

Vallox
90_{MV}

Vallox
90K_{MV}

Manual



Ventilation units

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**NOTE**

You can register your Vallox MV ventilation unit with the MyVallox Cloud service and sign in into your MyVallox Cloud account at www.myvallox.com.

SAFETY

Safe and appropriate handling requires knowledge of the basic safety regulations, and of the intended use of the ventilation system. Read this manual before operating the ventilation unit. Retain the manual for later reference. If you lose the manual, it can be downloaded from our website.

This user manual contains all the information necessary for safe operation of the system. All persons who operate and maintain the ventilation system must follow the instructions provided in this manual. Furthermore, all local accident prevention regulations must be observed.

Installation

Installation and setup should be carried out only by qualified experts. Electrical installations and connections must be carried out only by an electrician and in compliance with local regulations.

GUARANTEE

The guarantee and liability exclude damage resulting from:

- Inappropriate use of the ventilation system or the control unit
- Incorrect or inappropriate installation, setup or use
- Neglect of instructions concerning transportation, installation, use, or maintenance
- Structural or electronic modifications or changes made to the software

INTENDED USE

All Vallox ventilation units have been designed to provide appropriate and continuous ventilation so as to present no threat to health and to maintain structures in good condition.



IMPORTANT

In order to ensure that the indoor air presents no harm to health and remains optimal also for the structures of the building, **ventilation must be kept on without disruptions.**

It is recommended that ventilation be left turned on during long holidays also. This keeps the indoor air fresh and prevents humidity from condensing in the ventilation ducts and structures. It also reduces the risk of moisture damage.

DISPOSAL OF THE VENTILATION UNIT

Do not dispose of electronic devices with household waste. Follow local laws and regulations on safe and ecological disposal of the product.



NOTE

For further information, go to www.vallox.com

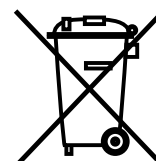


WARNING

The unit is not intended for use by children under 8 or by persons with reduced sensory, physical or mental capabilities, or whose lack of knowledge and experience do not ensure safe operation of the unit.

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

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



SAFETY SIGNS USED IN THE INSTRUCTIONS



DANGER

Indicates a hazard that will result in death or serious injury if not avoided.



WARNING

Indicates a hazard that can result in death or serious injury if not avoided.



CAUTION

Indicates a hazard that can result in minor or moderate injury if not avoided.



IMPORTANT

Indicates a hazard that can result in damage to property or loss of data if not avoided.



NOTE

Indicates essential information about the product.



TIP

Provides additional information about the use of the product and its benefits.

INSTALLATION OPTIONS

- Vallox 90 MV can be mounted either on the wall, or on the ceiling by using a mounting plate (optional).
- Vallox 90K MV can only be mounted on the wall.

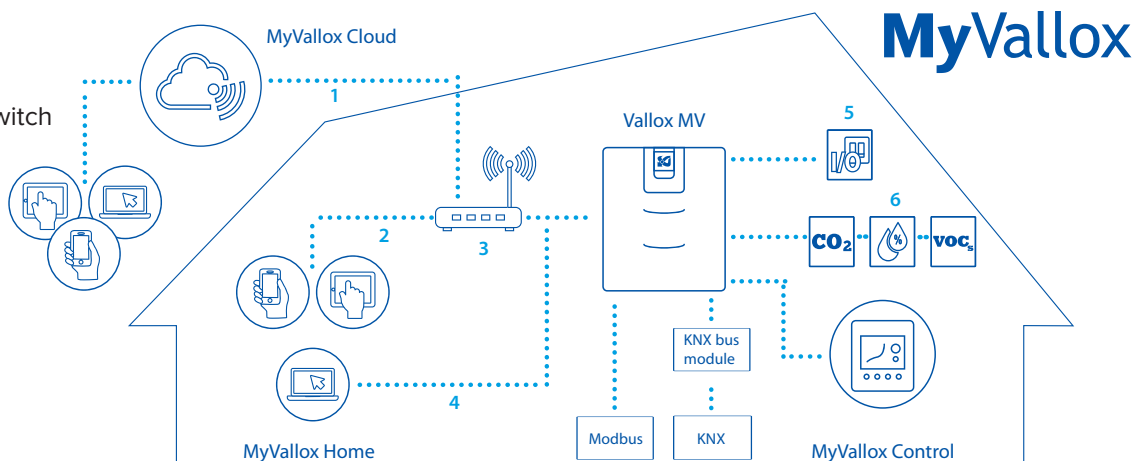


NOTE

The standard equipment and available accessories vary from country to country.

SYSTEM DESCRIPTION

1. Internet
2. WLAN
3. Router
4. WLAN/LAN
5. Additional switch
6. Sensors



VENTILATION UNIT CONTROL

Ventilation unit control options

Operation of the Vallox ventilation unit can be controlled by the following means:

- Through the My Vallox Control panel installed in the building.
- Through the MyVallox Home local area network connection and the MyVallox Home/Cloud user interface.
- Through the MyVallox Cloud service and the MyVallox Home/Cloud user interface.
- Through a remote monitoring service or building automation that uses voltage signals or Modbus messages.

In addition to the integrated humidity and carbon dioxide sensor, ventilation can also be adjusted automatically by using the optional carbon dioxide, humidity, or VOC (air quality) sensor. When these are used, ventilation remains optimal even when the dwelling is unoccupied. Each user can use the week clock to adjust the ventilation to fit their individual lifestyle.

Filter reminder

The unit reminds the user of the need to change the filters through the MyVallox Control panel and the MyVallox Home/Cloud user interface, as well as by changing the relay status, if a signal light has been connected to the relay connectors of the unit.

The filter reminder can be acknowledged:

- **From the MyVallox Control panel**
- **From the MyVallox Home/Cloud user interface**
- **From the Vallox Delico PTD EC and Vallox Capto PTC EC control hoods** — Damper closed, then open-closed-open-closed. Press at a less than 1 second interval.

Ventilation unit setup without a MyVallox Control panel

The ventilation unit setup can also be completed without a MyVallox Control panel. For instructions, please go to <https://vallox.techmanuals.info/ValloxMV/FIN/onlinehelp/webhelp>

See instructions provided in the section Connecting the ventilation unit to the computer.

Connecting the ventilation unit to the cloud service

The ventilation unit can be connected to the MyVallox Cloud service. The cloud service allows for controlling ventilation remotely also, using e.g. a smartphone or tablet. Also the unit software is updated automatically through the cloud service. To connect to the cloud service, the ventilation unit must be connected to the Internet via LAN and registered with the cloud service. At the same time you create a MyVallox Cloud account for yourself. Read more about the service at www.myvallox.com.



NOTE

For the MyVallox Cloud/Home instructions, please go to www.techmanuals.info/ValloxMV/ENG/onlinehelp/webhelp



IMPORTANT

Prolonged overpressure can result in damage to the structures of the building.

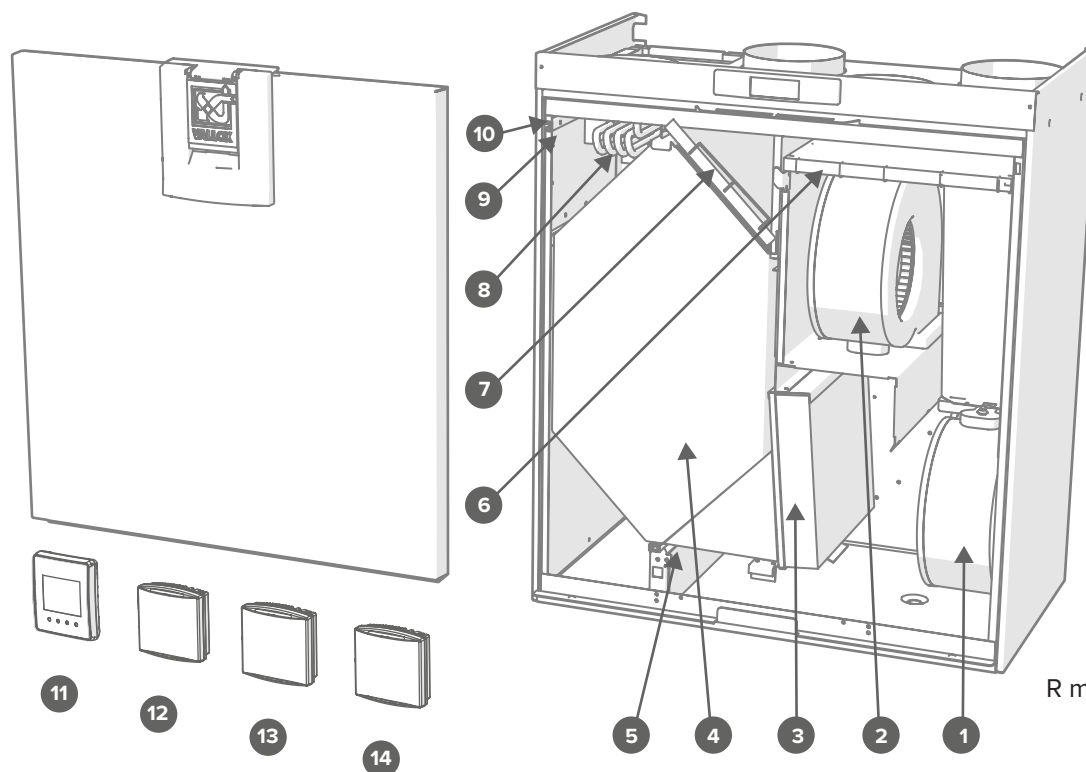


IMPORTANT

Apartment-specific ventilation units allows residents to adjust the ventilation efficiency. Ventilation is controlled based on the need e.g. through the cooker hood, ventilation control panel, or a separate control centre. In order to ensure that the indoor air presents no harm to health and remains optimal also for the structures of the building, **ventilation must be kept on without disruptions**. It is recommended that ventilation be left turned on during long holidays also. This keeps the indoor air fresh and prevents humidity from condensing in the ventilation ducts and structures. It also reduces the risk of moisture damage.

MAIN PARTS

Vallox 90 MV

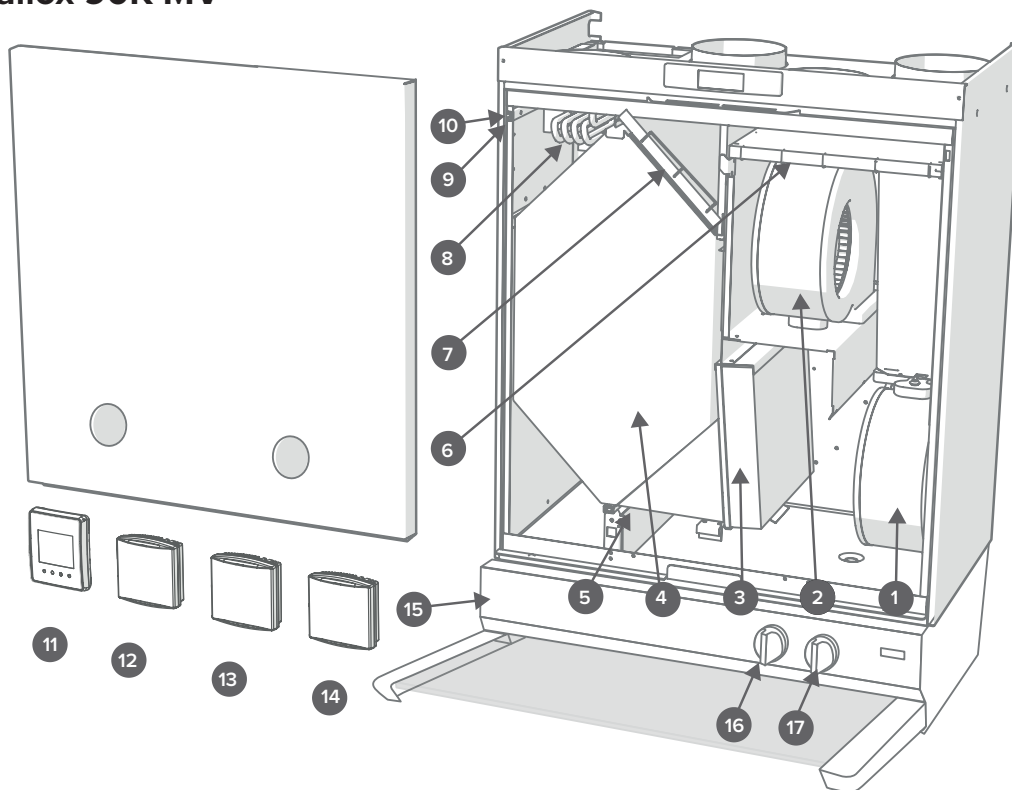


R model in the figure

	Extract air fan	1		Post-heating resistor	8
	Supply air fan	2		Safety switch	9
	Fine filter for supply air	3		Internal humidity sensor	10
	Heat recovery cell	4		Internal carbon dioxide sensor	10
	Bypass damper of the HR cell	5		Control panel	11
	Coarse filter for supply air	6		Carbon dioxide sensor (optional)	12
	Coarse filter for extract air	7		Humidity sensor (optional)	13
				VOC sensor (Optional)	14

MAIN PARTS

Vallox 90K MV



R model in the figure

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

MOUNTING ON THE WALL



NOTE

Avoid mounting the unit on a hollow, echoing partition wall or on a bedroom wall, or prevent the conduction of sound.

The minimum distance between the top of the unit and the finished ceiling surface is 30 mm. Note that during mounting the unit rises 10 mm higher than the final height.

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

MOUNTING ON THE CEILING

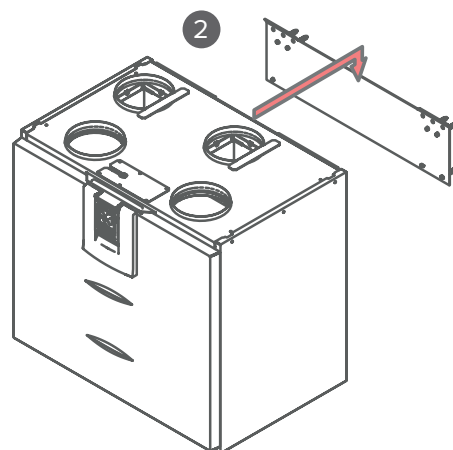
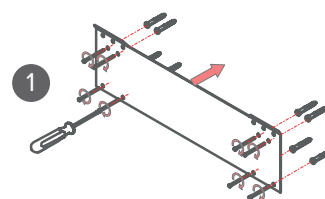
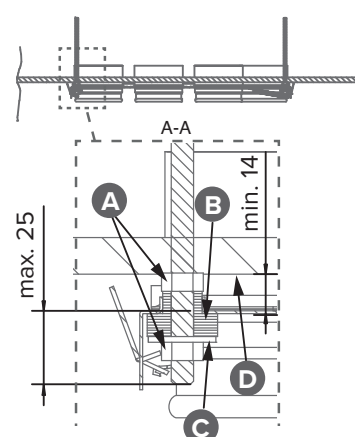
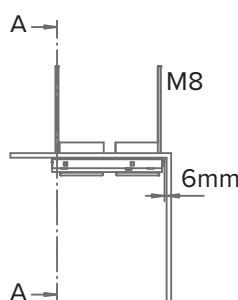
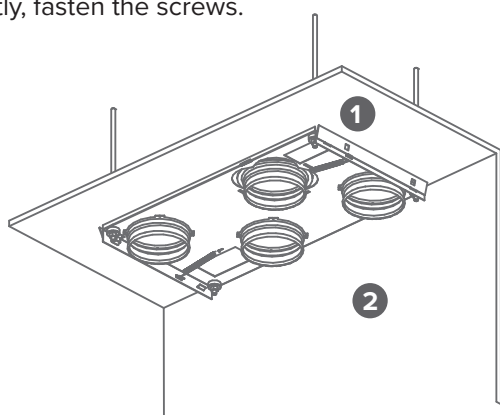
Model Vallox 90 MV can be equipped with an optional ceiling mount plate. To attach the ceiling mounting plate:

- To the ceiling with M8 thread bars so that they stand the weight of the unit.
- Horizontally, because the levelness of the ceiling mounting plate determines the levelness of the unit.
- There is a 6 mm space between the rear edge of the ceiling mounting plate and the wall.
- The minimum distance between the bottom surface of the ceiling mounting plate and the false ceiling is 14 mm. When this minimum distance is used, the distance between the top of the unit mounted on the ceiling mounting plate and the ceiling is around 2 mm.

Insulate the outdoor air and exhaust air duct against condensation also between the unit and the ceiling mounting plate.

Mounting the ceiling mounting plate

1. Attach the M8 thread bars to the ceiling and turn the nuts (A) to the bars.
2. Shorten the lower ends of the thread bars so that they will be at no more than 25mm from the lower surface of the ceiling mounting plate. Thread bars can be shortened only before the ceiling mounting plate is installed.
3. Lift the ceiling mounting plate in place.
4. Push a rubber damper (B) and a washer (C) onto each thread bar, and ensure that they touch the bottom of the cups of the plate.
5. Turn the nuts to make sure that the unit is horizontally level. Lastly, fasten the screws.



NOTE

When installing the unit, reserve a space of at least 330 mm in front of the unit for servicing purposes.



NOTE

Mount the ventilation unit in a place where the temperature does not fall below +10°C.

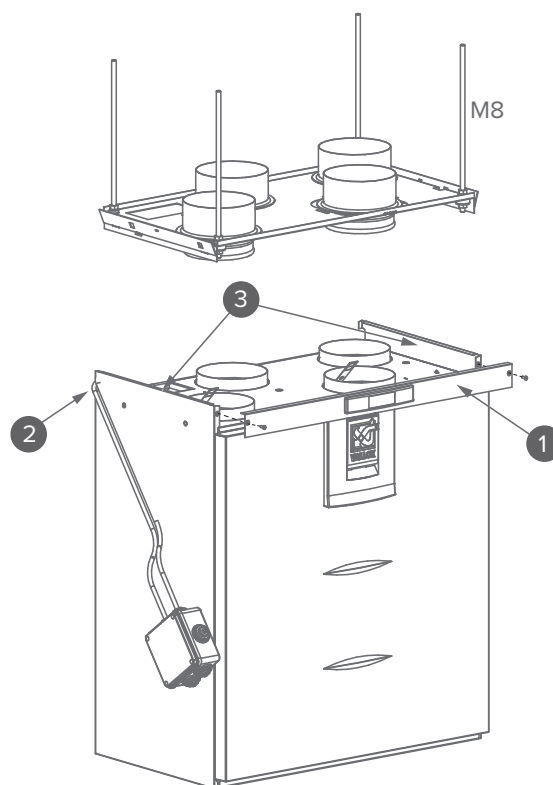
INSTALLING THE VENTILATION UNIT TO THE CEILING MOUNTING PLATE



CAUTION

The ventilation unit is very heavy. Do not perform this procedure alone.

1. Remove the front panel of the top part of the unit (1) (leave it hanging from the air flow measuring tubes).
2. Place the connection box cables into the slot in the top part of the side panel (2) and pull the connection box to the side of the unit so that the cables remain in the slot.
3. Ensure that the condensing water insulation is in place in the duct outlets of the extract air duct and of the duct that comes to the unit from outside.
4. Lift the unit in its place on the ceiling mounting plate until both locking wings (3) lock on the outer edge of the side plate of the unit.
5. Visually check the tightness of the duct outlets and the unobstructed passage of measuring tubes and electric cables.
6. Put the front panel of the top part back in place.



Attic floor penetration plate

The attic floor penetration plate is optional. When an attic floor penetration plate is used, the tightness of the vapour barrier has to be ensured.



TIP

You can detach the unit from the ceiling mounting plate by pulling the spring-loaded moulding to the direction shown by the arrow (more detailed information provided with the ceiling mounting plate).



NOTE

Mount the ventilation unit in a place where the temperature does not fall below +10°C.

MOUNTING ON THE WALL



NOTE

Avoid mounting the unit on a hollow, echoing partition wall or on a bedroom wall, or prevent the conduction of sound.

The minimum distance between the top of the unit and the finished ceiling surface is 30 mm. Note that during mounting the unit rises 10 mm higher than the final height.

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

INSTALLING THE COOKER HOOD

The cooker hood is installed on the bottom of the ventilation unit with finger nuts (A), which are included in the accessory bag.

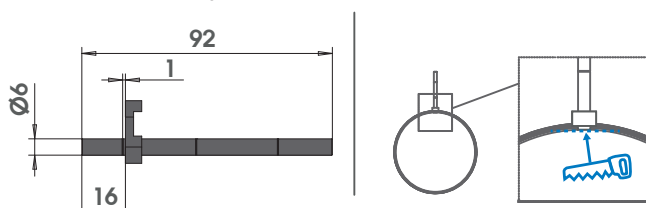
1. Open the bottom plate of the cooker hood, on which the grease filter is mounted.
2. Lift the cooker hood against the bottom of the ventilation unit. Feed the connection cord (B) at the same time inside the cooker hood.
3. Fasten the cooker hood in place with finger nuts.
4. Pull the connection cord in place. Use line protection (C) where required.

Observe in the figure:

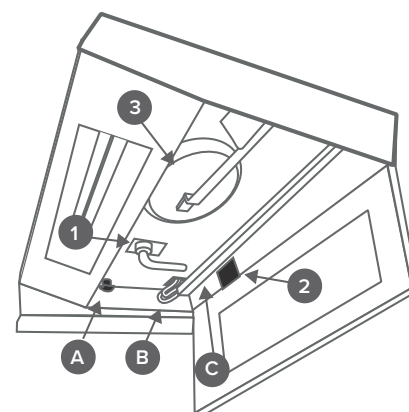
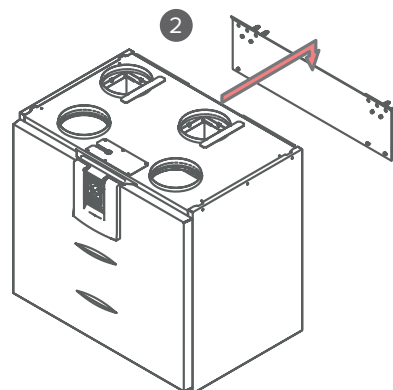
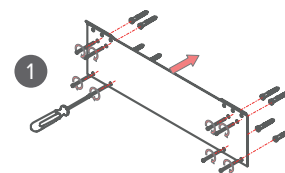
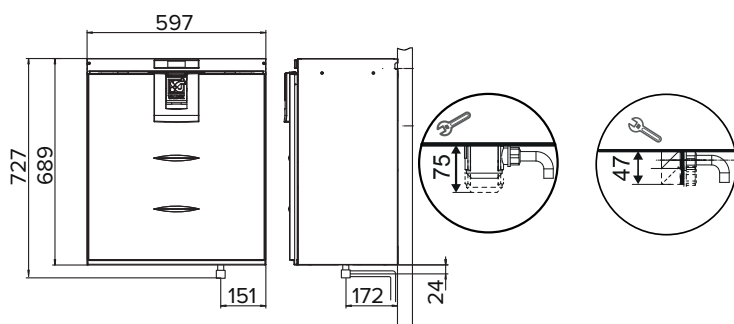
1. Condensing water outlet
2. Exit hole for the condensing water outlet
3. Damper

MEASURING AND ADJUSTING THE AIR FLOWS OF THE VENTILATION UNIT

The accessories delivered with the unit include four (4) air flow measuring tubes. These can be inserted in the ducts to allow for easier ventilation adjustment.



REMOVAL OF CONDENSING WATER



NOTE

Mount the ventilation unit in a place where the temperature does not fall below +10°C.

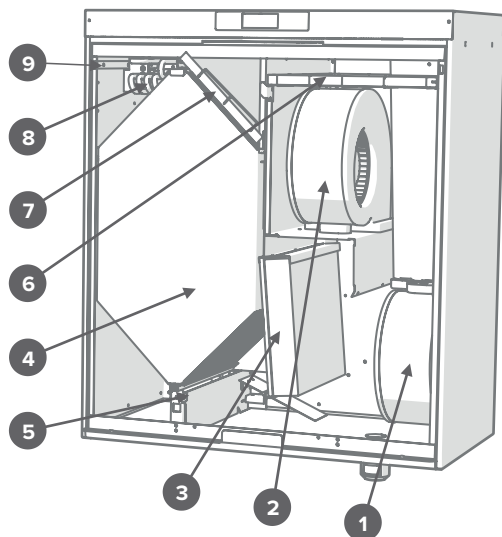


NOTE

The Vallox Silent Klick siphon package is delivered with the unit. Installation instructions for the siphon are enclosed with the packaging, and can also be found online at www.vallox.com. When the alternative siphon installation method is used, the ring seal and the locking part must be moved to the pipe connection part that is mounted on the wall.

DIMENSIONS AND DUCT OUTLETS

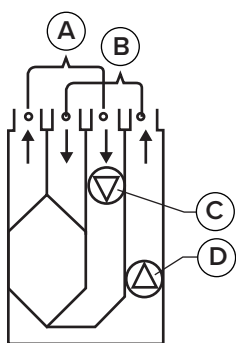
Main parts



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

- | | |
|-------------------------------|----------------------------------|
| 1. Extract air fan | cell |
| 2. Supply air fan | 6. Coarse filter for supply air |
| 3. Fine filter for supply air | 7. Coarse filter for extract air |
| 4. Heat recovery cell | 8. Post-heating resistor |
| 5. Bypass damper of the HR | 9. Safety switch |

Air flow measurement points

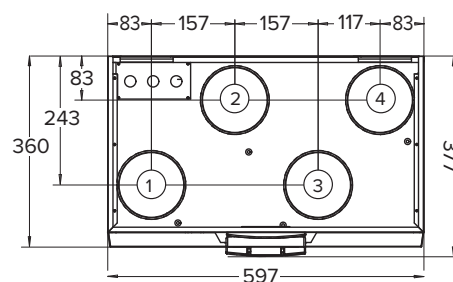


Measurement points after the outlet collar. The fan curves indicate the total pressure accounted for by duct losses.

- A Supply air
- B Extract air
- C Supply
- D Extract

Dimensions and duct outlets

R model

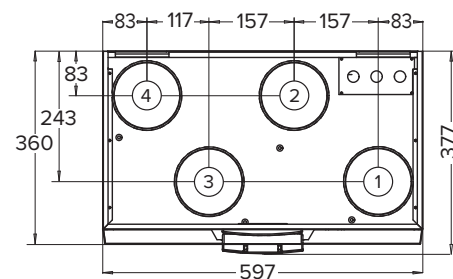


Duct outlets

Inner diameter of the female collar: 125mm

- 1. Supply air from the unit to the apartment
- 2. Extract air from the apartment to the unit
- 3. Outdoor air to the unit
- 4. Exhaust air flowing outdoors from the unit

L model



BEFORE BEGINNING MAINTENANCE WORK

The safety switch (S) automatically turns off the power when the door of the unit is opened.



WARNING

Always disconnect the power plug before starting the ventilation unit maintenance.

There are two unit models, left- (L) and right-handed (R). The figure shows the right-handed model. In the right handed version, outdoor air blows into the unit from the right side of the centre line as shown in the instructions. In the left-handed version, outdoor air blows into the unit from the left side. Also the position of the filters, HR cell bypass damper, and heating resistor is mirrored in the left-handed model.

CHANGING THE FILTERS

When the maintenance reminder becomes activated, check the cleanliness of the filters and replace them if required.

The Vallox ventilation unit has three air filters:

- Coarse filter for supply air filters insects, heavy pollen and other relatively large foreign objects out of the outdoor air.
- Fine filter for supply air filters microscopic pollen and dust particles out of the supply air.
- Coarse filter for extract air filters the extract air and keeps the heat recovery cell clean.

The filter replacement interval depends on the ambient particle concentration. It is recommended that the filters be replaced every spring and autumn, or at the very least once a year.

To replace the filters:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Open the upper door of the unit.



CAUTION

The door is heavy.

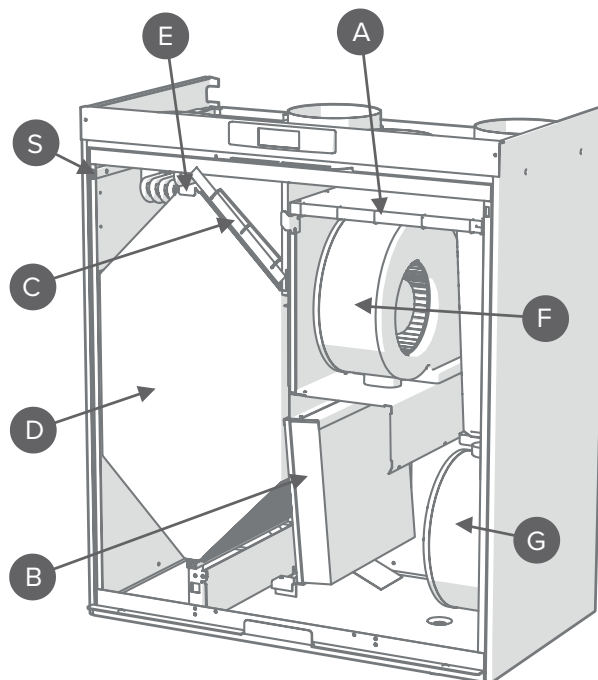
3. Remove the old filters (A, B, C) and discard them.
4. Install the new filters (A, B, C).
5. Close the door of the unit. Ensure that the safety switch catch of the door is touching the safety switch, allowing the unit to be turned on.
6. Plug the ventilation unit back into the mains.

The filters have now been successfully replaced.



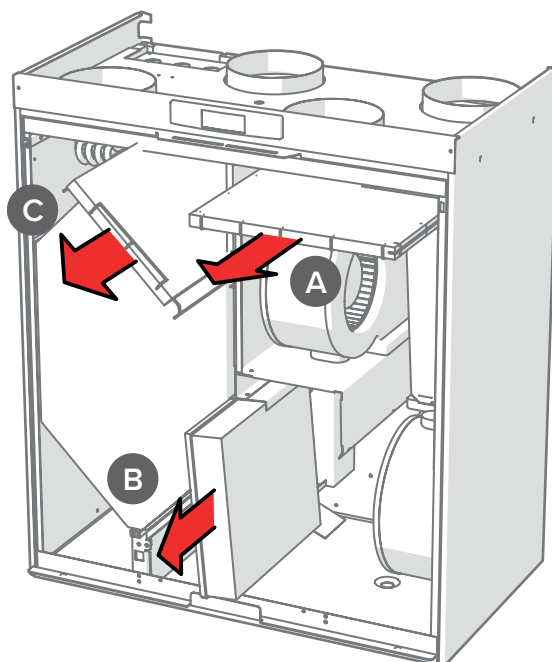
NOTE

The service space in front of the ventilation unit must be at least 555 mm.



TIP

Using original Vallox filters ensures that the ventilation unit remains in top condition, giving the best results. To select and order filter packages, please go to: filters.vallox.com



CLEANING THE HEAT RECOVERY CELL

Check that the heat recovery cell is clean roughly once a year, or whenever the filters are being replaced. Clean by washing as required.

To check and clean the heat recovery cell:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Lift the latch to open the door of the ventilation unit and lift the door off.

**CAUTION**

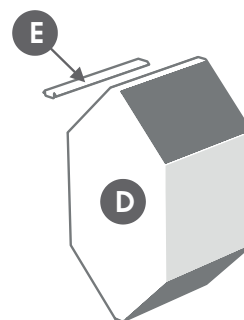
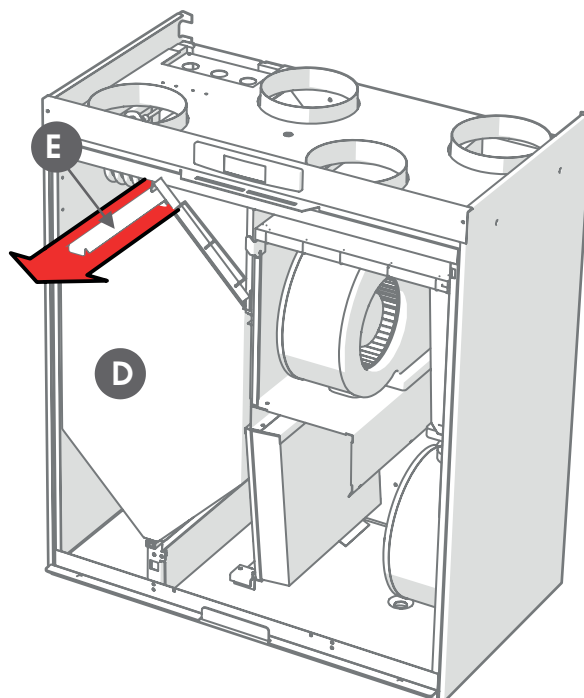
The door is heavy.

3. Remove the filters (A, B, C).
4. Remove the sealing strip (E) above the cell in the direction of the arrow.
5. Lift and pull the cell (D) out of the unit.

**IMPORTANT**

Handle the cell carefully! For example, do not lift the cell by the layers. The cell layers are very thin and easily damaged.

6. If the cell is dirty, clean it by immersing it in warm water, to which a small amount of a mild detergent has been added.
7. Rinse the cell clean with a water spray. Do not use a high-pressure cleaner.
8. When all the water has drained from between the layers, reassemble the ventilation unit in the reverse order.
9. Close the door and ensure that the safety switch catch of the door is engaged.
10. Plug the ventilation unit back into the mains. The heat recovery cell has now been checked and cleaned.



CONDENSING WATER

In the heating season, the extract air humidity condenses to water. In new buildings, condensation runoff can form rapidly. Condensed water must be able to freely leave the unit.

At some time before the heating season begins (e.g. during autumn maintenance), check that the siphon or the condensing water outlet in the bottom pool are not clogged. To check this, pour some water into the pool. Clean as required.

**NOTE**

Some condensing water may have accumulated in the bottom pool of the unit; this is normal and requires no corrective action.

**WARNING**

Water must at all times be kept out of the electrical system.

CLEANING THE FANS

Check the cleanliness of the fans when servicing the filters and the heat recovery cell. Clean the fans as required.

Removing and cleaning the supply air fan (A)

To clean the supply air fan:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Lift the latch to open the door of the Vallox ventilation unit.
3. Lift the door off.



CAUTION

The door is heavy.

4. Remove the fine filter (1). To do so, pull the fine filter out of the unit.
5. The fan has been fastened on the mounting plate with wing bolts (2). Remove the wing bolts and lift the fan out of the unit.
6. Disconnect the quick connector (3) of the fan cable.
7. Clean the fan. The fan blades can be cleaned with compressed air (wear protective goggles) or by brushing them gently. Do not remove or move the fan blade balancing weights.
8. To reassemble the ventilation unit, follow the above steps in reverse order.
9. Close the door. Ensure that the safety switch catch of the door is touching the safety switch.
10. Plug the ventilation unit back into the mains.

Removing and cleaning the extract air fan (B)

To clean the extract air fan:

1. Disconnect the ventilation unit from the mains electricity supply.
2. Lift the latch to open the door of the ventilation unit.
3. Lift the door off.



CAUTION

The door is heavy.

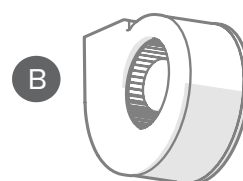
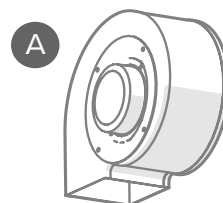
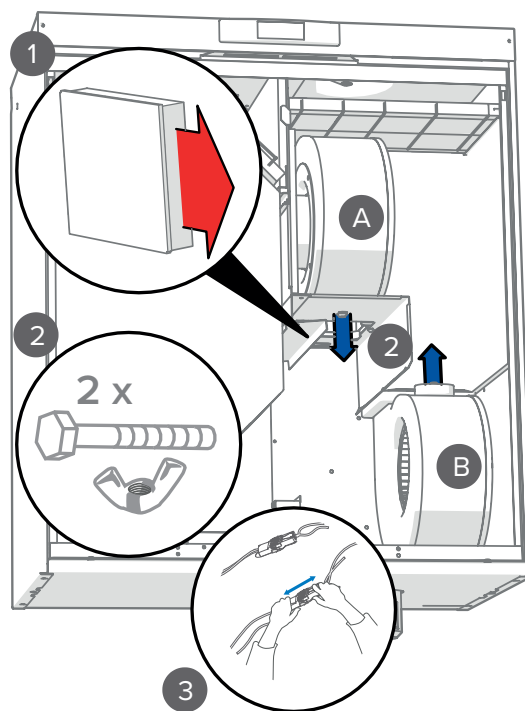
4. The fan has been fastened on the mounting plate with wing bolts. Remove the wing bolts and lower the fan out of the unit.
5. Disconnect the quick connector of the fan cable.
6. Clean the fan. The fan blades can be cleaned with compressed air (wear protective goggles) or by brushing them gently. Do not remove or move the fan blade balancing weights.
7. To reassemble the ventilation unit, follow the above steps in reverse order.
8. Close the door. Ensure that the safety switch catch of the door is touching the safety switch.
9. Plug the ventilation unit back into the mains.



IMPORTANT

The fans are extremely sensitive to external shocks. It is recommended that the fans be cleaned in place, i.e. without attempting to remove them.

Handle the fan blades carefully. Do not remove or move the fan blade balancing weights.



CLEANING THE GREASE FILTER OF THE COOKER HOOD

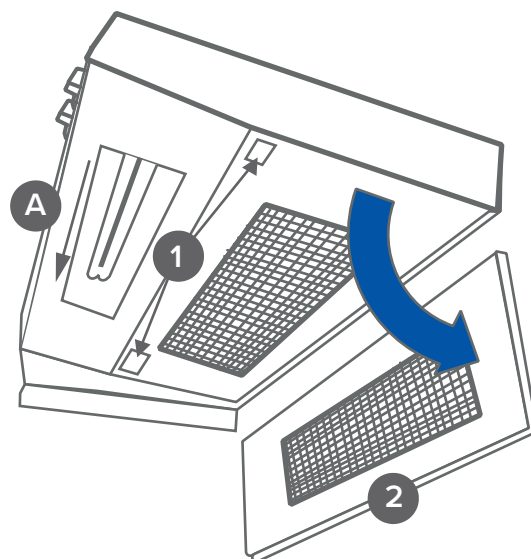
Clean the grease filter of the cooker hood 1-2 times a month.

To clean the grease filter:

1. Open the quick connectors of the bottom plate of the cooker hood by pressing them.
2. Let the bottom plate move to the down position.
3. Remove the grease filter from its mountings.
4. Clean the grease filter either by washing it with hot water and hand-washing detergent or in a dishwasher.

REPLACING THE COOKER HOOD LAMP

To replace the cooker hood lamp (type PL 11, 11 W), remove the protective glass of the lamp (A) by pushing it to the left. Once you have replaced the lamp, put the protective glass back in its place.



Vallox
90_{MV}

TECHNICAL SPECIFICATIONS

Product title	Vallox 90 MV R Vallox 90 MV L	Product number 3571400, 3571600 3571500, 3571700	
Air volumes Supply air Extract air	73 dm³/s, 100 Pa 84 dm³/s, 100 Pa	Fans Supply air Extract air	0.119kW, 0.9A EC 0.119kW, 0.9A EC
Post-heating	Electrical resistor, 900 W	Electrical connection	230 V, 50 Hz, 5.7 A power plug
Preheating	–	Enclosure protection class	IP34
Additional heating	–	Heat recovery bypass	Automatic
Filters Supply air Extract air	ISO Coarse > 75% + ISO ePM ₁ ISO Coarse > 75%		
Specific energy consumption (SEC) in a cold climate in a temperate climate	A+ A	Operating efficiencies* Annual efficiency Supply air efficiency Specific Fan Power (SFP)	74 % 83 % 1.44 kW/m³/h (48 dm³/s)
Dimensions (w x h x d)	597 x 689 x 361 mm	Weight	52 kg

*Working point defined in the Ecodesign Directive (2009/125/EC), Southern Finland, Helsinki-Vantaa TRY year 2012.

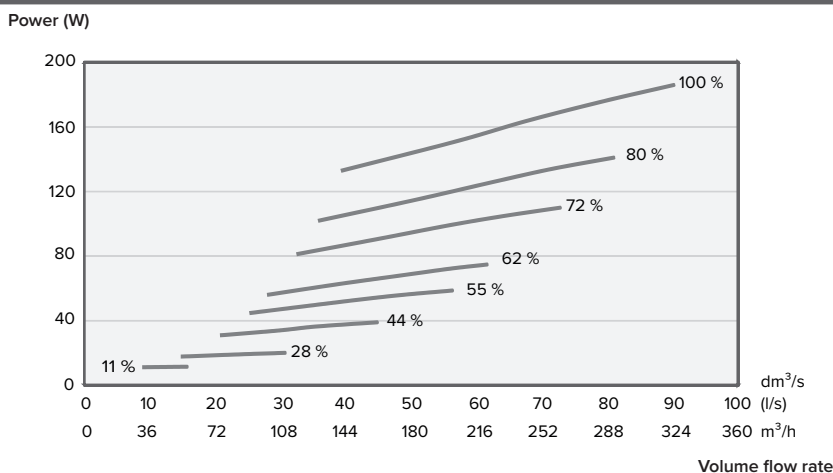
Vallox
90_{KMV}

TECHNICAL SPECIFICATIONS

Product title	Vallox 90 MV R Vallox 90 MV L Vallox Slim-Line white hood	Product number 3571400, 3571600 3571500, 3571700 3573600	
Air volumes Supply air Extract air	73 dm³/s, 100 Pa 84 dm³/s, 100 Pa	Fans Supply air Extract air	0.119kW, 0.9A EC 0.119kW, 0.9A EC
Post-heating	Electrical resistor, 900 W	Electrical connection	230 V, 50 Hz, 5.7 A power plug
Preheating	–	Enclosure protection class	IP34
Additional heating	–	Heat recovery bypass	Automatic
Filters Supply air Extract air	ISO Coarse > 75% + ISO ePM ₁ ISO Coarse > 75%		
Specific energy consumption (SEC) in a cold climate in a temperate climate	A+ A	Operating efficiencies* Annual efficiency Supply air efficiency Specific Fan Power (SFP)	74 % 83 % 1.44 kW/m³/h (48 dm³/s)
Dimensions (w x h x d)	597 x 689 x 361 mm	Weight	60 kg

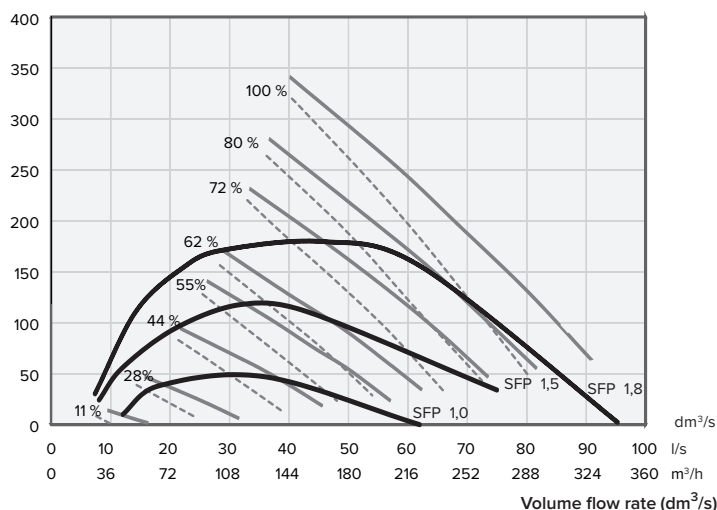
*Working point defined in the Ecodesign Directive (2009/125/EC), Southern Finland, Helsinki-Vantaa TRY year 2012.

FAN INPUT POWER



SUPPLY/EXTRACT AIR VOLUMES

Pressure loss in ducts. Total pressure (Pa)



$$SFP = \frac{\text{Input power (total) (W)}}{\text{Air flow (max) (dm}^3\text{/s)}}$$

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

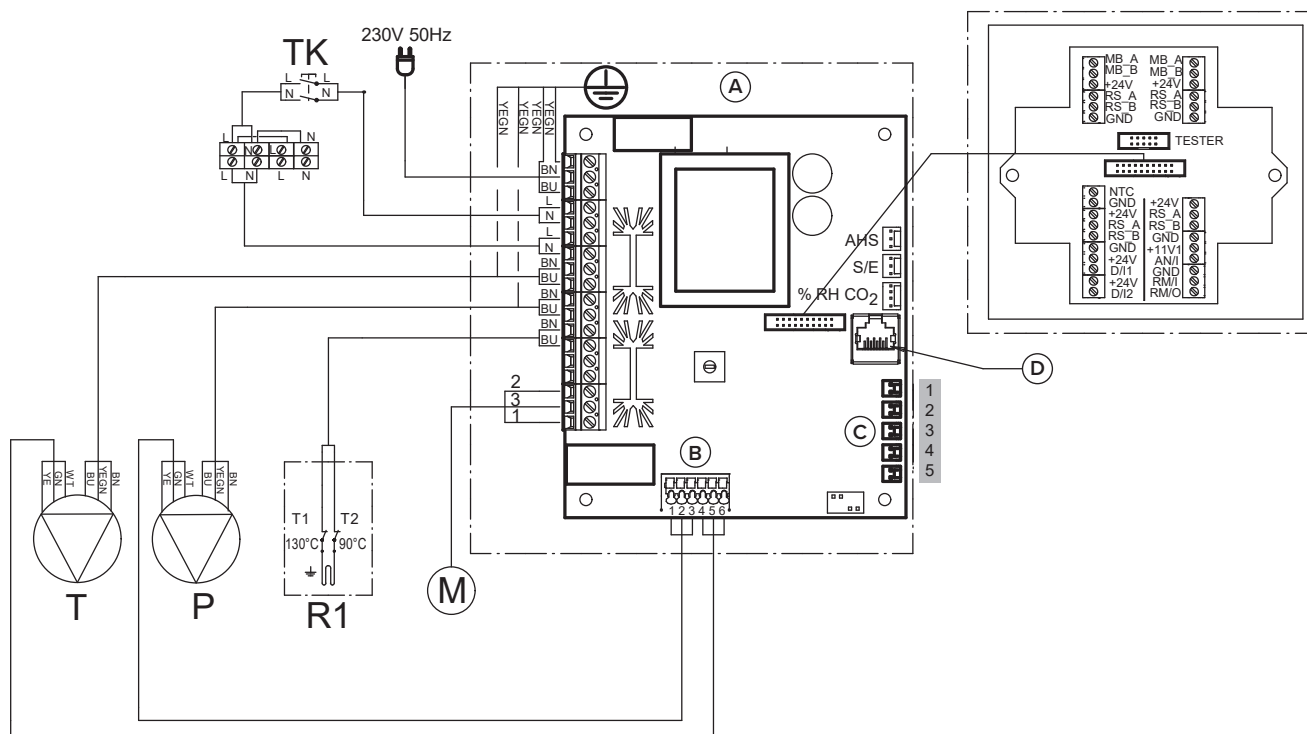
— extract air
- - - supply air

SOUND VALUES

		Sound power level in the supply air duct by octave band L_w , dB								Sound power level in the extract air duct by octave band L_w , dB							
		Adjustment position								Adjustment position							
Adjustment position (%)		11	28	44	55	62	72	80	100	11	28	44	55	62	72	80	100
Air flow dm³/s		10	23	35	43	49	59	65	72	11	22	35	44	48	59	64	71
Medium frequency of the octave band Hz	63	53	63	71	76	76	79	79	81	55	66	73	78	78	82	83	85
	125	44	57	66	70	72	75	77	78	44	57	66	70	72	76	78	78
	250	38	45	53	58	61	65	67	69	37	46	55	60	62	67	69	71
	500	26	33	41	45	47	51	53	55	33	43	44	48	50	54	56	58
	1000	21	34	40	44	45	48	50	52	25	34	41	44	46	49	50	52
	2000	17	20	26	31	33	37	39	41	19	25	34	39	41	45	47	49
	4000	19	19	20	24	26	30	32	34	19	19	24	29	32	36	38	41
	8000	24	24	24	24	24	25	25	26	24	24	24	24	25	27	29	31
L_w , dB		53	64	72	77	77	80	82	83	55	66	74	79	79	83	84	86
L_{wa} , dB(A)		33	44	52	57	58	62	63	65	35	46	53	58	59	63	65	66
Sound pressure level coming through the envelope of the unit in the room in which it is installed (10m² sound absorption)																	
		Adjustment position / Air flows (supply/extract)															
Adjustment position (%)		11	28	44	55	62	72	80	100								
Air flow dm³/s		11/14	22/28	36/41	43/51	49/58	59/69	65/75	72/83								
L_{pa} , dB (A)		26	27	31	35	38	40	42	44								

INTERNAL ELECTRICAL CONNECTION

Vallox 90 MV

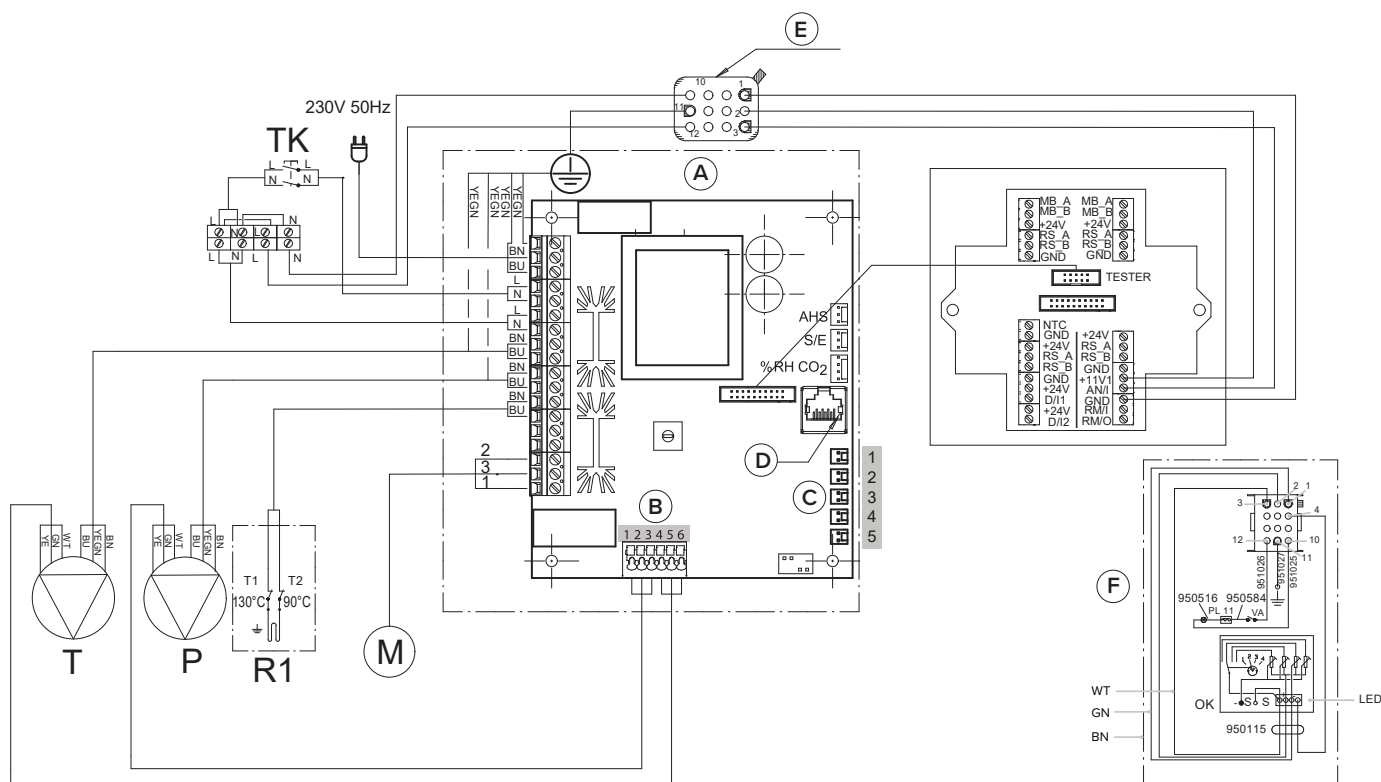


A	Motherboard	MB_A	External Modbus A signal	T	Supply air fan
B	1. Extract air fan tachometer (WT)	MB_B	External Modbus B signal	P	Extract air fan
	2. GND (GN)	+24V	+24V voltage (DC)	M	Damper motor LM230
	3. Extract air fan PWM (YE)	GND	Digital and analog ground potential	TK	Safety switch
	4. Supply air fan tachometer (WT)	RS_A	Local hardware Modbus A signal	AHS	Post-heating control
	5. GND (GN)	RS_B	Local hardware Modbus B signal	S/E	Fan balance adjustment
	6. Supply air fan PWM (YE)	NTC	External temperature sensor connector	%RH CO ₂	Internal humidity and carbon dioxide sensor
C	1. Extract air	D/I1	Digital input 1	R1	Post-heating resistor with 90°C and 130°C overheating protection
	2. Outdoor air	D/I2	Digital input 2		
	3. Supply air	11V1	11.1 V operating voltage		
	4. Exhaust air	AN/I	Analog input 0-10VDC		
	5. Supply air from the HR cell	RM/I	24V relay input		
D	LAN	RM/O	24V relay output		

CABLE COLOURS

BU	Blue
BN	Brown
WT	White
GY	Grey
YE	Yellow
YEGN	Yellow-green

Vallox 90K MV

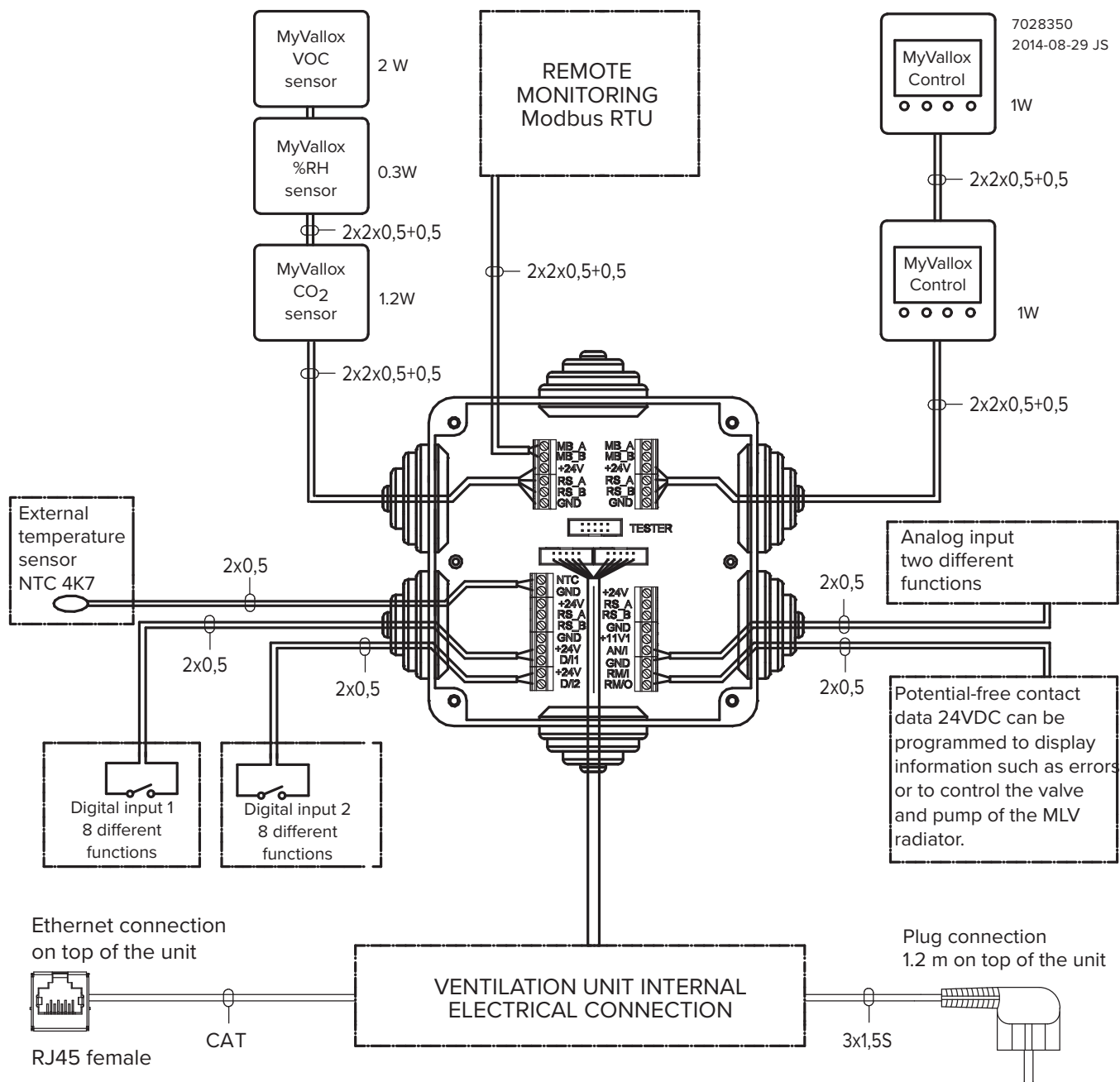


A	Motherboard	MB_A	External Modbus A signal	T	Supply air fan
B	1. Extract air fan tachometer (WT)	MB_B	External Modbus B signal	P	Extract air fan
	2. GND (GN)	+24V	+24V voltage (DC)	M	Damper motor
	3. Extract air fan PWM (YE)	GND	Digital and analog ground potential	TK	Safety switch
	4. Supply air fan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

CABLE COLOURS

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

EXTERNAL ELECTRICAL CONNECTION



POWER SUPPLY	
Maximum	≤6W
MyVallox Control	1W
MyVallox %RH sensor	0.3W
MyVallox CO ₂ sensor	1.2W
MyVallox VOC sensor	2W
Voltage	24 VDC

MB_A	External Modbus A signal
MB_B	External Modbus B signal
+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
NTC	External temperature sensor connector

D/I1	Digital input 1
D/I2	Digital input 2
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output

DUCT RADIATOR OPERATION

Always follow first and foremost the connection diagram provided by the HVAC designer or heat pump manufacturer. Also read the duct radiator manual.

The accompanying figure shows an example of the arrangement for connecting the heating/cooling radiator unit to the heat collection circuit.

Connect the radiator output pipe to the heat collection circuit return pipe. Direct the fluid returning from the radiator unit to the heat collection circuit return pipe. If you know that there is a large loss of internal pressure inside the heat pump, the heat pump should be bypassed. If this is done, the fluid circuit will come into operation when the heat pump comes to a halt. When this happens the pressure loss in the one-way bypass valve Y2 must be lower than the pressure loss in the heat pump.

Heating: The pump starts when the outdoor air temperature drops below the winter limit value set at the factory (-5 °C).

Cooling The supply air setpoint value for the active mode (for example, At home) controls the pump start-up. The pump starts when the supply air setting is below the temperature of the supply air that is blown into the apartment.

The duct radiator can be installed in both the supply air duct and the outdoor air duct. If the radiator is installed in the outdoor air duct, it can be used for both preheating and cooling. If the radiator is installed in the supply air duct, it can be used for heating or for cooling only.

The duct radiator can be set to function either automatically or manually.

- **Automatic** - In summer, the supply air temperature will be maintained at the level specified in the temperature setting. In winter, the duct radiator will turn on, when the outdoor temperature falls below the winter setting.
- **Manual** - In summer, the duct radiator will turn on, when the outdoor temperature rises above the summer setting. In winter, the duct radiator will turn on, when the outdoor temperature falls below the winter setting.

To prevent the risk of condensation in the supply air duct, you can set the adjustment of the supply air limit to automatic or manual.

- **Automatic** - The supply air limit is adjusted automatically based on the dew point of the extract air. When the supply air temperature falls too low, the duct radiator will turn off.
- **Manual** - The supply air limit can be set manually. When the supply air temperature falls down to the set value, the duct radiator will turn off.

If an external sensor is in use, it is selected from the settings of the external sensor whether it is used to control the outdoor air duct radiator or the supply air duct radiator. The temperature of the external sensor can be read from the service menu: **menu > service menu > unit information page 5 "External sensor"**.



NOTE: If the duct radiator is used in the supply air duct, it can only be used for cooling.



NOTE: When used to control the outdoor air duct radiator, the external NTC sensor is installed in the outdoor air duct before the radiator. When used to control the supply air duct radiator, the external NTC sensor is installed after the radiator.



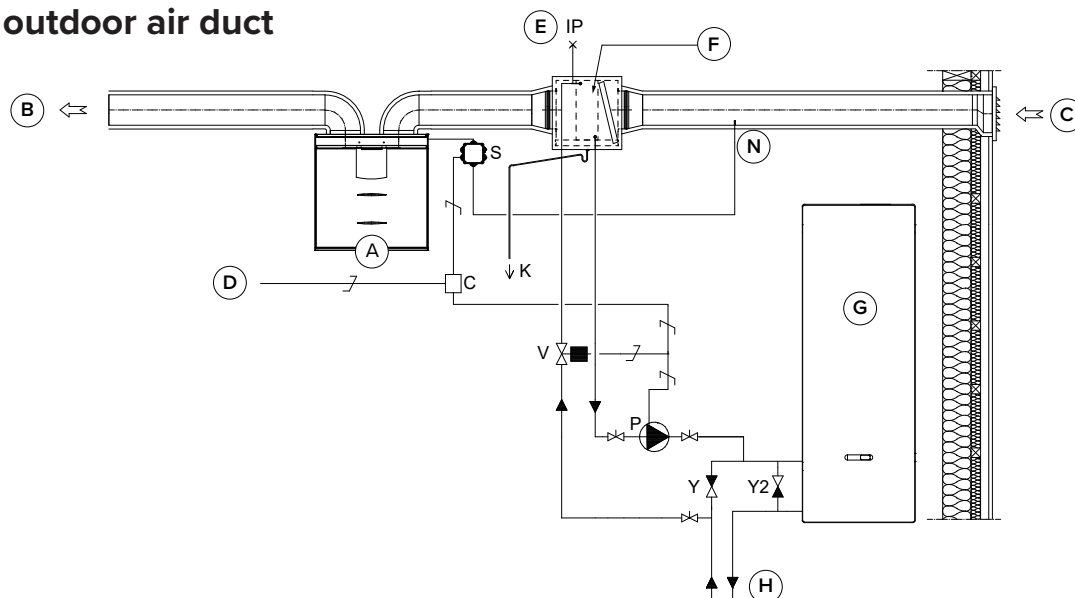
NOTE: When selecting the relay (C), take account of the maximum allowed combined power supply (6W) of the circuit board in the external MV electrical box, if the relay power supply comes from the circuit board's +24V connector.



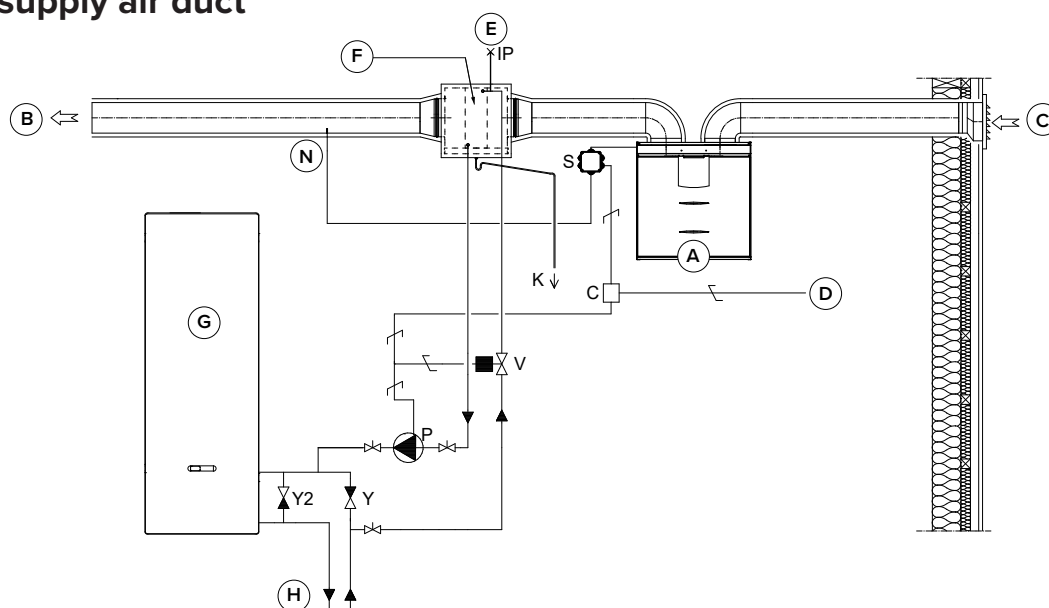
NOTE: Due to the risk of humidity damage, in a duct that has not been insulated for condensation the supply air temperature must not fall below +16 ... 20 °C.

DUCT RADIATOR OPERATION CHART

In the outdoor air duct



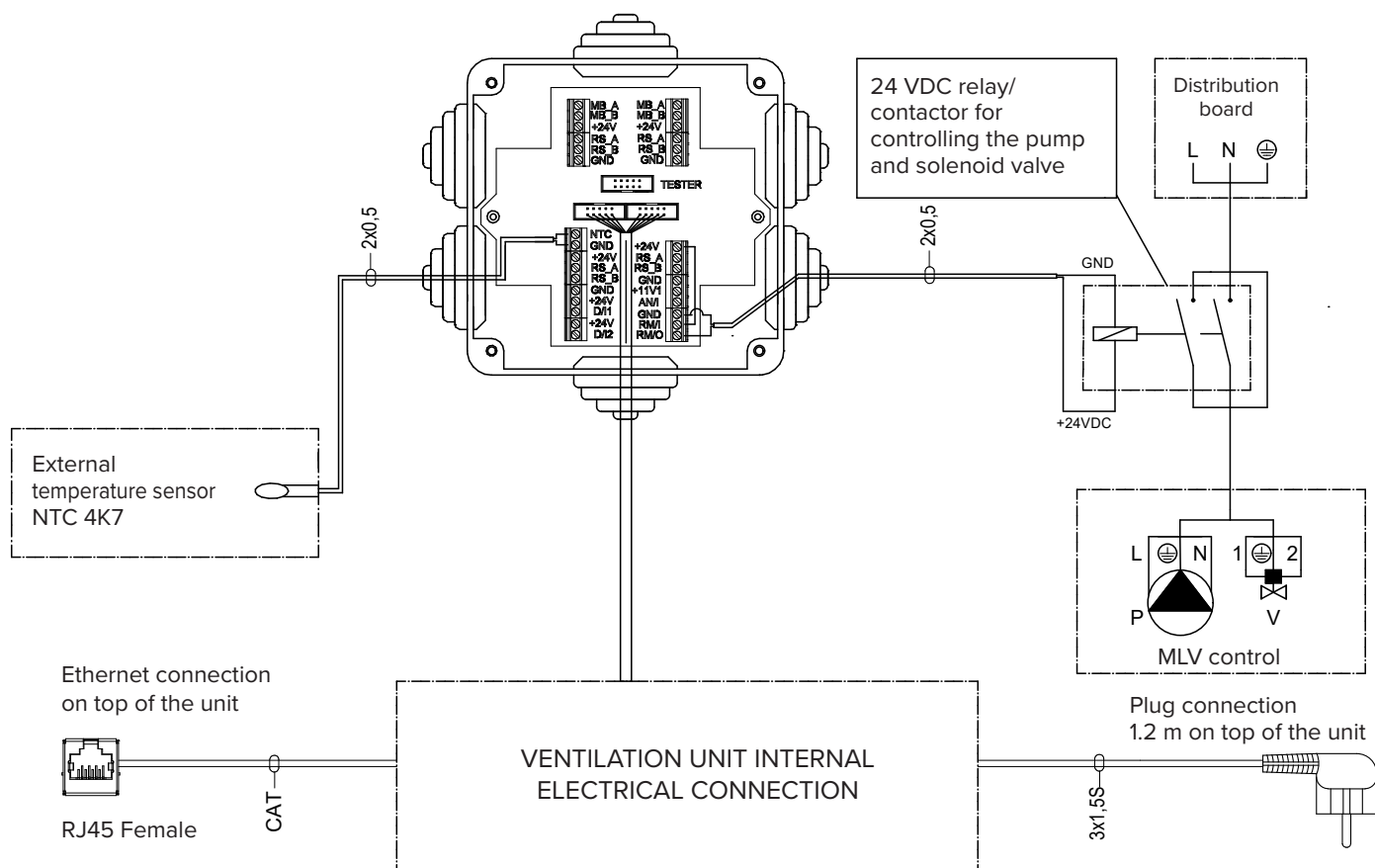
In the supply air duct



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

P	Circulation pump. Not included in the delivery. The pump should be suited to pumping liquid colder than the surrounding air, due to risk of condensation (for example, Grundfos Magna 125-80).
V	Solenoid valve. Not included in the delivery. The valve that is chosen must be compatible with the heat collection circuit fluid (for example, Danfoss 032U161431).
K	Condensing water tube. Not included in the delivery.
IP	De-aerator. Not included in the delivery.
S	External electrical junction box for the MV
N	External NTC sensor for Vallox MV ventilation units
C	24 VDC relay/contacter for controlling the pump and the solenoid valve. Not included in the delivery. (For example, ABB CR-P024DC2)
Y	One-way valve. Not included in the delivery.
Y2	One-way valve. Not included in the delivery. The pressure loss must be less than the pressure loss of the heat pump.

EXTERNAL ELECTRICAL CONNECTION FOR CONTROLLING THE MLV DUCT RADIATOR

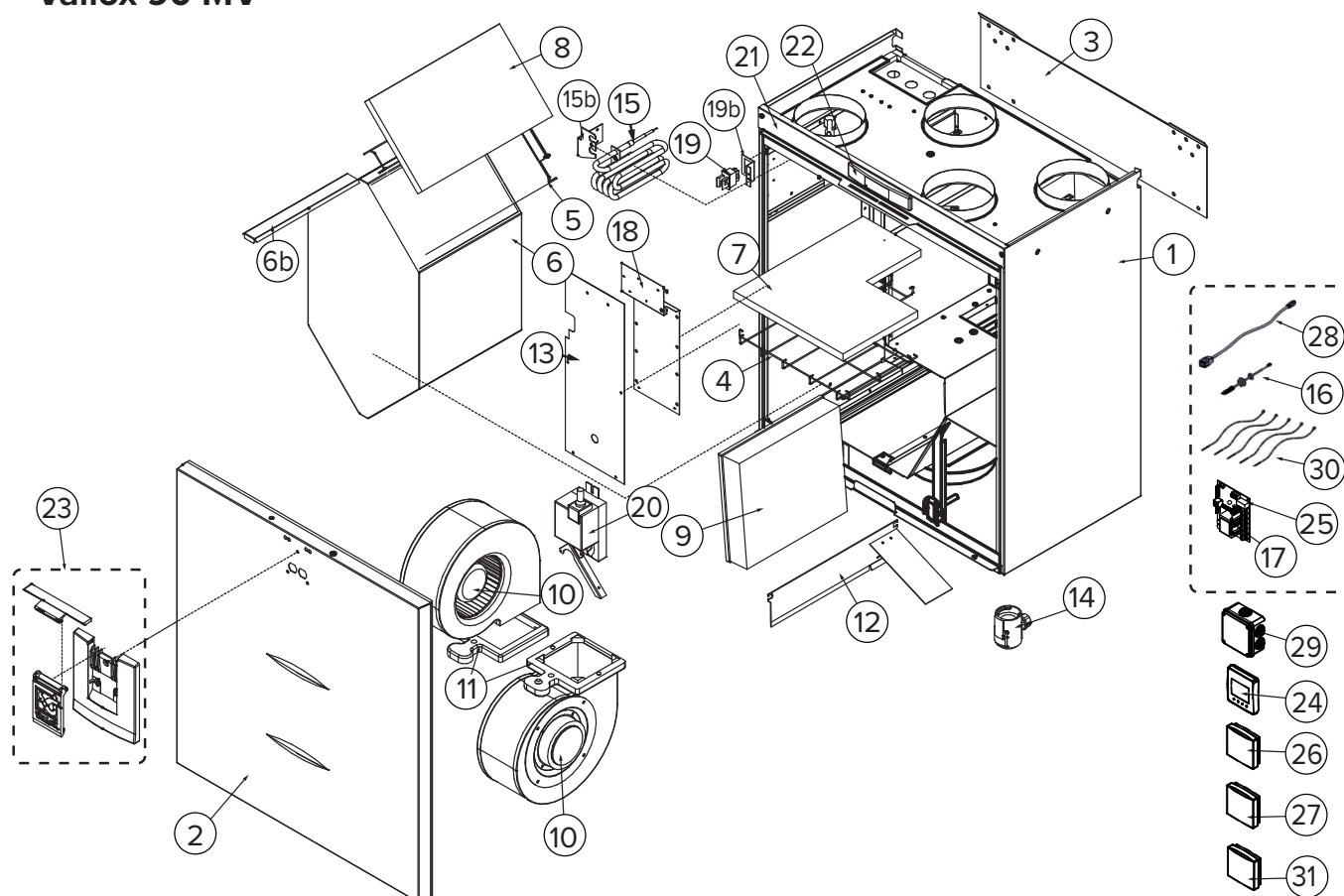


MB_A	External Modbus A signal
MB_B	External Modbus B signal
+24V	+24V voltage (DC)
GND	Digital and analog ground potential
RS_A	Local hardware Modbus A signal
RS_B	Local hardware Modbus B signal
NTC	External temperature sensor connector
D/I1	Digital input 1

D/I2	Digital input 2
11V1	11.1 V operating voltage
AN/I	Analog input 0-10VDC
RM/I	24V relay input
RM/O	24V relay output
P	Circulation pump
V	Solenoid valve

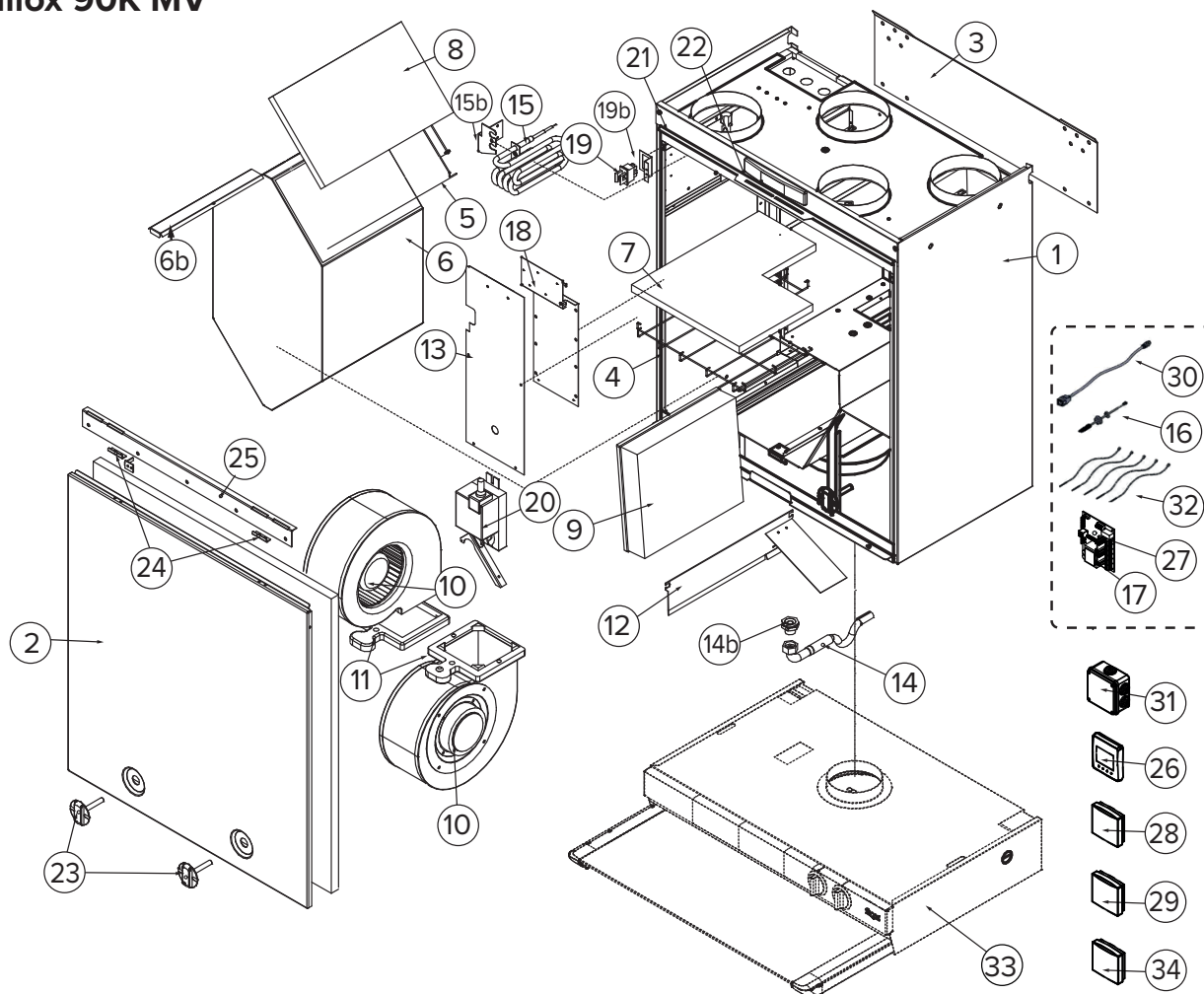
EXPLODED VIEW AND PARTS LIST

Vallox 90 MV



NO.	PART	CODE	NO.	PART	CODE	NO.	PART	CODE
1.	Side panel	3239010	13.	Lid of the electric box	3456100	25.	Glass tube fuse 63mA slow 5x20mm	952490
2.	Door	3368800	14.	Siphon Vallox Silent Klick	3494701	26.	MyVallox humidity sensor (optional)	946149
3.	Wall mounting plate	3080700	15.	Post-heating resistor	942211	27.	MyVallox carbon dioxide sensor (optional)	949111
4.	Filter stand (Coarse filter for supply air)	3491001	16.	Internal humidity and carbon dioxide sensor	4107985	28.	RJ45 extension cable	952197
5.	Filter stand (Coarse filter for extract air)	3490900	17.	Motherboard	949032-1	29.	Connection box assembly	3526700
6.	HR cell	933070	18.	Circuit board mount	3443400	30.	NTC sensor kit	946145
6 b.	Upper sealing slip of the HR cell	3241600	19.	Safety switch	948370	31.	MyVallox VOC sensor (optional)	949112
7.	Coarse filter for supply air	978028	19 b.	Safety switch enclosure	3234900			
8.	Coarse filter for extract air Until 26.5.2014 Since 27.5.2014	978027 978031	20.	Damper motor	3572800			
9.	Fine filter for supply air	978110	21.	Front panel of the top part of the unit	3378000			
10.	Fan	935360	22.	Name plate	990991			
11.	Rubber cushion of the fan	975040	23.	Door latch	3355900			
12.	Summer/winter damper assembly (specify whether left- or right-handed in the order)	3372800	24.	MyVallox Control panel	949033			

Vallox 90K MV



NO. PART	CODE	NO. PART	CODE	NO. PART	CODE
1. Side panel	3239010	13. Lid of the electric box	3456100	23. Finger screws	990710
2. Door	3259900	14. Condensing water outlet	3494701	24. Cover door mount	3295800
3. Wall mounting plate	3080700	14b. Flange nipple assembly	3420200	25. Cover door mounting strip	3296000
4. Filter stand (Coarse filter for supply air)	3491001	15. Post-heating resistor	942211	26. MyVallox Control panel	949033
5. Filter stand (Coarse filter for extract air)	3490900	15b. Post-heating resistor mount (specify whether left- or right- handed in the order)	3396504	27. Glass tube fuse 63mA slow 5x20mm	952490
6. HR cell	933070	16. Internal humidity and carbon dioxide sensor	4107985	28. MyVallox humidity sensor (optional)	946149
6 b. Upper sealing slip of the HR cell	3241600	17. Motherboard	949032-1	29. MyVallox carbon dioxide sensor (optional)	949111
7. Coarse filter for supply air	978028	18. Circuit board mount	3443400	30. RJ45 extension cable	952197
8. Coarse filter for extract air Until 26.5.2014 Since 27.5.2014	978027 978031	19. Safety switch	948370	31. Connection box assembly	3526700
9. Fine filter for supply air	978110	19b. Safety switch enclosure	3234900	32. NTC sensor kit	946145
10. Fan	935360	20. Damper motor	3572800	33. Cooker hood	
11. Rubber cushion of the fan	975040	21. Front panel of the top part of the unit	3378000	34. MyVallox VOC sensor (optional)	949112
12. Summer/winter damper assembly (specify whether left- or right-handed in the order)	3372800	22. Name plate	990991		

DECLARATION OF CONFORMITY

Manufacturer	Vallox Oy
Address	Mylyskyläntie 9-11, FIN-32200 LOIMAA, FINLAND
Telephone number	+358 10 7732 200
Fax	+358 10 7732 201
The person who compiles the technical file	Petri Koivunen Vallox Oy Mylyskyläntie 9-11, FIN-32200 LOIMAA, FINLAND Tel. +358 10 7732 234 Fax +358 10 7732 201 Email petri.koivunen@vallox.com
Description of unit	Ventilation unit with heat recovery
Model	Vallox 51 MV R, Vallox 51 MV L, Vallox 51K MV R, Vallox 51K MV L, Vallox 90 MC R, Vallox 90 MC L, Vallox 90K MC R, Vallox 90K MC L, Vallox 90 MV R, Vallox 90 MV L, Vallox 90K MV R, Vallox 90K MV L, ValloPlus 240 MV R, ValloPlus 240 MV L, ValloPlus 240K MV R, ValloPlus 240K MV L, ValloPlus 240 SC R, ValloPlus 240 SC L, Vallox 096 MC R, Vallox 096 MC L, Vallox 096 MV R, Vallox 096 MV L, ValloPlus 270 SC R, ValloPlus 270 SC L, ValloPlus 270 MV R, ValloPlus 270 MV L, Vallox 101 MC R, Vallox 101 MC L, Vallox 101 MV R, Vallox 101 MV L, Vallox 110 MV R, Vallox 110 MV L, ValloPlus 350 SC R, ValloPlus 350 SC L, ValloPlus 350 MV R, ValloPlus 350 MV L, Vallox 145 MV R, Vallox 145 MV L, ValloPlus 510 SC R, ValloPlus 510 SC L, ValloPlus 510 MV R, ValloPlus 510 MV L

Declares that the ventilation unit for supply and extract air, equipped with heat recovery and operating as part of a ventilation system has been designed and manufactured to the following specifications:

1. Low Voltage Directive (2014/35/EU) – EN 60335-1:2012+ A11:2014, EN 62233:2008
2. EMC Directive (2014/30/EU) – EN 61000-6-1:2007, EN 61000-3-2:2006 + A1:2009 + A2:2009, EN 61000-3-3:2008, EN 61000-6-3:2007 + A1:2011
3. Ecodesign Directive (2009/125/EY) – Commission regulation 1253/2014 – EN 13141-7 Annex B, EN 308, EN 13141-7, ISO 3741, ISO 5135

This is the original Declaration of Conformity

Loimaa, 14th May 2019



Jukka-Pekka Korja
Managing Director

VALLOX

www.vallox.com

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