• 1.09.280b ENG
• Updated 24.9.2015
• Valid from 24.9.2015
• Type 3486

VALLOX

Vallox 200 SE

Vallox Digit SED

ELECTRONIC CONTROLLER WITH LCD DISPLAY

MLV = heating/cooling radiator
VKL = water-circulating radiator

Vallox 200 SE electric/electric

Product IDs		Vallox code
Vallox 200 SE electric/electric L		3527800
Vallox 200 SE electric/electric R		3527900
Air volumes	Supply air	190 dm^3/s, 100 Pa
	Extract air	220 dm^3/s, 100 Pa
Electrical connection		230 V, 50 Hz, 15.2 A fixed mounting
Degree of protection provided by enclosures		IP34
Post-heating radiator		Electric, 1 kW, 4.3 A
Preheating radiator		Electric, 2 kW, 8.7 A
Additional heating radiator		-
Fans	Supply air	2 x 117 W 0.9 A EC
	Extract air	2 x 117 W 0.9 A EC
Efficiency	Annual efficiency	60% B
	Supply air efficiency	84 %
	Specific Fan Power SFP	1.3 (125 dm^3/s) B
Filters	Supply air	G4 + F7
	Extract air	G4
Heat recovery bypass		Automatic
Weight		146 kg
Comes standard with control		Vallox Digit SED controller

Vallox 280 SE electric/VKL

Product IDs		Vallox code
Vallox 280 SE electric/VKL L		3528000
Vallox 280 SE electric/VKL R		2528100
Air volumes	Supply air	175 dm^3/s, 100 Pa
	Extract air	220 dm^3/s, 100 Pa
Electrical connection		230 V, 50 Hz, 10.9 A fixed mounting
Degree of protection provided by enclosures		IP34
Post-heating radiator		VKL water-circulating radiator, 3 kW
Preheating radiator		Electric, 2 kW, 8.7 A
Additional heating radiator		-
Fans	Supply air	2 x 117 W 0.9 A EC
	Extract air	2 x 117 W 0.9 A EC
Efficiency	Annual efficiency	60% B
	Supply air efficiency	84 %
	Specific Fan Power SFP	1.3 (125 dm^3/s) B
Filters	Supply air	G4 + F7
	Extract air	G4
Heat recovery bypass		Automatic
Weight		146 kg
Comes standard with control		Vallox Digit SED controller

VALLOX 200 SE MLV/electric

Product IDs		Vallox code
Vallox 200 SE MLV/electric L		3543900
Vallox 200 SE MLV/electric R		3544000
Air volumes	Supply air	180 dm^3/s, 100 Pa
	Extract air	220 dm^3/s, 100 Pa
Electrical connection		230 V, 50 Hz, 6.5 A fixed mounting
Degree of protection provided by enclosures		IP34
Post-heating radiator		Electric, 1 kW, 4.3 A
Preheating radiator		MLV heating/cooling radiator
Additional heating radiator		-
Fans	Supply air	2 x 117 W 0.9 A EC
	Extract air	2 x 117 W 0.9 A EC
Efficiency	Annual efficiency	60% B
	Supply air efficiency	84 %
	Specific Fan Power SFP	1.3 (125 dm^3/s) B
Filters	Supply air	G4 + F7
	Extract air	G4
Heat recovery bypass		Automatic
Weight		146 kg
Comes standard with control		Vallox Digit SED controller

VALLOX 200 SE MLV/VLK

Product IDs		Vallox code
Vallox 200 SE MLV/VKL L		3544100
Vallox 200 SE MLV/VKL R		3544200
Air volumes	Supply air	165 dm^3/s, 100 Pa
	Extract air	220 dm^3/s, 100 Pa
Electrical connection		230 V, 50 Hz, 2.2 A fixed mounting
Degree of protection provided by enclosures		IP34
Post-heating radiator		VKL water-circulating radiator, 3 kW
Preheating radiator		MLV heating/cooling radiator
Additional heating radiator		-
Fans	Supply air	2 x 117 W 0.9 A EC
	Extract air	2 x 117 W 0.9 A EC
Efficiency	Annual efficiency	60% B
	Supply air efficiency	84 %
	Specific Fan Power SFP	1.3 (125 dm^3/s) B
Filters	Supply air	G4 + F7
	Extract air	G4
Heat recovery bypass		Automatic
Weight		146 kg
Comes standard with control		Vallox Digit SED controller

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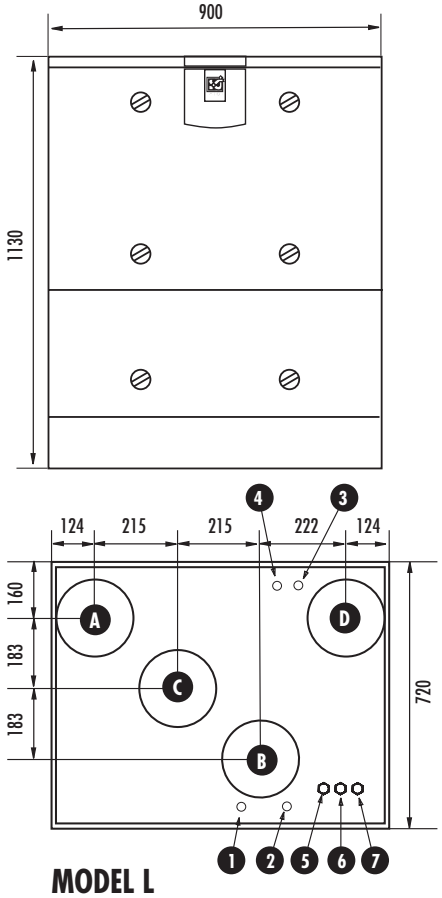
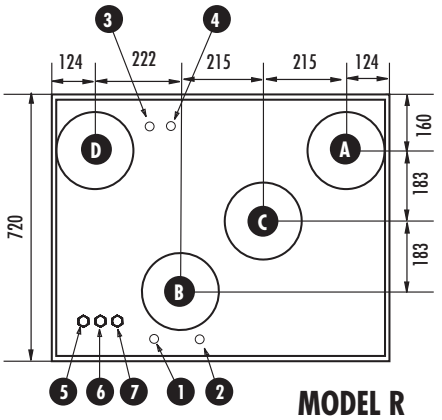
VALLOX 200 SE

DIMENSIONS AND MAIN PARTS

Dimensions and duct outlets



MODEL L



MODEL R

Duct outlets, inner diameter of collar ⌀ 200 mm

- **A** Outdoor air to the unit
- **B** Supply air to the dwelling
- **C** Extract air from the dwelling
- **D** Exhaust air outside

Pipe connections

1. Supply water to the radiator
2. Return water from the radiator
3. Supply liquid to the MLV unit
4. Return liquid from the MLV unit

Electrical connections

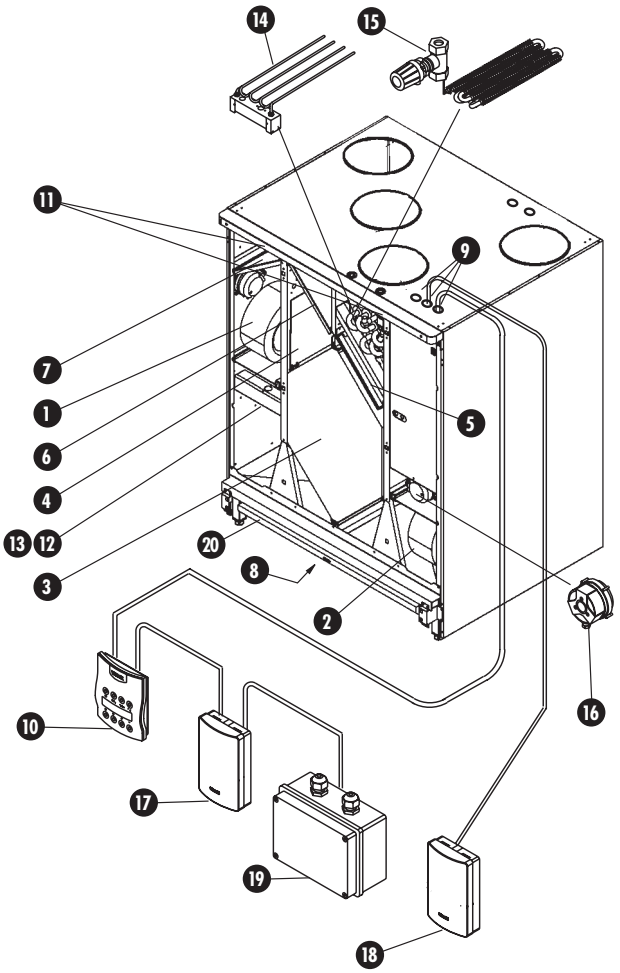
5. Connection cable - Humidity sensor
6. Connection cable - Control panel - CO_2 sensor - LON converter
7. Feed cable Distribution panel

Vallox 200 SE

(L model in the picture)

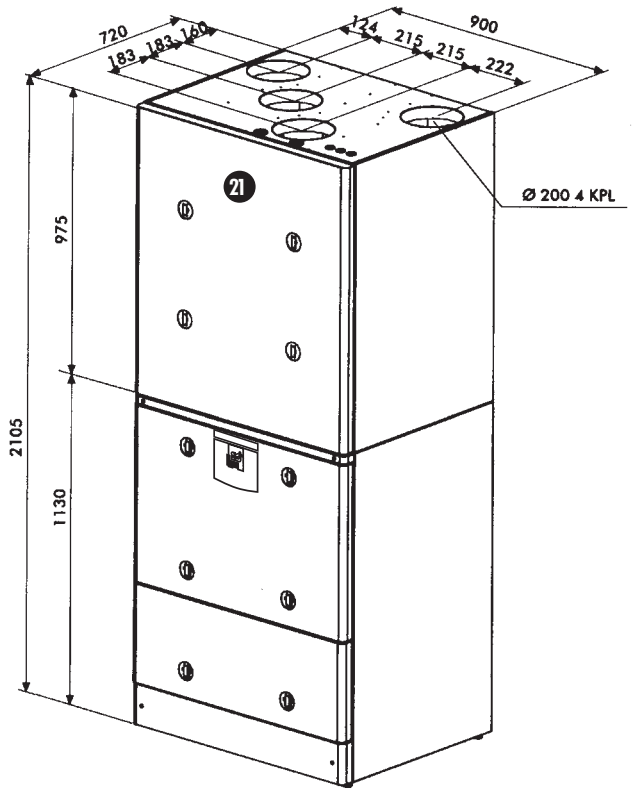
Main parts

1. Supply air fans
2. Extract air fans
3. Heat recovery cell
4. Heat recovery bypass
5. Supply air filter F7
6. Extract air filter G4
7. Outdoor air filter G4
8. Condensing water outlet
9. Electrical connection lead-ins
10. Control panel
11. Measurement outlets (behind the cover strip)
12. Preheating unit, electric
13. MLV preheating unit
14. Post-heating unit, electric
15. Post-heating unit, water



Options

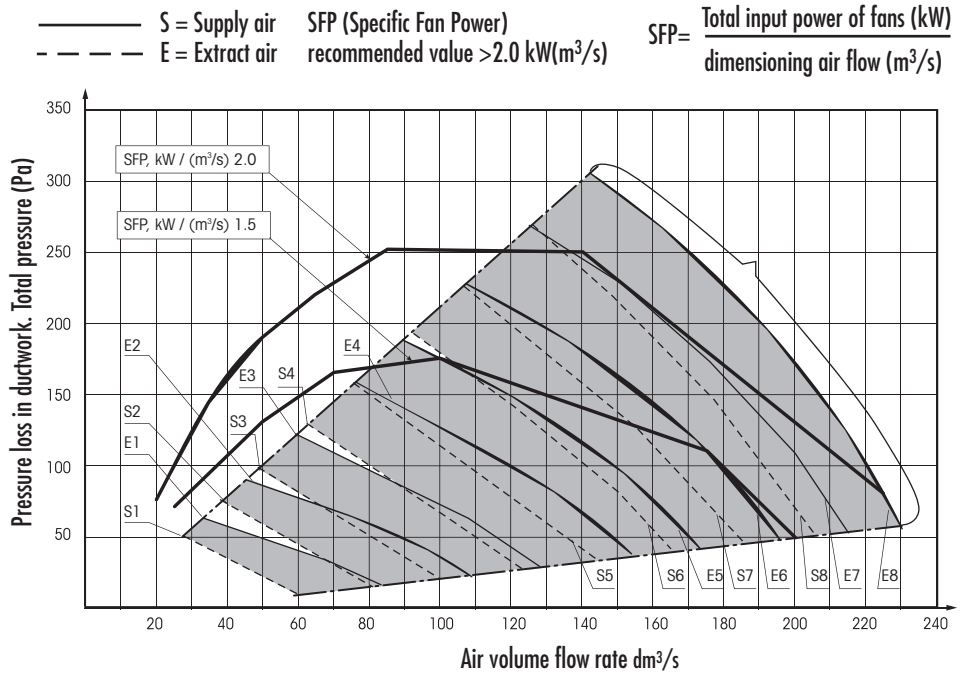
16. Filter guard
17. Carbon dioxide sensor
18. Humidity sensor
19. LON converter
20. Evaporation tank



Vallox 200 SE L + silencer unit

Air volumes

VALLOX 200 SE ELECTRIC/ELECTRIC, SUPPLY G4 + F7, EXTRACT G4



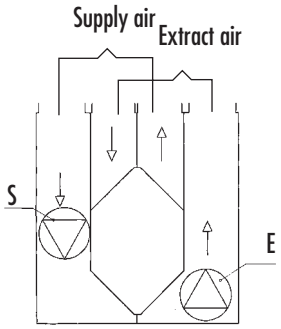
Sound values

		Sound power level going from the unit to the supply air ductwork by octave band Lw, dB				Sound power level going from the unit to the extract air ductwork by octave band Lw, dB			
		ADJUSTMENT POSITION/AIR FLOW				ADJUSTMENT POSITION/AIR FLOW			
	Hz	2 81 l/s	4 124 l/s	6 151 l/s	8 177 l/s	2 109 l/s	4 154 l/s	6 196 l/s	8 214 l/s
Medium frequency of octave band in Herz	63	66	72	77	80	67	71	76	78
	125	55	63	68	73	55	63	68	72
	250	43	51	56	61	44	52	57	60
	500	42	48	54	58	41	48	53	56
	1000	40	46	50	52	37	43	47	49
	2000	27	36	41	45	30	37	43	47
	4000		21	26	31	16	25	31	35
	8000								25
L_{W}, dB		66	73	78	81	67	72	77	79
L_{WA}, dB(A)		46	53	58	62	46	52	57	60

	A-weighted sound pressure level dB (A) coming from the unit through the envelope in the rooms where the unit has been installed (10 m² sound absorption)				
	ADJUSTMENT POSITION/AIR FLOWS (supply/extract)				**Vallox 200 SE electric/electric**
	2 78/97 l/s	4 114/134 l/s	6 154/172 l/s	8 191/202 l/s	
L_{pA}, dB(A)	33	40	45	48	

Measuring points after the connection outlet.

Fan curves indicate the total pressure available for duct losses.



Note!
Post-heating must be selected in the unit (winter setting) when the system is being adjusted.

The measuring tubes in the unit can be used to measure total pressures of the supply and extract air ductworks (see page 19).

With the compressed air readings, you can read air flows in the adjacent performance curves.

Fan speeds	Extract air flow (l/s)	Total input power W
1	71	49
2	97	73
3	108	99
4	132	140
5	152	188
6	172	261
7	200	353
8	230	451

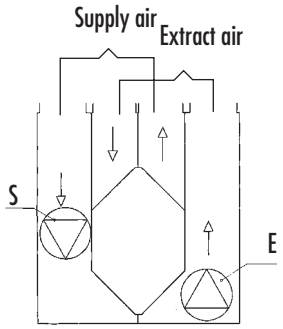
VALLOX 200 SE

PERFORMANCE Vallox 200 SE electric/VKL

VKL = water-circulating radiator

Measuring points after the connection outlet.

Fan curves indicate the total pressure available for duct losses.



Note!
Post-heating must be selected in the unit (winter setting) when the system is being adjusted.

The measuring tubes in the unit can be used to measure total pressures of the supply and extract air ductworks (see page 19).

With the compressed air readings, you can read air flows in the adjacent performance curves.

Fan speeds	Extract air flow (l/s)	Total input power W
1	71	49
2	97	73
3	108	99
4	132	140
5	152	188
6	172	261
7	200	353
8	230	451

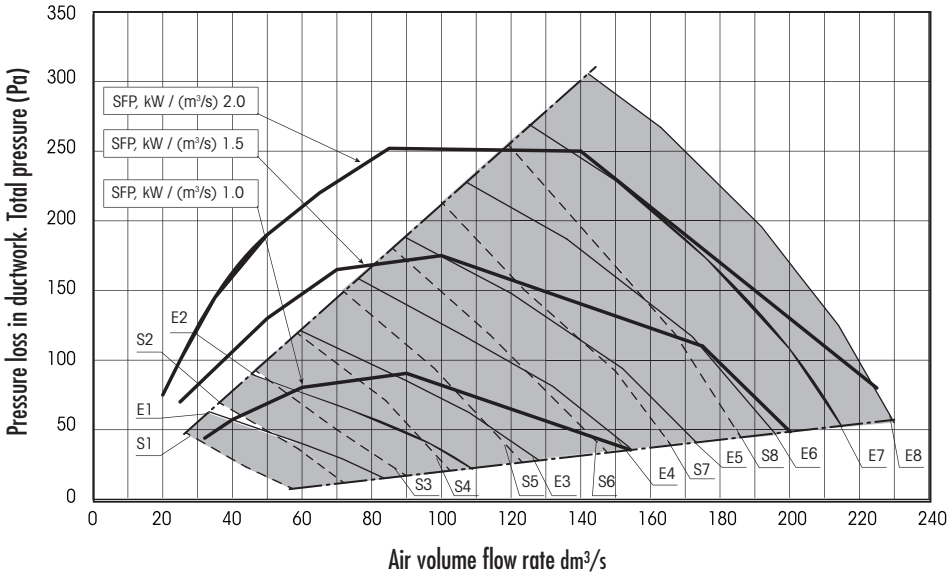
Air volumes

VALLOX 200 SE ELECTRIC/VKL, SUPPLY G4 + F7, EXTRACT G4

S = Supply air
E = Extract air

SFP (Specific Fan Power) recommended value >2.0 kW (m^3/s)

$$SFP = \frac{\text{Total input power of fans (kW)}}{\text{dimensioning air flow } (m^3/s)}$$



Sound values

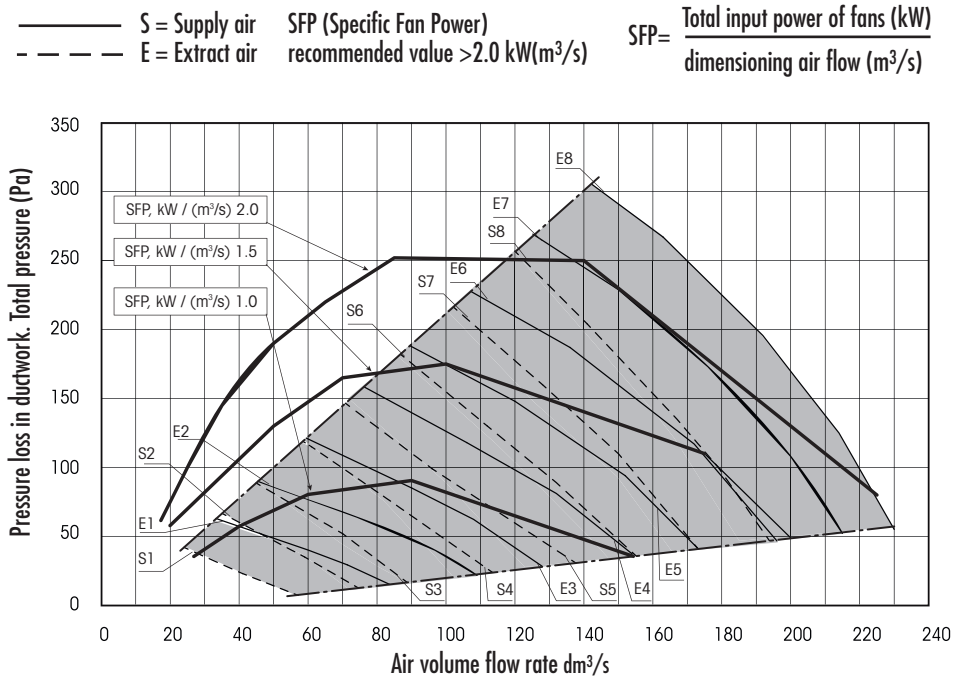
		Sound power level going from the unit to the supply air ductwork by octave band Lw, dB				Sound power level going from the unit to the extract air ductwork by octave band Lw, dB			
		ADJUSTMENT POSITION/AIR FLOW				ADJUSTMENT POSITION/AIR FLOW			
	Hz	2 81 l/s	4 124 l/s	6 151 l/s	8 177 l/s	2 109 l/s	4 154 l/s	6 196 l/s	8 214 l/s
Medium frequency of octave band in Herz	**63**	66	72	77	80	67	71	76	78
	125	55	63	68	73	55	63	68	72
	250	43	51	56	61	44	52	57	60
	500	42	48	54	58	41	48	53	56
	1000	40	46	50	52	37	43	47	49
	2000	27	36	41	45	30	37	43	47
	4000		21	26	31	16	25	31	35
	8000								25
L_W, dB		66	73	78	81	67	72	77	79
L_{WA}, dB(A)		46	53	58	62	46	52	57	60

	A-weighted sound pressure level dB (A) coming from the unit through the envelope in the rooms where the unit has been installed (10 m^2 sound absorption)				
	ADJUSTMENT POSITION/AIR FLOWS (supply/extract)				**Vallox 200 SE electric/VKL**
	2 78/97 l/s	4 114/134 l/s	6 154/172 l/s	8 191/202 l/s	
L_{pA}, dB(A)	33	40	45	48	

MLV = heating/cooling radiator

Air volumes

VALLOX 200 SE MLV/ELECTRIC, SUPPLY G4 + F7, EXTRACT G4



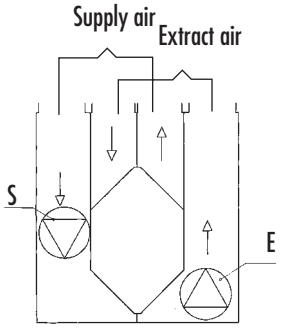
Sound values

		Sound power level going from the unit to the supply air ductwork by octave band Lw, dB				Sound power level going from the unit to the extract air ductwork by octave band Lw, dB			
		ADJUSTMENT POSITION/AIR FLOW				ADJUSTMENT POSITION/AIR FLOW			
	Hz	2 81 l/s	4 124 l/s	6 151 l/s	8 177 l/s	2 109 l/s	4 154 l/s	6 196 l/s	8 214 l/s
Medium frequency of octave band in Herz	**63**	66	72	77	80	67	71	76	78
	125	55	63	68	73	55	63	68	72
	250	43	51	56	61	44	52	57	60
	500	42	48	54	58	41	48	53	56
	1000	40	46	50	52	37	43	47	49
	2000	27	36	41	45	30	37	43	47
	4000		21	26	31	16	25	31	35
	8000								25
L_W, dB		66	73	78	81	67	72	77	79
L_{WA}, dB(A)		46	53	58	62	46	52	57	60

	A-weighted sound pressure level dB (A) coming from the unit through the envelope in the rooms where the unit has been installed (10 m² sound absorption)				
	ADJUSTMENT POSITION/AIR FLOWS (supply/extract)				
	2 78/97 l/s	4 114/134 l/s	6 154/172 l/s	8 191/202 l/s	**Vallox 200 SE MLV/electric**
L_{pA}, dB(A)	33	40	45	48	

Measuring points after the connection outlet.

Fan curves indicate the total pressure available for duct losses.



Note!
Post-heating must be selected in the unit (winter setting) when the system is being adjusted.

The measuring tubes in the unit can be used to measure total pressures of the supply and extract air ductworks (see page 19).

With the compressed air readings, you can read air flows in the adjacent performance curves.

Fan speeds	Extract air flow (l/s)	Total input power W
1	71	49
2	97	73
3	108	99
4	132	140
5	152	188
6	172	261
7	200	353
8	230	451

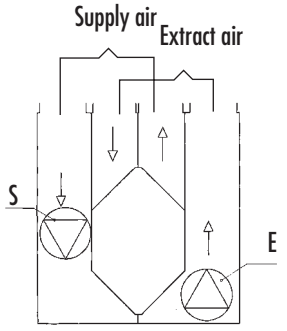
VALLOX 200 SE

PERFORMANCE Vallox 200 SE MLV/VKL

MLV = heating/cooling radiator VKL = water-circulating radiator

Measuring points after the connection outlet.

Fan curves indicate the total pressure available for duct losses.



Note!
Post-heating must be selected in the unit (winter setting) when the system is being adjusted.

The measuring tubes in the unit can be used to measure total pressures of the supply and extract air ductworks (see page 19).

With the compressed air readings, you can read air flows in the adjacent performance curves.

Fan speeds	Extract air flow (l/s)	Total input power W
1	71	49
2	97	73
3	108	99
4	132	140
5	152	188
6	172	261
7	200	353
8	230	451

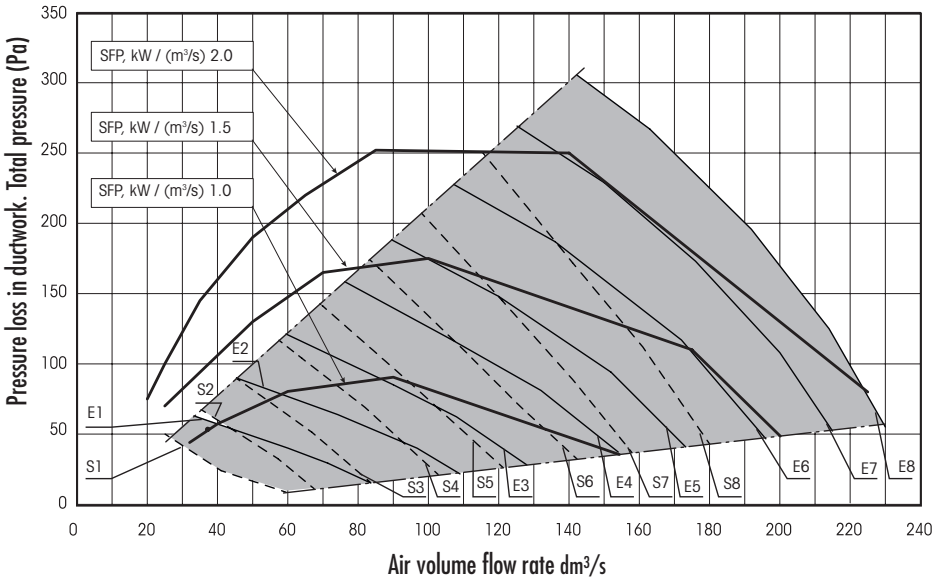
Air volumes

VALLOX 200 SE MLV/VKL, SUPPLY G4 + F7, EXTRACT G4

——— S = Supply air
– — — — E = Extract air

SFP (Specific Fan Power) recommended value >2.0 kW(m³/s)

$$SFP = \frac{\text{Total input power of fans (kW)}}{\text{dimensioning air flow (m}^3\text{/s)}}$$



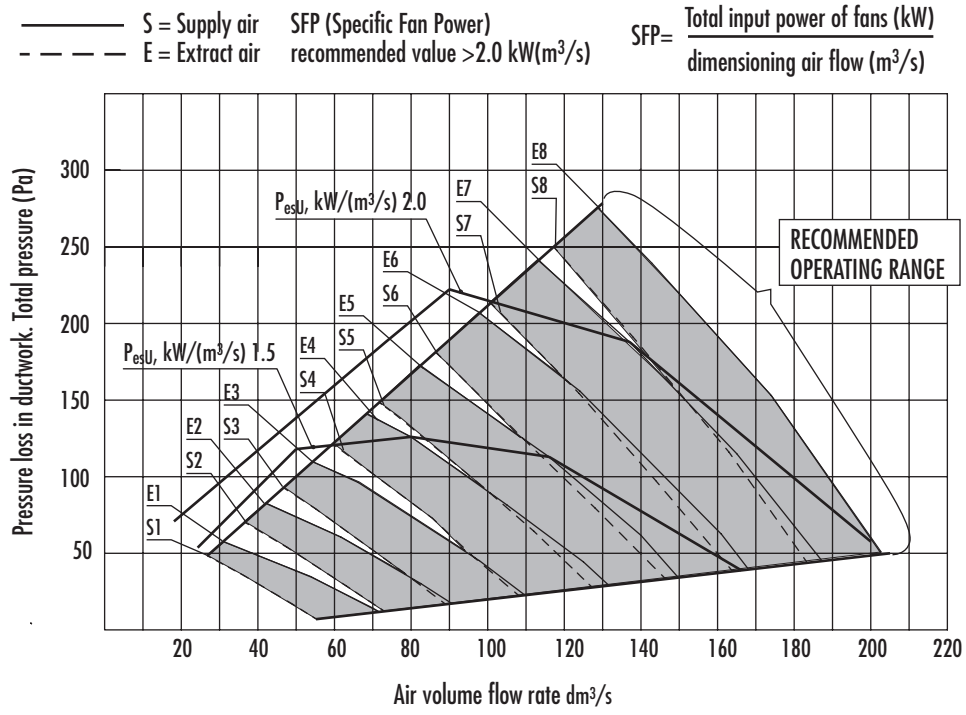
Sound values

		Sound power level going from the unit to the supply air ductwork by octave band Lw, dB				Sound power level going from the unit to the extract air ductwork by octave band Lw, dB			
		ADJUSTMENT POSITION/AIR FLOW				ADJUSTMENT POSITION/AIR FLOW			
	Hz	2 81 l/s	4 124 l/s	6 151 l/s	8 177 l/s	2 109 l/s	4 154 l/s	6 196 l/s	8 214 l/s
Medium frequency of octave band in Herz	**63**	66	72	77	80	67	71	76	78
	125	55	63	68	73	55	63	68	72
	250	43	51	56	61	44	52	57	60
	500	42	48	54	58	41	48	53	56
	1000	40	46	50	52	37	43	47	49
	2000	27	36	41	45	30	37	43	47
	4000		21	26	31	16	25	31	35
	8000								25
L_W, dB		66	73	78	81	67	72	77	79
L_{WA}, dB(A)		46	53	58	62	46	52	57	60

	A-weighted sound pressure level dB (A) coming from the unit through the envelope in the rooms where the unit has been installed (10 m² sound absorption)				
	ADJUSTMENT POSITION/AIR FLOWS (supply/extract)				**Vallox 200 SE MLV/VKL**
	2 78/97 l/s	4 114/134 l/s	6 154/172 l/s	8 191/202 l/s	
L_{pA}, dB(A)	33	40	45	48	

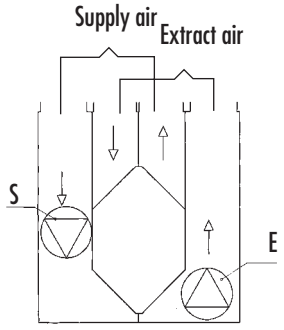
Air volumes

VALLOX 200 ELECTRIC/ELECTRIC, SUPPLY G4 + F7, EXTRACT G4, WITH SILENCER



Measuring points after the connection outlet.

Fan curves indicate the total pressure available for duct losses.



Note!
Post-heating must be selected in the unit (winter setting) when the system is being adjusted.

Fan speeds	Extract air flow (l/s)	Total input power W
1	70	50
2	83	70
3	98	97
4	125	139
5	140	183
6	161	250
7	185	332
8	200	422

Sound values

		Sound power level going from the unit to the supply air ductwork by octave band Lw, dB				Sound power level going from the unit to the extract air ductwork by octave band Lw, dB			
		ADJUSTMENT POSITION/AIR FLOW				ADJUSTMENT POSITION/AIR FLOW			
	Hz	2 63 l/s	4 96 l/s	6 128 l/s	8 163 l/s	2 95 l/s	4 125 l/s	6 161/s	8 174 l/s
Medium frequency of octave band in Herz	**63**	58	62	68	70	57	64	73	71
	125	45	55	60	65	50	58	63	68
	250	28	39	45	50	36	43	50	52
	500	22	31	37	42	23	34	40	42
	1000		17	25	33		24	35	38
	2000			12	24		11	24	27
	4000								16
	8000								
	L_W, dB	58	63	69	71	58	65	73	73
	L_WA dB(A)	33	40	46	50	35	43	49	53

	A-weighted sound pressure level dB (A) coming from the unit through the envelope in the rooms where the unit has been installed (10 m² sound absorption)				
	ADJUSTMENT POSITION/AIR FLOWS (supply/extract)				**VALLOX 200 SE + SILENCER PART**
	2 70/77	4 102/107	6 135/135	8 166/166	
L_pA, dB(A)	34	41	46	49	

L_pA = A-painotettu äänenpainetaso (10 m²:n äänenabsorptio)

VALLOX DIGIT SED CONTROL PANEL

Keyboard

Main display

Panel address
1

Control

Vallox 200 SE can be controlled with the control panel delivered with the unit (3 control panels at most) and with optional CO_2 sensors (5 at most) and %RH sensors (2 at most). Fan speeds of the unit can be controlled via remote monitoring with a voltage signal. In case of disturbances, a potential-free relay contact signal is issued.

It is possible to manage the whole operation of the unit via remote monitoring control by using a Vallox LON or KNX converter that is available as an option.

Week clock control

The week clock in the control panel of the unit can be used to programme the desired fan power option (1...8) for each hour in the day.

Control panel

1. **Start button**
   Use this button for switching the unit on and off. When the indicator is lit, the unit is on.
2. **Carbon dioxide adjustment**
   Press this button to switch carbon dioxide adjustment on and off. When the indicator is lit, the adjustment is on.
3. **Humidity adjustment**
   Press this button to switch humidity adjustment on and off. When the indicator is lit, the adjustment is on.
4. **Post-heating**
   Press this button to switch post-heating on and off. When the indicator is lit, post-heating is on (winter setting). The summer function is on when the indicator is not lit.
5. **Scrolling up**
   With this button you can scroll the displays upward.
6. **Scrolling down**
   With this button you can scroll the displays downward.
7. **Increase button**
   With this button, you can increase values.
8. **Decrease button**
   With this button, you can decrease values.

Main display

3	Fan speed (3).
21 C	Supply air temperature (21 °C).
	Post-heating is on.
10:20	Time.
	Filter guard alert.
	Maintenance reminder alert.
	Fireplace/booster switch on. The fireplace/booster switch is activated in this display by simultaneously pressing down the + and – buttons for 2 seconds.
	Week clock control on.

Fan speed can be changed in this display with the + and - buttons (see the instructions for use and maintenance).

Mounting, removing and wiring of control panel

The control panel is wired straight from the electrical connection box. The control panel can also be connected in series with a CO_2 sensor or another control panel. (See External electrical connections on page 11)

Control panel addresses

If two or more control panels are connected to the system, the addresses of the control panels need to be changed.

E.g. 3 control panels.

- Connect the first control panel to the unit and change its address to 3.
- Connect the second control panel to the unit and change its address to 2.
- Connect the third control panel and make sure that its address is 1.

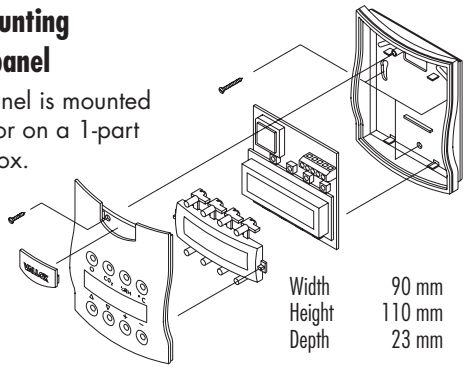
If control panels have the same address, they go to bus fault state. In this case, remove one of the control panels and change the address of the other panel. The above mentioned situation can arise in connection with the later installation of an additional control panel.

VALLOX 200 SE

MOUNTING OF CONTROL PANEL AND SENSORS

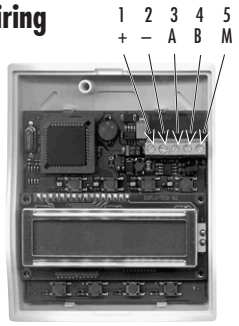
Surface mounting of control panel

A control panel is mounted on the wall or on a 1-part instrument box.



Width 90 mm
Height 110 mm
Depth 23 mm

Wiring



Electronics board of control panel

Cable:
NOMAK 2 x 2 x 0.5 mm² + 0.5 mm²

NOTE!
Faulty coupling of the (+) wire destroys the control panel!

1 = orange 1 = +
2 = white 1 = – } ca. 21 VDC
3 = orange 2 = A
4 = white 2 = B
5 = metal = signal ground

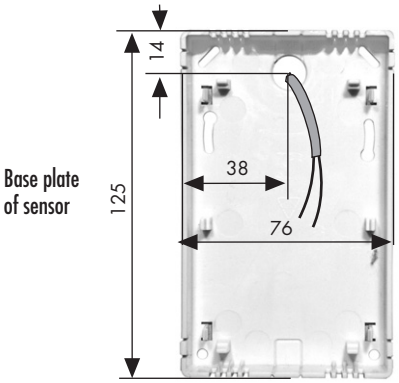
HUMIDITY SENSORS

- If humidity sensors are used, connect them to the terminal block of the connection box by connecting the first humidity sensor to %RH1, in place of the 6K8 resistor in the terminal block (remove the resistor in this case), and the second humidity sensor to %RH2. See the electrical diagram.

Mounting and wiring of humidity sensor

The sensor is wired straight from the electrical connection box of the unit.

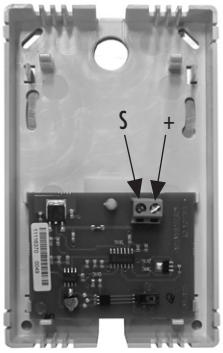
Surface mounting



Base plate of sensor

Wiring

Electronics board of %RH sensor



Cable:
2 x 0.5 mm²

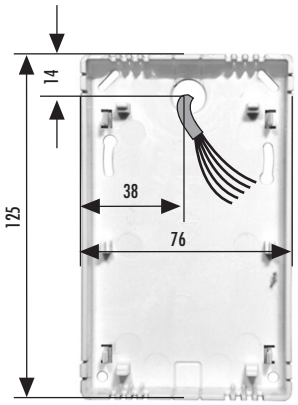
CARBON DIOXIDE SENSORS

- Carbon dioxide sensors are connected individually.
- When the first carbon dioxide sensor has been connected to the system, the unit is switched on. After this, the unit gives the sensor an address. Follow the same steps for other carbon dioxide sensors.

Mounting and wiring of carbon dioxide sensor

The CO_2 sensor is connected directly from the connection box of the unit, or in series with another CO_2 sensor or control panel (see External electrical connections on page 7).

Surface mounting



Base plate of the CO_2 sensor

Wiring

Electronics card of the CO_2 sensor (model may vary)

Cable:
NOMAK 2 x 2 x 0.5 mm² + 0.5 mm²

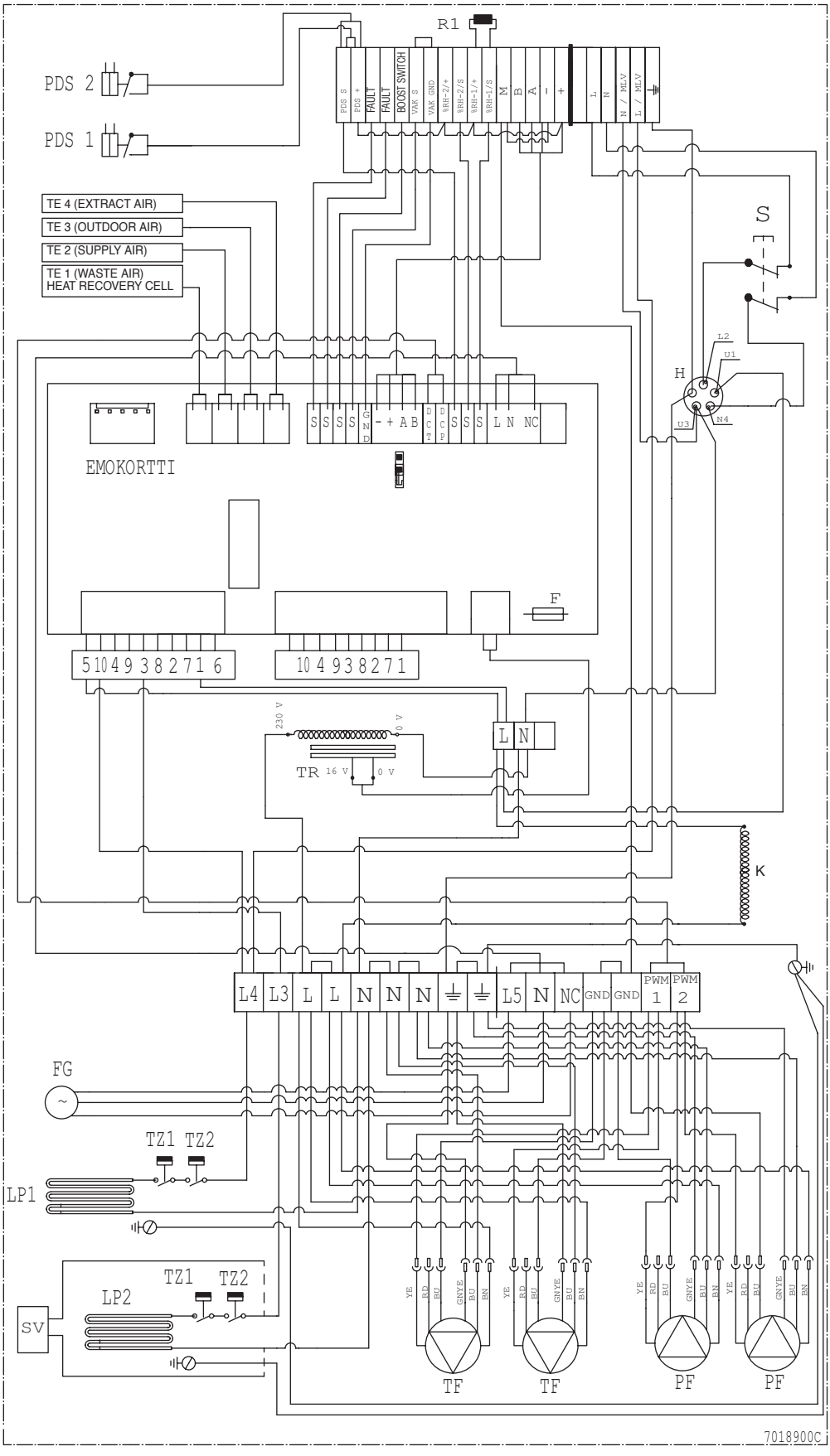
NOTE!

Faulty coupling of the (+) wire destroys the carbon dioxide sensor!

1 = orange 1 = +
2 = white 1 = – } ca. 21 VDC
3 = orange 2 = A
4 = white 2 = B
5 = metal = signal ground

VALLOX 200 SE

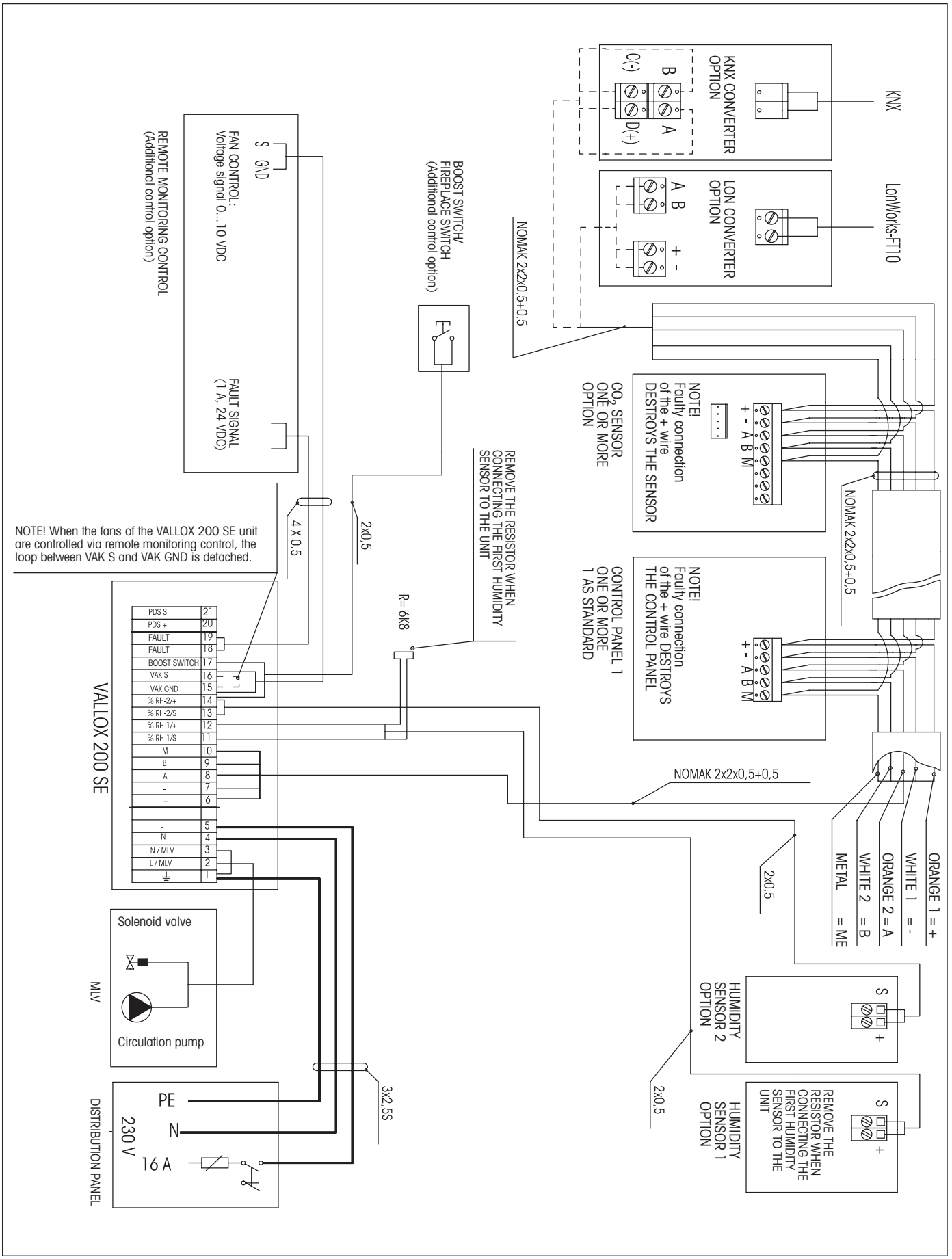
INTERNAL ELECTRICAL DIAGRAM



TF = SUPPLY AIR FAN 2 X 117 W DC
PF = EXHAUST AIR FAN 2 X 117 W DC
H = INTERFERENCE SUPPRESSOR
K = CHOKE
FG = DAMPER MOTOR 24 VAC
TE = TEMPERATURE SENSORS
R1 = AUXLIARY RESISTOR 6.8 KOHM
TR = TRANSFORMER 1.3 A / 16 V
F = MOTHERBOARD FUSE 800 mA
S = MAINTENANCE SWITCH (DOOR SWITCH)
LP1 = ELECTRIC HEATING UNIT 2000 W (PREHEATING)
LP2 = ELECTRIC HEATING UNIT 1000 W (POST-HEATING)
SV = WATER HEATING UNIT ACTUATOR (POST-HEATING)
TZ1 = OVERHEAT PROTECTOR + 60°
TZ2 = OVERHEAT PROTECTOR + 95° (RESETTABLE)
PDS1 = PRESSURE DIFFERENCE SWITCH FOR THE SUPPLY AIR DUCTWORK (OPTION)
PDS2 = PRESSURE DIFFERENCE SWITCH FOR THE EXTRACT AIR DUCTWORK (OPTION)

VALLOX 200 SE

EXTERNAL ELECTRICAL DIAGRAMME



VALLOX 200 SE

FILTERING, HEAT RECOVERY, HEATING/MLV RADIATOR

Filtering

Efficient filtering of outdoor air (G4 + F7) prevents harmful particles from entering the ductwork and rooms via the unit. Good filtering of extract air (G4) diminishes the contamination of the unit and ensures efficient heat recovery and extract air fan operation. Clogging of the supply/extract air filters and of the ductwork can be monitored by equipping the unit with a pressure difference switch.

Heat recovery and heating

With efficient heat recovery, most of the heat in dirty extract air can be transferred to the outdoor air that is taken inside. The efficiency of the heat recovery cell is about 80%. If outdoor air does not get sufficiently warm in the heat recovery cells, it can be heated with a water-circulating or electric post-heating unit. The automatic heat recovery bypass function in the unit ensures that there is no need to heat outdoor air in summer. The unit also has an automatic defrost function for the water-circulating post-heating unit (VKL model).

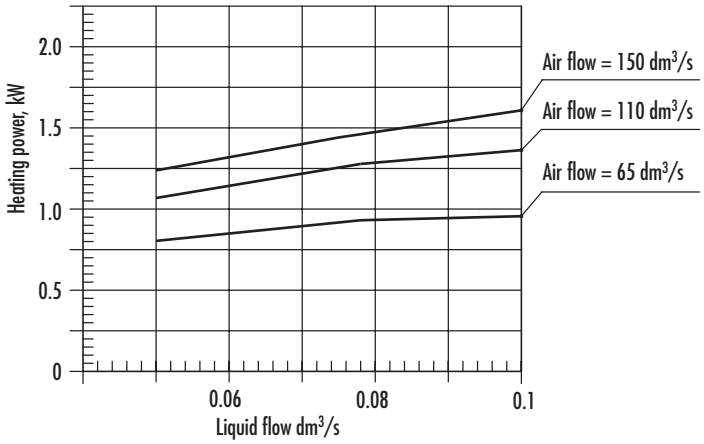
Defrost

When exhaust air temperature goes below the threshold value set, the automatic defrost function of the heat recovery cell switches the preheating unit on. If the power of the preheating unit is not enough, the unit momentarily stops the supply air fan.

Power and pressure loss in liquid circulation of MLV preheating/cooling unit

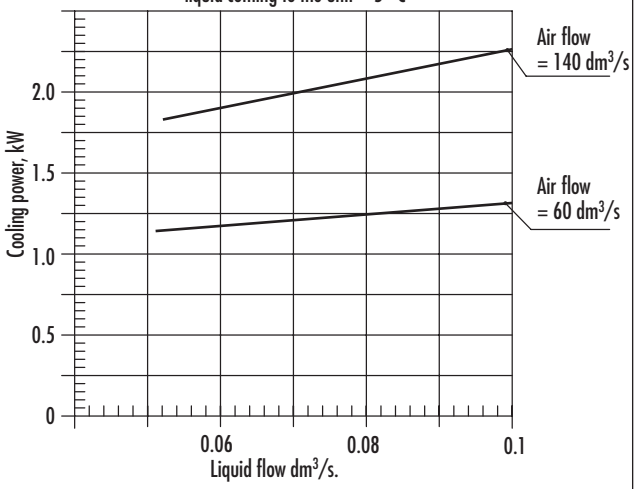
MLV unit heating power

- liquid = ethylene glycol 25%
- air coming to the unit = -12 °C
- liquid coming to the unit = 5 °C

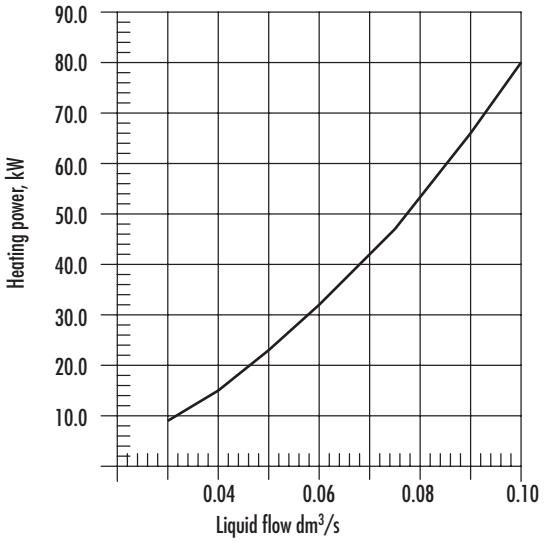


MLV unit cooling power

- liquid = ethylene glycol 25%
- air coming to the unit = 25 °C
- liquid coming to the unit = 5 °C

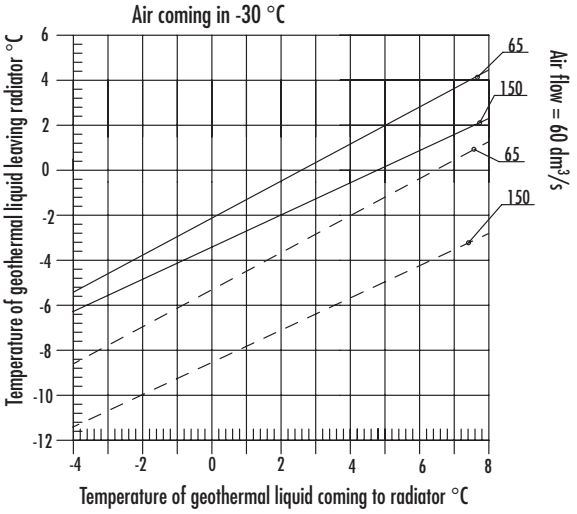


Pressure loss in liquid circulation of MLV unit



Cooling of geothermal liquid of MLV radiator

Ethylene glycol 25% Flow 0.075 dm3/s
Air coming in -12 °C
Air coming in -30 °C



Electric preheating unit

Vallox 200 SE electric/electric, Vallox 200 SE electric/VKL
- Power 2.0 kW, 8.7 A.

Electric post-heating unit

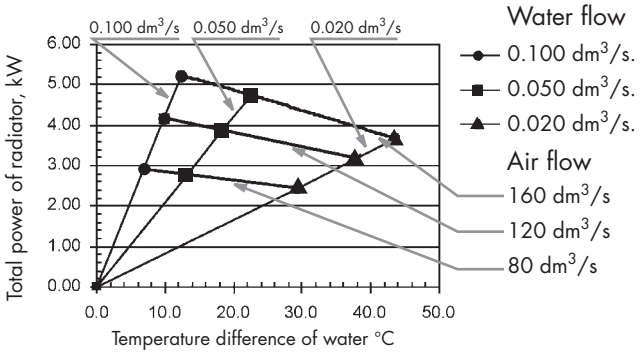
Vallox 200 SE electric/electric, Vallox 200 SE MLV/electric
- Power 1.0 kW, 4.3 A.

Water-circulating post-heating unit, VKL

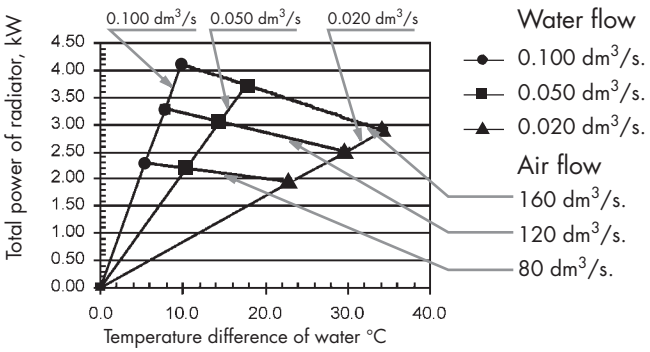
Vallox 200 SE electric/VKL, Vallox 200 SE MLV/VKL

Power of water radiator

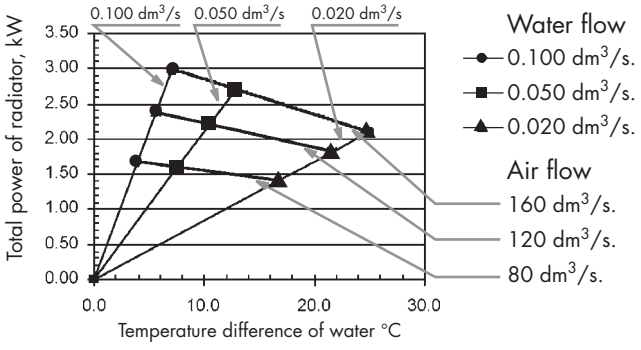
Temperature of air coming to the radiator (ta1 =) 15 °C
Temperature of water coming to the radiator (tf1 =) 85°C



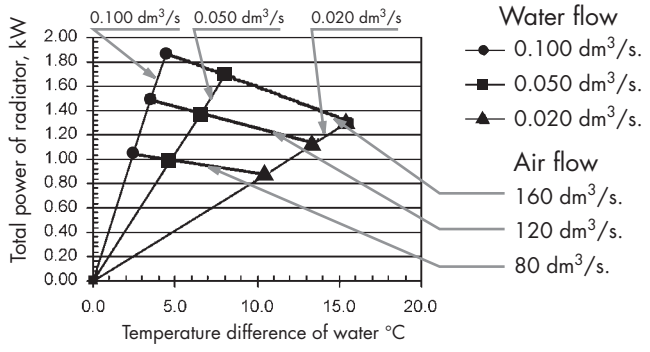
Temperature of air coming to the radiator (ta1 =) 15 °C
Temperature of water coming to the radiator (tf1 =) 70°C



Temperature of air coming to the radiator (ta1 =) 15 °C
Temperature of water coming to the radiator (tf1 =) 55°C



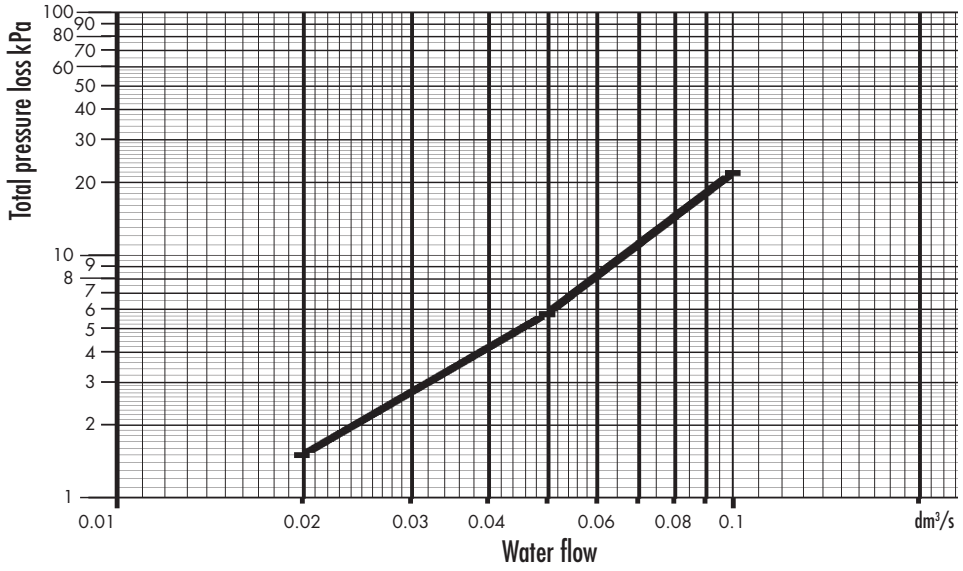
Temperature of air coming to the radiator (ta1 =) 15 °C
Temperature of water coming to the radiator (tf1 =) 40°C



HEATING, VKL WATER RADIATOR

VKL WATER RADIATOR PRESSURE LOSS IN WATER CIRCULATION

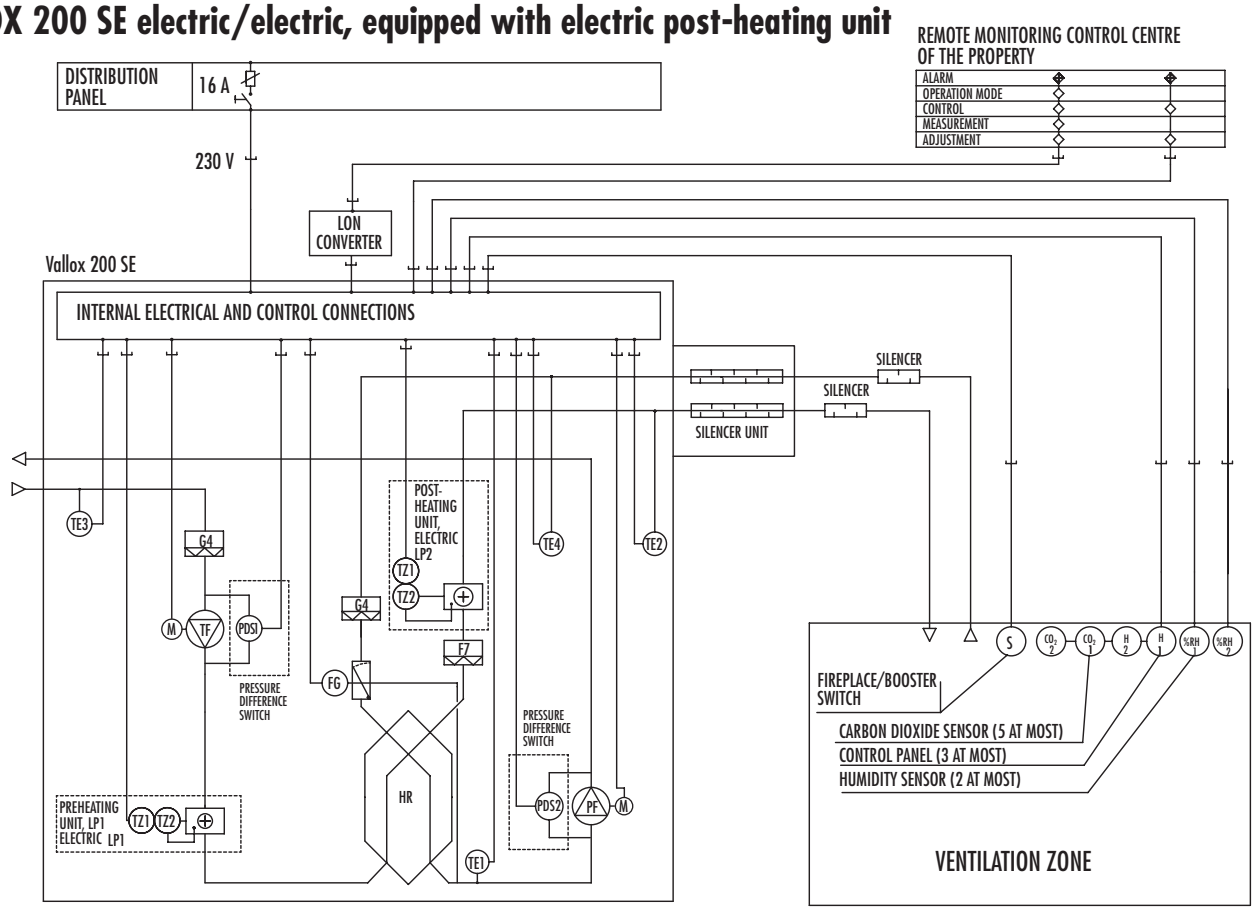
Defined for 100% water



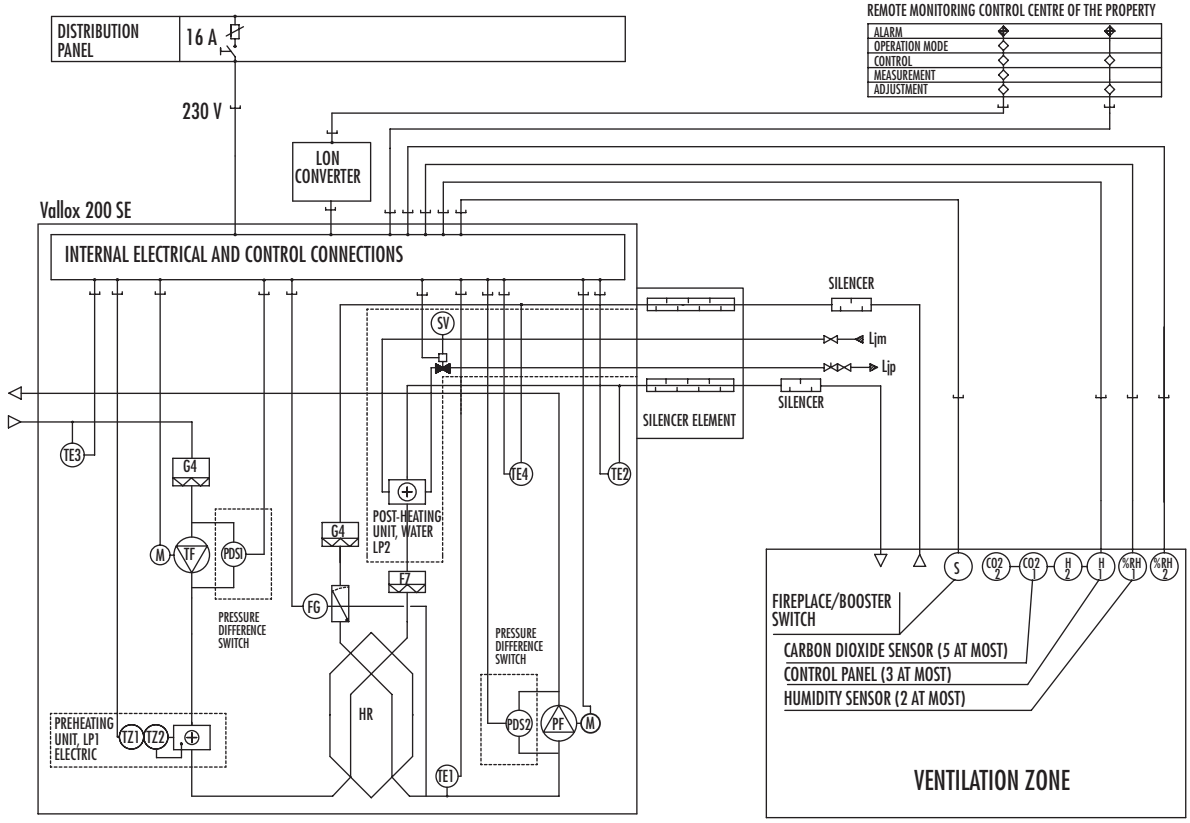
VALLOX 200 SE

CONTROL DIAGRAM, electric preheating unit

VALLOX 200 SE electric/electric, equipped with electric post-heating unit



VALLOX 200 SE electric/VKL, equipped with water-circulating post-heating unit



VALLOX 200 SE

DESCRIPTION OF OPERATION / Vallox 200 electric / electric, Vallox 200 electric / VKL

Control of operation

Power supply to the unit can be controlled with a contactor in the distribution panel if needed, e.g. with a timer programme. After starting, the unit first operates at minimum power. After that power is adjusted based either on the measurement data from air quality sensors and/or on manual control at the control panel.

Fan speed adjustment

Manual control

Fan speed of the ventilation unit is controlled in 8 steps at control panel **H**.

Week clock control

Fan speed of the ventilation unit is controlled in 8 steps using the week clock in control panel **H**. The week clock can be used to programme the desired fan power option for each hour in the day.

Carbon dioxide and humidity control

The fan power of the ventilation unit is controlled in multiple steps depending on loads and based on the measurement results of the air quality sensors (**CO_2** and **%RH** sensors) located in the ventilation zone. The aim is to keep carbon dioxide and/or humidity content below the threshold set at control panel **H**. One or more modes of control may be used simultaneously – the mode demanding boosting is the dominant one. Fan speed varies depending on load between the base and maximum fan speeds. The base and maximum fan speeds can be set at the desired level at control panel H.

Control through voltage signal

The fan capacity of the ventilation unit is controlled in 8 steps with a voltage signal of 0…10 V DC. However, fan power cannot be raised above the maximum fan speed set. Voltage signal is used to control base fan speed. Manual control and carbon dioxide and humidity adjustments can raise fan speed if needed but cannot decrease it.

FAN SPEED	VOLTAGE SIGNAL
0	0.20…1.25
1	1.75…2.25
2	2.75…3.25
3	3.75…4.25
4	4.75…5.25
5	5.75…6.25
6	6.75…7.25
7	7.75…8.25
8	8.75…10

Supply air temperature

Supply air temperature can be controlled with either constant temperature control or cascade control.

Supply air constant temperature control

The control unit directs the operation of post-heating unit **LP2** on the basis of the measurement data given by temperature sensor **TE2**, aiming at keeping supply air temperature at the temperature value set on control panel **H** (+10…+30 °C).

Supply air cascade control

The control unit directs the operation of post-heating unit **LP2** on the basis of the measurement data given by extract air sensor **TE4**, aiming at keeping extract air temperature at the temperature value set on control panel **H** (+10…+30 °C).

Heat recovery bypass

Heat recovery is enabled whenever post-heating has been switched on. Automatic heat recovery bypass is active whenever post-heating has been switched off and outdoor temperature exceeds the setpoint (to be set at 0...+25 °C). In this case, the control unit directs the operation of damper motor **FG** on the basis of measurement results given by outdoor temperature sensor **TE3** and extract air temperature sensor **TE4**. The aim is to get as cool supply air to the ventilation zone as possible. However, heat recovery is always active when outdoor air temperature is below the set threshold value.

Heat recovery antifreeze

The control centre of the unit controls the operation of preheating unit **LP1** on the basis of the measurement data of temperature sensor **TE1**, preventing freezing alerts and the stopping of supply air fan **TF**. If the capacity of preheating unit **LP1** is not sufficient, the control centre keeps stopping supply air fan **TF** on the basis of the measurement data on temperature sensor **TE1**, thus preventing the **HR** cell from freezing. As soon as the risk passes, the fan restarts automatically. The threshold temperature (-6...+15 °C) and the difference area (1...10 °C) for antifreezing can be set at control panel **H**.

Water radiator freeze protection

The control centre of the unit stops fans **TF** and **PF** on the basis of the measurement data in outdoor temperature sensor **TE3** (outdoor air < 0 °C) and supply air temperature sensor **TE2** (supply air < 7 °C), thus reducing the risk of freezing in water heating unit **LP2**. A freezing alert appears in the display of the control panel. The fans restart automatically as soon as the risk of freezing passes (supply air > 10 °C).

Overheat protection for the heating element

Overheating protection thermostats **TZ1** and **TZ2** monitor the surface temperature of heating units **LP1** and **LP2**. If surface temperature exceeds the threshold, overheat protection is triggered and power supply to the heating unit is stopped. Overheat protector **TZ1** is reset automatically and **TZ2** manually.

Alarms

Pressure difference switches **PDS1** and **PDS2** monitor the pressure difference on the supply and extract air sides. If the pressure difference rises too high because of dirty filters or clogged ducts, an alarm will be issued. This is indicated by a symbol (⛝) in the main display of the control panel. If the unit is not equipped with pressure difference switches, the symbol (🔧) appearing in the main display of the control panel reminds of the need of servicing the unit. The reminder interval can be set between 1 and 15 months.The factory setting is 4 months. This function is always active.

The fault signal relay gives potential-free alarm indications on the following fault conditions:

- When the antifreeze function of the water-circulating radiator is on, the contacts of the the relay close and open at 10-second intervals.
- An alarm of high carbon dioxide content (> 5000 ppm) switches the relay at 1-second intervals. In other fault situations, such as sensor faults, the contacts of the relay close.

Booster or fireplace switch function

The booster or fireplace switch function of the ventilation unit is controlled either at control panel **H** and/or with a separate switch **S**, which can be connected to the connection box of the unit. The mode of operation of the switch is selected at control panel **H**.

The booster switch function raises fan speed to the set maximum fan speed for 45 minutes. The fireplace switch stops the extract air fan for 15 minutes and produces overpressure in the ventilation zone.

LON remote monitoring control can be implemented with a Vallox LON converter.

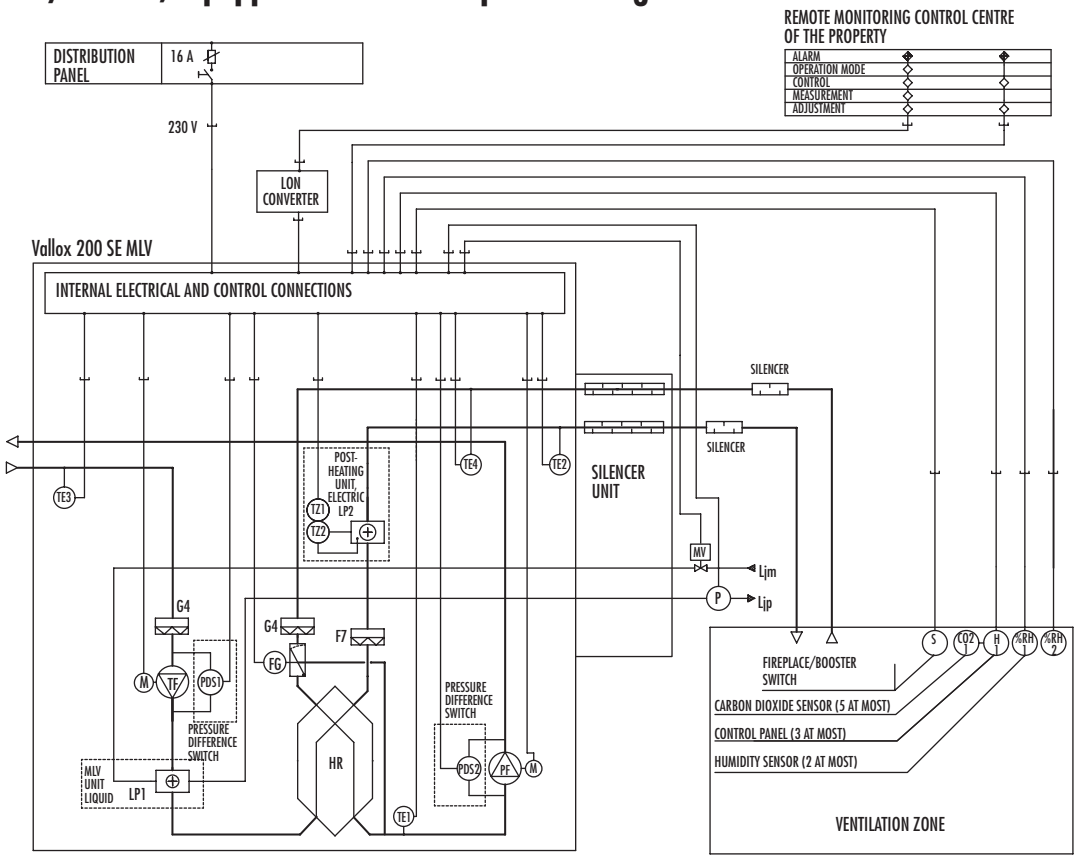
Parts list Vallox 200 SE, electric preheating unit

Code	Name	Technical data (factory settings in parentheses)	Standard/ Option
CO_2	Carbon dioxide sensor, 5 at most Carbon dioxide control	Adjustment range 500...2000 ppm (900) Adjustment range 1...15 min. (10)	Option
FG	Damper motor	Automatic HR bypass 24 V, 2 W, 5 Nm	Standard
H	Control panel, 3 at most	Setting, operation, display	1 included as standard
S	Booster/fireplace switch function	Either booster or fireplace switch operation (booster switch)	Standard
LON	LON converter	Remote monitoring control	Option
LP1	Preheating unit	Electric radiator 2.0 kW	Standard
LP2	Post-heating unit	Electric radiator 1.0 kW	Standard
LP2	Post-heating unit	Water radiator 3.0 kW 70/55 °C	Standard
HR	Heat recovery cell	Counter-current, η= 80%	Standard
PDS1	Pressure difference switch unit Pressure guard on the supply air side	Adjustment range 0...500 Pa (320)	Option
PDS2	Pressure difference switch unit Pressure guard on the extract air side	Adjustment range 0...500 Pa (320)	Option
PF	Extract air fan	qv = 220 dm³/s (100 Pa)	Standard
%RH	Humidity sensor, 2 at most Humidity control	Adjustment range 20...55% (50) Adjustment range 1...15 min. (10)	Option
SU	Filter	Supply air G4 + F7, extract air G4	Standard
TE1	Temperature sensor HR cell antifreeze, preheating control	Exhaust air temperature Adjustment range -6...+15°C (heat recovery) Adjustment range -6...+15 °C (preheating)	Standard
TE2	Temperature sensor	Supply air temperature	Standard
TE3	Temperature sensor	Outdoor air temperature	Standard
TE4	Temperature sensor	Extract air temperature	Standard
TF	Supply air fan	qv = 190 dm³/s (100 Pa)	Standard
TZ1	Overheat protection for the heating element	Automatic (+60 °C, self-resetting)	Included in LP1/LP2 (electric)
TZ2	Overheat protection for the heating element	Manually reset (+95 °C)	Included in LP1/LP2 (electric)
SV	Water radiator control valve		Included in LP2 (water)

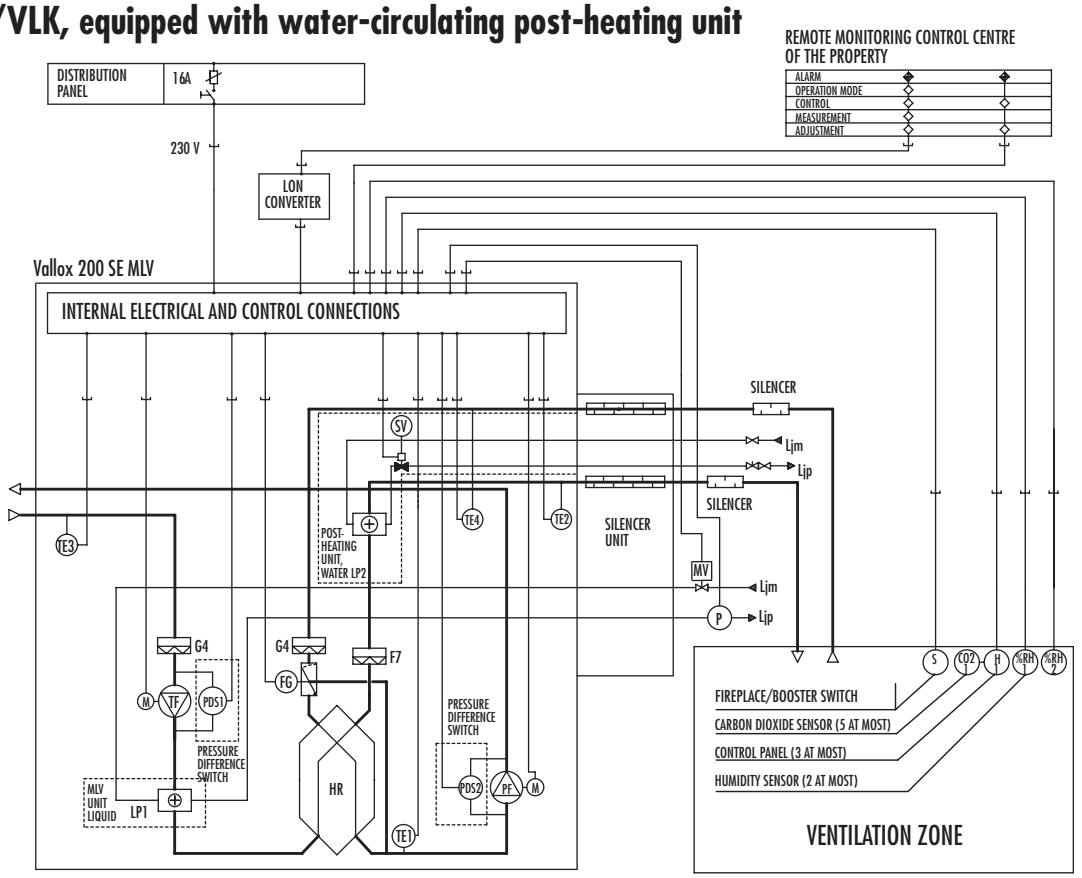
VALLOX 200 SE

CONTROL DIAGRAM, MLV preheating/cooling unit

Vallox 200 SE MLV/electric, equipped with electric post-heating unit



Vallox 200 SE MLV/VLK, equipped with water-circulating post-heating unit



VALLOX 200 SE

DESCRIPTION OF OPERATION / Vallox 200 MLV / electric, Vallox 200 MLV / VKL

Control of operation

Power supply to the unit can be controlled with a contactor in the distribution panel if needed, e.g. with a timer programme. After starting, the unit first operates at minimum power. After that power is adjusted based either on the measurement data from air quality sensors and/or on manual control at the control panel.

Fan speed adjustment

Manual control

Fan power of the ventilation unit is controlled in 8 steps at control panel **H**.

Week clock control

Fan speed of the ventilation unit is controlled in 8 steps using the week clock in control panel **H**. The week clock can be used to programme the desired fan power option for each hour in the day.

Carbon dioxide and humidity control

The fan power of the ventilation unit is controlled in multiple steps depending on loads and based on the measurement results of the air quality sensors (**CO_2** and **%RH** sensors) located in the ventilation zone. The aim is to keep carbon dioxide and/or humidity content below the threshold set at control panel **H**. One or more modes of control may be used simultaneously – the mode demanding boosting is the dominant one. Fan speed varies depending on load between the base and maximum fan speeds. The base and maximum fan speeds can be set at the desired level at the control panel.

Control through voltage signal

The fan capacity of the ventilation unit is controlled in 8 steps with a voltage signal of 0…10 V DC. However, fan power cannot be raised above the maximum fan speed set. Voltage signal is used to control base fan speed. Manual control and carbon dioxide and humidity adjustments can raise fan speed if needed but cannot decrease it.

FAN SPEED	VOLTAGE SIGNAL
0	0.20…1.25
1	1.75…2.25
2	2.75…3.25
3	3.75…4.25
4	4.75…5.25
5	5.75…6.25
6	6.75…7.25
7	7.75…8.25
8	8.75…10

Supply air temperature

Supply air temperature can be controlled with either constant temperature control or cascade control.

Supply air constant temperature control

The control unit directs the operation of post-heating unit **LP2** on the basis of the measurement data given by temperature sensor **TE2**, aiming at keeping supply air temperature at the temperature value set on control panel **H** (+10…+30 °C).

The cooling function of the **MLV** radiator starts when the post-heating radiator has been switched off and supply air temperature exceeds the setpoint for supply air.

Supply air cascade control

The control unit directs the operation of post-heating unit **LP2** on the basis of the measurement data given by extract air sensor **TE4**, aiming at keeping extract air temperature at the temperature value set on control panel **H** (+10…+30 °C).

Heat recovery bypass

Heat recovery is enabled whenever post-heating has been switched on. Heat recovery bypass is active whenever post-heating has been switched off and outdoor temperature is more than the set threshold value (to be set between 0...+25 °C).

However, heat recovery is always active when outdoor air temperature is below the set threshold value.

Heat recovery antifreeze

Controlling preheating in a liquid-circulating **MLV** radiator is different from that in an electric preheating radiator. The liquid radiator switches on based on the measurement data from outdoor air temperature sensor **TE3**. The control centre of the unit starts the pump and opens the solenoid valve when post-heating is on and outdoor air temperature goes below the setpoint for preheating. The setpoint must be lower than the temperature of the liquid coming from the ground collector. If the power of preheating unit **LP1** is not sufficient, the control centre keeps stopping supply air fan **TF** on the basis of the measurement data on temperature sensor **TE1**, thus preventing the **HR** cell from freezing. As soon as the risk passes, the fan restarts automatically. The threshold temperature (-6...+15 °C) and the difference area (1...10 °C) for antifreezing can be set at control panel **H**.

Water radiator freeze protection

The control centre of the unit stops fans **TF** and **PF** on the basis of the measurement data in outdoor temperature sensor **TE3** (outdoor air < 0 °C) and supply air temperature sensor **TE2** (supply air < 7 °C), thus reducing the risk of freezing in water heating unit **LP2**. A freezing alert appears in the display of the control panel. The fans restart automatically as soon as the risk of freezing passes (supply air > 10 °C).

Overheat protection for the heating element

Overheat protection thermostats **TZ1** and **TZ2** monitor the surface temperature of heating unit **LP2**. If surface temperature exceeds the threshold, overheat protection is triggered and power supply to the heating unit is stopped. Overheat protector **TZ1** is reset automatically and **TZ2** manually.

Alarms

Pressure difference switches **PDS1** and **PDS2** monitor the pressure difference on the supply and extract air sides. If the pressure difference rises too high because of dirty filters or clogged ducts, an alarm will be issued. This is indicated by a symbol (⛝) in the main display of the control panel. If the unit is not equipped with pressure difference switches, the symbol (🔧) appearing in the main display of the control panel reminds of the need of servicing the unit. The reminder interval can be set between 1 and 15 months. The factory setting is 4 months. This function is always active. The fault signal relay gives potential-free alarm indications on the following fault conditions.

- When the antifreeze function of the water-circulating radiator is on, the contacts of the the relay close and open at 10-second intervals.
- An alarm of high carbon dioxide content (> 5000 ppm) switches the relay at 1-second intervals.
- In other fault situations, such as sensor faults, the contacts of the relay close.

Booster or fireplace switch function

The booster or fireplace switch function of the ventilation unit is controlled either at control panel **H** and/or with a separate switch **S**, which can be connected to the connection box of the unit. The mode of operation of the switch is selected at control panel **H**.

The booster switch function raises fan speed to the set maximum fan speed for 45 minutes. The fireplace switch stops the extract air fan for 15 minutes and produces overpressure in the ventilation zone.

LON remote monitoring control can be implemented with a Vallox LON converter. See a separate brochure.

Parts list Vallox 200 SE, preheating: MLV unit

Code	Name	Technical data (factory settings in parentheses)	Standard/ Option
CO_2	Carbon dioxide sensor, 5 at most Carbon dioxide control	Adjustment range 500...2000 ppm (900) Adjustment interval 1...15 min. (10)	Option
FG	Damper motor	Automatic heat recovery bypass, 24 V, 2 W, 5 Nm	Standard
H	Control panel, 3 at most	Setting, operation, display	1 included as standard
S	Booster/fireplace switch function	Either booster or fireplace switch operation (booster switch)	Standard
LON	LON converter	Remote monitoring control	Option
LP1	MLV unit	Liquid radiator	Standard
LP2	Post-heating unit	Electric radiator 1.0 kW	Standard
LP2	Post-heating unit	Water radiator 3.0 kW 70/55 °C	Standard
RH	Heat recovery cell	Counter-current, η= 80%	Standard
PDS1	Pressure difference switch unit Pressure guard on the supply air side	Adjustment range 0...500 Pa (320)	Option
PDS2	Pressure difference switch unit Pressure guard on the extract air side	Adjustment range 0...500 Pa (320)	Option
PF	Extract air fan	qv = 220 dm^3/s (100 Pa)	Standard
%RH	Humidity sensor, 2 at most Humidity control	Adjustment range 20...55% (50) Adjustment interval 1...15 min. (10)	Option
SU	Filter	Supply air G4 + F7, extract air G4	Standard
TE1	Temperature sensor HR cell antifreezing, MLV unit control	Exhaust air temperature Adjustment range -6...+15 °C (heat recovery) Adjustment range -6...+15 °C (MLV unit)	Standard
TE2	Temperature sensor	Supply air temperature	Standard
TE3	Temperature sensor	Outdoor air temperature	Standard
TE4	Temperature sensor	Extract air temperature	Standard
TF	Supply air fan	qv = 190 dm^3/s (100 Pa)	Standard
TZ1	Overheat protection for the heating element	Automatic (+60 °C), self-resetting	Included in LP2 (electric)
TZ2	Overheat protection for the heating element	Manually reset (+95 °C)	Included in LP2 (electric)
SV	Water radiator control valve		Included in LP2 (water)
MV	Solenoid valve	(Not included in the delivery)	-
P	Circulation pump	(Not included in the delivery)	-

Location of the ventilation unit

- The unit is mounted indoors, in a place where temperature does not fall below +10 C.
- The unit is to be mounted in a place where the sound pressure level coming through the envelope is not acoustically disturbing (storerooms, corridors, technical rooms, and in some cases rooms where people spend time).
- The unit is equipped with an adjustable base. If the unit is mounted on the wall, attention needs to be paid to the weight of the unit (146 kg) and to vibration isolation.
- The unit is splash protected (IP 34) and can thus also be mounted in a damp room.

Electrical connections

- The unit is permanently connected to the mains supply. The electrical connection box of the unit is located inside the unit adjacent to the connection outlet of the supply air ductwork.
- The cables to be connected to the unit are wired through the lead-in seals located next to the connection outlet of the supply air duct.

Installation

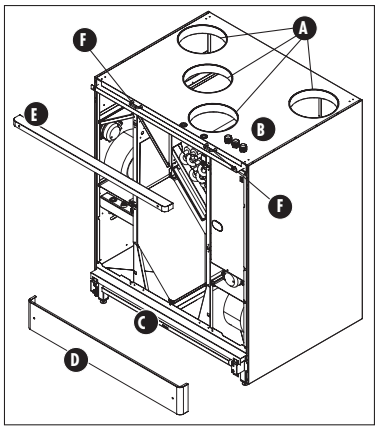
- Remove the upper door of the unit (4 door screws).
- Remove the cover of the electrical connection box (2 screws 3.5 x 9.5).
- Mount and connect the needed cables to the screwed terminal block as specified in the connection instructions.
- The external connection diagram is shown in these instructions and inside the cover of the electrical connection box.
- The internal connection diagram is shown in these instructions and inside the cover of the electrical connection box.

Channel outlets of the unit

- The unit is equipped with four ø200 external connection outlets. Necessary connecting pieces (e.g. inner or bent connectors) can be attached to external connection outlets. **NOTE! LENGTH OF THE CONNECTING HEAD OF THE CONNECTING PIECE NO MORE THAN 35 MM.** Fix the ducts steadily and tightly to the relevant outlets. (NOTE! Unit models L/R). Implement duct insulation if needed as defined in the ventilation plan.

Air flow measurement outlets

- The fixed air flow measurement outlets (F) in the unit are located behind the cover strip (E). The cover strip has been fixed with two slothead screws.
- Via the measurement outlets, the total pressure of the supply and extract air ductwork can be measured with a differential pressure instrument. Pressure readings and the unit's air volume tables (p. 3-6) show volume air flows at various adjustment positions.
- The red measurement hose is on the pressure side and the black hose on the suction side of the fan.



A Duct outlets
B Lead-in seals
C Evaporation tank
D Socle
E Cover strip
F Measurement outlets

INSTALLATION INSTRUCTIONS

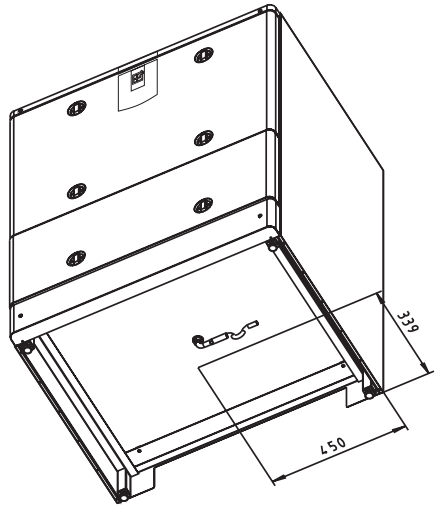
Pipe connections

- If the unit is equipped with a water-circulating post-heating radiator, it is connected to the warm water circuit with 15/13 copper tubes.

NOTE! WATER-CIRCULATING HEATING RADIATOR INCLUDES A CONTROL VALVE.

Pressure difference switches

If the unit is equipped with pressure difference switches monitoring the pressure difference in the supply and extract air ducts, they have to be set at their correct values after the installation and adjustment of the ductwork and the related terminal units (valves, outdoor grilles etc.). For more detailed information on adjustments, see the instructions for using the unit.



Location of condensing water connection

Condensing water connections

- Water condensing from extract air going through the unit can be removed from the bottom tank in two ways.
- When the humidity content of extract air is high, as for example in washing rooms, the condensing water is led from the screw-type coupling in the bottom tank to the floor drain via the condensing water outlet (water seal) delivered with the unit. Any pipe connected to the condensing water outlet must not rise.
- When the humidity content of extract air is low, as in offices, condensing water can be led from the screw-type coupling in the bottom tank to an evaporation tank, which is provided as an option. It is pushed below the bottom tank to the guide posts in the base.

NOTE! When an evaporation tank is used, it has to be inspected often enough.

- The screw-type coupling is located almost in the middle of the unit. This is why the unit has to be mounted level with the horizontal.

Vallox 200 SE MLV Connection of MLV preheating/ cooling radiator to the ground collector of ground-source heat pump

P Circulation pump, not included in the delivery. Because of the risk of condensing the pump should be suitable for pumping liquid that is colder than the ambient temperature (such as Grundfos Magna 1 25-80).

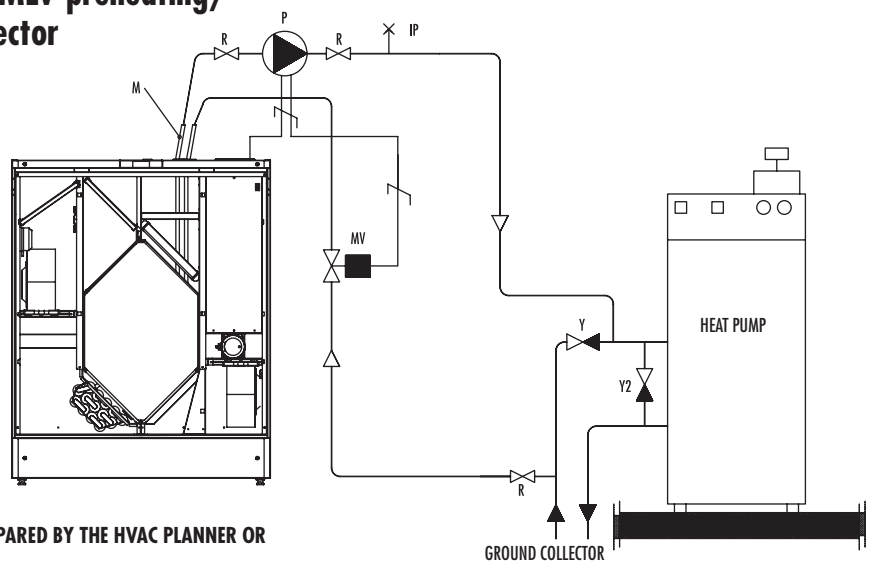
MV Solenoid valve, not included in the delivery. The valve has to be suitable for the liquid in the ground collector (for example ELV05006, Stig Wahlström).

Y Non-return valve, not included in the delivery.

R Stop valve, not included in the delivery

IP Air bleeder, not included in the delivery. Air bleeder is placed after the pump and at the highest point in the network.

Y2 Non-return valve, not included in the delivery. The pressure loss of the valve has to be lower than that of the heat pump.

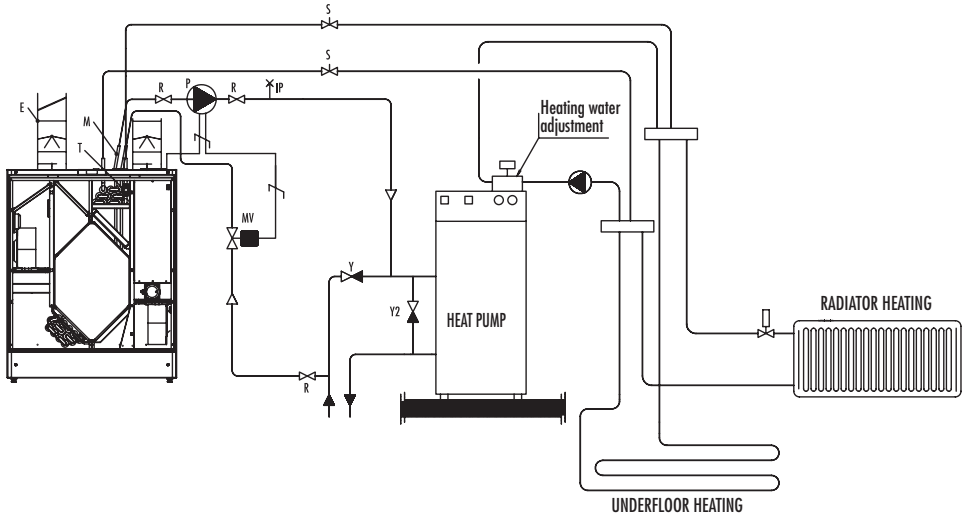


ALWAYS PRIMARILY FOLLOW THE CONNECTION PLAN PREPARED BY THE HVAC PLANNER OR THE HEAT PUMP MANUFACTURER.

See the adjoining example of connecting an MLV unit to the ground collector. The supply pipe of the MLV circuit is connected to the pipe returning from the collector. The liquid returning from the MLV circuit is taken back to the return pipe of the ground collector. If the internal pressure losses of the heat pump in the ground collector are known to be high, it is recommended to bypass the heat pump. The liquid then circulates when the heat pump is stopped. In this case the pressure loss of the bypass non-return valve has to be lower than that of the heat pump. When the conditions for starting the heating or cooling function have been met, the control function of the unit opens the solenoid valve (MV) and starts the pump (P). The components of the MLV circuit mentioned in the diagram are not included in the delivery. Observe the freeze resistance of the liquid used in the ground collector. The connection pipes of the MLV radiator have to insulated against condensation. If there is an open expansion tank in the heat pump, it must be at the highest point in the network. Note! Because of the risk of humidity damage, supply air temperature in a duct with no condensation insulation should not go below +16...20 °C.

Vallox 200 SE Connection of VKL post-heating radiator Sample connection: direct connection to underfloor heating or radiator network

It is sometimes convenient to connect the unit directly into the heating network. The connection involves a risk of freezing for the radiator although efforts have been made in the unit to minimise the risk of freezing of the radiator. The unit stops if supply air temperature goes below the set temperature and automatically starts as soon as temperature rises above the value set. The unit also issues an alarm of freezing risk at the controller. It is recommended to have e.g. a spring-actuated check valve (E) in the outdoor air duct (and possibly also in the exhaust air duct). This valve closes the duct from the unit to outdoor air and prevents cold air from flowing into the unit while it is stopped. he base volume of water flow into the radiator of the unit can be adjusted with valves (S), which can also act as stop valves. No water must be led into the radiator of the unit until the system has been adjusted for operation and heating is on in the heating network, or other measures have been taken to ensure that the radiator will not freeze. Water circulation in the heating network connected to the unit and the circulation pump must not be stopped during the heating season.



P Circulation pump, not included in the delivery. Because of the risk of condenstion, the pump should be suitable for pumping a liquid that is cooler than the surroundings (for example Grundfos Magna 1 25-80).

MV Solenoid valve, not included in the delivery. The valve has to be suitable for the liquid in the ground collector (for example ELV05006, Stig Wahlström).

Y Non-return valve, not included in the delivery.

R Stop valve, not included in the delivery.

S Control valve, not included in the delivery.

IP Air bleeder, not included in the delivery. Air bleeder is placed after the pump, at the highest point in the network.

T 2-way control valve, is included in the unit delivery.

E Check valve, not included in the delivery.

Y2 Non-return valve, not included in the delivery. The pressure loss of the valve has to be lower than that of the heat pump.

ALWAYS PRIMARILY FOLLOW THE CONNECTION PLAN PREPARED BY THE HVAC PLANNER OR THE HEAT PUMP MANUFACTURER.

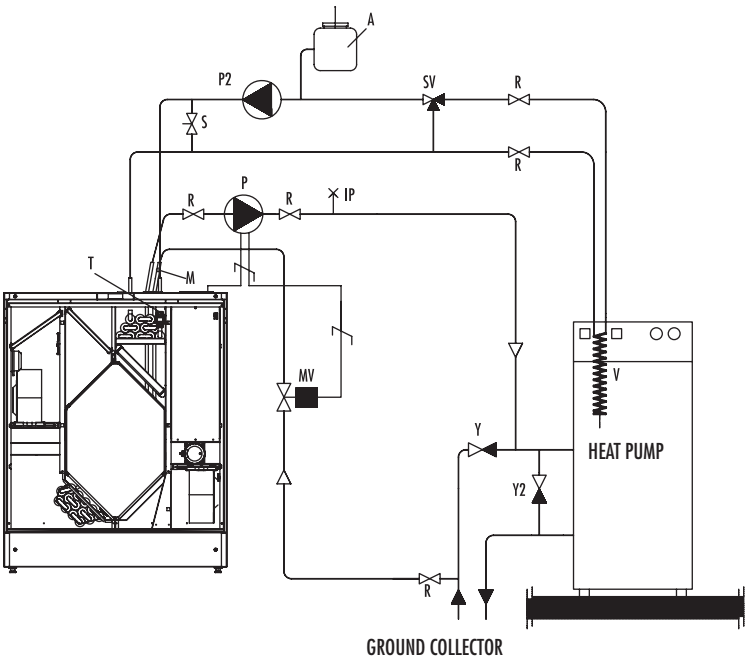
See the adjoining example of connecting an MLV unit to the ground collector. The supply pipe of the MLV circuit is connected to the pipe returning from the ground collector. The liquid returning from the MLV circuit is taken back to the return pipe of the ground collector. If the internal pressure losses of the heat pump in the ground collector are known to be high, it is recommended to bypass the heat pump. The liquid then circulates when the heat pump is stopped. In this case the pressure loss of the bypass non-return valve has to be lower than that of the heat pump. When the conditions for starting the heating or cooling function have been met, the control function of the unit opens the solenoid valve (MV) and starts the pump (P). The components of the MLV circuit mentioned in the diagram are not included in the delivery. Observe the freeze resistance of the liquid used in the ground collector. The connection pipes of the MLV radiator have to insulated against condensation. If there is an open expansion tank in the heat pump, it must be at the highest point in the network. Note! Because of the risk of humidity damage, supply air temperature in a duct with no condensation insulation should not go below +16...20 °C.

RADIATOR CONNECTIONS

Vallox 200 SE CONNECTION OF VKL POST-HEATING RADIATOR

Sample connection: separate heat exchanger for ventilation unit (non-freezing connection).

You need no other defrost protection if you choose a non-freezing heat transfer solution. In the sample connection the exchanger (V) is installed in the heat source. Supply air temperature is mainly adjusted according to the temperature of supply water, adjusted with a three-way valve (SV). Air temperature can also be adjusted and limited with a valve (T) included in the unit delivery. The valve (T) requires bypass (S). Open expansion tank (A) has a capacity of circa 2.5 litres and is mounted on the suction side of the pump. Stop valves (R) are also installed in the pipe system. Pump (P2) is a standard heat pipe pump (pump power 0.1 dm3/s and pressure 5...40 kPa).

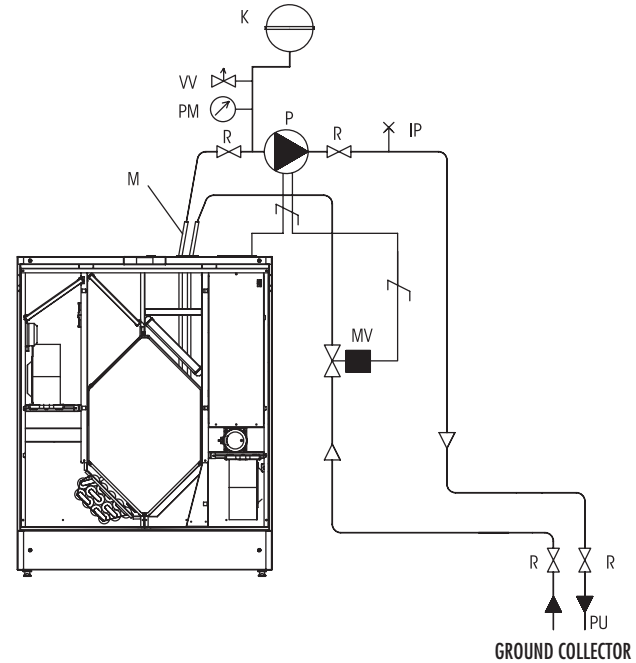


P Circulation pump, not included in the delivery. Because of the risk of condensation, the pump should be suitable for pumping a liquid that is cooler than the surroundings (for example Grundfos Magna 1 25-80).
P2 Circulation pump, not included in the delivery.
MV Solenoid valve, not included in the delivery. The valve has to be suitable for the liquid in the ground collector (for example ELV05006, Stig Wahlström).
Y Non-return valve, not included in the delivery.
R Stop valve, not included in the delivery
IP Air bleeder, not included in the delivery. Air bleeder is placed after the pump, at the highest point in the network.
T 2-way control valve, included in the unit delivery.
A Open expansion tank, not included in the delivery.
SV Three-way valve, not include in the delivery.
S Bypass valve, not included in the delivery.
Y2 Non-return valve, not included in the delivery. The pressure loss of the valve has to be lower than that of the heat pump.

MLV preheating/cooling radiator connection

ALWAYS PRIMARILY FOLLOW THE CONNECTION PLAN PREPARED BY THE HVAC PLANNER OR THE HEAT PUMP MANUFACTURER.

See the adjoining example of connecting an MLV unit to the ground collector. The supply pipe of the MLV circuit is connected to the pipe returning from the ground collector. The liquid returning from the MLV circuit is taken back to the return pipe of the ground collector. If the internal pressure losses of the heat pump in the ground collector are known to be high, it is recommended to bypass the heat pump. The liquid then circulates when the heat pump is stopped. In this case the pressure loss of the bypass non-return valve has to be lower than that of the heat pump. When the conditions for starting the heating or cooling function have been met, the control function of the unit opens the solenoid valve (MV) and starts the pump (P). The components of the MLV circuit mentioned in the diagram are not included in the delivery. Observe the freeze resistance of the liquid used in the ground collector. The connection pipes of the MLV radiator have to insulated against condensation. If there is an open expansion tank in the heat pump, it must be at the highest point in the network. Note! Because of the risk of humidity damage, supply air temperature in a duct with no condensation insulation should not go below +16...20 °C.



Vallox 200 Se MLV preheating/cooling radiator connection

P Circulation pump, not included in the delivery. Because of the risk of condenstion, the pump should be suitable for pumping a liquid that is cooler than the surroundings (for example Grundfos UPS 25-80 180).
MV Solenoid valve, not included in the delivery. The valve has to be suitable for the liquid in the ground collector (for example ELV05006, Stig Wahlström).
R Stop valve, not included in the delivery.
IP Air bleeder, not included in the delivery. Air bleeder is placed after the pump, at the highest point in the network.
K Expansion tank, not included in the delivery.
VV Relief valve, not included in the delivery.
PM Pressure gauge, not included in the delivery.
PU Pipe of ground collector (for example 32/10), not included in the delivery.

MLV preheating/cooling radiator connection

The radiator is connected to the pipe coming and returing from the ground collector. When the conditions for starting the heating or cooling function have been met, the control function of the unit opens the solenoid valve (MV) and starts the pump (P). The radiator has Ø12 mm plastic pipes (M) coated with an oxygen diffusion barrier. Observe the freeze resistance of the liquid used in the ground collector. The connection pipes of the MLV radiator have to insulated against condensation. Note! Because of the risk of humidity damage, supply air temperature in a duct with no condensation insulation should not go below +16...20 °C.

VALLOX 200 SE

SILENCER UNIT INSTALLATION INSTRUCTIONS

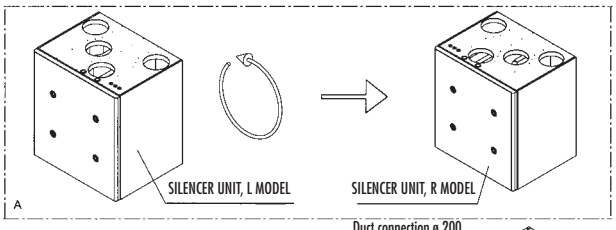
General

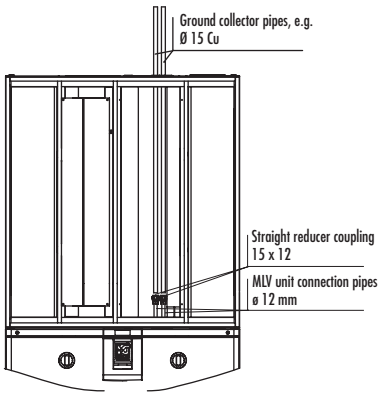
- The silencer unit is meant as a duct silencer mounted on top of the Vallox 200 SE unit. The unit has an opening cover, thanks to which it can be cleaned without detaching the ducts.
- The unit also incorporates detachable lamellar silencer plates in supply and extract air ducts.
- 4 x 200-mm external joints are used as duct joints, allowing the leading of ductwork directly from the unit with curved sections, for instance.
- The top and bottom of the unit have lead-in sealings for the lead-in pipes of cables and also for the supply and return water pipes of a water-circulating heater if such a heater is used.
- The weight of the silencer unit is 97 kg with door, and 60 kg without door and silencers.

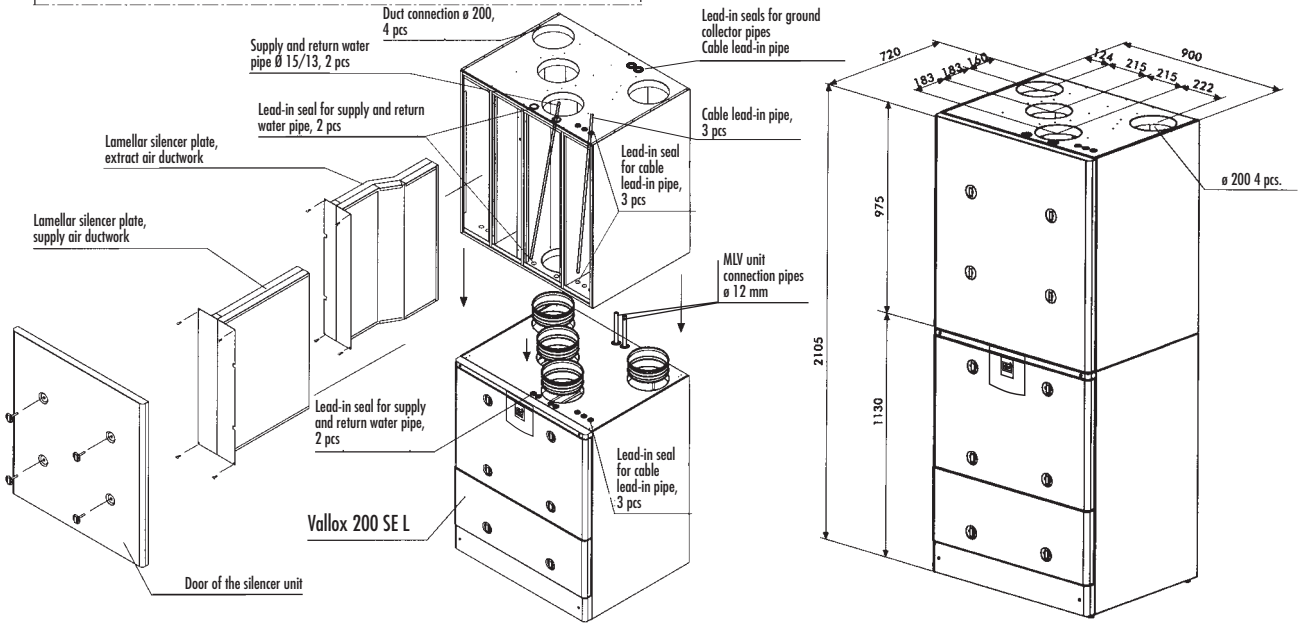
NOTE! BEFORE INSTALLATION CHECK THE MODEL OF VALLOX 200 SE (L OR R). TURN THE SILENCER UNIT TO THE CORRECT POSITION.

Installation

- Detach the door of the silencer unit. If you want to make the unit lighter so that it will be easier to lift it in place, you can also detach the lamellar silencer plates of the supply and extract air ducts. (See the adjoining figure.)
- If Vallox 200 SE is equipped with a water-circulating heater and/or MLV unit, you should always detach the lamellar silencer plate of the supply air duct. (See the adjoining figure.)
- Mount the internal joints (4 pcs, 200) included in the delivery to the duct outlets, which are situated either at the top of the Vallox 200 SE unit or at the bottom of the silencer unit.
- If Vallox 200 SE is equipped with an MLV preheating/cooling unit, pierce the grommets situated at the bottom of the silencer unit, through which the connection pipes of the MLV unit go. When installing the silencer unit, make sure that these pipes go through the grommets. The ferrules and compression couplings delivered with the unit can be used to connect the pipes of the MLV unit to the pipes in the ground collector, led through the lead-in seals at the top of the silencer unit to the point of connection. (See the adjoining figure.)
- Lift the unit on top of Vallox 200 SE. (See the adjoining figure.)
- Mount the lead-in pipes (included in the delivery) for cables in place by pushing them first through the lead-in seals located at the top of the silencer unit and then through the lead-in seals located at the bottom of the silencer unit and at the top of Vallox 200 SE. (See the adjoining figure.)
- Thread necessary cables through lead-in pipes to the connection box located within Vallox 200 SE.
- If you use a water-circulating heater, mount the supply and return water pipes for it (not included in the delivery) through the lead-in seals located at the top and bottom of the silencer unit and at the top of Vallox 200 SE, and connect them to the heating unit. (See the adjoining figure.)
- Mount the lamellar silencer plates in place.
- Carefully fix the door of the silencer unit in place.
- Fix the ducts steadily and tightly to the relevant outlets. Implement duct insulation if needed as defined in the ventilation plan.







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