after taking a sauna bath.



#### • Washing and drying clothes

Boost ventilation in washing and drying facilities during these activities.



#### • Sleeping

Ventilation in a bedroom has to be sufficient throughout the night. The level is correct when air does not smell fusty when you enter the room in the morning.



#### • Empty dwelling

To save energy, ventilation can be adjusted to the minimum level.



#### • Cooking

If the ventilation unit is connected to a cooker hood, boost ventilation during cooking.

The most common way to abate cooking fumes is to have a separate cooker hood.



#### NOTE!

Never switch ventilation off, because ventilation keeps indoor air quality uniform and removes gases and dust emanating from the structures.

### VALLOX 130E models

Code: 3500E

#### VALLOX 130E

- Post-heating radiator: electric, 1000 W

#### VALLOX 130E VKL

- Post-heating radiator: liquid radiator

The letter L or R after the name of the unit indicates the handedness of the unit.

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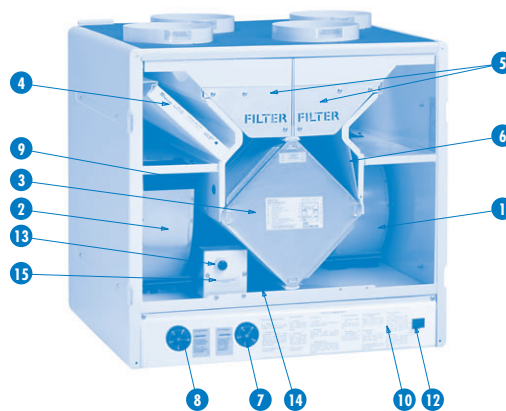
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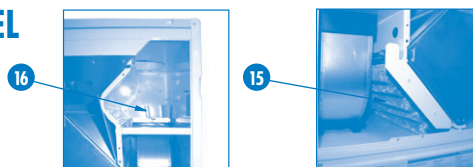
### MAIN PARTS

The figure shows the R model



- 1 Extract air fan 210 W
- 2 Supply air fan 210 W
- 3 Heat recovery cell
- 4 Outdoor air filter F7
- 5 Outdoor and extract air pre-filter G3
- 6 Summer / winter damper
- 7 Electric radiator regulating thermostat / water radiator defrost thermostat (VKL model)
- 8 HR cell defrost thermostat
- 9 Filter guard, optional (not in the figure)
- 10 Filter guard indicator, optional (not in the figure)
- 11 Speed selector switch
- 12 Maintenance switch
- 13 Overheat protection reset button
- 14 Summer / winter damper handle
- 15 Post-heating radiator
- 16 Self-actuated one-way dampers (only in the VKL model)

### VKL MODEL





## THREE QUESTIONS ABOUT VENTILATION

### 1. THREE QUESTIONS ABOUT VENTILATION

#### 1.1. Why is air replaced in dwellings?

**Good ventilation promotes healthy living for both residents and the building.** Air in a dwelling needs to be replaced in order to remove not only humidity brought about by living but also impurities emanating from structures and human bodies. Impurities of indoor air include carbon dioxide, formaldehyde, radon and other gases as well as dust.

Mechanical ventilation is needed in order to be able to adjust air circulation as needed by the residents. In a tightly sealed house, air does not circulate sufficiently by natural means. Even in a poorly sealed house air is only replaced because of differences between indoor and outdoor air temperatures, or because of winds. This means that ventilation is dependent on weather conditions and cannot be regulated.

It is especially important that humidity and carbon dioxide content of the indoor air stay at a healthy level. Recommended humidity content of good indoor air is approximately 45%. Humidity content is lower in winter and higher in summer and autumn. Dust mites thrive in indoor air if humidity exceeds 50%, and if humidity stays at over 60% for a long time in winter, water will condense in the cold structures of the house and mould will start to form. The recommended maximum carbon dioxide content in good indoor air is circa 1,000 ppm.

#### 1.2. What are the characteristics of adequate ventilation?

- Indoor air stays fresh in all the rooms of the dwelling, also in bedrooms during night.  
**Without adequate ventilation carbon dioxide content tends to rise high especially in bedrooms.**
- The bathroom and the sauna get dry quickly.
- During the heating season, the windows and other outer wall structures remain dry.
- Humidity in indoor air is not condensed in the ventilation ducts.
- Air is fresh in the toilet as well.

#### 1.3. How much air is replaced?

For air to be clean to breathe, **it has to be replaced with outdoor air every two hours.** In a new and a renovated house, air circulation needs to be boosted during the first year in order to remove harmful gases and structural humidity. In buildings that are more than a year old and dry, ventilation can be regulated as needed. Ventilation is boosted during for instance a sauna bath, clothes washing and cooking, and reduced during very cold periods or when there is nobody at home.

### SEASONAL CALENDAR

#### Autumn

- Wash or change the coarse filter and clean or change the fine filter if needed.
- Check that the heat recovery cell is clean.
- Check that the condensing water outlet is not clogged.



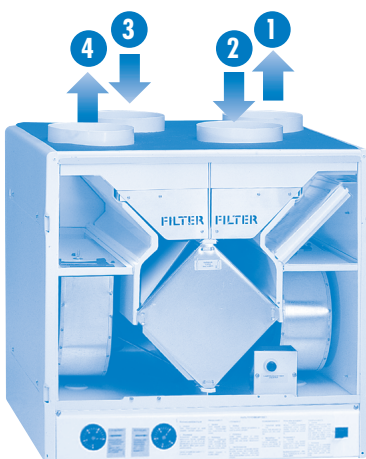
#### Spring

- Wash or change the coarse filter and clean or change the fine filter if needed.
- Clean the fan blades and the post-heating unit if needed.
- Check that summer ventilation is in operation.



#### NOTE!

For more detailed instructions, see page 8.



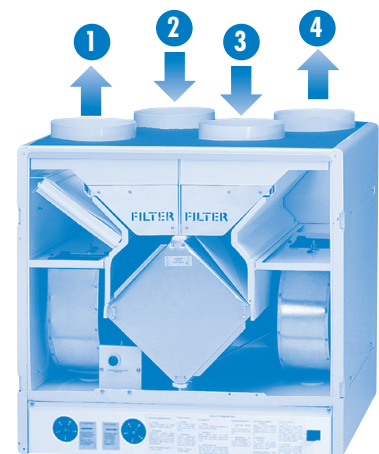
### VALLOX 130E, order of duct outlets

#### L MODEL

1. Supply air to rooms
2. Extract air to the unit
3. Outdoor air to the unit
4. Exhaust air outside

#### R MODEL

1. Supply air to rooms
2. Extract air to the unit
3. Outdoor air to the unit
4. Exhaust air outside





# VALLOX 130E

## INSTRUCTIONS FOR USE

### REMEMBER!

Never turn VALLOX 130E off, or else you'll risk catching a cough!

## 2. INSTRUCTIONS FOR USING VALLOX 130E AND VALLOX 130E VKL

For indoor air to stay healthy and beneficial also for the structures of the dwelling, ventilation has to be in operation continually. It is not advisable to stop ventilation even for longer holidays, because it makes indoor air stuffy. Also, during the heating season indoor air humidity may condense in the ducts and structures and therefore cause humidity damage.

### 2.1. Initial adjustment

The ventilation system works properly when air flows in the rooms have been measured and adjusted with the valves in accordance with the planned values. **After the initial adjustment, the position of the ventilation valves must not be changed** with the exception of the outlet valve with a knob located in the ceiling of a sauna, which can be adjusted if needed. The initial adjustment ensures that a sufficient amount of air is circulated and that extract air flow is always greater than supply air flow, i.e. the dwelling is negatively pressured compared to outdoor air. If the dwelling is positively pressured, air in the dwelling penetrates the outer envelope of the building and between windows, which may cause humidity damage during the heating season.

In normal conditions **basic ventilation** with change of air every two hours is sufficient in living areas. Boosting is needed during for example sauna baths, cooking, clothes washing or family parties.

If the user does not know the measured air flows, the adjacent table shows approximate extract air flows as well as the total electricity consumption of the fans at various fan speeds. The table also shows the fan speed that is sufficient for recommended basic ventilation in dwellings of different sizes.

SPEED		1	2	3	4			
Living area (m <sup>2</sup> )	50	92	130	165	215	245	275	330
Air flow (l/s)	18	32	45	58	75	85	97	115
Total electricity consumption of fans (W)	40	60	90	125	160	200	235	305

The switch positions displayed against a darker background in the table are factory preset values. If needed, an expert or electrician can change settings and select speeds shown against a white background instead. Speed changes are always made by an expert, not the user himself. (Room height is 2.5 metres.)



Speed selector

### 2.2.3. YK control centre

It may be appropriate to use remote monitoring for public premises, in which case fan speed is selected at the YK control centre. The unit is started and stopped at the ON/OFF switch. 1 to 3 speeds can be selected at the control centre, depending on the type of it. It is customary to select minimum and maximum speeds, and one of them is chosen in accordance with occupancy on the basis of the signals given by automatic remote monitoring (control with week clock, for instance). For more detailed instructions on the remote monitoring control centre, see the documentation delivered with the control centre.



VALLOX 1993A YK control centre

### 2.2. Selection of fan speed

Fan speed is selected by using a separate speed selector or a cooker hood (YK control centre can be used in remote monitoring of public premises.)

#### 2.2.1. Speed selector

The speed selector can be used to select speeds 1, 2, 3 and 4:

1. **Use during absence.** When the dwelling is empty, ventilation can temporarily be diminished.
- 2-3. **Normal use.** In normal conditions air needs to be replaced once in two hours (see the previous page).
4. **Boosted operation.** Cooking, bathing in the sauna or bathroom, drying clothes, using the toilet, having guests, overheat or a similar situation may cause a need for higher than normal ventilation.

If there is a cooker hood independent of the ventilation system in the dwelling, it is not necessary to raise the speed of VALLOX 130E during cooking.

#### 2.2.2. Cooker hood connected to the ventilation unit

During cooking, open the boost flap of the cooker hood and, if needed, increase the fan power of VALLOX 130E at the ventilation switch of the cooker hood. Keep the cooker hood flap closed at other times. Speed selection as in Section 2.2.1.

**NOTE! When the cooker hood flap is open, there is smaller ventilation in other rooms, such as the bathroom.**



### 2.3. Post-heating

For most of the year, heat recovered from the air being extracted is enough to warm the cold air coming from the outside to a suitable temperature. If the heat of extract air is not enough, air coming from the outside may be heated further with the radiator delivered with the unit.

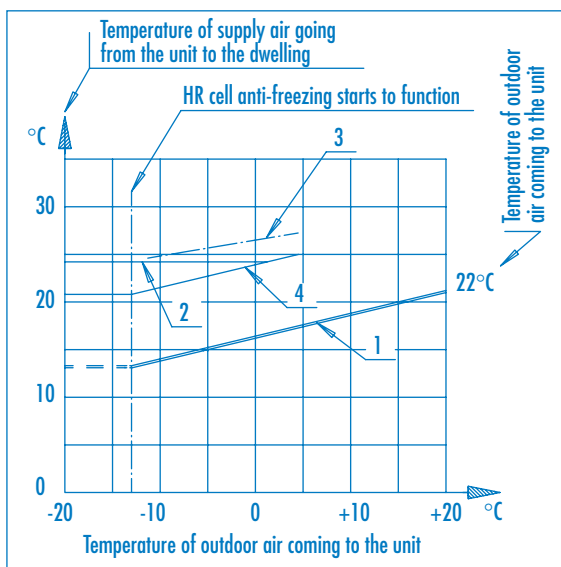
VALLOX 130E comes standard with a 1000 W electric radiator (see item 15, p. 2) for heating supply air. The temperature of supply air is adjusted at the thermostat regulator located inside the unit (item 7 in the same figure). The temperature adjustment range is 0...+25 °C. The temperature of supply air does not go below the adjusted value. **It is advisable to set the thermostat at 0 °C in summer. In this case, the radiator does not heat air.**

VALLOX 130E VKL model has a water radiator for post-heating (see Maintenance instructions, Section 3.2, Figure 1, item P). It is regulated using ON/OFF control. Put the circulation pump on in autumn, when the heating season has started, and off in spring when the weather is warm. The temperature of supply air can also be adjusted with a separate self-actuated thermostat (not included in the unit delivery). **In detached houses, it is customary to use water/glycol mixture as the liquid in order to prevent the freezing of the radiator.** Heating of air depends on the temperature of the water/glycol mixture flowing in the radiator and on the air flow rate.

If it has not been considered appropriate to build a water/glycol circuit (schools, office buildings etc.), the radiator may have been connected directly to the radiator network. Supply air temperature is then regulated by the temperature controller of the radiator network or a separate self-actuated thermostat.

A post-heating radiator connected directly to the radiator network runs a risk of freezing (see Section 2.8.3).

The principle of post-heating is illustrated in the figure below. For defrost, see Section 2.8.



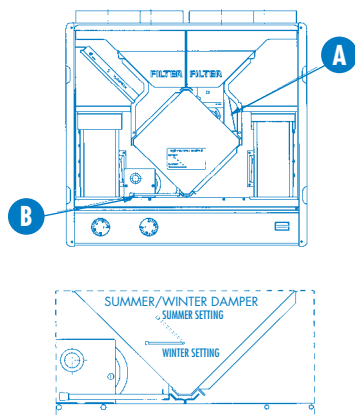
### EXAMPLE: Outdoor air temperature rise in the heat recovery cell with an electric and water radiator

- Curve 1 Supply air temperature without post-heating = only heat recovery.
- Curve 2 Supply air temperature controlled by the thermostat of the electric radiator, adjustment setting 23 °C (air flow less than 75 l/s).
- Curve 3 Supply air temperature with water radiator, water +35 °C and water flow 0.05 dm<sup>3</sup>/s. Air flow 50 l/s. Valve fully open.  
Because heat release of water radiator is dependent on many factors, the curves are approximate. Glycol decreases radiator power by circa 10...20% depending on mixture.
- Curve 4 A 1000 W post-heating radiator can heat e.g. 100 l/s air by circa 8 °C at most.



## INSTRUCTIONS FOR USE

### 2.4. Heat recovery bypass



Remember to turn the summer / winter damper in front of the cell when it gets too warm in the dwelling. Switch the summer function off when it gets cooler in autumn.

### 2.4. Heat recovery bypass

**In winter use** the heat recovery cell of VALLOX 130E recovers heat from the air leaving the dwelling and uses it to heat the air coming from the outside.

**In summer use** when it is warm outside, it is unnecessary to heat outdoor air. The heat recovery cell is then bypassed in VALLOX 130E with the standard damper (A). The position of the damper can be changed using the handle (B). In the summer position air flow through the cell is prevented, and heat recovery bypass is activated. In summer set the electric post-heating thermostat at 0°C so that the radiator will not heat.

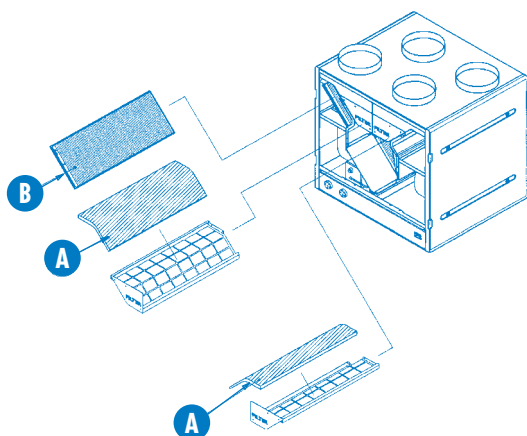
### 2.5. Air filtering

VALLOX 130E features both extract and supply air filtering before the fans and the heat recovery cell. The unit comes standard with a F7 fine filter (B), which captures fine dust, pollen and dust not seen to the eye, and a G3 coarse filter (A) for insects and heavy pollen, for instance. The filters need to be in place in the unit whenever ventilation is in operation (see Section 3.1).

### 2.6. Filter guard (option)

An optional filter guard (L) for the unit monitors the cleanliness of the unit and the filters. The setpoint of the filter guard is set individually for each dwelling so that the filter guard indicator (M) lights up at fan speed 3 or 4 when the filters are clean (see Section 3.3).

### 2.5. Air filtering



### 2.7. Fireplace switch function (option)

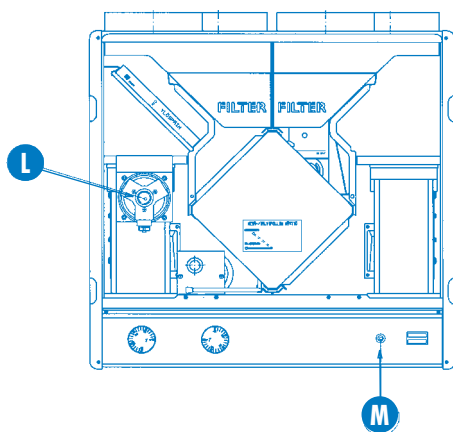
If the unit has been equipped with a fireplace switch (timer), it can be used to stop the extract air fan for a certain period, such as 15 minutes, producing overpressure in the ventilation zone. This makes it easier to light the fireplace, for instance.

The situation will normalise some time after the function has stopped.

**Note!** The starting of the extract air fan may weaken draught in the fireplace.

**During cold winter seasons, the flowing of cold air to the extract ducts may cause the antifreezing and defrost functions to start. If the post-heating radiator does not contain non-freezing solution, there is a freezing risk.**

### 2.6 Filter guard





### 2.8. Anti-freeze

Water condensing from extract air may freeze in the heat recovery cell. Freezing can be prevented by stopping the supply air fan (standard function) or by connecting a preheating resistor (optional). Both functions are automatic. The VKL model includes a water radiator anti-freeze thermostat (JP), which stops both fans when there is a risk of freezing in the radiator. At the same time, the self-actuated dampers of the fans close.

#### 2.8.1. Stopping of supply air fan

The antifreezing thermostat (JK) stops the supply air fan whenever the temperature of extract air goes down to circa +5 °C. The fan restarts when temperature has risen by three degrees, i.e. to +8 °C. The threshold value of the thermostat can be adjusted.

#### 2.8.2. Preheating of outdoor air (option)

VALLOX 130E can be optionally equipped with a VALLOX-1000 supply air heater. The heater has a separate thermostat measuring the temperature of exhaust air. The supply air heater switches on when exhaust air temperature goes below the setpoint of the thermostat. If exhaust air temperature goes even lower, the defrost thermostat of VALLOX 130E stops the supply air fan. The preheating resistor switches off when exhaust air temperature is circa 3 °C higher than the value set for the thermostat.

Note! You can adjust the defrost thermostats of VALLOX 130E and of VALLOX-1000 (A) supply air heater yourself. However, when doing adjustments please pay attention to the following factors:

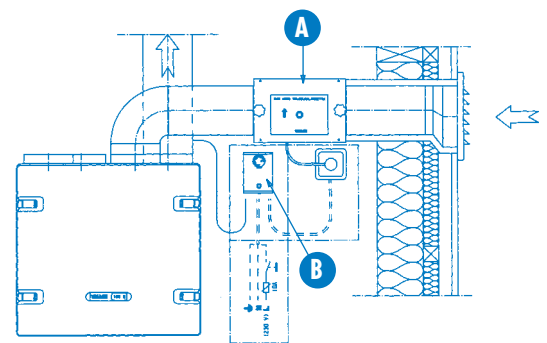
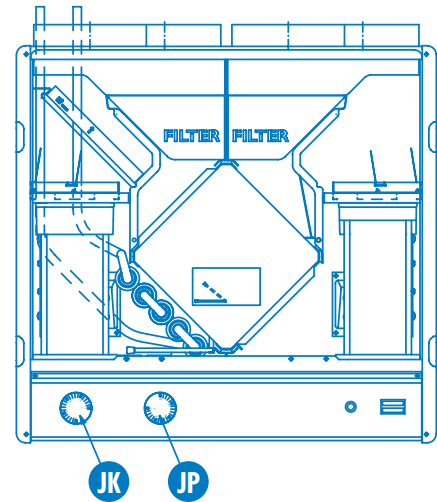
- The recommended adjustment for the supply air heater thermostat (B) is circa +5 °C...+10 °C, however slightly higher than the adjustment for the defrost thermostat (JK) of VALLOX 130E. This enables the functioning of the preheating resistor before the stopping of the fan and ensures that preheating is truly beneficial.
- You can check how defrost functions by comparing the functioning of the supply air fan and preheating. If the fan stops before the supply air heater switches on to heat, you have to adjust the defrost thermostat somewhat lower, from +5 °C to +3 °C for example, or increase the setting for the thermostat of the supply air heater. The indicator of the supply air heater thermostat (B) shows you when the heater switches on to heat.
- Observe the difference in how the thermostats function. The scales of the thermostats indicate the temperatures at which they switch on. This means that the supply air fan of VALLOX 130E stops at a temperature which is circa 3...5 °C lower than the scale indicates.
- The preheating resistor heats even though the supply air fan has stopped. Consequently, underpressure causes air coming from the outside to become warmer before the cell, shortening the time during which the fan is stopped.

#### 2.8.3. Anti-freeze in the VKL model

The VKL model has an anti-freeze thermostat for the water radiator and self-actuated dampers for the fans (items 7 and 16 in the figure of page 2). When there is a risk of the radiator freezing, the thermostat stops all functions of the unit and the self-actuated dampers of the fans close at the same time. This happens when the temperature of the water radiator is lower than the value set at the thermostat.

As soon as the temperature of the radiator has risen, the unit automatically restarts and dampers open. The thermostat has been factory set to stop at circa +5 °C and to restart at +10 °C.

#### 2.8.1. Stopping the supply air fan



VALLOX 1000 supply air heater



Thermostat 0-40



# VALLOX 130E

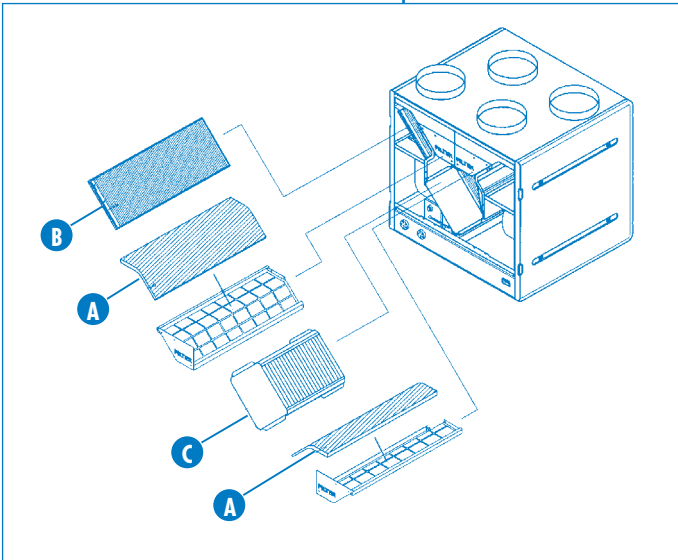
## MAINTENANCE INSTRUCTIONS

**REMEMBER!**  
Clean the filters 2 to 4 times a year or as needed.

### 3. MAINTENANCE INSTRUCTIONS

Before starting maintenance activities, stop the machine either at the On/Off switch or by removing the fuse from the fuse panel.

(The safety switch turns the unit off when the door is opened.)



Filters and heat recovery cell. The units are available in right and left handed models. In the right handed model (model R) outdoor air comes to the unit from the right side of the centre line as shown in the instructions. In the left handed model (model L) outdoor air comes from the left side of the unit. The filters, summer / winter damper and the heating radiator change places correspondingly.

#### 3.1. Filters

Outdoor air is filtered in the unit with two kinds of filters. A G3 class coarse filter (A) filters off insects, heavy pollen and other dust. An F7 class fine filter (B) filters off invisible dust. Extract air is filtered with a similar G3 class filter as outside air.

**Clean the coarse filters (A) by washing them 2 to 4 times a year and whenever the filter guard indicates a need for maintenance.**

When you open the door of VALLOX 130E, the security switch turns voltage off. Wash the filters with +25...30°C warm water and washing-up liquid, pressing them smoothly. Do not handle the filters with force. The filters stand cleaning when it is done properly, and **you have to replace them at least once a year or when needed.**

The fine filter (B) is not washable. Clean it at the same time as the G3 class filters by vacuuming it with a brush nozzle. When cleaning, be careful not to break filter material. **To ensure good supply air quality, replace the filter when needed, preferably at one-year intervals, depending on local air quality.** It is recommended to replace filters in autumn. This way the filters stay cleaner through the winter and can effectively filter off dust in the following spring.

In connection with the cleaning of the filters, it is also advisable to check the cleanliness of the heat recovery cell (C) every two years or so. Grab the ears at the ends of the cell and pull the cell out of the unit. If the cell is contaminated, soak it in a solution of water and washing-up liquid. Rinse the cell clean with a jet of water. When all the water has drained from between the laminas, push the cell back so that the sealings next to the sliding surfaces are in place and the "up" sticker at the end of the cell points to the corner next to the upper support.





## MAINTENANCE INSTRUCTIONS

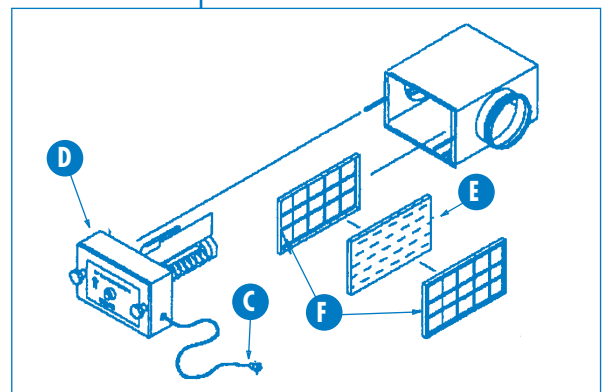
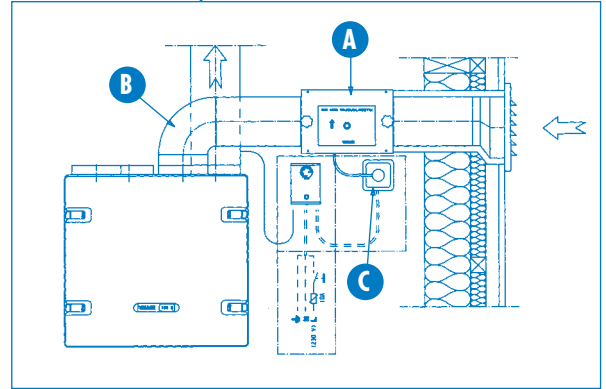
### 3.1.1. Preheating filter (option)

If the system has been equipped with optional preheating for preventing the heat recovery cell from freezing, it needs to be serviced at least twice a year, or as needed. The heater (A) has been installed in the outdoor air duct (B). Remove the plug (C) and inner part (D) of the heater. After this, you can pull out the filter (E) and its frame (F).

Remove the filter from the frame. You can vacuum the filter or carefully wash it in 40 °C water, using a detergent. If the filter is damaged, replace it with a new one. Only use original filters in the heater.

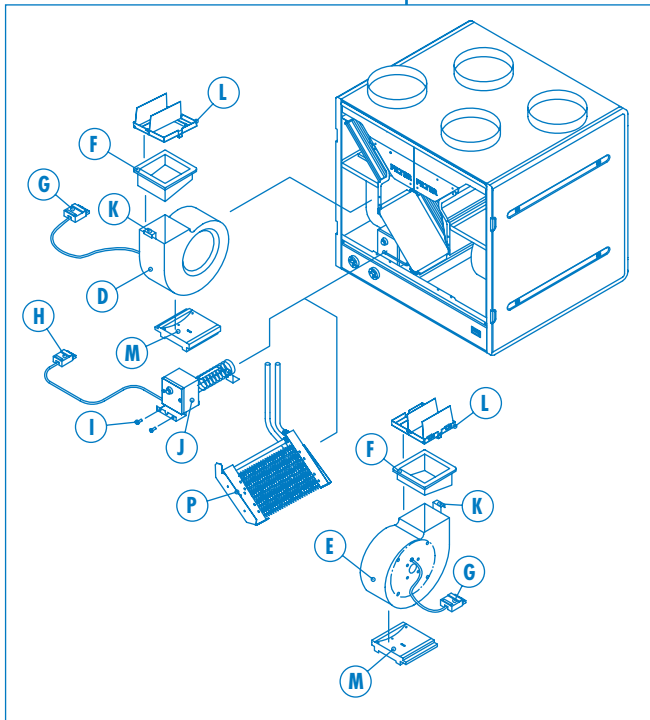
**USING THE HEATER WITHOUT FILTER IS PROHIBITED.**

Clean the heater of litter and insects at the same time.





## MAINTENANCE INSTRUCTIONS



### 3.2. Fans and post-heating radiator

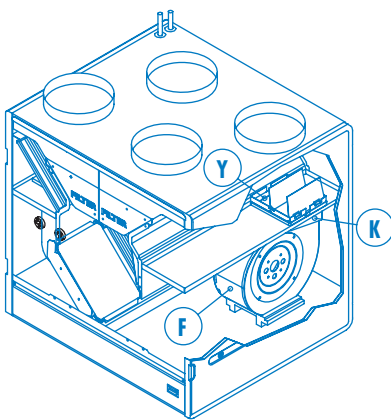
#### 3.2.1. Fans

The supply and extract air fans (D and E) have been fastened with rubber collars (F). When removing the fans for maintenance, remove the one-way dampers (L) of the VKL model, release the ear (K) attached to the fan over the rubber collar (F) flange by turning the ear to the upright position.

Lift the rubber collar out of the opening and turn the fan so that it can be lifted away from the support (M). Remove plug G located behind the fan.

Clean the fan blades with compressed air or with brush. Each blade has to be so clean that the fans stay balanced. Take care not to remove the balancing pieces attached to the fan blades.

**If you use water in cleaning the unit or its parts, do not let it flow into the electrical parts.**



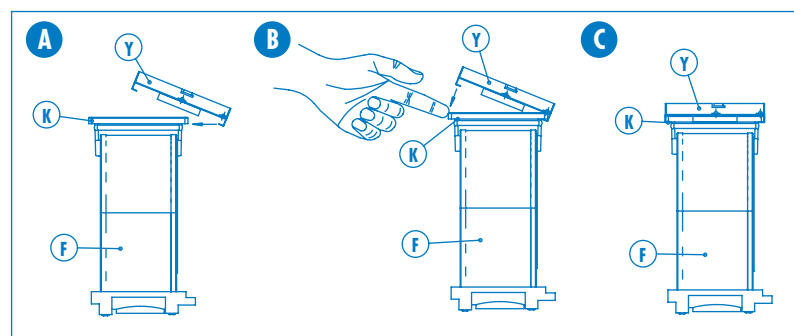
#### 3.2.2. Detaching and attaching of one-way damper.

##### Detaching and attaching of self-actuated one-way damper (vacuum damper):

- Put the hook in the rim of the damper (Y) under the side edge of the fastening collar (K) of the fan (F). Then push the damper downwards so that the guide edges of the valve go inside the rubber collar.
- Push the other side of the collar with a finger.
- Put the hook on the other side edge of the damper below the edge of the collar.

**To detach the damper take the same steps in the opposite order.**

Self-actuated one-way dampers are only used in VKL model units. Observe the position of the damper so that it can also operate on the F7 filter side.



#### 3.2.3. Post-heating radiator

For cleaning the post-heating radiator (J or P) remove the filters and heat recovery cell. Clean the post-heating radiator while it is in place in the unit either by vacuuming or by blowing it with compressed air.

The radiator can be either electric (J) or water-circulating (P). You can remove the electric radiator from the unit for maintenance by detaching the electric connector (H) and the two fastening screws (I) and the sticker or screw mounting of the support against the bottom tank.

When conducting maintenance for the fans and the heat recovery cell you can also check the operation of the anti-freeze thermostat for the water radiator (page 2, item 7). You can do it at e.g. five-year intervals by turning the thermostat setting higher than ambient temperature, in which case the unit should stop. When the test has been done, revert to the factory setting.



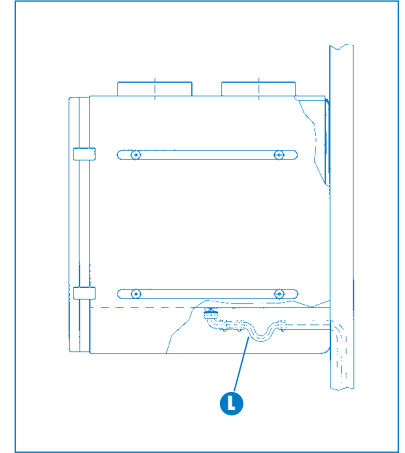
### 3.3. Filter guard

VALLOX 130E can be equipped with an optional filter guard (page 6, Section 2.6). The filter guard indicator (M) lights up at speeds 3 and 4 when the filters are clean; this is normal and does not call for any maintenance activities. If the indicator does not light up at speed 4, the pressure in the ventilation ductwork of the building differs from the factory setting. When needed, an expert may change the setpoint. **If the filter guard symbol already lights up at fan speed 1 or 2, the filters need cleaning.** If they are clean, the lighting up may be caused by a clogged up dense mosquito net installed against mounting instructions in the external grille or by the closing of the supply air valves in the rooms.

### 3.4. Condensing water

During the heating season, humidity of extract air condenses to water. Water formation may be abundant in new buildings or if ventilation is low compared to the humidity build-up caused by the residents.

Condensing water needs to flow out from the ventilation unit without hindrance. In connection with maintenance, e.g. in autumn before the beginning of the heating season, make sure that the condensing water outlet (L) in the bottom tank is not clogged. You may check it by pouring a little water in the tank. **Do not let water flow to the electrical parts.**



## TROUBLESHOOTING

### 1. Outdoor air coming to the dwelling is cold.

#### REASON

- Air cools down in the attic ducts.
- The heat recovery cell is frozen, which is why extract air cannot heat outdoor air.
- The post-heating radiator does not work.
- The extract air filter or the cell is clogged.
- The initial adjustment of ventilation has not been done.

#### DO THIS

- Measure the temperature of supply air in the unit and compare it with the air coming from the valve (see page 5, Section 2.3).
- Check the insulation of the attic ducts.
- Check the operation of the defrost thermostat and preheating resistor (see page 7, section 2.8 Defrosting). You may adjust the defrost thermostat by turning its spindle clockwise to +10 °C or counter-clockwise to 0 °C. At 0 °C freezing is likely; at +10 °C no freezing occurs but extract air can be too warm when going out. According to the factory setting, the defrost thermostat works at +5 °C. Knob position is circa 3–4 °C higher.
- Check if the overheat protector has tripped: press the black button at the end of the radiator. If the protector has tripped, you hear a click when pressing the button. Pressing the button resets the radiator in working order after the tripping of the overheat protector. Consult an expert to find out why the overheat protector tripped.
- Check the functioning of the radiator by comparing it with curve 1 on page 5, Section 2.3, in the instructions for use. The curve shows the extent to which extract air heats supply air without post-heating.
- Check that the filters and the heat recovery cell are clean.
- Check the initial adjustment.

### 2. Supply air fan keeps stopping

#### REASON

- The heat recovery cell defrost function works and prevents the cell from freezing.

#### DO THIS

- If you want the fan to stop at temperatures lower than the preset value, you can decrease the threshold value of the thermostat by 1 to 2 °C.

**NOTE!** If you decrease the threshold value too much, the cell may freeze. See Section 1.

### 3. VKL unit has stopped

#### REASON

- Defrost of the water-circulating radiator is active.

**NOTE!** If there is no non-freezing solution in the water of the radiator, the radiator is at risk of freezing and breaking down. If the radiator breaks down, there is a risk of water damage.

#### DO THIS

- **Immediately troubleshoot the situation.**

Check if the circulation pump is broken, the boiler out of operation, etc. The situation may pass by itself as soon as supply air temperature exceeds 10 °C, but do not wait till it happens.