



Vallox 70 Compact

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CODE
70 Compact A3475
70K Compact A3476

Supply and extract air ventilation with heat recovery

For blocks of flats, terraced houses and detached houses.



VALLOX 70 COMPACT R



VALLOX 70K COMPACT R



INSTRUCTIONS FOR USE AND MAINTENANCE



VALLOX 70 COMPACT

MAIN PARTS

EVERYDAY QUICK GUIDE

VALLOX 70 COMPACT has been initially adjusted for normal circumstances in your home. Ventilation adjustment is needed mainly in the following circumstances:

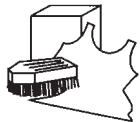
• **Taking a bath:**

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.

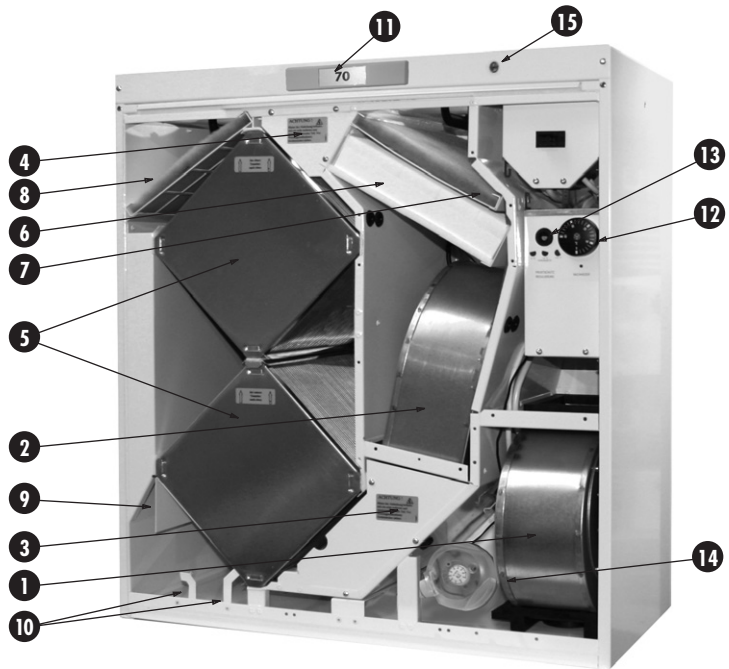


• **Cooking:**

When the ventilation unit is connected to a cooker hood, boost ventilation during cooking (the most common way of abating cooking smokes in blocks of flats). Small detached houses and terraced houses are normally equipped with a separate cooker hood.



The picture shows VALLOX 70 COMPACT model R

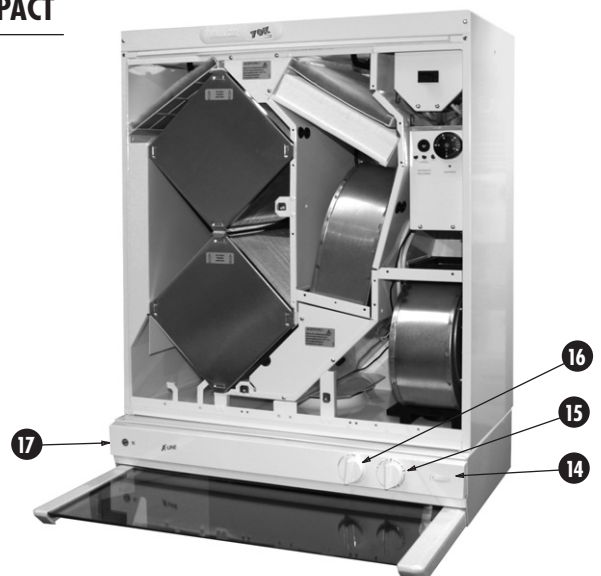


Main parts VALLOX 70 COMPACT

- 1 Extract air fan
- 2 Supply air fan
- 3 Preheating radiator
- 4 Post-heating radiator
- 5 Heat recovery cells (2)
- 6 Outdoor air filter F7
- 7 Outdoor air filter G4
- 8 Extract air filter G4
- 9 Summer / winter damper
- 10 Summer / winter damper lock
- 11 Measuring outlets (behind the plate)
- 12 Thermostat regulator of the post-heating radiator
- 13 Freezing protection adjustment
- 14 Filter guard (option)
- 15 filter guard indicator lamp (option)

Hood parts VALLOX 70K COMPACT

- 14 Light switch
- 15 Speed selector switch
- 16 Damper controller
- 17 Post-heating/filter guard indicator (filter guard is an option)



VALLOX 70K COMPACT model R



1. THREE QUESTIONS ABOUT VENTILATION

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.

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.

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 needs to be circulated continually, at least once an hour, 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.

Window ventilation

Dwelling-specific supply / extract air circulation by no means prevents you from opening windows and the door to the balcony or airing through them. In window or door ventilation attention needs to be paid to the following factors:

1. During the heating season window ventilation uncontrollably consumes a considerable amount of energy.
2. An open window lets in dusty and dirty air.
3. An open window also lets in noise pollution.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance.

Cleaning and user maintenance shall not be made by children without supervision.

SEASONAL CALENDAR



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. Extract air does then not heat air coming from the outside.



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.
- Switch summer ventilation off.

NOTE!

For further details, see inner pages.



VALLOX 70 COMPACT

VENTILATION SYSTEM



WARNING

If ventilation is closed, it also prevents new, clean outdoor air from coming in to the house and dirty air from going out.

Impurities emanating from human bodies, structures and the soil, such as carbon dioxide, humidity, smells, formaldehyde, dust and radon, quickly spoil indoor air and cause health damage.

Too high a humidity may destroy the building structures and cause mould and fungus growth. Therefore, the building regulations require ventilation to be continually in operation and the level of ventilation to be adjusted as needed by the user.

As the name says, a dwelling-specific ventilation system (blocks of flats, terraced houses, small detached houses) is meant for only one dwelling.

The system includes two sides. The extract air side takes dirty and humid air out, while the supply air side brings a corresponding amount of outdoor air in.

Ventilation in the rooms is continual and can be regulated as needed. Outdoor air is mainly brought to the bedrooms, sitting room, fireplace room, dining room and sauna. From these rooms supply air can flow freely, for instance through door vents, to the bathroom, sauna, toilet, walk-in closet, kitchen and other rooms with air vents. If also cold outside air can be let in to the sauna, only use it when needed as combustion air for a wood heated sauna oven.

The resident may regulate the power of ventilation (air circulation) as needed.

Filtering

Outdoor air is filtered before taking it in to the dwelling. A coarse filter first removes the biggest litter particles, thereby preventing the system from getting dirty. After that air passes through a fine filter, which catches finer dust and even the smallest pollen particles.

Filter guard (option)

An optional filter guard for the unit monitors the cleanliness of the unit and the supply air filters. The setpoint of the filter guard is set individually for each dwelling so that the filter guard indicator lights up at fan speed 3 or 4 when the filters are clean.

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.

Heating of outdoor air

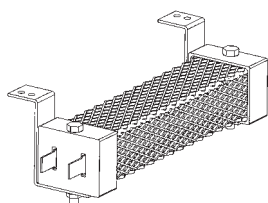
During the heating season, heat included in extract air is used to heat air coming from the outside. Heat is transferred in the heat recovery cell through laminas, and extract air never mixes with air coming inside. This may provide all the heating needed. The ventilation units are, however, equipped with a post-heating radiator, which can be used to warm air if more heating is needed.

Post-heating radiator

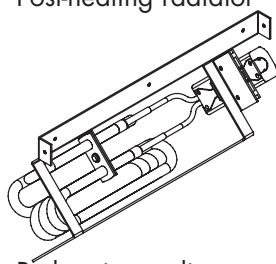
The post-heating radiator of the VALLOX 70 COMPACT unit is a PTC resistor, which aims at heating the air blown to the rooms to preset temperature. The temperature of supply air is adjusted at the thermostat regulator located inside the unit. The post-heating radiator is a PTC resistor, the laminas of which are live when the unit is in operation. The PTC resistor must not be touched before the unit has been switched off. It is advisable to set the thermostat at 0 °C in summer. In this case, the radiator does not heat air.

Preheating radiator

Vallox 70 Compact comes standard with a preheating radiator. The antifreeze thermostat switches the radiator on instead of stopping the outdoor air fan. The radiator heats outdoor air before the cell, preventing it from freezing. In very cold temperatures the preheating radiator is not enough to heat maximum air flow to a sufficient degree (In a temperature of minus 30 degrees Celsius, maximum air flow is 30 dm³/s, which corresponds to speed 2 or 3). The threshold values for automatic antifreeze can be adjusted inside the unit. The tubular preheating radiator is connected to two overheat protectors. One of the overheat protectors is automatically resetting (type BTS) and the other is a cut-off one (type BTC, cut-off). If the overheat protectors have tripped, switch off the unit for a moment.



Post-heating radiator



Preheating radiator



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.** If there is an outlet valve with a knob in the ceiling of the sauna, it can be adjusted as 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 a 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.

The switch positions, i.e. fan speeds, displayed in the table on a darker background are factory preset values. If needed, an expert or electrician can change settings (or has changed them during the initial adjustment) and select speeds shown on a white background instead. Voltage changes are always made by an expert, not the user himself.

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SWITCH POSITION	1	1.1	2	2.1	3	3.1	4
	70 V	90 V	120 V	135 V	160 V	180 V	230 V
Living area (m ²)	20	35	70	80	100	120	160
Air flow (dm ³ /s)	10	15	25	30	35	45	55
Total electricity consumption of fans (W)	20	33	55	67	90	108	160



VALLOX 70 COMPACT

INSTRUCTIONS FOR USE



The table on the preceding page indicates rated speeds and air flows for dwellings of different sizes. The table also indicates the total electricity consumption of the fans at each speed.



Speed selection switch

VENTILATION POWER ADJUSTMENT

VALLOX 70 COMPACT ventilation units can be controlled with either a cooker hood or a separate control centre.

Cooker hood control

The cooker hood is connected to the ventilation unit and is used to control air circulation in the whole dwelling. Four power ranges are available.

Speed 1

Use during absence. When the dwelling is empty, ventilation can temporarily be diminished.

Speeds 2 and 3

These are speeds that are normally used. Speed 2 is used when the need for ventilation is fairly small and air is good.

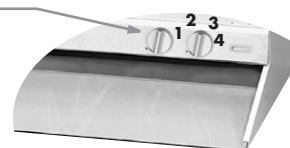
Speed 3 is used when there is a need for boosting – for instance in the following situations: cooking, taking a sauna bath, drying clothes, use of toilet, guests, excess heat and "large dwellings".

Speed 4

Boosting position, used as needed for example during cooking, parties and hot weathers.

Cooking

Open the flap of the cooker hood during cooking. At other times, the flap must be kept closed. An open flap decreases the power of ventilation in other rooms. There are different kinds of cooker hoods. For more details, see the instructions for the hood in question.



Separate cooker hood (most often in detached houses)

If there is a cooker hood independent of the ventilation system in the dwelling, only use it when needed. Using it does not affect the operation of the ventilation unit, because the unit replaces air in other rooms. There is in this case a separate extract air valve in the kitchen connected to the ventilation unit. The unit is controlled with a separate control centre.

Speed selection switch

The regulator (switch) is only used to control the ventilation unit. There are four power ranges available.

Speed 1

Use during absence. When the dwelling is empty, ventilation can temporarily be diminished.

Speeds 2 and 3

These are speeds that are normally used. Speed 2 is used when the need for ventilation is fairly small and air is good.

Speed 3 is used when there is a need for boosting – for instance in the following situations: cooking, taking a sauna bath, drying clothes, use of toilet, guests, excess heat and "large dwellings".

Speed 4

Boosting position, used as needed for example during cooking, parties and hot weathers.

Cooking

Cooking fumes are taken out with a cooker hood or a combination of a hood and roof ventilator. For more instructions, see the instructions of the equipment in question.

Detailed instructions for special control centres are available.



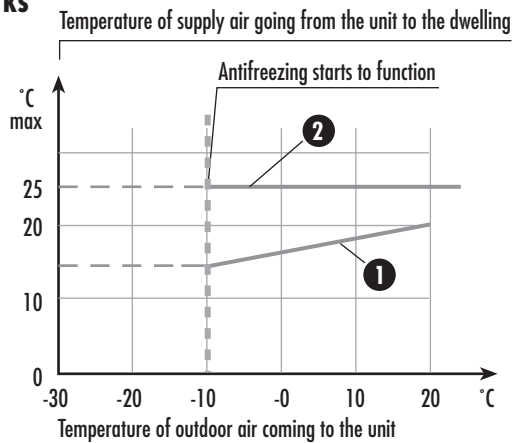
POST-HEATING

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.

How the post-heating radiator works

Effect of outdoor air flow and outdoor air temperature on supply air

1. Supply air heated by extract air
2. Maximum temperature
 - 900 W post-heating radiator can heat air flowing at the speed of 50 dm³/s by circa 8 °C.
 - Temperature of air coming to the unit is 20 °C.



Electric radiator

VALLOX 70 COMPACT comes standard with a max. 900 W electric radiator used for heating supply air. The temperature of supply air is adjusted at the thermostat regulator located inside the unit. Temperature adjustment range is +0...+25 °C.

It is advisable to set the thermostat at 0 °C in summer. In this case, the radiator does not heat air, as the heat recovery cell is bypassed.

Note!

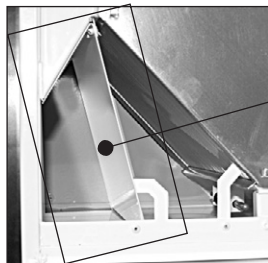
Post-heating represents comfort heating. It is not necessary for the functioning of the system as such. What this means is that if the dwelling is heated by something else than direct electric heating, it is worthwhile to minimize post-heating (supply air) temperature in order to save electricity.



VALLOX 70 COMPACT

INSTRUCTIONS FOR USE

SUMMER / WINTER VENTILATION



In winter use the heat recovery cells of VALLOX 70 COMPACT recover heat from the air leaving the dwelling and use it to heat the air coming from the outside. The damper is in the down position.



In summer use when it is warm outside, it is unnecessary to heat outdoor air. The heat recovery cells are then bypassed with the standard damper (A). The damper is lifted up and locked with a clamp (B). In the summer position air flow through the cell is prevented, and heat recovery bypass is activated. In summer set the post-heating thermostat at 0 °C position so that the radiator will not heat.



MAINTENANCE

In blocks of flats and terraced houses, the maintenance of the unit is taken care of by a property maintenance company or the user, depending on the contract.

Before starting maintenance activities, stop the machine either at the ON/OFF switch or by removing the fuse from the fuse panel of the dwelling. The safety switch also turns the unit off when the door is opened.

FILTERS

Outdoor air is filtered in the unit with two types of filters. A G4 class coarse filter (A) filters off insects, rough pollen and other dust. An F7 class fine filter (B) filters off invisible dust. Extract air is filtered with a similar G4 class filter as outside air.

Clean the coarse filters (A) by washing them at least two to four times a year (and more often if needed). Wash a coarse filter with +25...30 °C warm water and washing-up liquid, pressing it smoothly. Do not handle the filters with force. Filters stand cleaning when it is done properly. They have to be replaced at least every year or when needed.

The fine filter (B) is not washable. Clean it at the same time as the coarse filters, using the brush nozzle of a vacuum cleaner. 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.

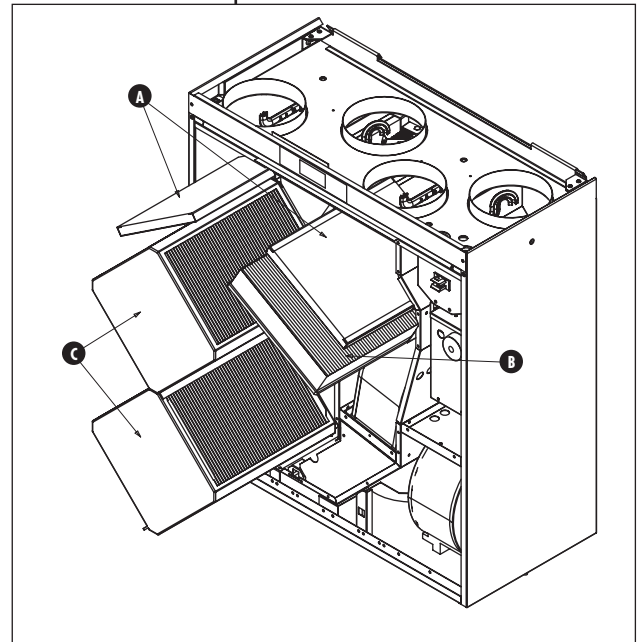
In connection with the cleaning of the filters, it is also advisable to check the cleanliness of the heat recovery cells (C) every two years or so. Grab the ears at the ends of the cell and pull the cell out of the unit. If the cell is contaminated, soak it in a solution of water and washing-up liquid.

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.

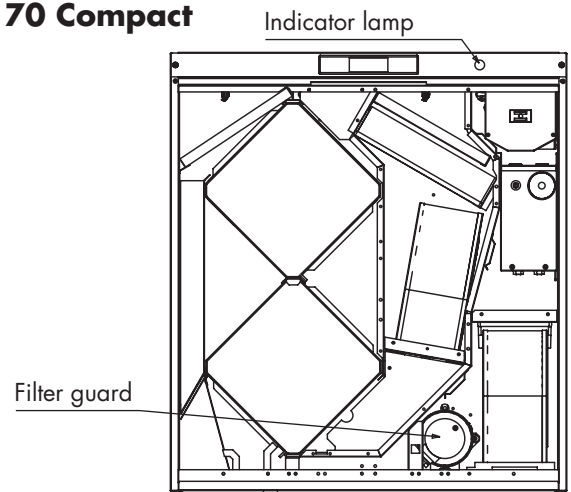
In addition, check in autumn and spring the position of the summer / winter damper and the leaving of condensing water from the unit as well as the position of the post-heating radiator thermostat.

Filter guard

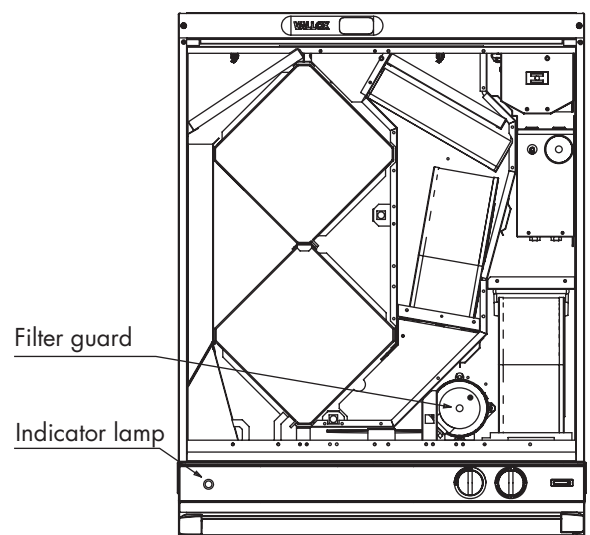
VALLOX 70 COMPACT can be equipped with an optional filter guard. The filter guard indicator lights up at speeds 3 and 4 when the filters are clean; this is normal and does not call for any maintenance activities. If the indicator does not light up at speed 4, the pressure in the ventilation ductwork 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.



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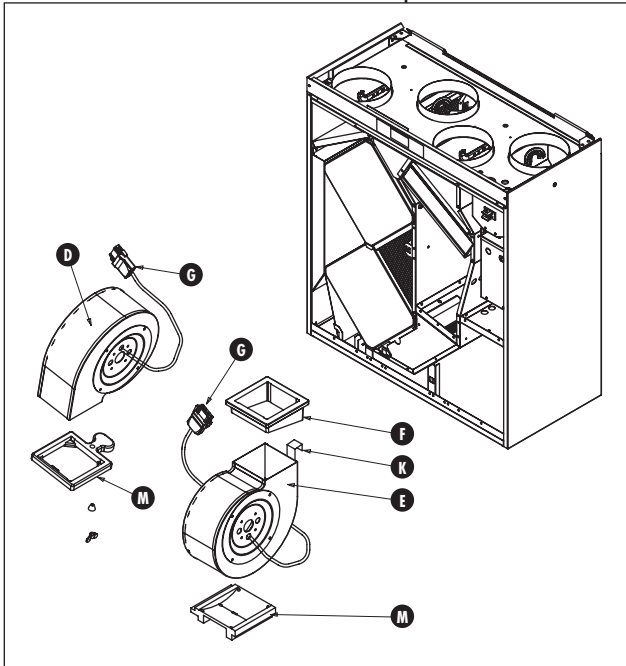
70K Compact





VALLOX 70 COMPACT

MAINTENANCE INSTRUCTIONS



Fans

The supply and extract air fans (D and E) have been fastened with rubber collars (F). When removing the fans for maintenance, release the ear (K) fixed 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 the plug (G) of 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 to the electrical parts.



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 in the bottom reservoir is not clogged. You may check it by pouring a little water in the tank.

Do not let water flow to electrical devices.

Other cleaning

In connection with maintenance, also check the inner surface of the unit as well as the condensing water tank. If they are dirty, clean them gently with a damp cloth, brush, vacuum cleaner or similar. Keep the unit clean to ensure its flawless operation and hygiene.

COOKER HOOD GREASE FILTER

The grease filter of the cooker hood has to be cleaned 1 to 2 times a month, depending on the use of the hood. The grease filter can be washed with hot water and washing-up liquid or in a dishwasher.

Remove the grease filter by pressing the quick couplings (1) open, letting the bottom plate go in the down position and removing the filter from its clips (2).

LAMP

To change the lamp, remove the cover glass of the lamp by pushing it to the left and put a new lamp and cover glass in place. Lamp type is PL 11 (11 W).



OTHER PARTS OF THE VENTILATION SYSTEM

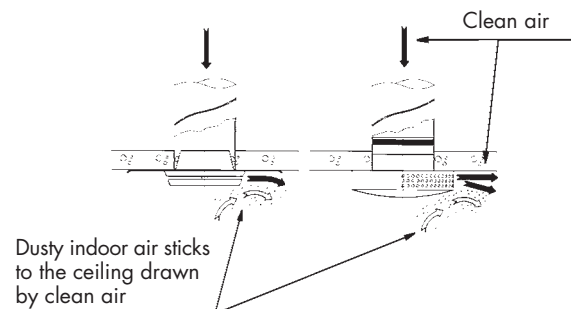
Ductwork

In blocks of flats and terraced houses, the housing company takes care of the maintenance and cleaning of the ductwork in accordance with the regulations and instructions. In detached houses, the owner takes care of the cleaning.

Valves

The valves may be gently cleaned on the surface. It is forbidden to remove the valves and to change their adjustment values. Room dust may also gather around the supply air filter. The easiest way to remove it is to vacuum the valve with a brush nozzle. Dirt does not come from the ductwork with ventilation, but consists of dust in indoor air. This dust sticks to the ceiling or the wall caused by the flow coming from the valve.

VALVE OPERATION





TROUBLESHOOTING

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 7).
- Check the insulation of the attic ducts.
- Check the operation of the defrost thermostat and preheating resistor (see the section Preheating radiator on page 4). 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.
- Check the operation of the radiator by comparing it with the curve (page 7). 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.

