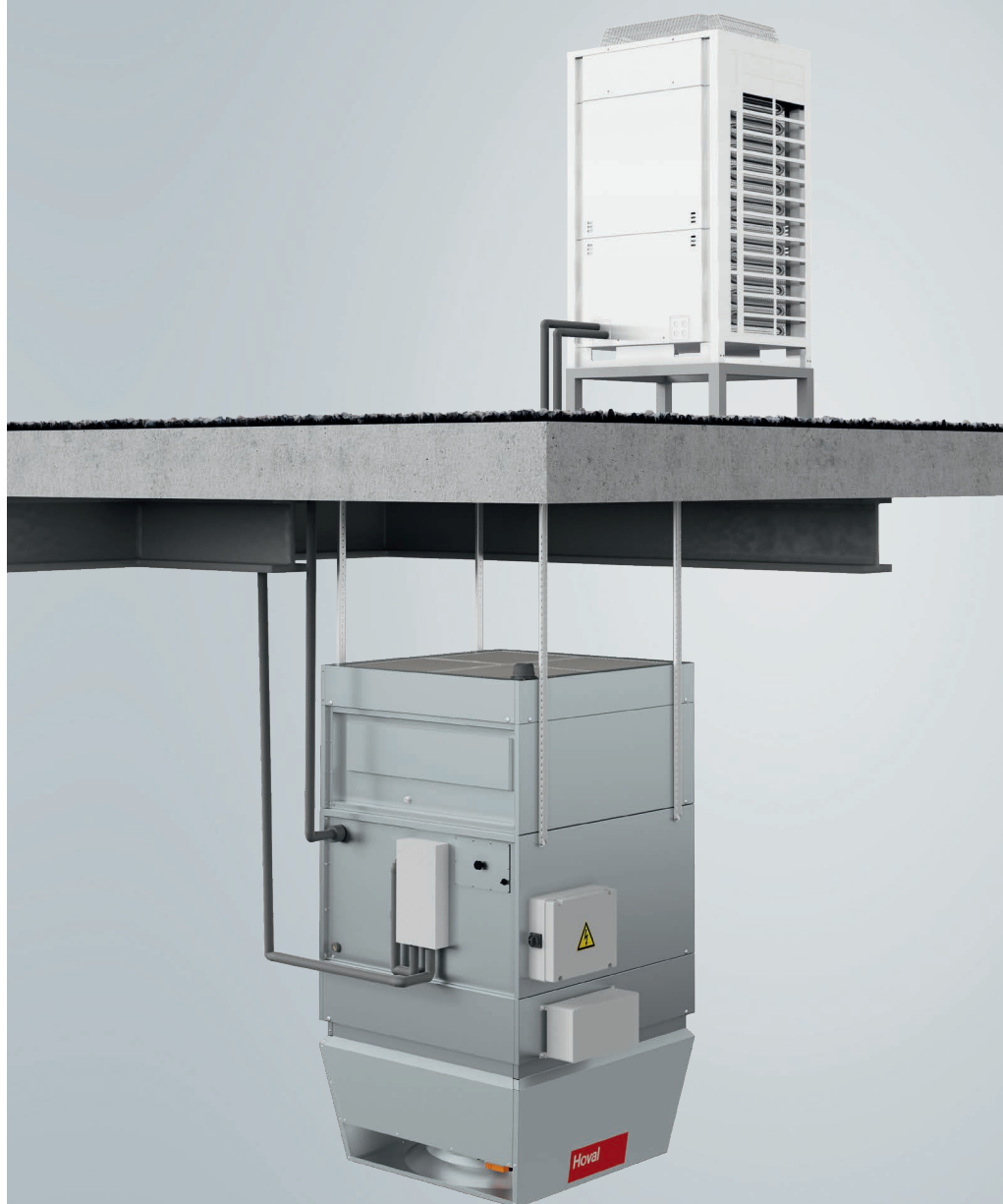


## Hoval TopVent® TP

### Operating instructions

Original operating  
manual

4 218 024-en-04



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# 1 Use

## 1.1 Intended use

TopVent® TP units are recirculation units intended for heating and cooling spaces up to 25 m in height with decentralised heat pump. They have the following functions:

- Heating and cooling with heat pump
- Supplementary heating with electric heating coil (option)
- Supplementary heating with hot water (with connection to a hot water supply, option)
- Recirculation operation
- Air distribution and destratification with adjustable Air-Injector
- Air filtration (option)

TopVent® TP units comply with all the requirements of the Ecodesign Directive 2009/125/EC relating to environmentally friendly design of ventilation systems. They are systems of the 'fan coil unit' type.

Intended use also includes compliance with the operating instructions. Any usage over and above this use is considered to be not as intended. The manufacturer can accept no liability for damage resulting from improper use.

## 1.2 User group

The units are only allowed to be installed, operated and maintained by authorised and instructed personnel who are well acquainted with the units and are informed about possible dangers.

The operating instructions are for operating engineers as well as specialists in building, heating and ventilation technology.

## 2 Safety

### 2.1 Symbols

**Caution**

This symbol warns against risk of injury. Please heed all instructions designated by this symbol to prevent injuries and/or death.

**Attention**

This symbol warns against property damage. Please heed the respective instructions to prevent risk of damage to the unit and its functions.

**Notice**

This symbol denotes information about the economic use of the equipment or special tips.

### 2.2 Operational safety

The unit is built to conform to the state-of-the-art and is operationally safe. Despite every precaution being taken, potential and not immediately obvious risks always remain, for example:

- Dangers when working with the electrical system
- Parts (e.g. tools) can fall down below when working on the ventilation unit.
- Dangers from working on the roof
- Damage to devices or components due to lightning
- Malfunctions as a result of defective parts
- Hazards from hot components when working on the electric heating coil
- Hazards from hot water when working on the hot water supply

Therefore:

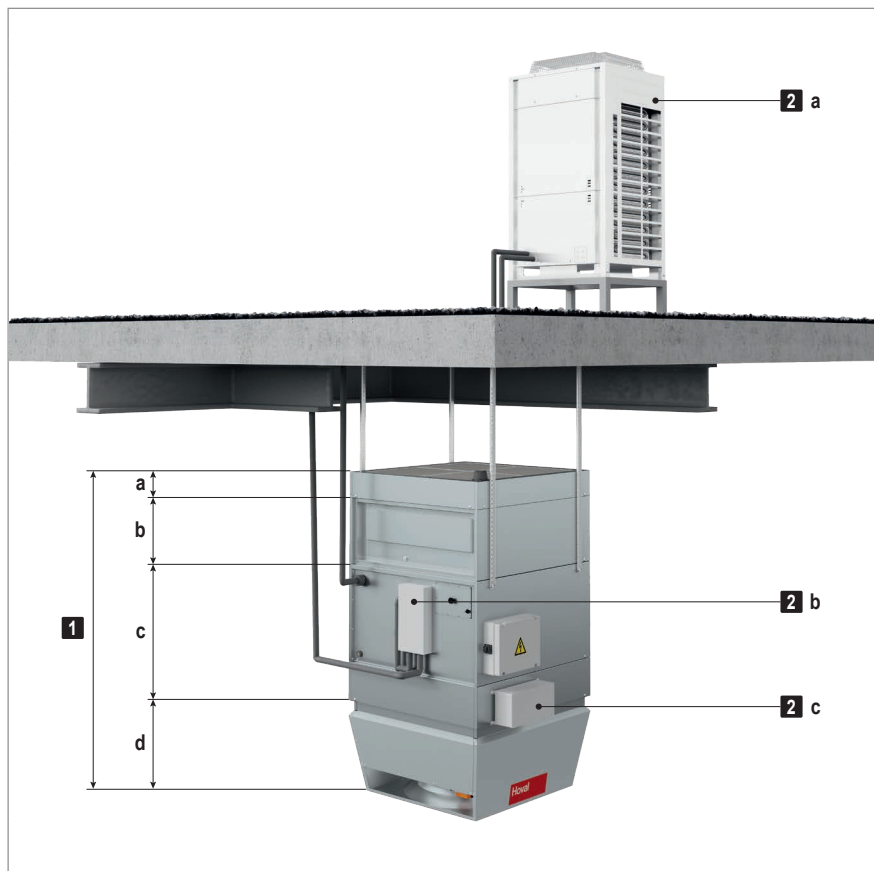
- Please read the operating instructions before unpacking, installing, commissioning and before maintaining the equipment.
- Store the operating instructions so that they are easily accessible.
- Observe any attached information and warning signs.
- Immediately replace damaged or removed informational and warning signs.
- Follow the local safety and accident prevention regulations at all times.
- When working in the unit, take precautions against unprotected, sharp metal edges.
- The unit may only be installed, operated and serviced by authorised, trained and instructed skilled personnel:
  - Specialists as defined by these operating instructions are those persons who, based on their training, knowledge and experience as well as their knowledge of the relevant regulations and guidelines, can carry out the work assigned to them and recognise potential hazards.
- Unauthorised reconfiguration or modification of the unit is not permitted.

## 3 Construction and operation

### 3.1 Construction

The TopVent® TP unit consists of the following components:

- Recirculation unit
- Heat pump system



- |          |                               |
|----------|-------------------------------|
| <b>1</b> | Recirculation unit            |
| <b>a</b> | Flat filter box (option)      |
| <b>b</b> | Supplementary heater (option) |
| <b>c</b> | Heating/cooling section       |
| <b>d</b> | Air-Injector                  |
| <b>2</b> | Heat pump system              |
| <b>a</b> | Reversible condensing unit    |
| <b>b</b> | Expansion valve               |
| <b>c</b> | Communication module          |

Fig. 1: TopVent® TP components

### 3.2 Construction variants

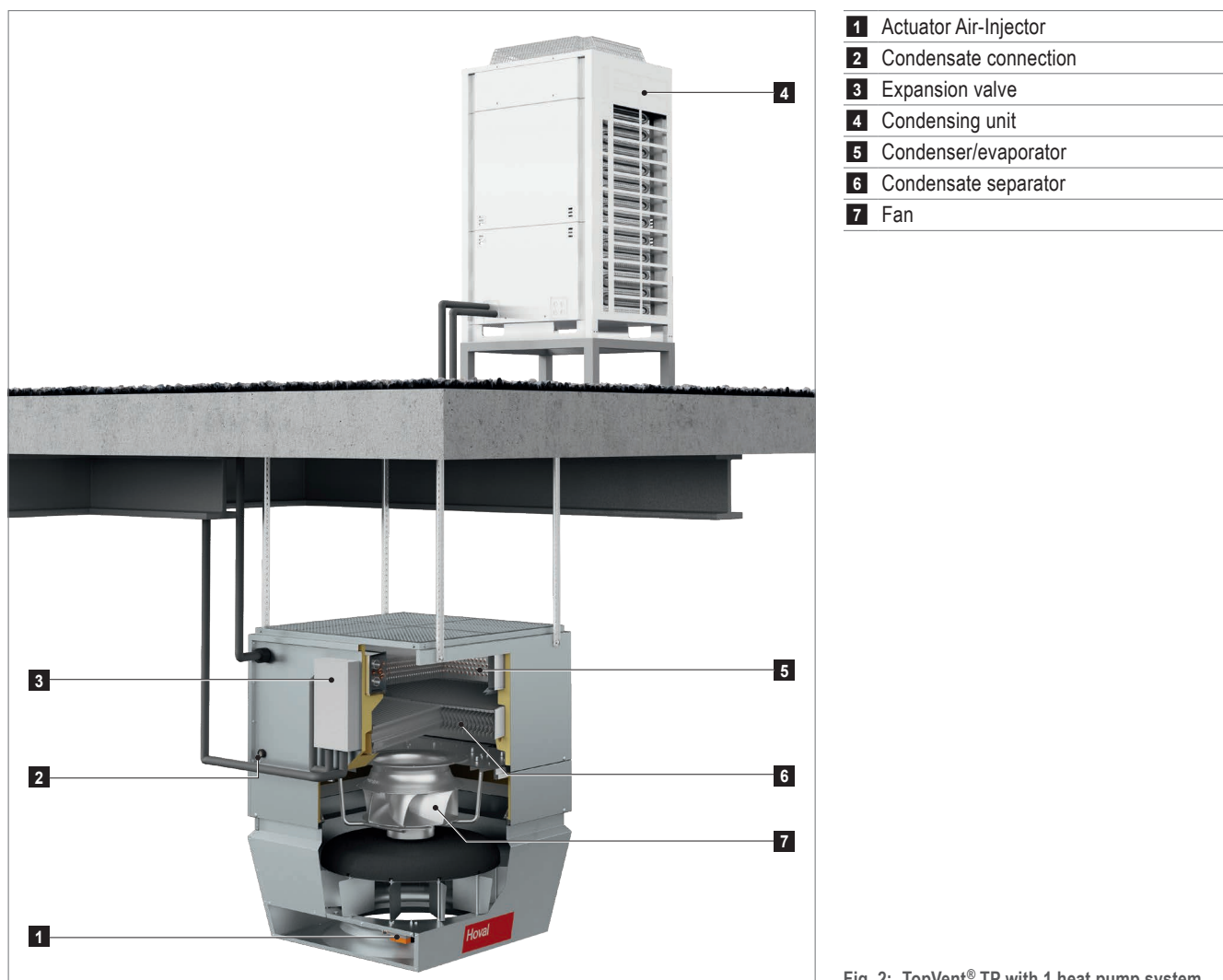
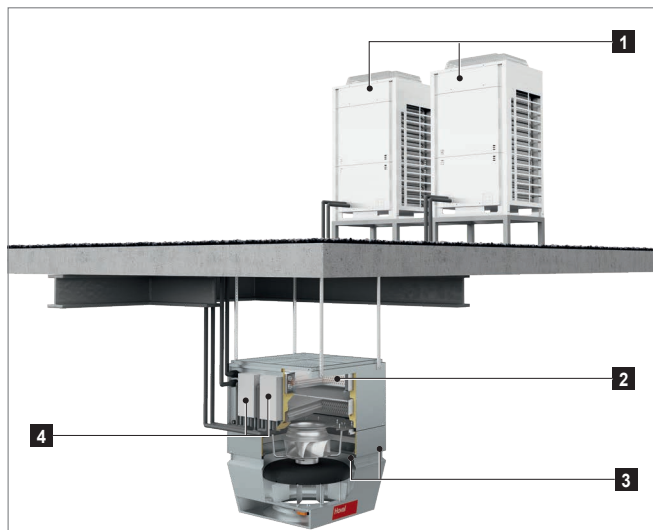
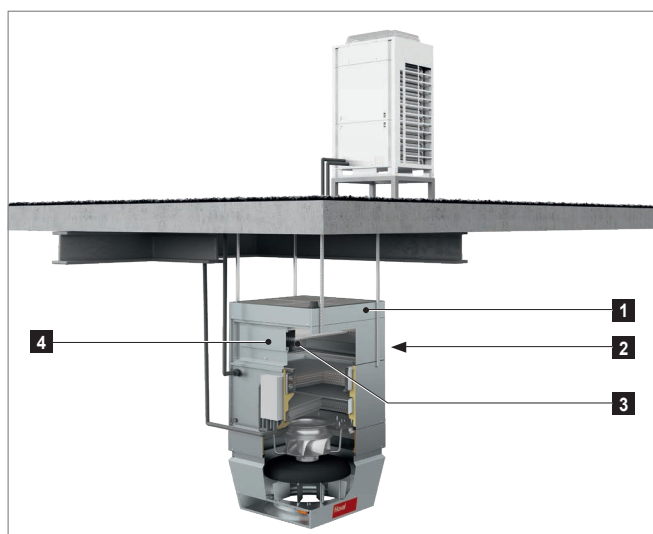


Fig. 2: TopVent® TP with 1 heat pump system



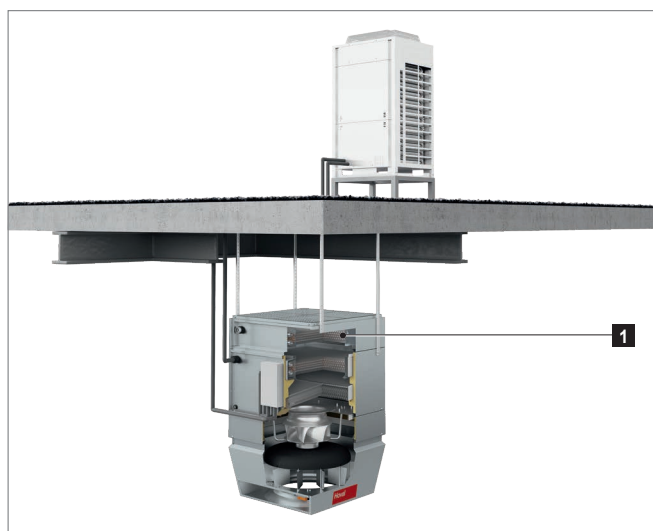
- 1 2 condensing units
- 2 Condenser/evaporator with 2 circuits
- 3 2 communication modules
- 4 2 expansion valves

Fig. 3: TopVent® TP with 2 heat pump systems



- 1 Flat filter box
- 2 Access panel, electric heating coil connection
- 3 Electric heating coil
- 4 Access panel, electric heating coil

Fig. 4: TopVent® TP with supplementary heater (electric heating coil)

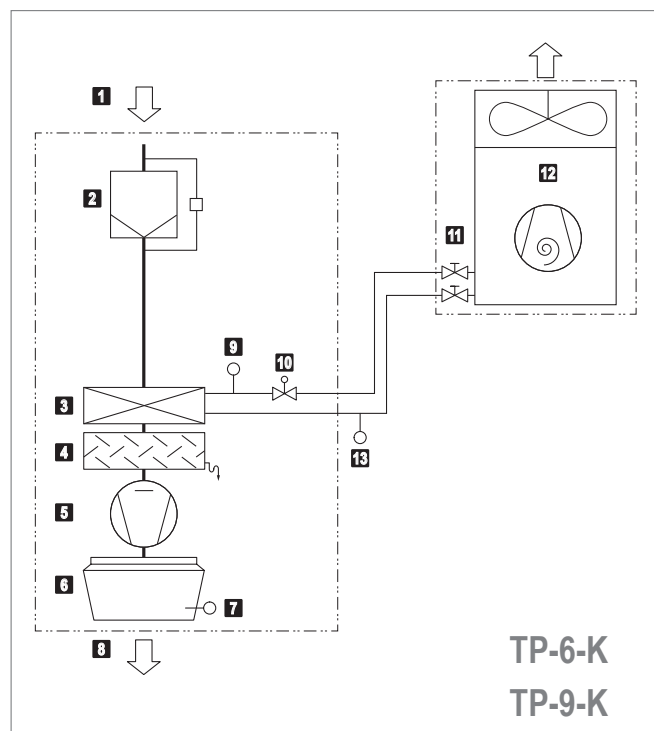


- 1 Heating coil (hot water)

Fig. 5: TopVent® TP with supplementary heater (hot water)

### 3.3 Function diagrams

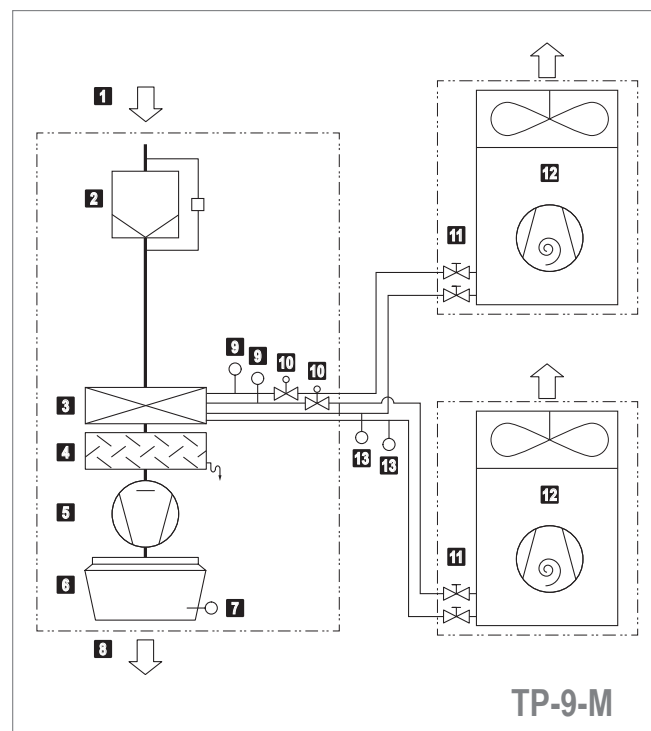
TopVent® TP with 1 heat pump system



- |    |   |
|----|---|
| 1  | Extract air   |
| 2  | Air filter with differential pressure switch (optional) |
| 3  | Heating/cooling coil                                    |
| 4  | Condensate separator                                    |
| 5  | Fan   |
| 6  | Air-Injector with actuator                              |
| 7  | Supply air temperature sensor                           |
| 8  | Supply air  |
| 9  | Liquid temperature sensor                               |
| 10 | Expansion valve   |
| 11 | Shut-off valves   |
| 12 | Condensing unit   |
| 13 | Gas temperature sensor (supplied loose)                 |

Table 1: TopVent® TP-6-K, TP-9-K function diagram

TopVent® TP with 2 heat pump systems

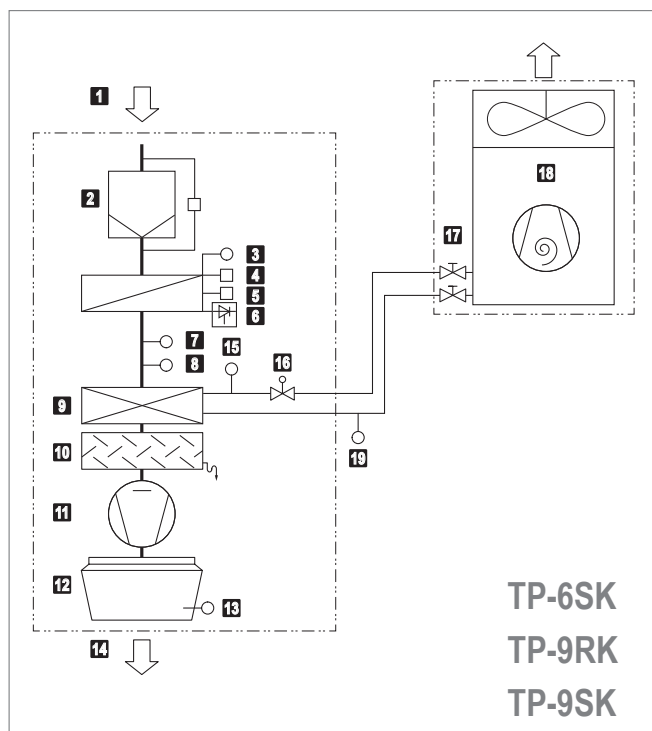


- |    |   |
|----|---|
| 1  | Extract air   |
| 2  | Air filter with differential pressure switch (optional) |
| 3  | Heating/cooling coil                                    |
| 4  | Condensate separator                                    |
| 5  | Fan   |
| 6  | Air-Injector with actuator                              |
| 7  | Supply air temperature sensor                           |
| 8  | Supply air  |
| 9  | Liquid temperature sensor                               |
| 10 | Expansion valve   |
| 11 | Shut-off valves   |
| 12 | Condensing unit   |
| 13 | Gas temperature sensor (supplied loose)                 |

Table 2: TopVent® TP-9-M function diagram



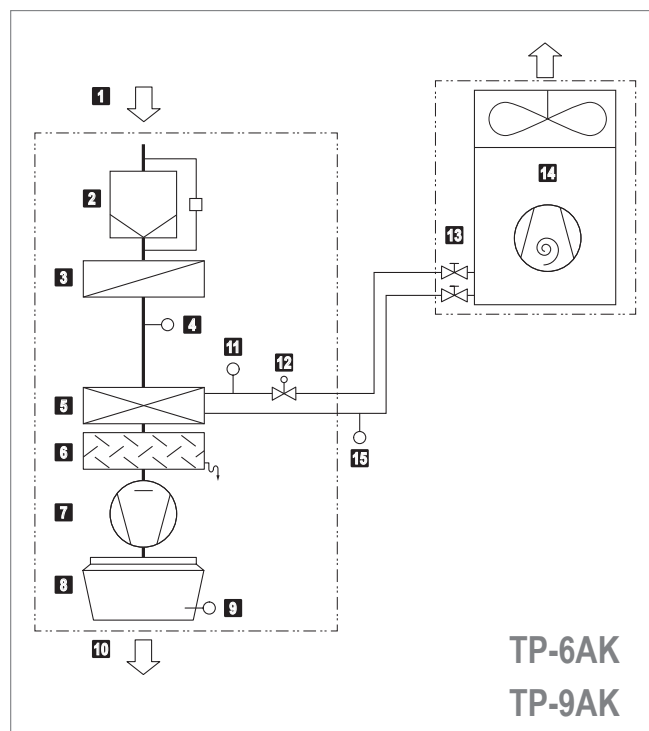
TopVent® TP with supplementary heater (electric heating coil)



- |    |   |
|----|---|
| 1  | Extract air   |
| 2  | Air filter with differential pressure switch (required) |
| 3  | Run-on thermostat                                       |
| 4  | Temperature monitoring                                  |
| 5  | Safety temperature limiter                              |
| 6  | Thyristor controller                                    |
| 7  | Temperature sensor air outlet supplementary heater      |
| 8  | Air flow monitoring                                     |
| 9  | Heating/cooling coil                                    |
| 10 | Condensate separator                                    |
| 11 | Fan   |
| 12 | Air-Injector with actuator                              |
| 13 | Supply air temperature sensor                           |
| 14 | Supply air  |
| 15 | Liquid temperature sensor                               |
| 16 | Expansion valve   |
| 17 | Shut-off valves   |
| 18 | Condensing unit   |
| 19 | Gas temperature sensor (supplied loose)                 |

Table 3: TopVent® TP-6SK, TP-9RK, TP-9SK function diagram

TopVent® TP with supplementary heater (hot water)



- |    |   |
|----|---|
| 1  | Extract air   |
| 2  | Air filter with differential pressure switch (optional) |
| 3  | Heating coil  |
| 4  | Temperature sensor air outlet supplementary heater      |
| 5  | Heating/cooling coil                                    |
| 6  | Condensate separator                                    |
| 7  | Fan   |
| 8  | Air-Injector with actuator                              |
| 9  | Supply air temperature sensor                           |
| 10 | Supply air  |
| 11 | Liquid temperature sensor                               |
| 12 | Expansion valve   |
| 13 | Shut-off valves   |
| 14 | Condensing unit   |
| 15 | Gas temperature sensor (supplied loose)                 |

Table 4: TopVent® TP-6AK, TP-9AK function diagram



**Caution**

Risk of fire due to dust in the air. TopVent® TP units with an electric heating coil must always be fitted with a filter.

### 3.4 Operating modes

The TopVent® TP has the following operating modes:

- Recirculation
- Recirculation speed 1
- Standby

The TopTronic® C control system regulates these operating modes automatically for each control zone in accordance with the specifications in the calendar. The following points also apply:

- The operating mode of a control zone can be switched over manually.
- Each TopVent® unit can operate individually in a local operating mode:  
Off, Recirculation, Recirculation speed 1, Forced heating.

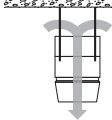
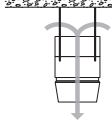
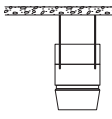
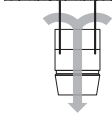
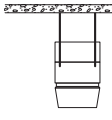
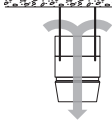
Code	Operating mode		Description
REC	<b>Recirculation</b> On/Off operation: during heat or cool demand, the unit draws in room air, heats or cools it and blows it back into the room. The room temperature set value day is active.		Fan ..... speed 1/2 <sup>1)</sup> Heating/cooling ..... on <sup>1)</sup>  <sup>1)</sup> Depending on heat or cool demand
DES	■ Destratification: To avoid heat build-up under the ceiling, it may be appropriate to switch on the fan when there is no heat or cool demand (either in permanent operation or in on/off operation depending on the temperature stratification, as desired).		Fan ..... speed 2 Heating/cooling ..... off
REC1	<b>Recirculation speed 1</b> The same as REC, but the unit operates only at speed 1 (low air flow rate)		Fan ..... speed 1 Heating/cooling ..... on <sup>1)</sup>  <sup>1)</sup> Depending on heat or cool demand
DES	■ Destratification: The same as for REC, but the unit operates only at speed 1		Fan ..... speed 1 Heating/cooling ..... off
ST	<b>Standby</b> The unit is ready for operation. The following operating modes are activated if required:		
CPR	■ Cooling protection: If the room temperature drops below the set value for cooling protection, the unit heats up the room in recirculation operation.		Fan ..... speed 2 Heating ..... on
OPR	■ Overheating protection: If the room temperature rises above the set value for overheating protection, the unit cools down the room in recirculation operation.		Fan ..... speed 2 Cooling ..... on
L_OFF	<b>Off (local operating mode)</b> The unit is switched off.		Fan ..... off Heating/cooling ..... off
–	<b>Forced heating</b> (only for units with supplementary heater) The unit draws in room air, warms it and blows it back into the room. Forced heating is activated by connecting the unit to a power supply (only if there is no bus connection to the zone controller). For example, it is suitable for heating the hall before taking the control system into operation or if the controller fails during the heating period.		Fan ..... speed 2 Heating ..... on

Table 5: TopVent® TP operating modes

## 4 Type code

	TP	-	6	A	K	/	ST	.	D1	/	S	.	FK	.	LH	.	U-	/	Y	.	KP	/	TC	.	-	.	PH	.	RF
<b>Unit type</b>																													
TopVent® TP																													
<b>Unit size</b>																													
6 or 9																													
<b>Heating section</b>																													
- without heating section																													
A with coil type A (hot water)																													
R with coil type R (electric)																													
S with coil type S (electric)																													
<b>Heating/cooling section</b>																													
K with coil type K (1 heat pump)																													
M with coil type M (2 heat pumps)																													
<b>Design</b>																													
ST Standard																													
<b>Air outlet</b>																													
D1 Design with Air-Injector																													
<b>Installation</b>																													
- without																													
S Suspension set																													
<b>Filter box</b>																													
-- without																													
FK Filter box																													
FF Flat filter box																													
<b>Paint finish</b>																													
-- without																													
LH Standard paint finish																													
LU Paint finish as desired																													
<b>Silencer</b>																													
-- without																													
U- Recirculation silencer																													
<b>Hydraulics</b>																													
- without																													
Y Hydraulic assembly diverting system																													
M Mixing valve																													

TP - 6 A K / ST . D1 / S . FK . LH . U- / Y . KP / TC . - . PH . RF

**Condensate pump**

-- without

KP Condensate pump

**Control system**

TC TopTronic® C

**Reserve**

**Pump control**

-- without

PH Heating pump

**Return temperature sensor**

-- without

RF Return temperature sensor

## 5 Technical data

### 5.1 Application limits

Fresh air temperature heating mode		min.	°C	-20
		max.	°C	15
Fresh air temperature cooling mode		min.	°C	-5
		max.	°C	40
Extract air temperature		max.	°C	50
Moisture content of extract air <sup>1)</sup>		max.	g/kg	15
Supply air temperature		max.	°C	45
Air flow rate	Size 6:	min.	m³/h	3100
	Size 9:	min.	m³/h	5000
Condensate quantity	Size 6:	max.	kg/h	90
	Size 9:	max.	kg/h	150
Temperature of the heating medium <sup>2)</sup>		max.	°C	90
Pressure of the heating medium <sup>2)</sup>		max.	kPa	800
The units cannot be used in: <ul style="list-style-type: none"> <li>■ Damp locations</li> <li>■ Rooms with mineral oil vapours in the air</li> <li>■ Rooms with a high salt content in the air</li> <li>■ Rooms with acidic or alkaline vapours in the air</li> </ul>				
<sup>1)</sup> Units for applications where the humidity in the room increases by more than 2 g/kg are available on request.				
<sup>2)</sup> For units with supplementary hot water heater				

Table 6: Application limits

## 5.2 Electrical connection

### TopVent® TP

Unit type		TP...6K TP-9...K TP-9-M
Supply voltage	V AC	3 × 400
Permitted voltage tolerance	%	± 5
Frequency	Hz	50
Connected load	kW	3.6
Current consumption max.	A	5.9
Series fuse	A	13.0

Table 7: TopVent® TP electrical connections

Electric heating coil		6S	9R	9S
Connected load	kW	14	14	28
Current consumption max.	A	20	20	40
Series fuse	A	20	20	40

Table 8: Electric heating coil electrical connections

### ERQ250 condensing unit

Unit type		TP...6-K TP...9-K	TP-9-M
Supply voltage	V AC	3 × 400	3 × 400
Permitted voltage tolerance	%	± 10	± 10
Frequency	Hz	50	50
Connected load	kW	13.5	2 × 13.5
Current consumption max.	A	21.6	2 × 21.6
Series fuse	A	25	2 × 25.0
Inrush current	A	74	2 × 74.0

Table 9: Daikin ERQ250 condensing unit electrical connections

### 5.3 Air flow rate

Unit type		TP-6	TP-9
Nominal air flow rate	m³/h	6000	9000
Floor area covered	m²	537	946

Table 10: Air flow rate

### 5.4 Condensing unit technical data

Rated heat output <sup>1)</sup>	kW	31.5
Rated cooling capacity <sup>2)</sup>	kW	28.0
COP value	–	4.09
EER value	–	3.77
Condensation temperature	°C	46
Evaporation temperature	°C	6
Working medium	–	R410a
Fill volume working medium (prefilled)	kg	8.4

1) With fresh air temperature 7 °C / extract air temperature 20 °C

2) With fresh air temperature 35 °C / extract air temperature 27 °C / 45% rel. humidity

Table 11: Daikin ERQ250 condensing unit technical data

### 5.5 Sound level

Unit size		TP-6	TP-9
Sound pressure level (at a distance of 5 m) <sup>1)</sup>	dB(A)	52	59
Total sound power level	dB(A)	73	81
Octave sound power level	63 Hz	dB	47
	125 Hz	dB	57
	250 Hz	dB	60
	500 Hz	dB	65
	1000 Hz	dB	69
	2000 Hz	dB	67
	4000 Hz	dB	64
	8000 Hz	dB	54

1) With hemispherical radiation in a low-reflection environment

Table 12: TopVent® TP sound level

ERQ250 condensing unit			
Sound pressure level (at a distance of 5 m) <sup>1)</sup>	dB(A)	58	
Total sound power level <sup>2)</sup>	dB(A)	78	
Octave sound power level	63 Hz	dB	79
	125 Hz	dB	84
	250 Hz	dB	80
	500 Hz	dB	77
	1000 Hz	dB	73
	2000 Hz	dB	66
	4000 Hz	dB	60
	8000 Hz	dB	53

1) With hemispherical radiation in a low-reflection environment

2) The values given are maximum values; the noise level is fluctuating due to scroll technology.

Table 13: Daikin ERQ250 condensing unit sound level


**Notice**

The values are increased by 3 dB for 2 condensing units.

## 5.6 Heat output

t <sub>F</sub> °C	t <sub>room</sub> °C	Type TP-	Q kW	H <sub>max</sub> m	t <sub>s</sub> °C	P <sub>WP</sub> kW	P <sub>E</sub> kW	Δp <sub>W</sub> kPa	m <sub>W</sub> l/h
-15	16	6–K	22.0	15.8	28.9	7.77	–	–	–
		6AK	32.1	13.5	33.9	8.45	–	0.0	295.0
		6SK	33.9	13.2	34.8	8.58	12.1	–	–
		9–K	22.0	19.6	25.3	7.77	–	–	–
		9–M	44.0	14.9	32.5	15.54	–	–	–
		9AK	38.9	15.7	30.8	8.58	–	0.0	490.0
		9RK	35.9	16.2	29.8	8.45	14.0	–	–
		9SK	40.0	15.5	31.2	8.58	18.2	–	–
	20	6–K	21.9	15.9	32.8	8.31	–	–	–
		6AK	–	–	–	–	–	–	–
		6SK	25.8	14.9	34.8	8.58	4.0	–	–
		9–K	21.9	19.8	29.2	8.31	–	–	–
		9–M	43.8	15.0	36.5	16.62	–	–	–
		9AK	–	–	–	–	–	–	–
		9RK	27.9	18.0	31.2	8.58	6.1	–	–
		9SK	27.9	18.0	31.2	8.58	6.1	–	–
Legend:	t <sub>F</sub> = Fresh air temperature t <sub>room</sub> = Room air temperature Q = Heat output H <sub>max</sub> = Maximum mounting height t <sub>s</sub> = Supply air temperature P <sub>HP</sub> = Power consumption of the condensing unit(s) P <sub>E</sub> = Power consumption of the electric heating coil Δp <sub>W</sub> = Water pressure drop m <sub>W</sub> = Water quantity								
Reference:	■ At room air temperature 16 °C: extract air temperature 18 °C ■ At room air temperature 20 °C: extract air temperature 22 °C Supplementary heater with hot water: Flow/Return 55 °C/25 °C								

Table 14: TopVent® TP heat output

## 5.7 Cooling capacity

t <sub>F</sub> °C	t <sub>room</sub> %	RH <sub>room</sub> %	Type TP-	Q <sub>sen</sub> kW	Q <sub>tot</sub> kW	t <sub>s</sub> °C	m <sub>c</sub> kg/h	P <sub>WP</sub> kW
32	26	50	6...K	20.1	28.4	18.1	12.2	6.90
			9...K	19.8	28.4	21.5	12.6	6.90
			9–M	39.8	55.4	14.8	22.9	13.47
		70	6...K	15.0	29.2	20.6	20.8	6.94
			9...K	14.8	29.2	23.2	21.1	6.94
			9–M	30.7	54.6	17.9	40.7	13.89
Legend:	t <sub>F</sub> = Fresh air temperature t <sub>room</sub> = Room air temperature RH <sub>room</sub> = Relative humidity of the room air Q <sub>sen</sub> = Sensible cooling capacity Q <sub>tot</sub> = Total cooling capacity t <sub>s</sub> = Supply air temperature m <sub>c</sub> = Condensate quantity P <sub>HP</sub> = Power consumption of the condensing unit(s)							
Reference:	■ At room air temperature 22 °C: extract air temperature 24 °C ■ At room air temperature 26 °C: extract air temperature 28 °C							

Table 15: TopVent® TP cooling capacity



## 5.8 Dimensions and weights

### TopVent® TP with 1 heat pump system

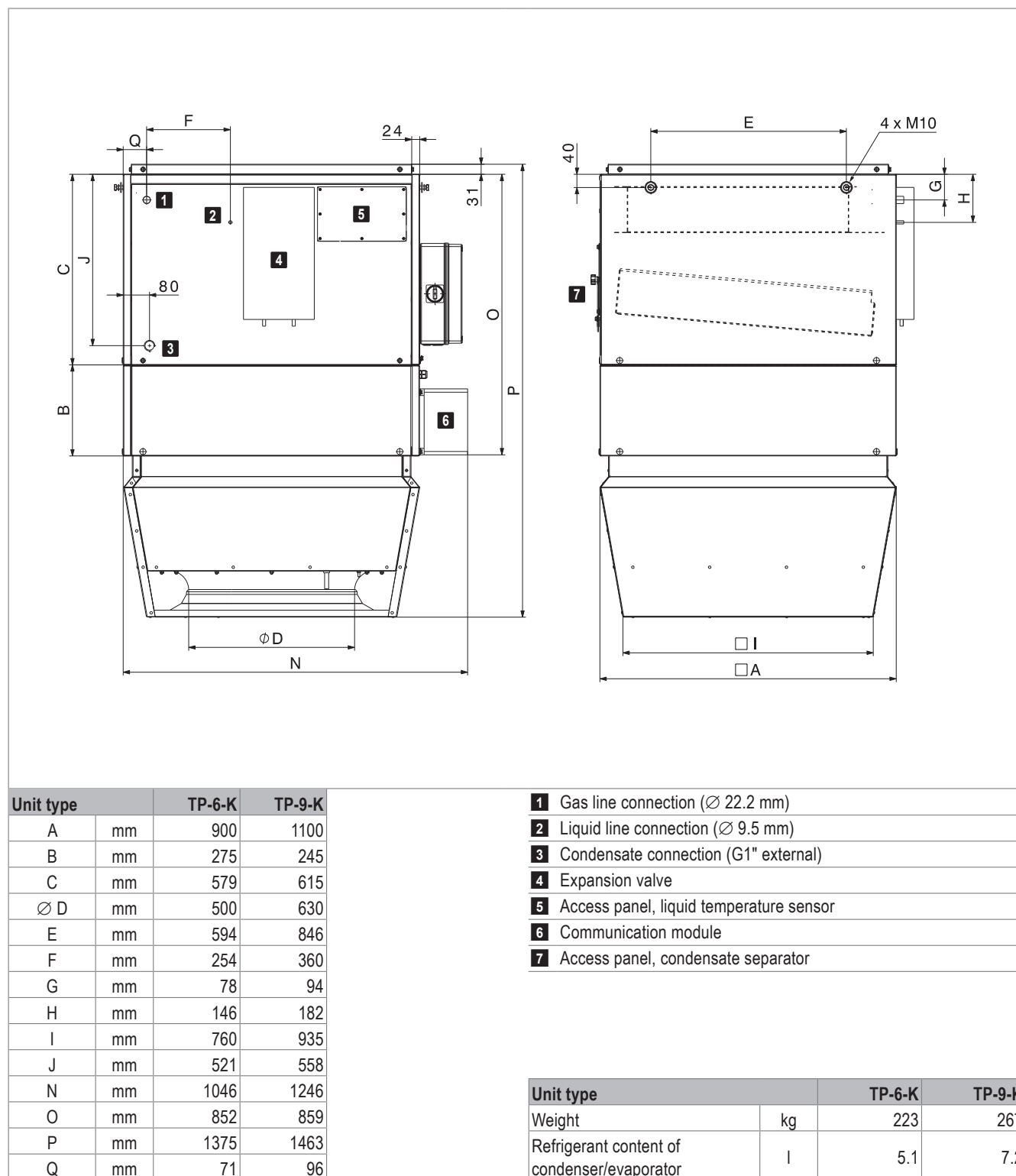


Fig. 6: Dimensions and weights of the TopVent® TP-6-K, TP-9-K

TopVent® TP with 2 heat pump systems

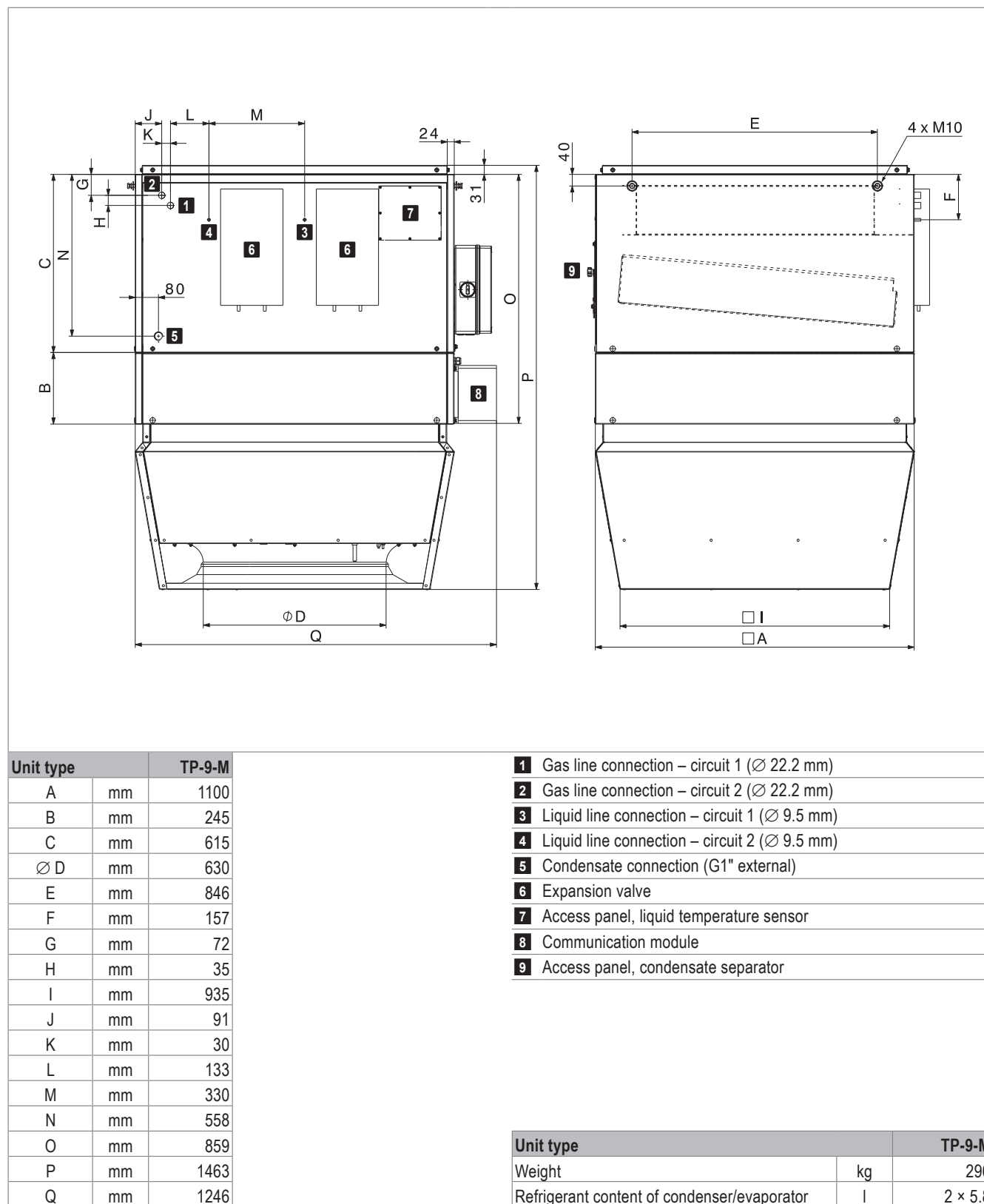
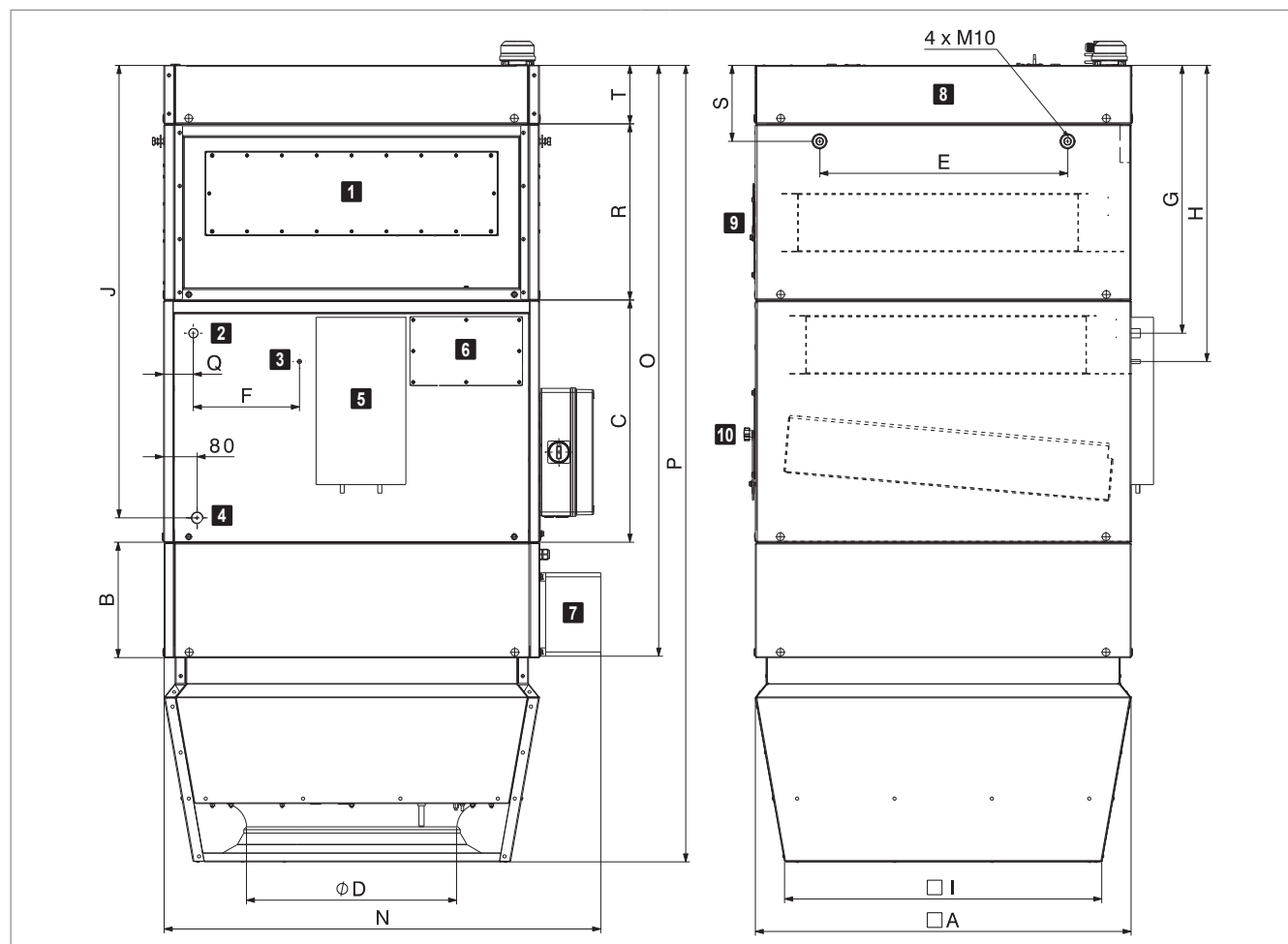


Fig. 7: Dimensions and weights of the TopVent® TP-9-M

TopVent® TP with supplementary heater (electric heating coil) and flat filter box



Unit type		TP-6SK	TP-9RK TP-9SK
A	mm	900	1100
B	mm	275	245
C	mm	579	615
Ø D	mm	500	630
E	mm	594	846
F	mm	254	360
G	mm	642	683
H	mm	710	771
I	mm	760	935
J	mm	1084	1147
N	mm	1046	1246
O	mm	1416	1448
P	mm	1909	2021
Q	mm	71	96
R	mm	422	422
S	mm	182	207
T	mm	140	165

- 1** Access panel, electric heating coil
- 2** Gas line connection (Ø 22.2 mm)
- 3** Liquid line connection (Ø 9.5 mm)
- 4** Condensate connection (G1" external)
- 5** Expansion valve
- 6** Access panel, liquid temperature sensor
- 7** Communication module
- 8** Flat filter box
- 9** Access panel, electric heating coil connection
- 10** Access panel, condensate separator

Unit type		TP-6SK	TP-9RK	TP-9SK
Weight	kg	273	329	337
Refrigerant content of condenser/evaporator	l	5.1	7.2	7.2

Fig. 8: Dimensions and weights of the TopVent® TP-6SK, TP-9RK, TP-9SK with flat filter box

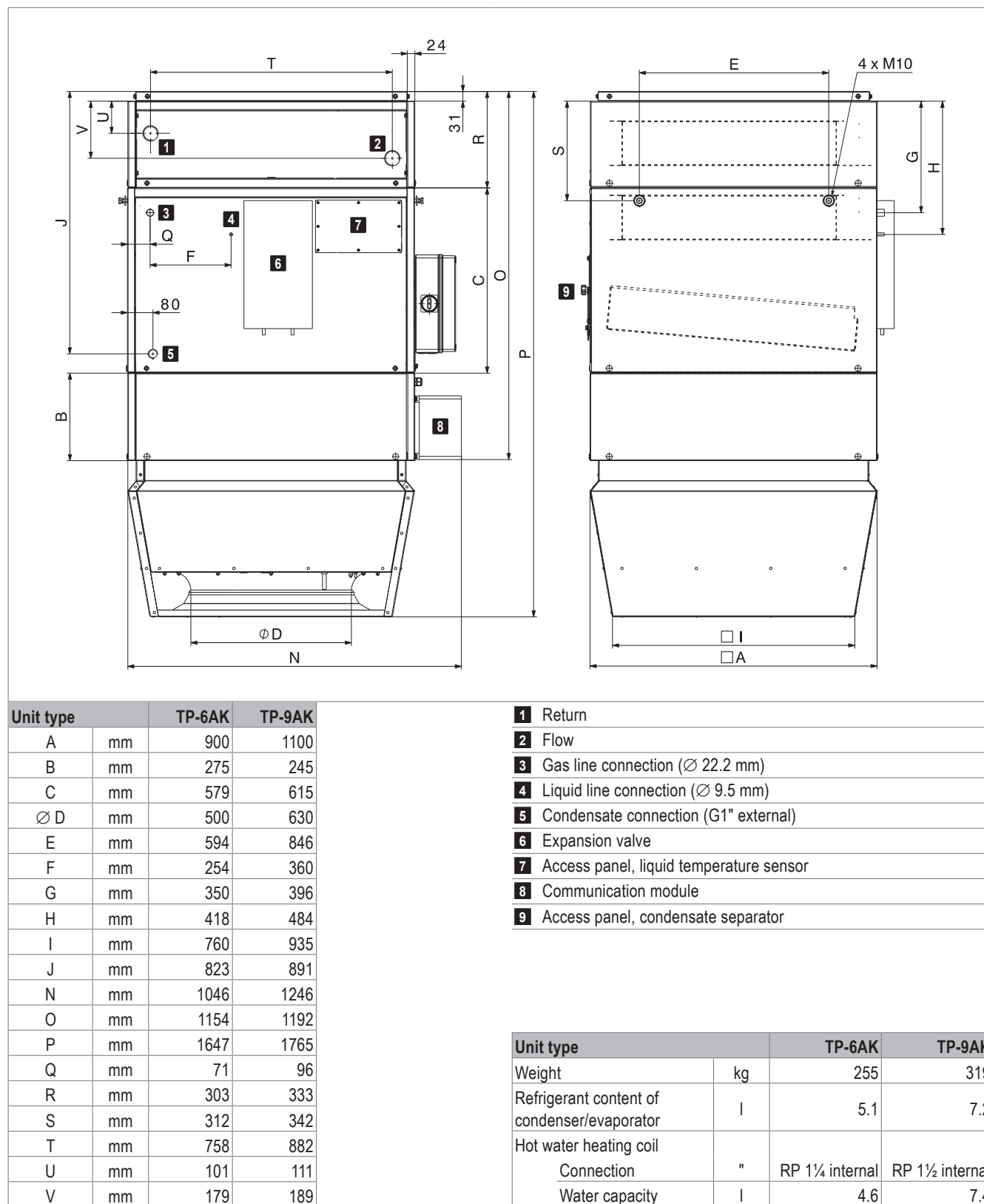
**TopVent® TP with supplementary heater (hot water)**


Fig. 9: Dimensions and weights of the TopVent® TP-6AK, TP-9AK

## Condensing unit

<b>1</b> Electrical connection box			
<b>2</b> Working medium circuit connection (front or bottom)			
<b>3</b> Cable feedthroughs			
<b>Unit type</b>		<b>ERQ250</b>	
Weight		kg	240

Table 16: Dimensions and weights of the Daikin ERQ250 condensing unit

## 6 Options

### 6.1 Suspension set

A suspension set is available to make it easy to install the units on the ceiling. The set consists of 4 pairs of U-profiles made of magnesium zinc sheet and is height-adjustable up to 1300 mm.

### 6.2 Air filtration



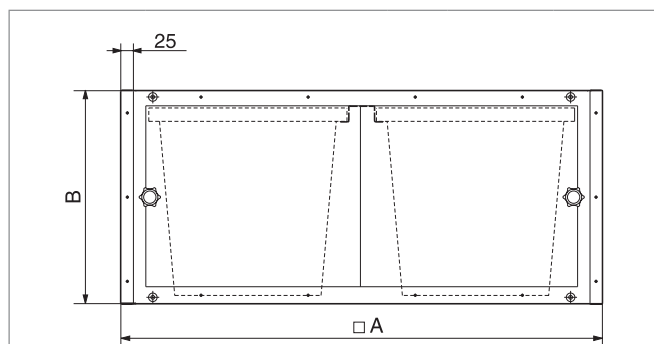
#### Caution

Risk of fire due to dust in the air. TopVent® TP units with an electric heating coil must always be fitted with a high-temperature filter. Do not operate the units unless a filter is installed.

#### Filter box

A filter box with 2 bag filters can be installed for the purpose of filtering the recirculation air. The modular construction made of magnesium zinc sheet with 2 sliding doors makes it easy to replace the filters.

A pressure difference control device is installed for automatic monitoring of the filter. It shows when the filters have to be changed.



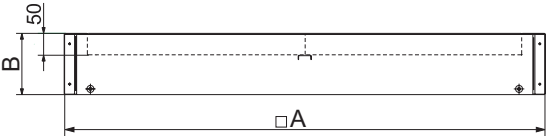
Size			6	9
A		mm	900	1100
B		mm	400	400
Standard	Filter class		ISO coarse 60 % (G4)	
	Weight	kg	20	24
	Factory setting of differential pressure switches	Pa	180	180
High-temperature	Filter class		ISO coarse 55 % (G4)	
	Weight	kg	23	28
	Factory setting of differential pressure switches	Pa	150	150

Table 17: Filter box technical data

### Flat filter box

A flat filter box with 4 pleated cell filters can be installed for the purpose of filtering the recirculation air.

A pressure difference control device is installed for automatic monitoring of the filter. It shows when the filters have to be changed.



Size			6	9
A		mm	900	1100
B		mm	140	165
Standard	Filter class	ISO coarse 60 % (G4)		
	Weight	kg	10	12.5
	Factory setting of differential pressure switches	Pa	100	100
High-temperature	Filter class	ISO ePM <sub>10</sub> 50 % (M5)		
	Weight	kg	14	18.5
	Factory setting of differential pressure switches	Pa	250	250

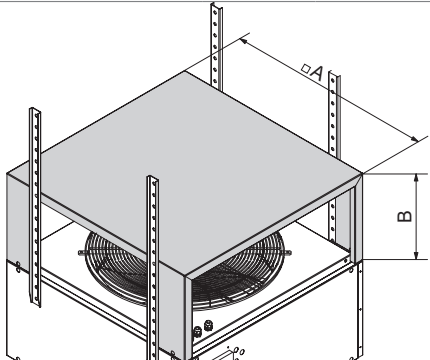
Table 18: Flat filter box technical data

### 6.3 Paint finish

If the customer wishes, the units can be provided with an exterior paint finish.

### 6.4 Recirculation silencer

The recirculation silencer is mounted on the appliance and thus reduces the sound reflection from the ceiling. Insertion attenuation is 3 dB compared with the total sound power level of each TopVent® unit.



Size			6	9
A		mm	900	1100
B		mm	380	485
Weight		kg	15	20

Table 19: Recirculation silencer dimensions and weights

## 6.5 Hydraulic assembly diverting system

An assembly for the hydraulic diverting system is included in the delivery. It consists of the following components:

- Automatic air vent
- Coil screw joint
- Control valve
- Distributor circuit screw joint
- Flow
- Mixing valve
- Ball valve
- Return

## 6.6 Mixing valve

Mixing valves which are optimally matched to the units are available for easy installation of RoofVent® units. They have the following specifications:

- 3-way mixing valve with modulating rotary actuator (run time 9 s)
  - Flow characteristic: Equal percentage control path
  - Linear bypass
- Integrated position control and response

## 6.7 Condensate pump

The condensate pump is installed directly under the condensate drain connection; the supplied container is prepared for installation on the unit. It pumps the condensate through a flexible hose to a delivery head of 3 m, thus enabling discharge of the condensate

- through waste water pipes directly below the ceiling,
- onto the roof.

## 6.8 Return temperature sensor

The return temperature sensor monitors the return temperature of the heating medium.



## 6.9 Pump control

Instead of the diverting system, a mixing or injection circuit can also be installed in the load circuit.

Please note the following:

- Not only the mixing valves but also the pumps in the load circuit are controlled directly by the unit control box.
- Terminals for wiring the mixing valves and the pumps in the load circuit are located in the unit control box.
- Make sure that valves and pumps which meet the following requirements are provided on site.

### Requirements for mixing valves

- Use 3-way mixing valves with the following flow characteristics:
  - Equal percentage control path
  - Linear bypass
- The valve authority must be  $\geq 0.5$ .
- The maximum run time of the valve actuator is 45 s.
- The valve actuator must be continuous, i.e. the stroke changes in proportion to the control voltage (0...10 VDC or 2...10 VDC).
- The valve actuator must be designed with a position response (0...10 VDC or 2...10 VDC).
- The maximum power consumption is 20 VA.
- Install the valve close to the unit (max. distance 2 m).

### Requirements for pumps

- Voltage ..... 230 VAC
- Total current ..... max. 4.0 A for all pumps  
(heating pump, condensate pump)

## 6.10 Condensing unit options

### Protection hood

Protection hoods protect the condensing unit against strong wind and heavy snowfall. They are installed on the side and/or front of the unit.

### Condensate drain pan

The condensate drain pan collects and discharges the condensate. It is installed on the bottom of the condensing unit. The controlled discharge of the condensate prevents damage caused by ice forming under the unit.

### Heating for condensate drain pan

The heating tape prevents the condensate from freezing in the condensate drain pan and thus protects the unit against damage. It is installed in the condensing unit and connected in the condensing unit terminal box. Power: 250 W.

## 7 Transport and installation



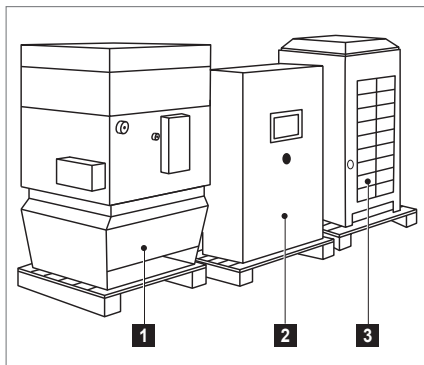
### Caution

Risk of injury from incorrect handling. Transport, assembly and installation work may only be performed by specialists. Observe safety and accident prevention regulations.

### 7.1 Scope of delivery

The scope of delivery includes:

- TopVent® TP unit
- Condensing unit
- Accessories (installation material, temperature sensors)
- Optional components



- |   |                    |
|---|--------------------|
| 1 | TopVent® TP        |
| 2 | Zone control panel |
| 3 | Condensing unit    |

Fig. 10: Delivery of the components on pallets

### Accessories

The following accessories are supplied separately:

- Fresh air temperature sensor and room air temperature sensor (in the zone control panel)
- Gas temperature sensor, connection pipe between coil and expansion valve, self-adhesive insulating mat (in separate cardboard box)

### Options

The following optional components are supplied separately:

- Trap (in separate cardboard box)
- Condensate pump (in separate cardboard box)
- Mixing valve (in separate cardboard box)
- Return temperature sensor (in separate cardboard box)
- Hydraulic assembly (on separate pallet)
- Additional room temperature sensors, combination sensor room air quality, temperature and humidity (in zone control panel)
- Condensing unit options:
  - Condensate drain pan (in separate cardboard box)
  - Heating for condensate drain pan (in separate cardboard box)
  - Protection hoods (on separate pallet)

### Preparation

- Use a forklift with a sufficiently long fork to unload (at least 1.8 m).
- Check the consignment against the delivery documents and the order confirmation to ensure that it is complete. Report missing parts and any damage immediately in writing.

### Condensing unit

- Lifting the condensing unit with a crane:
  - Use 2 straps at least 8 m in length.
- Lifting the condensing unit with a forklift:
  - Transport to the installation site: Lift the unit under the pallet.
  - Unloading from the pallet: Guide the forklift tines into the large rectangular openings under the device.
- Observe the installation instructions provided.

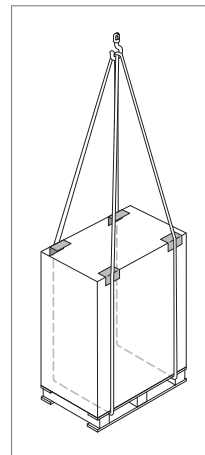


Fig. 11:  
Lifting with a crane

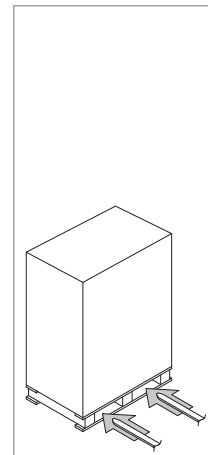


Fig. 12:  
Lifting with a forklift

## 7.2 Storage

If you do not install the unit immediately:

- Remove the packaging film to avoid water vapour condensation.
- Store the unit in a dry, dust-free room.
- Keep the storage temperature between  $-30^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ .
- Avoid too long storage periods. After a storage period of more than 1 year:
  - Check that the bearings of the fans move smoothly before installing the unit.

## 7.3 Requirements for the installation site

### TopVent® unit

- Comply with the minimum and maximum distances.
- Only secure the unit to ceilings with sufficient load-bearing capacity.
- All air inlet and air outlet openings must be freely accessible. The supply air jet must be free to spread out unhindered.
- The access panels in the unit must be freely accessible.
- Clearance of at least 0.9 m is required for maintenance work around the heating/cooling section and, if applicable, the supplementary heater.

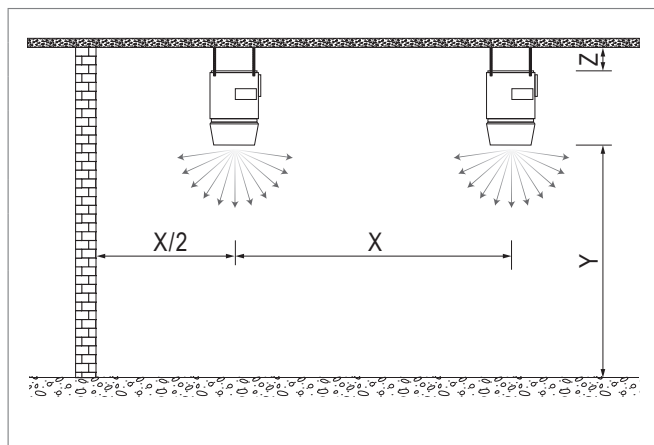


Table 20: Minimum and maximum distances

Size			6	9
Unit clearance X	min.	m	12	14
	max.	m	23	31
Distance from ceiling Z	min.	m	0.3	0.4
Mounting height Y	min.	m	4	5
	max. <sup>1)</sup>	m	Approx. 9...25	

1) The maximum mounting height varies depending on the boundary conditions (for values, see table of heat outputs or calculation with the 'HK-Select' selection program)

### Condensing unit

- Comply with the minimum distances for free air entry: 0.6 m at the front side and 0.2 m to the left and right.
- The outgoing air jet must be free to spread upwards unhindered.
- Clearance of at least 0.9 m is required for maintenance work at the rear side of the unit.
- Make sure that the air inlet and outlet are not in the direction of the prevailing wind. If necessary, use a protection hood (option) to protect the condensing unit.
- Protect the condensing unit against heavy snow fall.
- Install the condensing unit on a level base with an adequate load bearing capacity so as to avoid vibration and noise.
- Install the condensing unit on a solid base at least 150 mm tall (steel frame or concrete).
- If the condensing unit is mounted on a frame: attach a waterproof plate about 150 mm underneath the unit to prevent water penetrating the unit from below.

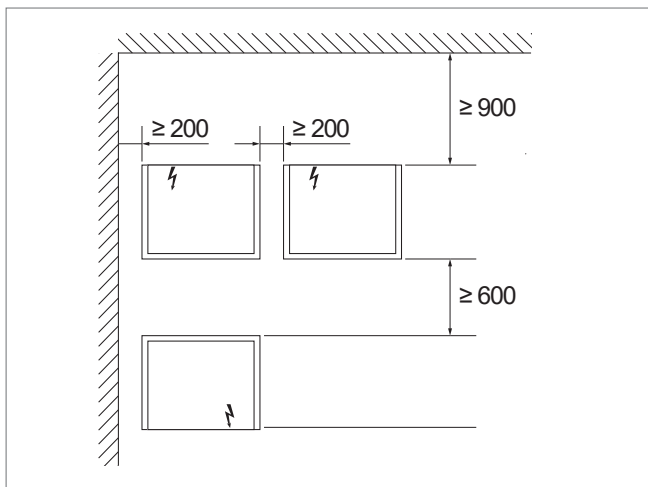


Fig. 13: Space requirements for condensing unit (dimensions in mm)

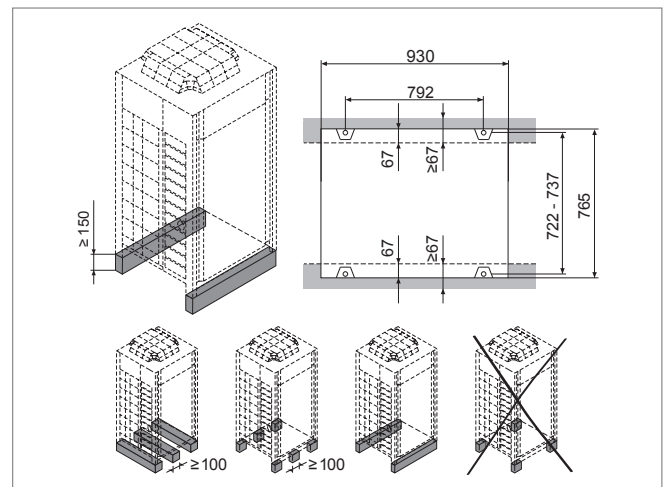


Fig. 14: Frame for condensing unit

## 7.4 Installation



### Caution

Risk of injury caused by falling load and improper handling.

During installation:

- Wear personal protective equipment.
- Do not stand under suspended loads.
- Use cranes or forklifts with sufficient load-bearing capacity.

### Preparation

- Make sure that a lifting platform is available.
- Remove the packaging film.
- For mounting, use the enclosed rivet nuts and
  - the optionally available suspension set or
  - flat irons, perforated irons, angle profiles, steel cables or similar

### TopVent® installation

- Transport the unit to the installation site.
- Mount the suspension set on the designated suspension points.



### Caution

Risk of injury from falling parts. Only fasten the unit at the designated suspension points. Do not place any suspension points on the optional components (filter box, recirculation silencer, supplementary heater with hot water).

- Rotate the unit to the correct position (position of the refrigerant connections).
- Attach the unit to the ceiling.
- Install the device horizontally.
- Do not attach any additional loads.
- Do not use eyebolts.
- Non-vertical suspensions are permissible up to a maximum angle of 45°.



Fig. 15: TopVent® installation

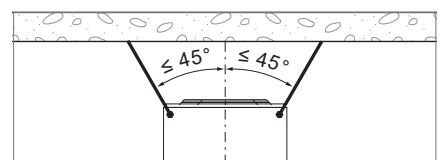


Fig. 16: Non-vertical suspension

#### Mounting the heat pump system

- Transport the condensing unit to the installation site.
- Place the unit on the prepared frame.
- Fasten the unit with 4 M12 anchor bolts.
- Follow the installation instructions included.

#### Mounting the condensate drain pan

The condensate drain pan for the condensing unit (optional) is supplied separately and must be mounted on the bottom of the unit at the building site:

- Loosen the screw connection at the bottom on one of the side screens on the condensing unit.
- Rotate the condensate drain pan into the correct position and push it under the unit.
- Hook the condensate drain pan hooks into place on the lower unit frame of the condensing unit.
- Screw the side screen back into place.



Fig. 17: Condensate drain pan mounted on the condensing unit

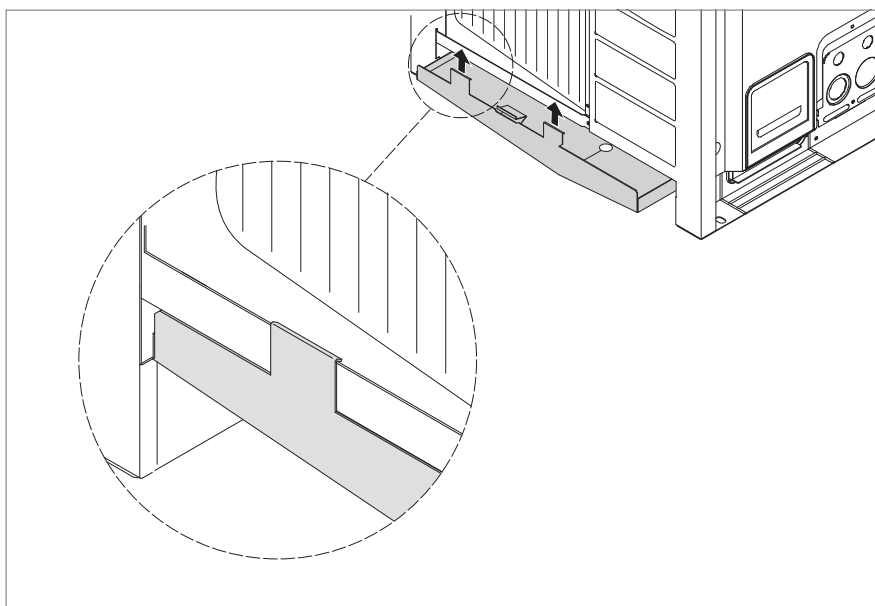


Fig. 18: Mounting the condensate drain pan

### Mounting the protection hoods

Protection hoods for the condensing unit (optional) are supplied in 3 parts, comprising 2 side panels and 1 cover panel. They must be fitted to the unit at the building site. The installation material is provided. Proceed as follows:

- Drill holes in the condensing unit according to the drilling plan (8 x per protection hood, the positions are marked on the unit).
- Mount the side panels on the condensing unit using drilling screws.
- Apply the sealing strip to the top of the cover panel.
- Place the cover panel in position and fit it using the enclosed M4 x 12 screws.

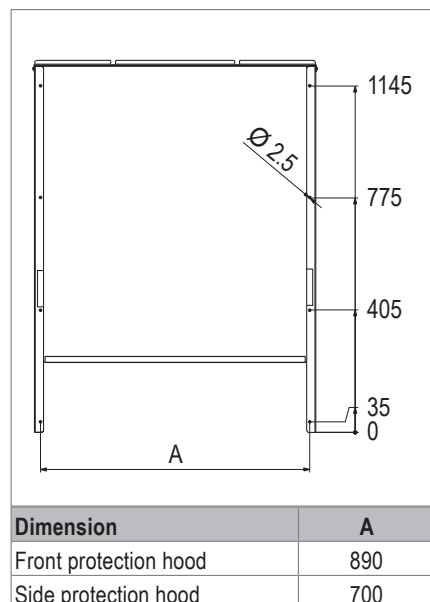


Fig. 20: Drilling plan (dimensions in mm)

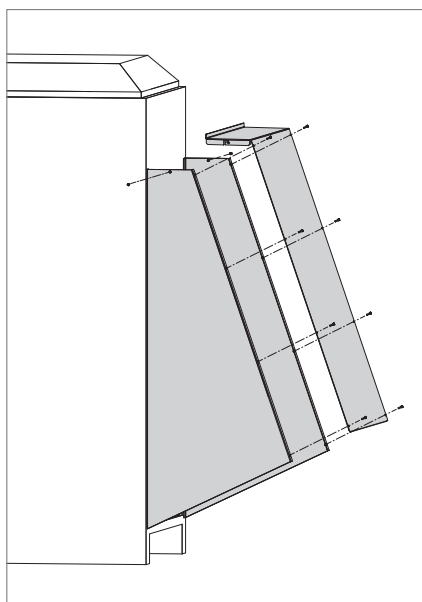


Fig. 21: Mounting the protection hoods



Fig. 19: Side and front protection hoods mounted on 2 condensing units

## 7.5 Refrigeration system installation

The refrigerant pipes must be installed by a qualified refrigeration technician in line with the local regulations.

Make sure that the following is available.

<b>Refrigerant pipes</b>	<ul style="list-style-type: none"> <li>■ Liquid line: <math>\varnothing</math> 9.5 mm, annealed copper</li> <li>■ Gas line: <math>\varnothing</math> 22.2 mm, semi-hard copper</li> </ul>
<b>Pipe insulation</b>	<ul style="list-style-type: none"> <li>■ Thermal conductivity <math>\lambda \leq 0.035 \text{ W/(m} \cdot \text{K)}</math> at 0 °C</li> <li>■ Water vapour diffusion resistance <math>\mu \geq 5000</math></li> <li>■ Insulating layer thickness <math>\geq 15 \text{ mm}</math></li> <li>■ Outer insulation UV-resistant and protected against mechanical loads</li> </ul>
<b>PU foam</b>	<ul style="list-style-type: none"> <li>■ High bulk density</li> <li>■ Building material class B1 (low flammability)</li> <li>■ Fine cell structure</li> <li>■ Temperature-resistant -40...90 °C</li> </ul>

To avoid damaging the unit:

- Do not use any flux.
- Carry out soldering work in a protective gas atmosphere (e.g. nitrogen).
- Protect the unit against excessive heat with a wet cloth.
- Insulate the refrigerant pipes with appropriate care.

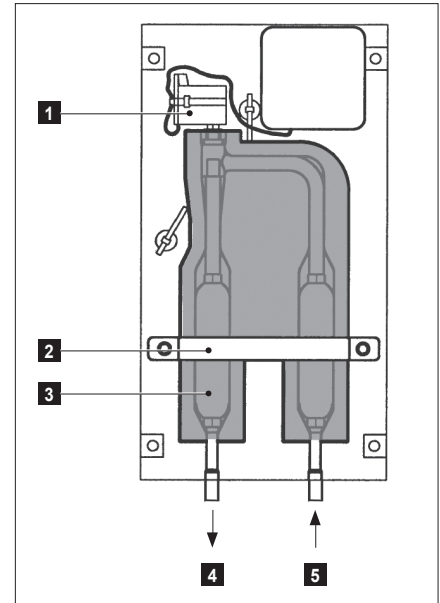


### Attention

Danger of unit damage due to condensation. Insulate the refrigerant pipes and connections with appropriate care to prevent condensation forming and dripping into the hall.

Proceed as follows:

- Remove the plugs from the condenser/evaporator connections and clean the connections.
- Open the expansion valve casing:
  - Unscrew the cover and the fastening clamp.
  - Remove the pipe insulations and the actuator.
- Use the enclosed connection pipe to connect the expansion valve to the condenser/evaporator.
  - Shorten the pipe as required using a pipe cutter.
  - Deburr the cut surface.
  - Make sure that there are no foreign objects in the pipe.
- Solder the connection pipe to the condenser/evaporator connection. Protect surrounding parts against excessive heat with a wet cloth.
- Solder the connection pipe to the expansion valve connection. Protect surrounding parts against excessive heat with a wet cloth.
- Install the refrigerant pipes in the same way according to Fig. 25 and Fig. 26. Observe the installation instructions provided for the condensing unit.
- Reassemble the expansion valve.
- Carry out an air-tightness test and vacuum drying.



- 1 Actuator
- 2 Fastening clamp
- 3 Pipe insulations
- 4 Input (from the condensing unit)
- 5 Output (to the condenser/evaporator)

Fig. 22: Expansion valve

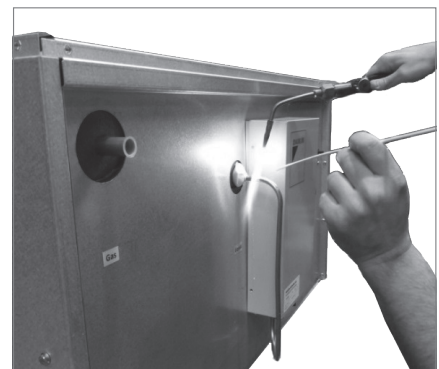


Fig. 23: Protect surrounding parts against excessive heat with a wet cloth.



- Install the gas temperature sensor:
  - Fasten the sensor to the gas line, as close as possible to the condenser/evaporator.
  - Ensure that the connection between the sensor and the gas line provides good conductivity.
  - Insulate the sensor with the insulating film supplied.
  - Bundle the cable up for subsequent connection to the communication module.
- Insulate the refrigerant pipes and connections carefully using insulation material in accordance with the specifications above.
- Seal the refrigerant connections on the condenser/evaporator:
  - Spray PU foam around the connections according to the specifications above.
  - Apply the enclosed self-adhesive insulating mat around the connections.

#### Filling with refrigerant

- The condensing unit is filled with refrigerant at the factory:
  - Refrigerant R410A
  - Fill volume: 8.4 kg
- The additional amount of refrigerant R (kg) depends on the total length of the liquid line L (m). It is calculated using the following formula:

$$R = L \times 0.059$$

- Refrigerant R410A is a mixture. It is essential to add it in the liquid state. The composition can vary in the gaseous state.

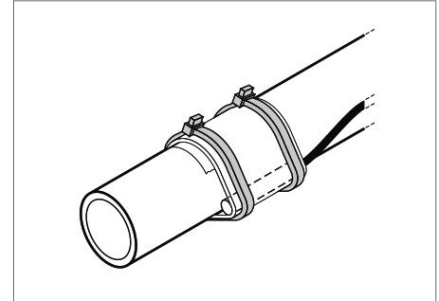
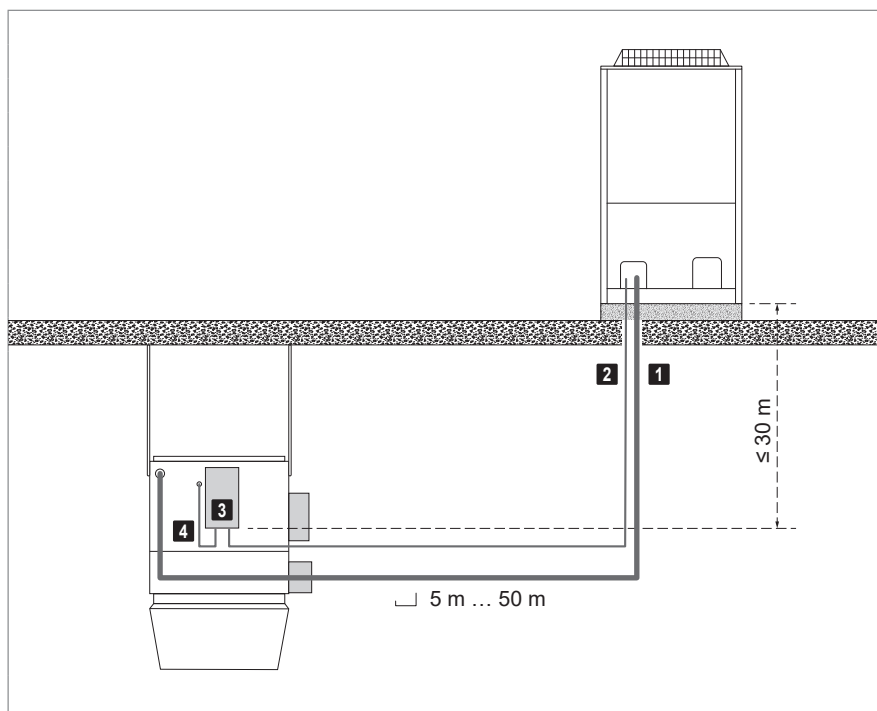


Fig. 24: Ensure that the connection between the sensor and the gas line provides good conductivity.

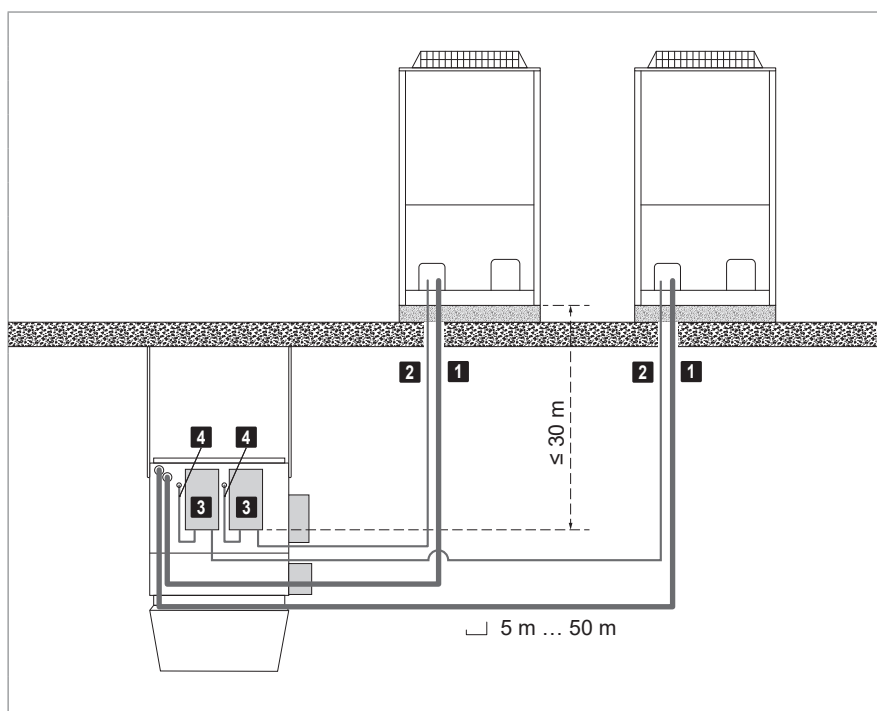
### Refrigerant pipes for TopVent® TP with 1 heat pump system



- |   |   |
|---|---|
| 1 | Gas line (Ø 22.2 mm)                    |
| 2 | Liquid line (Ø 9.5 mm)                  |
| 3 | Expansion valve (fitted at the factory) |
| 4 | Connection pipe (supplied loose)        |

Fig. 25: TopVent® TP-6...K, TP-9...K refrigerant pipes to be installed on site

### Refrigerant pipes for TopVent® TP with 2 heat pump systems



- |   |   |
|---|---|
| 1 | Gas line (Ø 22.2 mm)                    |
| 2 | Liquid line (Ø 9.5 mm)                  |
| 3 | Expansion valve (fitted at the factory) |
| 4 | Connection pipe (supplied loose)        |

Fig. 26: TopVent® TP-9-M refrigerant pipes to be installed on site

## 7.6 Hydraulic installation

### Hydraulic installation of units with supplementary heater with hot water (optional)

- Connect the heating coil according to the hydraulic circuit diagram.
- Depending on local conditions, check whether compensators for linear expansion are required for the supply and return lines and/or articulated connections are required for the units.
- Insulate the hydraulic lines.
- Hydraulically balance the pipework for the the individual units within a control zone to ensure even distribution.



#### Attention

Danger of damaging the units. Do not fasten any loads to the coil, e.g. by means of the flow or return lines.

### Hydraulic installation of units with hydraulic assembly for diverting system (option)

- Connect the heating coil to the on-site hydraulic network using the hydraulic assembly:
  - Install the assembly horizontally.
  - Mount the assembly so that its weight does not need to be absorbed by the coil.
  - Insulate the assembly.
- Read off the default settings for the hydraulic alignment from Fig. 27. The curves 1.0 to 4.0 correspond to the revolutions of the valve spindles of the balancing valve; they are shown on the turning knob:
  - 0.0 ..... Valve closed
  - 4.0 ..... Valve completely open
- The coil and the hydraulic assembly are already included in the specified pressure drops. Thus, only consider the pressure drops of the distributor circuit up to the screw connections.

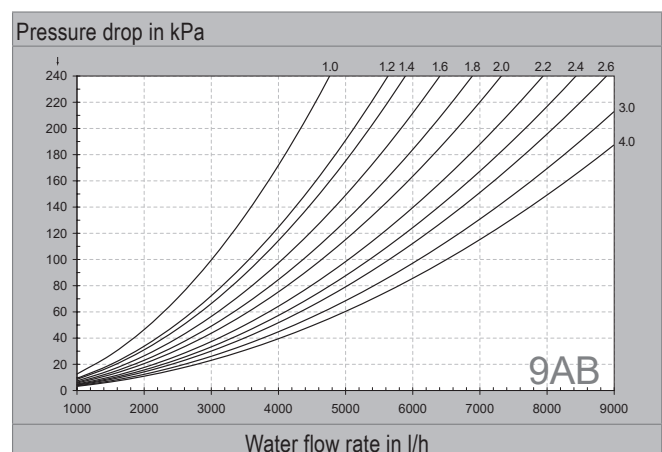
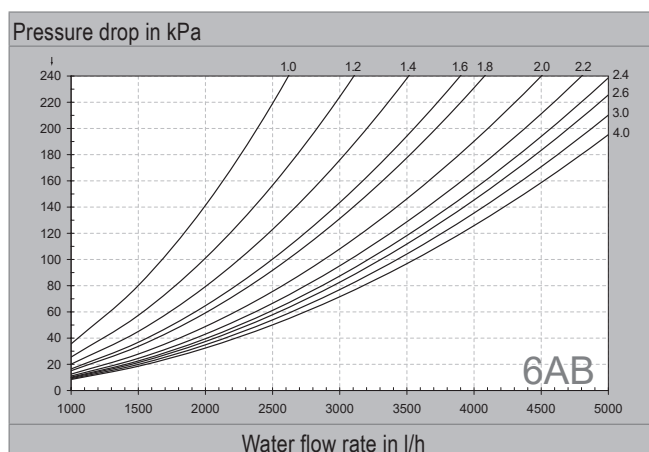


Fig. 27: Default settings for the balancing valves

### Return temperature sensor (option)

- Install the return temperature sensor on the return line, directly after the screw connection.
- Attach the sensor with the clamping band.
- Insulate the sensor.

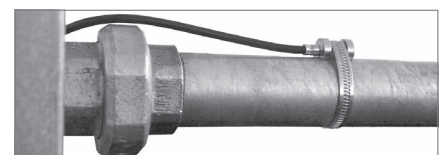


Fig. 28: Return temperature sensor

## 7.7 Condensate connection TopVent®

Condensate arising in cooling units must be removed via a condensate-proof line.

- Install and insulate the supplied trap on the condensate connection of the unit.
- Dimension the slope and cross-section of the condensate line so that no condensate backflow takes place.
- Make sure that the condensate produced is drained in compliance with local regulations.

### Condensate pump (option)

- Remove the transport locking device from the condensate pump.
- Install the condensate pump directly under the condensate drain connection; the supplied container is prepared for installation on the unit.
- Connect the condensate pump to a condensate-resistant waste water pipe. To do this, use a hose and attach it using a hose clamp or use a pipe with an inner diameter of 9 mm.
- Route the condensate line from the pump directly upwards.



#### Notice

This line must not exceed the delivery head of the pump:  
– head of 3 m up to a condensate quantity of max. 150 l/h  
– head of 4 m up to a condensate quantity of max. 70 l/h  
Consider the condensate quantity expected in your application. (It can be calculated with the selection program HK-Select).

- Install an odour trap at the highest point.
- Route the line with a constant incline downwards and then vertically downwards, and if possible down to below the condensate pump. This will create a siphon effect and thus improve the effectiveness of the condensate pump.
- Make sure that the condensate produced is drained in compliance with local regulations.

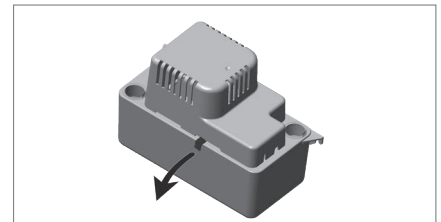


Fig. 29: Removal of the transport locking device

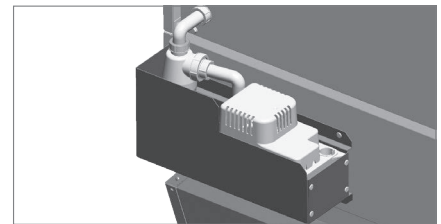


Fig. 30: Installation on the unit

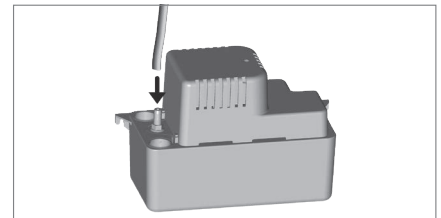


Fig. 31: Connection of the condensate pump

## 7.8 Condensate connection condensing unit

- Make sure that the condensing unit is not damaged by pooling water or ice formation:
  - Create a condensate drain.
  - Provide heating for the condensate drain.

## 7.9 Electrical installation



### Caution

Danger of electric shocks. The electrical installation must only be carried out by a qualified electrician.

Please note the following:

- Observe all relevant regulations (e.g. EN 60204-1).
- Choose the dimensions of the cable cross sections in line with the applicable regulations.
- Route signal and bus lines separately from mains cables.
- Make sure the lightning protection system for the units or for the entire building is planned and carried out by professionals.
- Provide overload protection equipment on site in the mains connection line of the zone control panel.
- Carry out the electrical installation according to the wiring diagram.
- Secure all connections against working loose.
- When installing cables, observe the following points:
  - Fasten the cables in place with cable mounts and cable ties or with cable conduits/ducts.
  - Use blind rivets.
  - Drill holes with a maximum diameter of 5 mm Ø.
  - The maximum drilling depth is 10 mm. Use a drill bit with a depth stop.
  - The maximum load resulting from cable holders and cable guides is 10 kg.
  - All access panels must be easily removable.

### TopVent® TP unit

- Connect the power supply to the unit control box.
- Connect the zone bus to the unit control box.
- Connect the electrical components of the heat pump system (see Fig. 32 and Fig. 33).

### Temperature sensors

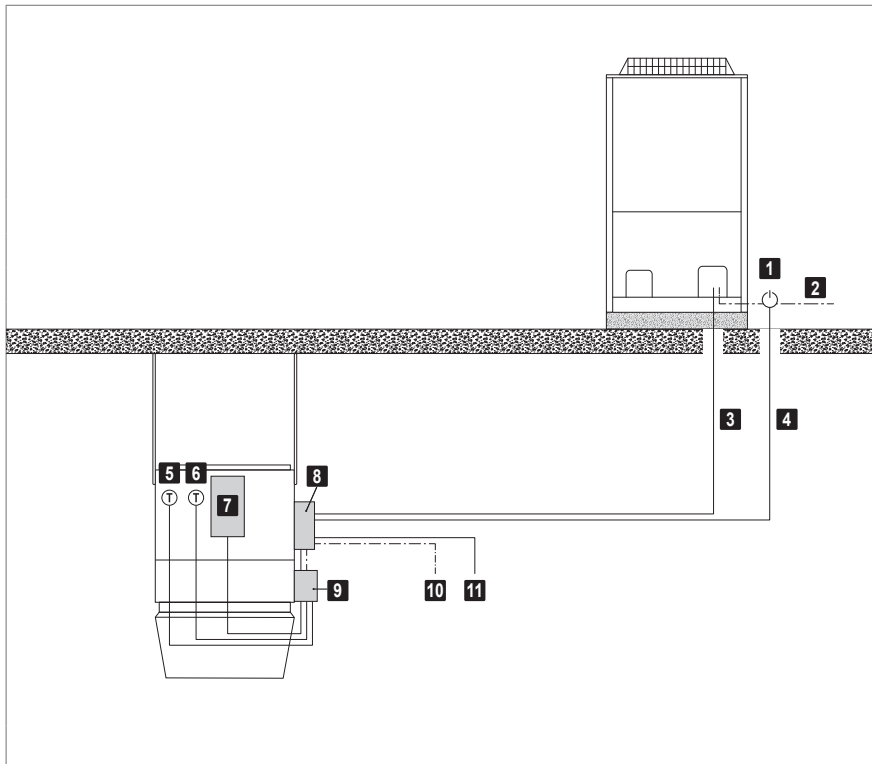
The room air sensor and the fresh air temperature sensor are supplied loose in the control panel:

- Install the room air temperature sensor at a representative position in the occupied area at a height of about 1.5 m. The measured values must not be distorted by the presence of sources of heat or cold (machines, direct sunlight, windows, doors, etc.).
- Install the fresh air temperature sensor at least 3 m above the ground on a north-facing wall, so that it is protected from direct sunlight. Provide cover for the sensor and thermally insulate it from the building.

### TopVent® TP options

- Condensate pump:
  - Wire up the condensate pump to the unit control box.

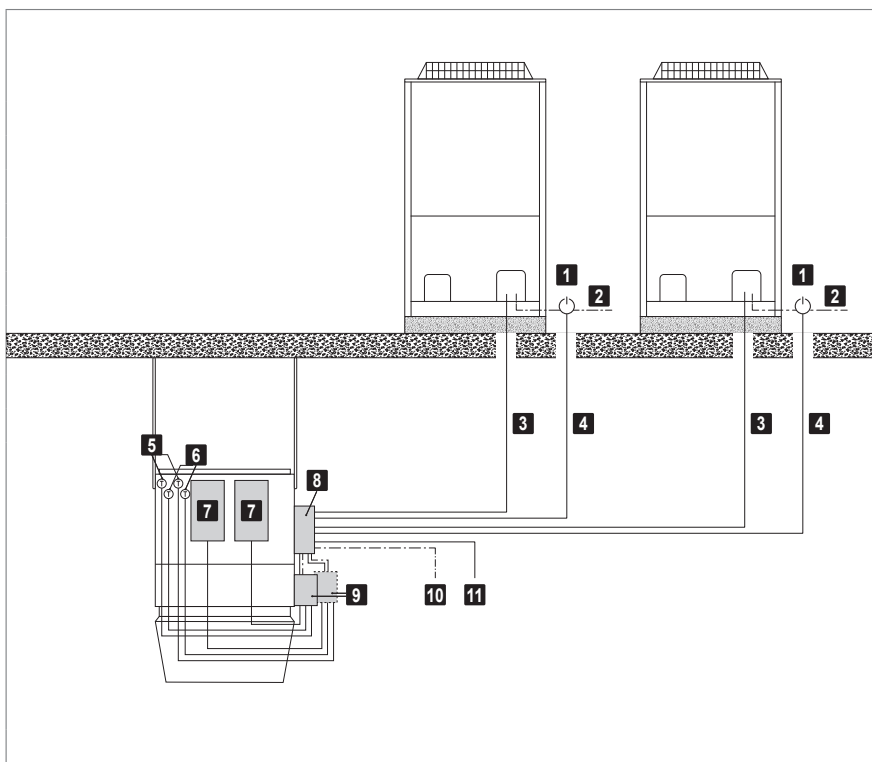
### Electrical installation for TopVent® TP with 1 heat pump system



- 1** Condensing unit main switch with auxiliary contact (NO contact, provided by the client)
- 2** Power supply for condensing unit
- 3** Communication TopVent®
- 4** Auxiliary contact signal
- 5** Gas temperature sensor (supplied loose)
- 6** Liquid temperature sensor
- 7** Expansion valve
- 8** Unit control box
- 9** Communication module
- 10** Power supply for TopVent®
- 11** Zone bus

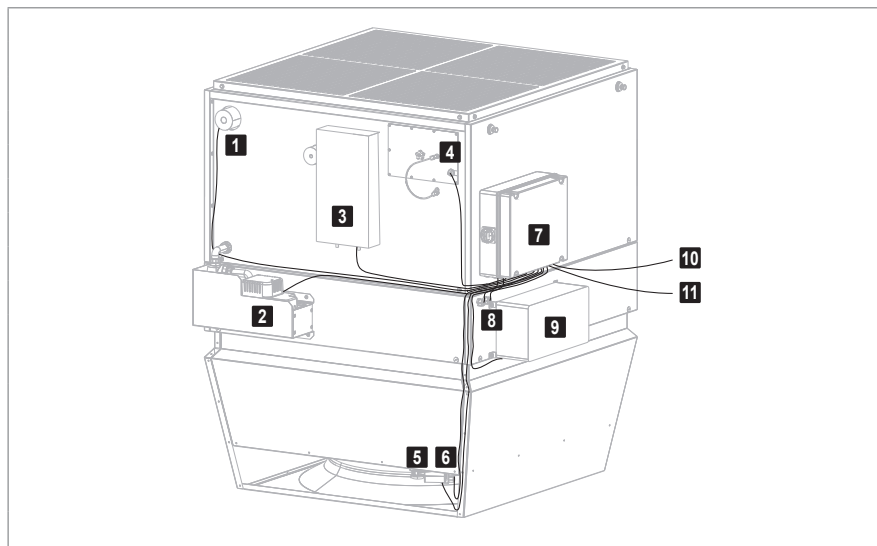
Fig. 32: Electrical connection of the heat pump system for TopVent® TP-6...K, TP-9...K

### Electrical installation for TopVent® TP with 2 heat pump systems



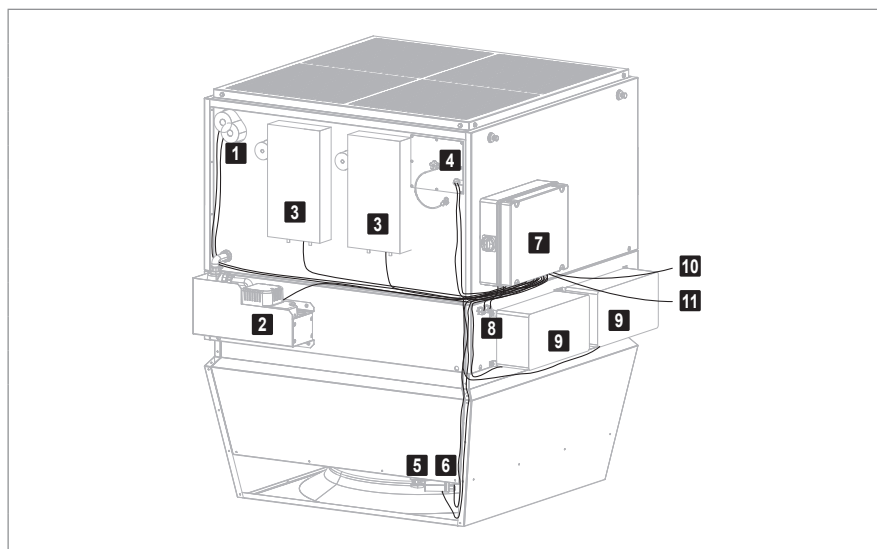
- 1** Condensing unit main switch with auxiliary contact (NO contact, provided by the client)
- 2** Power supply for condensing unit
- 3** Communication TopVent®
- 4** Auxiliary contact signal
- 5** Gas temperature sensor (supplied loose)
- 6** Liquid temperature sensor
- 7** Expansion valve
- 8** Unit control box
- 9** Communication module
- 10** Power supply for TopVent®
- 11** Zone bus

Fig. 33: Electrical connection of the heat pump system for TopVent® TP-9-M



- 1 Gas temperature sensor
- 2 Condensate pump (option)
- 3 Expansion valve
- 4 Liquid temperature sensor
- 5 Actuator Air-Injector
- 6 Supply air temperature sensor
- 7 Unit control box
- 8 Fan (signals, power supply)
- 9 Communication module
- 10 Power supply for TopVent®
- 11 Zone bus

Fig. 34: Cable routing for TopVent® TP with 1 heat pump system

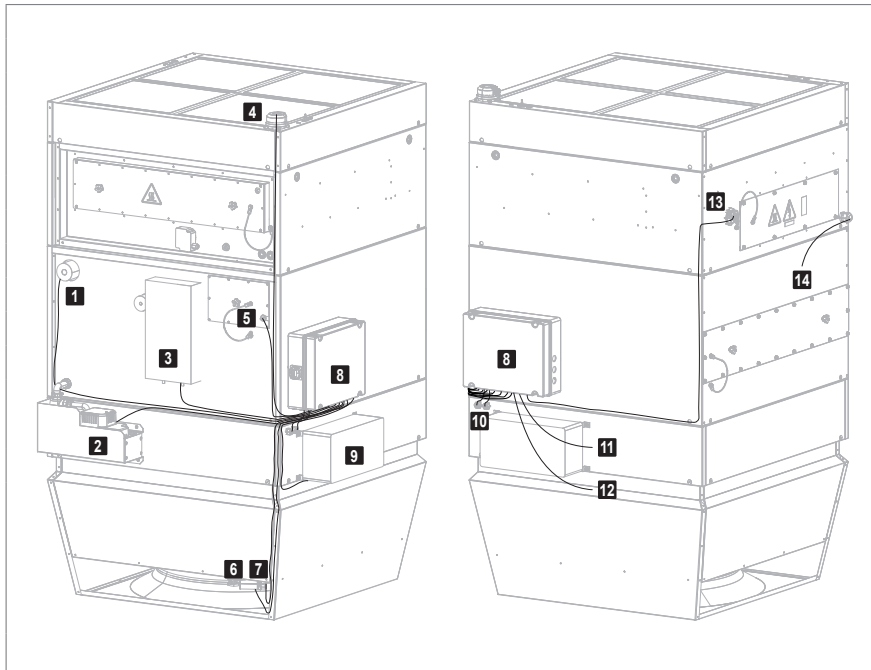


- 1 Gas temperature sensor (2x)
- 2 Condensate pump (option)
- 3 Expansion valve (2x)
- 4 Liquid temperature sensor (2x)
- 5 Actuator Air-Injector
- 6 Supply air temperature sensor
- 7 Unit control box
- 8 Fan (signals, power supply)
- 9 Communication module (2x)
- 10 Power supply for TopVent®
- 11 Zone bus

Fig. 35: Cable routing for TopVent® TP with 2 heat pump systems

**TopVent® TP with supplementary heater (electric heating coil)**

- Connect the power supply:
  - Open the access panel for the electric heating coil connection.
  - Mount the cable feedthrough fastened inside it in the side wall.
  - Insert the cable for the power supply and connect it directly to the main switch and the PE terminal. Observe the clockwise rotating field.

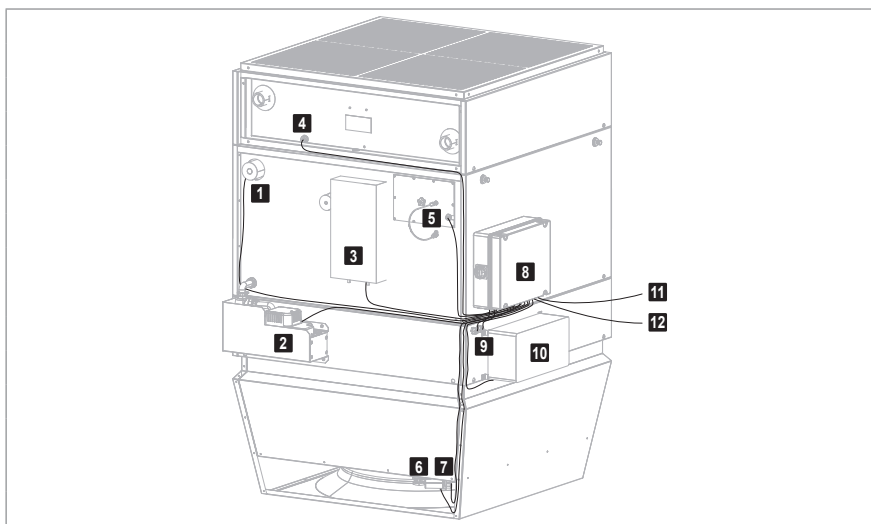


- |    |  |
|----|--|
| 1  | Gas temperature sensor                 |
| 2  | Condensate pump (option)               |
| 3  | Expansion valve                        |
| 4  | Differential pressure switch           |
| 5  | Liquid temperature sensor              |
| 6  | Actuator Air-Injector                  |
| 7  | Supply air temperature sensor          |
| 8  | Unit control box                       |
| 9  | Communication module                   |
| 10 | Fan (signals, power supply)            |
| 11 | Power supply for TopVent®              |
| 12 | Zone bus                               |
| 13 | Signal line for electric heating coil  |
| 14 | Power supply for electric heating coil |

Fig. 36: Cable routing for TopVent® TP with electric heating coil (in this case with flat filter box)

**TopVent® TP with supplementary heater (hot water)**

- Wire up the mixing valve to the unit control box.
- For mixing or injection system: Wire up the heating pump and heating valve to the connection box.
- If applicable, wire up the return temperature sensor to the unit control box.



- |    |   |
|----|---|
| 1  | Gas temperature sensor                      |
| 2  | Condensate pump (option)                    |
| 3  | Expansion valve                             |
| 4  | Temperature sensor air outlet suppl. heater |
| 5  | Liquid temperature sensor                   |
| 6  | Actuator Air-Injector                       |
| 7  | Supply air temperature sensor               |
| 8  | Unit control box                            |
| 9  | Fan (signals, power supply)                 |
| 10 | Communication module                        |
| 11 | Power supply for TopVent®                   |
| 12 | Zone bus                                    |

Fig. 37: Cable routing for TopVent® TP with hot water heating coil



#### Condensing unit

- Install a leakage current protective circuit for the condensing unit power supply.
- Install a main switch with auxiliary contact (NO contact, provided by the client) in view of the condensing unit.
- For units without heating for condensate drain pan:
  - Connect the cable for the power supply to the main switch.
  - From there, route it to the connection terminals of the condensing unit.
- For units with heating for condensate drain pan:
  - Connect the cable for the power supply to the main switch.
  - From there, route it to the distributor terminals in the connection box for the pan heating.
  - Install a cable from these distributor terminals to the connection terminals of the condensing unit.
- Install the signal lines:
  - TopVent® communication (from TopVent® unit control box to condensing unit)
  - Fault reporting (from TopVent® unit control box to main switch)

#### Heating for condensate drain pan

Observe the enclosed installation instructions from Daikin.

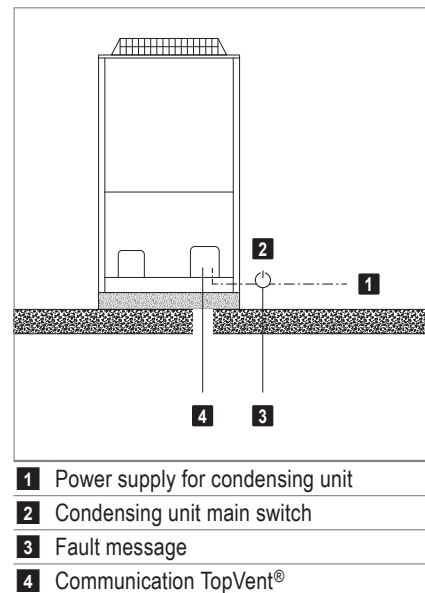


Fig. 38: Electrical installation of the condensing unit

## 8 Operation

### 8.1 Initial commissioning



#### Attention

Risk of damage to property as a result of performing initial commissioning on your own authority. Initial commissioning must be performed by the manufacturer's customer service technicians.

#### Checklist to prepare for commissioning:

- Mechanical installation
  - Indoor climate units
  - Heat pump system
  - Zone control panels
  - Operator terminals
- Refrigeration system installation
  - Heat pump system (filled and documented)
- Hydraulic installation
  - Indoor climate units (supplementary hot water heater, condensate connection)
  - Complete heating circuit
  - Hydraulic balancing
  - Provision of the heating medium during commissioning
- Electrical installation
  - Power supply for indoor climate units, electric heating coils, condensing units, zone control panels, hydraulic pumps and valves
  - Wiring of mixing valve, pump, condensate pump, return temperature sensor, electric heating coil and components of the heat pump system to the unit control box
  - Laying of bus cables conforming to wiring diagram
  - Installation and wiring of all sensors (room temperature sensor, fresh air sensor, ...)
  - Wiring of external operator terminals
  - Wiring of external inputs and outputs
- Organisational matters
  - Access to all system components during commissioning (indoor climate units, operator terminals, valves, ...)
  - Provision of a suitable working platform
  - Organisation of commissioning and training (date, presence of all of the respective trade groups and of the operating personnel)

### 8.2 Operation



#### Caution

Risk of fire due to dust in the air. TopVent® TP units with an electric heating coil must always be fitted with a high-temperature filter. Do not operate the units unless a filter is installed.

The system runs fully automatically depending on the programmed operating times and temperature conditions.

- Observe the operating instructions for the control system.
- Check alarm displays daily.
- Correct changes to operating times in the programming accordingly.
- Ensure free air outlet and unhindered dispersion of the supply air.

## 9 Maintenance and repair



### Caution

Risk of injury from incorrect work. Maintenance work must be carried out by trained personnel.

### 9.1 Safety

Before performing any work on the unit:

- Turn the isolation switch on the unit to the ☐ 'Off' position and secure it against being switched back on.



### Caution

Danger of electric shocks. The unit controller and the service socket are still live.

- After switching off:
  - Always wait at least 3 minutes.



### Caution

The use of condensers can pose a danger of fatal injury from directly touching live parts even after the unit is switched off. Only open the unit after waiting 3 minutes.

- For units with an electric heating coil, wait at least 20 minutes.



### Caution

Risk of burns due to contact with hot surfaces. Only open the unit after waiting 20 minutes.

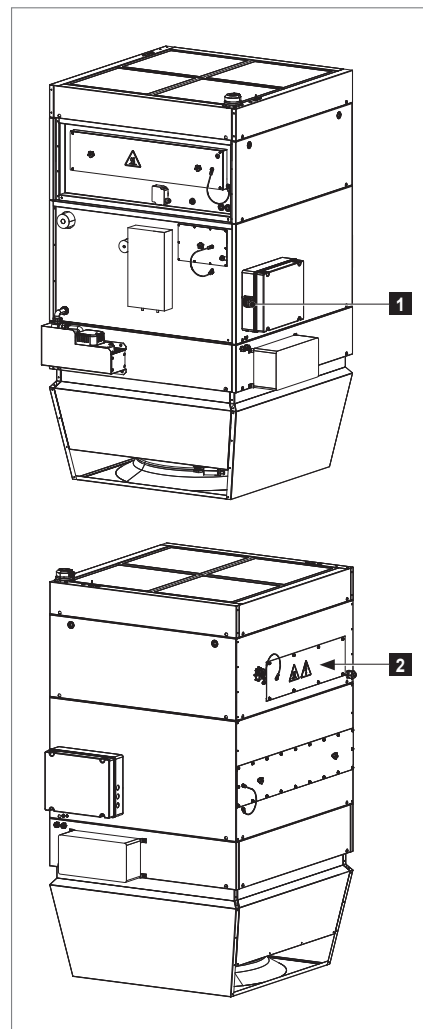
- Observe the accident prevention regulations.
- Observe the particular dangers involved when working on electrical systems.
- When working in the unit, take precautions against unprotected, sharp metal edges.
- Immediately replace damaged or removed informational and warning signs.
- Following maintenance work, professionally reassemble all dismantled protective devices.
- Replacement parts must comply with the technical requirements of the unit manufacturer. Hoval recommends the use of original spare parts.

### 9.2 Maintenance

#### Maintenance schedule

Activity	Interval
Renew air filter	When the filter alarm is displayed, at least annually
Comprehensively checking function; cleaning and possibly repairing the TopVent® unit and the condensing unit	Annually by Hoval customer service

Table 21: Maintenance schedule



**1** TopVent® isolation switch

**2** Main switch electric heating coil (behind the access panel)

Fig. 39: Switch position



### Notice

The condensing unit main switch is installed by the client.

#### Filter sets

Filter set	Design	Filter class	Mat. no.
<b>TopVent® TP without electric heating coil</b>			
TopVent® 6 FK	Filter box	ISO coarse 60 %	6049725
TopVent® 6 FF	Flat filter box	ISO coarse 60 %	6049726
TopVent® 9 FK	Filter box	ISO coarse 60 %	6049727
TopVent® 9 FF	Flat filter box	ISO coarse 60 %	6049728
<b>TopVent® TP with electric heating coil</b>			
TopVent® 6 FK high-temperature	Filter box	ISO coarse 55 %	6049729
TopVent® 6 FF high-temperature	Flat filter box	ISO ePM <sub>10</sub> 50 %	6049730
TopVent® 9 FK high-temperature	Filter box	ISO coarse 55 %	6049731
TopVent® 9 FF high-temperature	Flat filter box	ISO ePM <sub>10</sub> 50 %	6049732

Table 22: Material numbers for filter sets

#### Changing the filter

- Changing the air filter in the filter box:
  - Open the sliding door of the filter box.
  - Loosen the adjusting screw.
  - Remove the filter elements.
  - Insert the new filter elements.
  - Tighten the adjusting screw.
  - Close the sliding door of the filter box.
- Changing the air filter in the flat filter box:
  - Remove the filter elements from above.
  - Insert the new filter elements.
  - For TopVent® TP with electric heating coil: Insert the high-temperature filter with the metal mesh facing down.
- Dispose of the filters in accordance with local regulations.
  - The disposal of used filters depends on the contents.

### 9.3 Repair

If required, contact Hoval customer service.

#### Product service life

Component	Service life
EC motor of the fan	approx. 30'000 to 40'000 hours depending on the application and environmental conditions

Table 23: Product service life

## 10 Dismantling

**Caution**

Risk of injury caused by falling load and improper handling.

- Wear protective equipment (fall protection, helmet, safety shoes).
- Do not stand under suspended loads.
- Use cranes or helicopters with sufficient load-bearing capacity.
- Do not lift the two-part unit in one piece.

- Disconnect the power supply to the unit.
- After switching off:
  - Always wait at least 3 minutes.

**Caution**

The use of condensers can pose a danger of fatal injury from directly touching live parts even after the unit is switched off. Only open the unit after waiting 3 minutes.

- For units with an electric heating coil, wait at least 20 minutes.

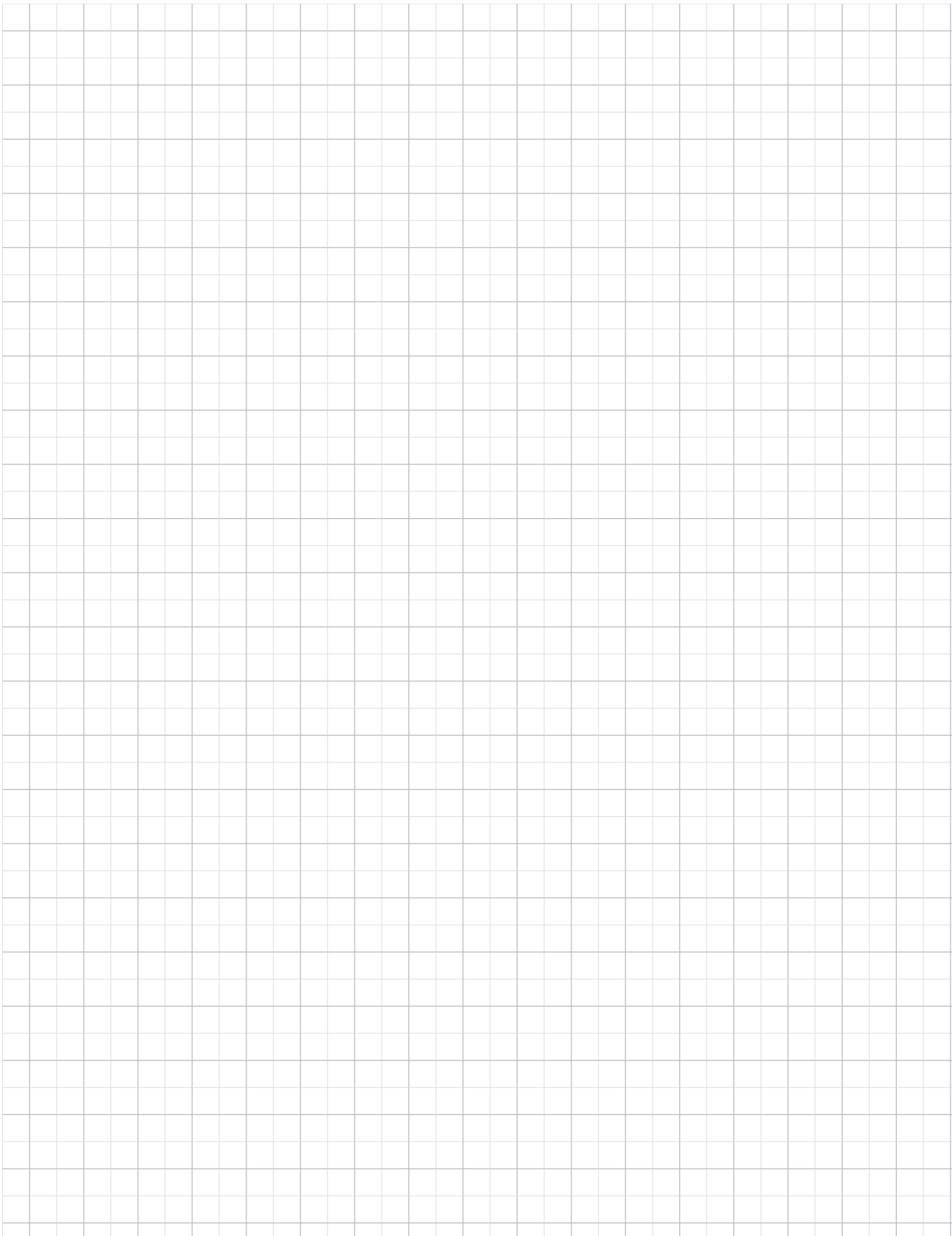
**Caution**

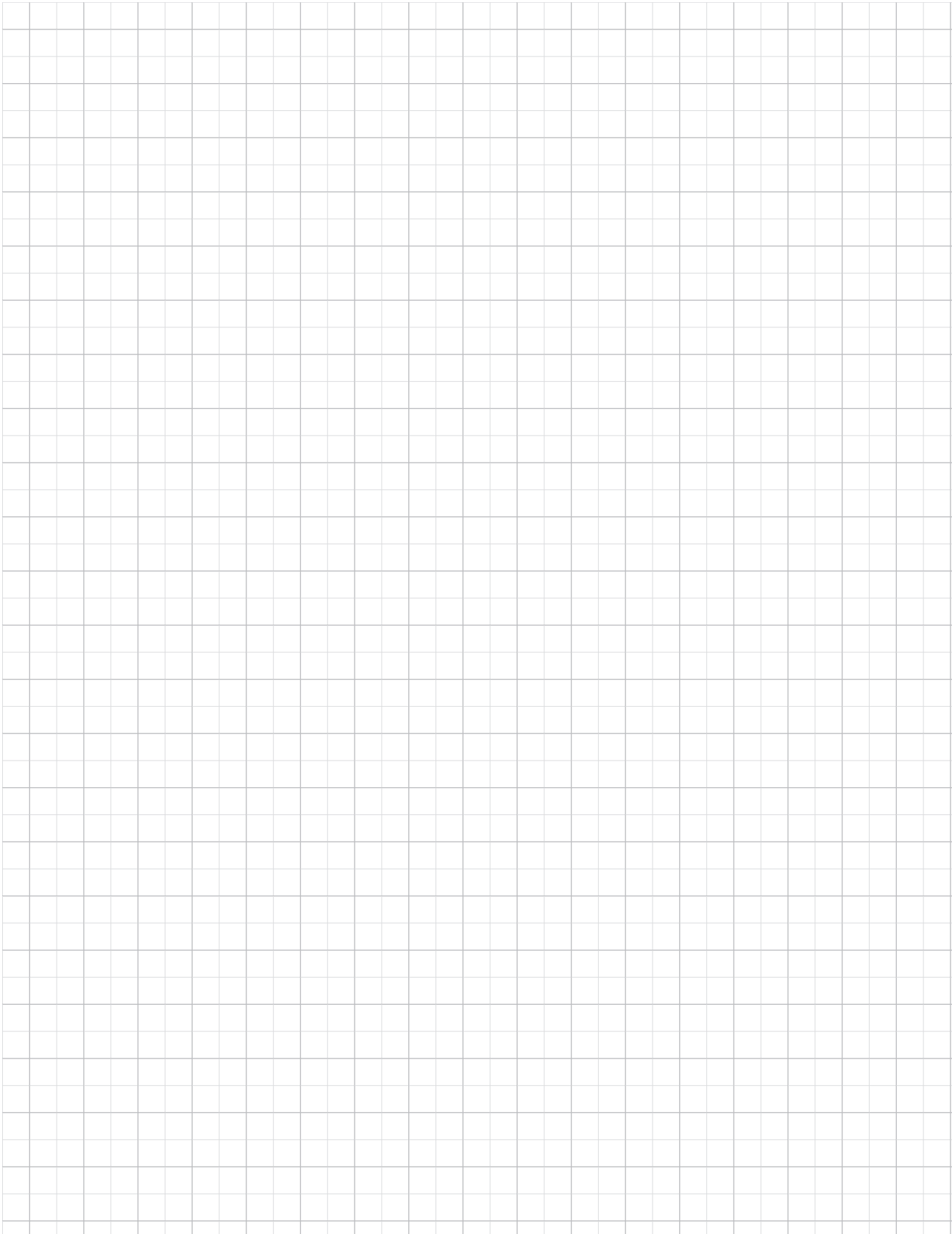
Risk of burns due to contact with hot surfaces. Only open the unit after waiting 20 minutes.

- Drain the refrigerant circuit and, if applicable, the heating medium circuit.
- Dismantle all media connections.
- Support the unit.
- Disconnect the unit from the ceiling.
- Remove the unit.

## 11 Disposal

- Recycle metal components.
- Recycle plastic parts.
- Dispose of electric and electronic parts via hazardous waste.
- Dispose of the filters in accordance with local regulations.
  - The disposal of used filters depends on the contents.





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