

## Hoval TopVent<sup>®</sup> gas TG | GV | MG

Operating instructions

Original operating  
manual

4 220 656-en-06



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# 1 Use

## 1.1 Intended use

### TopVent® TG

TopVent® TG units are recirculation units for heating spaces up to 25 m in height with gas-fired heat exchanger. They have the following functions:

- Heating with gas-fired heat exchanger
- Recirculation operation
- Air distribution and destratification with adjustable Air-Injector
- Air filtration (option)

### TopVent® GV

TopVent® GV units are recirculation units for heating spaces up to 6 m in height with gas-fired heat exchanger. They have the following functions:

- Heating with gas-fired heat exchanger
- Recirculation operation
- Air distribution via air outlet louvre

### TopVent® MG

TopVent® MG units are supply air units for ventilation and heating of spaces up to 25 m in height with gas-fired heat exchanger. They have the following functions:

- Heating with gas-fired heat exchanger
- Fresh air supply
- Mixed air operation
- Recirculation operation
- Air distribution and destratification with adjustable Air-Injector
- Air filtration

The units comply with all the requirements of the Ecodesign Directive 2009/125/EC relating to environmentally friendly design of energy-related products. They are systems of the 'warm air heater' type, provided for in Commission Regulation (EU) 2016/2281.

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

TopVent® TG, GV and MG units are gas-fired warm air heaters with modulating atmospheric gas burner. All control and safety valves are checked at the factory and preset according to the specifications on the type label. The units are state-of-the-art design and are safe to operate. Nevertheless, hazards may emanate from the units if they are used incorrectly or not used as intended. Therefore:

- 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.
- 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.
- Observe the particular dangers involved in working on the roof and on electrical systems.
- When working on the unit, objects (e.g. tools) could be dropped. Block off the area underneath the unit.
- Do not attach additional loads to the unit.
- When working in the unit, take precautions against unprotected, sharp metal edges.
- Wear suitable protective equipment (helmet, gloves, mouth protection, goggles).
- Following maintenance work, professionally reassemble all dismantled protective devices.
- Replacement parts must comply with the technical requirements of the system manufacturer. Hoval recommends the use of original spare parts.
- Unauthorised reconfiguration or modification of the unit is not permitted.

- Shut down the unit immediately, if any defects are ascertained that limit the operational safety:
  - Close the main shutoff device in the gas supply line.
  - Switch off the power supply (main switch in the control panel).

### 2.3 Decommissioning

- Switch off heating operation:
  - TopTronic C: Switch the unit to the 'L\_OFF' mode.
  - TempTronic MTC: Set the room temperature to the lowest setting.
- Close the cut-off valve in the gas supply line.
- Let the unit cool off. The fan continues to run to cool down the heat exchanger.

**Caution**

Fire hazard due to hot components. Do not switch off the power supply until the fan comes to a complete stop!

- When the fan comes to a stop: switch off the plant on the main switch.

### 2.4 Emergency situations

**In emergency situations:**

- Disconnect the power supply with the main switch in the control panel. The gas blower and the fan stop immediately. In this case, the orderly cool down of the heat exchanger does not happen.
- Close the cut-off valve in the gas supply line.

### 2.5 Regulations

Observe all applicable national regulations and standards as well as generally accepted engineering practice for the installation and operation of gas-fired units.

### 3 Construction and operation

#### 3.1 TopVent® TG

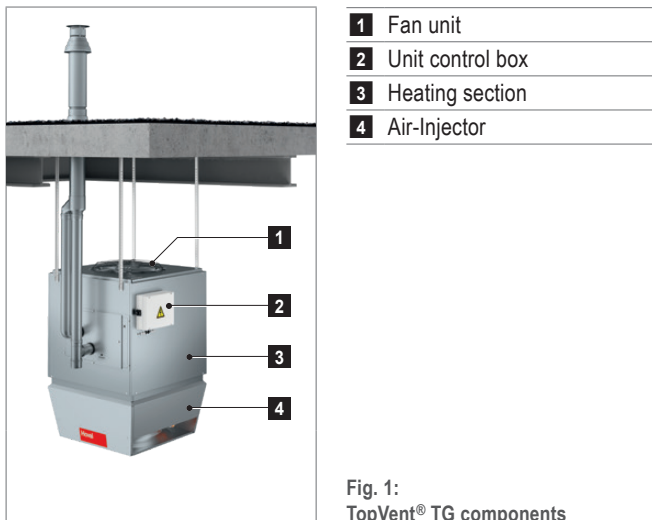


Fig. 1: TopVent® TG components

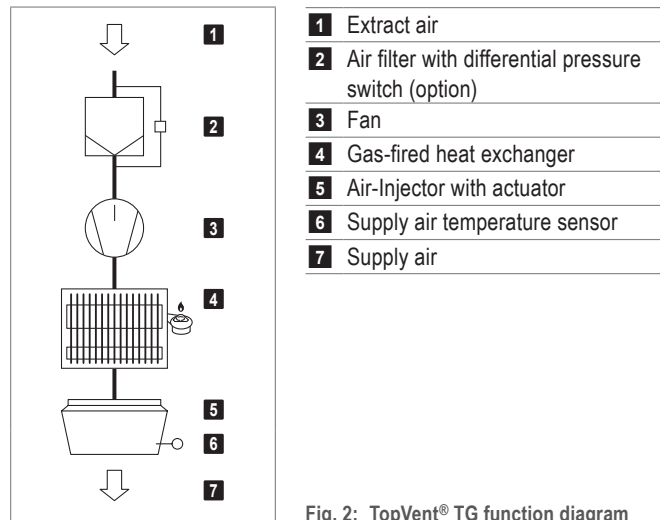


Fig. 2: TopVent® TG function diagram

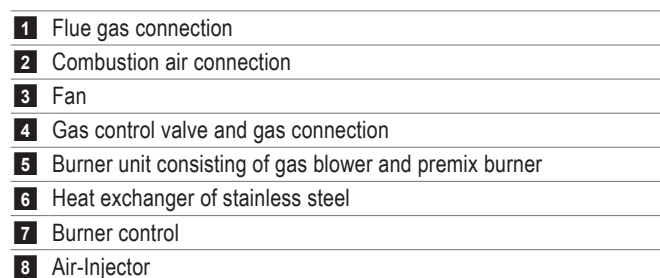
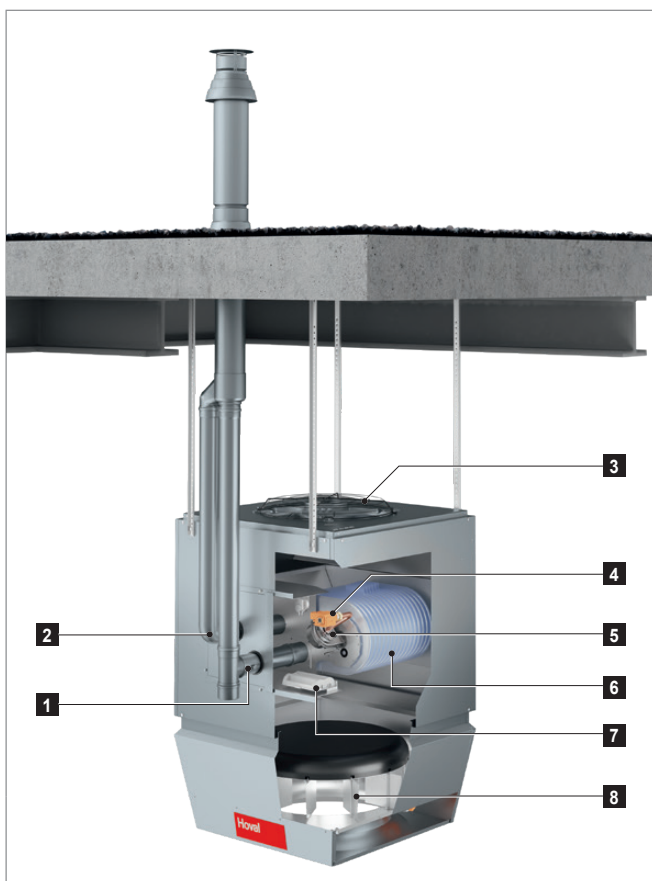
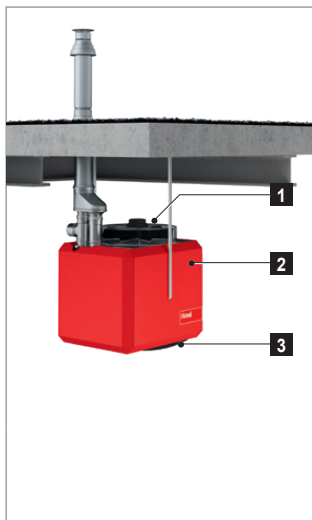


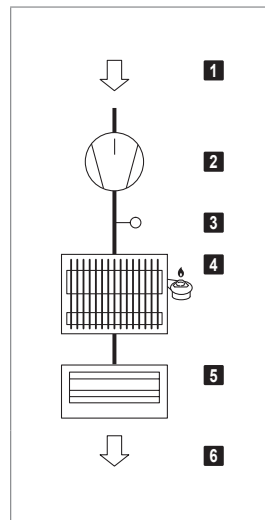
Fig. 3: TopVent® TG construction

### 3.2 TopVent® GV



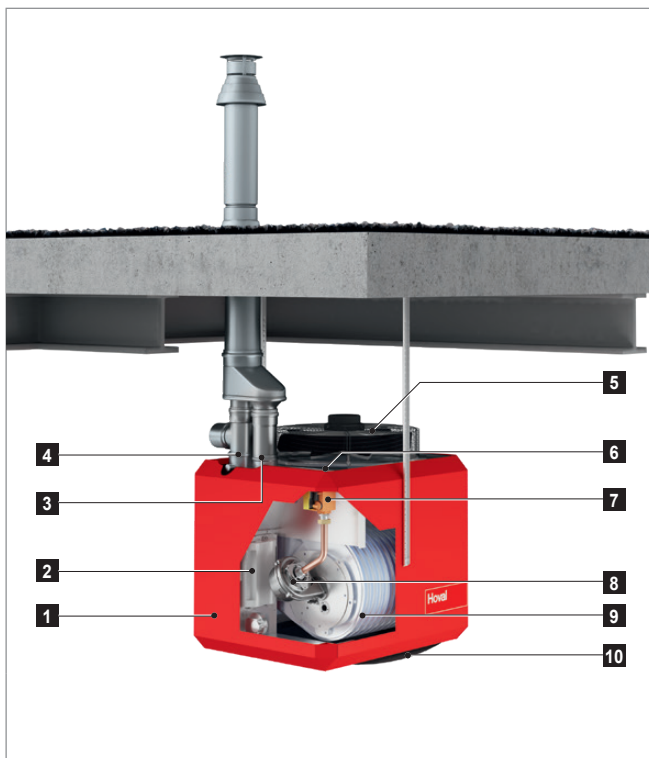
- 1** Fan unit
- 2** Heating section with integrated control box
- 3** Air outlet louvre

Fig. 4: TopVent® GV components



- 1** Extract air
- 2** Fan
- 3** Stratification sensor
- 4** Gas-fired heat exchanger
- 5** Air outlet louvre
- 6** Supply air

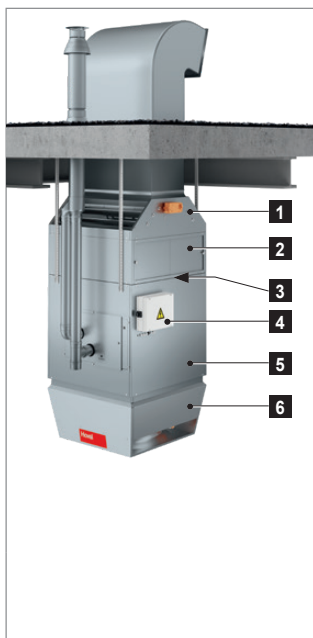
Fig. 5: TopVent® GV function diagram



- 1** Access door
- 2** Burner control
- 3** Combustion air connection
- 4** Flue gas connection
- 5** Fan
- 6** Gas connection
- 7** Gas control valve
- 8** Burner unit consisting of gas blower and premix burner
- 9** Heat exchanger of stainless steel
- 10** Air outlet louvre

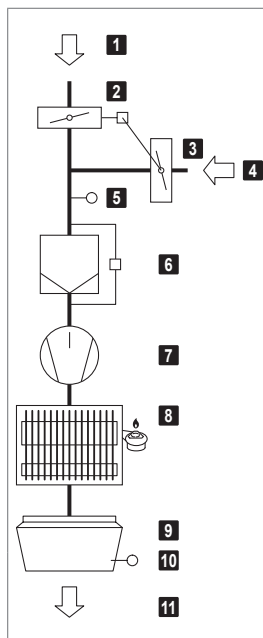
Fig. 6: TopVent® GV construction

3.3 TopVent® MG



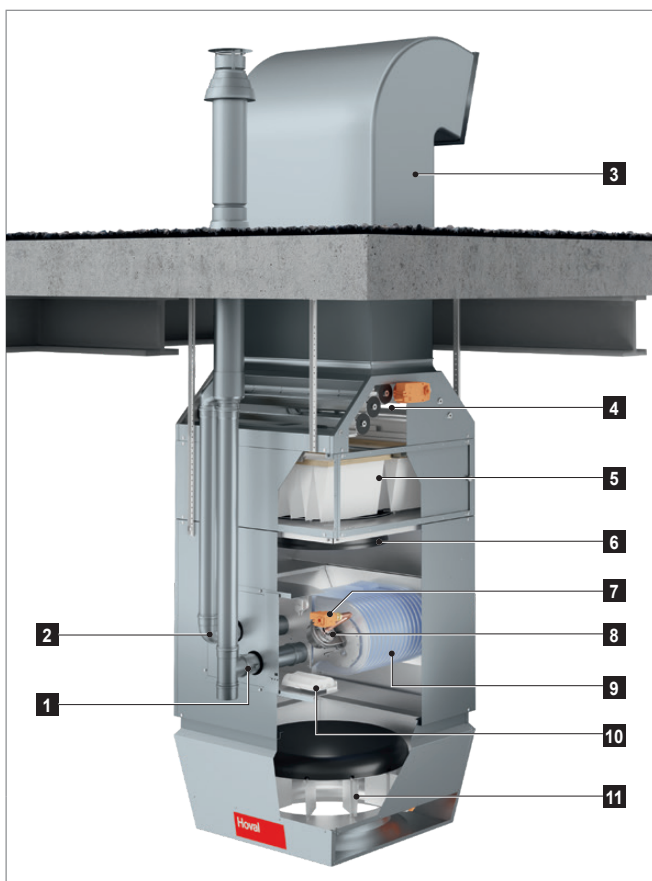
- 1 Mixed air box
- 2 Filter box
- 3 Fan unit
- 4 Unit control box
- 5 Heating section
- 6 Air-Injector

Fig. 7: TopVent® MG components



- 1 Fresh air
- 2 Fresh air damper with actuator
- 3 Recirculation damper (opposed to the fresh air damper)
- 4 Extract air
- 5 Mixed air temperature sensor
- 6 Air filter with differential pressure switch
- 7 Fan
- 8 Gas-fired heat exchanger
- 9 Air-Injector with actuator
- 10 Supply air temperature sensor
- 11 Supply air

Fig. 8: TopVent® MG function diagram



- 1 Flue gas connection
- 2 Combustion air connection
- 3 Fresh air duct (not included in the Hoval scope of supply)
- 4 Mixed air box
- 5 Filter box
- 6 Fan
- 7 Gas control valve and gas connection
- 8 Burner unit consisting of gas blower and premix burner
- 9 Heat exchanger of stainless steel
- 10 Burner control
- 11 Air-Injector

Fig. 9: TopVent® MG construction



## 4 Operating modes

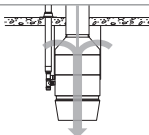

### 4.1 Operating modes with TopTronic® C

The units have the following operating modes:

- Supply air speed 2 (only TopVent® MG)
- Supply air speed 1 (only TopVent® MG)
- Recirculation
- Recirculation speed 1 (only TopVent® TG, MG)
- Standby (Night cooling only TopVent® MG)

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, Supply air speed 2, Supply air speed 1, Recirculation, Recirculation speed 1.

Code	Operating mode		Description
SA2	<b>Supply air speed 2</b> The fan runs at speed 2 (high air flow rate). The room temperature set value day is active. The unit blows fresh air into the room. The control of the fresh air ratio can be selected:		
	<u>Fixed fresh air ratio:</u> The unit operates continuously with the set fresh air ratio. The system controls the heating according to the heating demand.		Fan ..... speed 2 Fresh air damper..... 10 % open <sup>1)</sup> Heating ..... 0-100 % <sup>2)</sup>  <sup>1)</sup> Percentage is adjustable <sup>2)</sup> Depending on heat demand
	<u>Variable fresh air ratio:</u> <ul style="list-style-type: none"> <li>■ The system regulates the fresh air ratio depending on the temperature. The set fresh air ratio serves as a minimum value. If the temperature conditions permit, more fresh air is brought into the room and used for free heating or free cooling. Only when this potential is fully utilised is the heating switched on via the coil if required.</li> <li>■ If a combination sensor for room air is installed (option), the system additionally controls the fresh air ratio depending on the air quality.                             <ul style="list-style-type: none"> <li>– If there is no heat demand, the fresh air damper is opened 100% if the indoor air quality is too poor.</li> <li>– When the setpoint value for the CO<sub>2</sub> or VOC content of the room air is reached, the fresh air damper closes again to the set minimum value.</li> </ul> </li> </ul>		Fan ..... speed 2 Fresh air damper..... MIN-100 % open <sup>1)</sup> Heating ..... 0-100 % <sup>2)</sup>  <sup>1)</sup> A minimum value can be set <sup>2)</sup> Depending on heat demand
 <b>Notice</b> In order to save heating energy, the unit only operates with the set minimum fresh air rate when heat is required.			

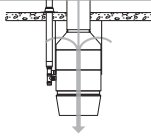
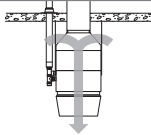
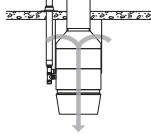
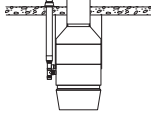
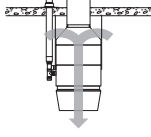
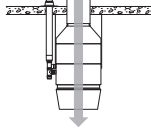
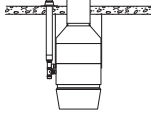
Code	Operating mode		Description
SA1	<b>Supply air speed 1</b> The same as SA2, but the unit operates at speed 1 (low air flow rate)		Fan ..... speed 1 Fresh air damper..... MIN-100% open <sup>1)</sup> Heating ..... 0-100% <sup>2)</sup>  <sup>1)</sup> Fixed or variable (see above) <sup>2)</sup> Depending on heat demand
REC	<b>Recirculation</b> On/off-operation: If heating is required, the unit draws in room air, heats it and blows it back into the room. The room temperature set value day is active.		Fan ..... speed 1/2 <sup>1)</sup> Fresh air damper..... closed Heating ..... on <sup>1)</sup>  <sup>1)</sup> Depending on heat demand
DES	<ul style="list-style-type: none"> <li>■ Destratification: To avoid heat build-up under the ceiling, it may be appropriate to switch on the fan when there is no heat demand (either in permanent operation or in on/off operation depending on the temperature stratification, as desired).</li> </ul>		Fan ..... speed 2 Fresh air damper..... closed Heating ..... 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 <sup>1)</sup> Fresh air damper..... closed Heating ..... on <sup>1)</sup>  <sup>1)</sup> Depending on heat demand
DES	<ul style="list-style-type: none"> <li>■ Destratification: The same as for REC, but the unit operates only at speed 1</li> </ul>		Fan ..... speed 1 Fresh air damper..... closed Heating ..... off
ST	<b>Standby</b> The unit is ready for operation. The following operating modes are activated if required:		
CPR	<ul style="list-style-type: none"> <li>■ Cooling protection: If the room temperature drops below the set value for cooling protection, the unit heats up the room in recirculation operation.</li> </ul>		Fan ..... speed 2 Fresh air damper..... closed Heating ..... on
NCS	<ul style="list-style-type: none"> <li>■ Night cooling: If the room temperature exceeds the set value for night cooling and the current fresh air temperature permits it, the unit blows cool fresh air into the room and extracts warmer room air.</li> </ul>		Fan ..... speed 2 Fresh air damper..... open Heating ..... off
L_OFF	<b>Off (local operating mode)</b> The unit is switched off.		Fan ..... off Fresh air damper..... closed Heating ..... off

Table 1: Operating modes with TopTronic® C

## 4.2 Operating modes with TempTronic MTC

The TempTronic MTC controls the following operating modes per control zone:

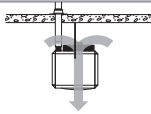
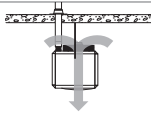
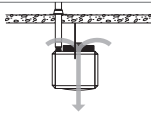
Operating mode		Description
<p><b>Recirculation heating</b></p> <p>The unit draws in room air, warms it and blows it back into the room. 3 setpoints can be set for regulation of the room temperature. The controller operates in one of the following programs, as desired:</p> <ul style="list-style-type: none"> <li>■ Automatic mode with setpoint changeover according to clock programme</li> <li>■ Continuous operation with the room temperature setpoint day</li> <li>■ Continuous operation with the room temperature setpoint night</li> <li>■ Continuous operation with the room temperature setpoint frost</li> </ul>		<p>Fan ..... modulated <sup>1)</sup></p> <p>Heating ..... modulated <sup>1)</sup></p> <p><sup>1)</sup> Depending on heat demand</p>
<p><b>Destratification</b></p> <p>To avoid heat build-up under the ceiling, the fan can be switched on depending on the temperature stratification. The controller compares the air temperatures in the ceiling area and in the occupied area, and switches to destratification mode if the difference becomes too great.</p>		<p>Fan ..... on</p> <p>Heating ..... off</p>
<p><b>Summer ventilation</b></p> <p>The fan can be switched manually to 3 speeds.</p>		<p>Fan ..... speed 1 / 2 / 3</p> <p>Heating ..... off</p>

Table 2: Operating modes with TempTronic MTC

## 5 Type code

### 5.1 TopVent® TG

	TG - 9 H / ST . D1 / S . FK . LH . UA . P / TC
<b>Unit type TG</b>	TG
<b>Unit size</b> 6 or 9	9
<b>Heating section</b> F Capacity 30 kW H Capacity 60 kW	H
<b>Design</b> ST Standard	ST
<b>Air outlet</b> D1 Design with Air-Injector DN Outlet nozzle	D1
<b>Installation</b> - without S Suspension set	S
<b>Filter box</b> -- without FK Filter box FF Flat filter box	FK
<b>Paint finish</b> -- without LH Standard paint finish LU Paint finish as desired	LH
<b>Silencer</b> -- without U- Recirculation silencer -A Acoustic cowl UA Recirculation silencer and acoustic cowl	UA
<b>Flue gas kit</b> - without F Flue gas kit flat roof P Flue gas kit pitched roof W Flue gas kit wall	P
<b>Control system</b> TC TopTronic® C	TC

Table 3: TopVent® TG type code

### 5.2 TopVent® GV

	GV - 5 G
<b>Unit type GV</b>	GV
<b>Unit size</b> 3 or 5	5
<b>Heating section</b> F Capacity 30 kW G Capacity 50 kW	G

Table 4: TopVent® GV type code

5.3 TopVent® MG

	MG	9	H	/	ST	.	D1	/	S	.	--	.	LH	.	A	.	P	/	TC
<b>Unit type MG</b>																			
<b>Unit size</b> 6 or 9																			
<b>Heating section</b> F Capacity 30 kW H Capacity 60 kW																			
<b>Design</b> ST Standard																			
<b>Air outlet</b> D1 Design with Air-Injector																			
<b>Installation</b> - without S Suspension set																			
<b>Paint finish</b> -- without LH Standard paint finish LU Paint finish as desired																			
<b>Silencer</b> - without A Acoustic cowl																			
<b>Flue gas kit</b> - without F Flue gas kit flat roof P Flue gas kit pitched roof W Flue gas kit wall																			
<b>Control system</b> TC TopTronic® C																			

Table 5: TopVent® MG type code

## 6 Technical data

### 6.1 Application limits

#### TopVent® TG, MG

Extract air temperature	max.	°C	50
Fresh air temperature (TopVent® MG)	min.	°C	-15
Supply air temperature	max.	°C	55
Protection rating	IP 50		
The units cannot be used in:			
<ul style="list-style-type: none"> <li>■ Damp locations</li> <li>■ Places with a corrosive or aggressive environment</li> <li>■ Spaces with a large amount of dust</li> <li>■ Areas where there is danger of explosion</li> </ul>			

Table 6: TopVent® TG, MG application limits

#### TopVent® GV

Extract air temperature	max.	°C	50
Supply air temperature	max.	°C	55
The units cannot be used in:			
<ul style="list-style-type: none"> <li>■ Damp locations</li> <li>■ Places with a corrosive or aggressive environment</li> <li>■ Spaces with a large amount of dust</li> <li>■ Areas where there is danger of explosion</li> </ul>			

Table 7: TopVent® GV application limits

### 6.2 Electrical connection

Unit type		TG-6 MG-6	TG-9 MG-9	GV-3	GV-5
Supply voltage	V AC	3 x 400	3 x 400	230	230
Permitted voltage tolerance	%	± 5	± 5	+10/-15	+10/-15
Frequency	Hz	50	50	50	50
Power consumption max.	W	1360	1960	300	750
Current consumption max.	A	2.3	3.4	1.4	3.5
Series fuse	A	13	13	16	16
Protection rating of unit control box	–	IP 56	IP 56	IP 00B	IP 00B

Table 8: Electrical connection

### 6.3 Air flow rate, gas consumption

Unit type		TG-6	TG-9	MG-6	MG-9	GV-3	GV-5
Nominal air flow rate <sup>1)</sup>	m³/h	7000	11000	7000	11000	4200	8500
Minimum air flow rate	m³/h	5000	9000	5000	9000	2900	6000
Floor area covered							
<ul style="list-style-type: none"> <li>■ for applications with higher comfort requirements (e.g. production halls, assembly halls, sports halls)</li> </ul>	m²	644	1232	644	1232	140	290
<ul style="list-style-type: none"> <li>■ for applications with low comfort requirements (e.g. warehouses, logistics centres)</li> </ul>	m²	731	1583	–	–	–	–
Nominal heat input	max. kW	32.0	66.0	32.0	66.0	32.0	55.0
Nominal heat output	max. kW	28.9	61.2	28.9	61.2	28.9	50.7
Gas consumption							
Natural gas: G20, G27 (H, E, Lw)	m³/h	3.4	7.0	3.4	7.0	3.4	5.8
Natural gas: G25, G25.3 (L, LL, K)	m³/h	3.8	7.9	3.8	7.9	3.8	6.6

1) at an air temperature of 20 °C

Table 9: Technical data

## 6.4 Gas connection

### TopVent® TG, MG

Unit type	TG-6 MG-6	TG-9 MG-9
Gas appliance type <sup>1)</sup>	B <sub>23</sub> , C <sub>13</sub> , C <sub>33</sub>	B <sub>23</sub> , C <sub>13</sub> , C <sub>33</sub>
Gas connection	G ½" (internal)	G ¾" (internal)
Combustion air connection	DN 80	DN 80
Flue gas connection	DN 80	DN 80
Max. length of flue gas duct <sup>2)</sup>	6 m	8 m
1) according to method of flue gas evacuation and combustion air supply 2) Equivalent length of formed parts: – 90° elbow ..... 2 m – 45° elbow ..... 1 m – 90° T-piece ... 2 m		

Table 10: TopVent® TG, MG gas circuit connections

### TopVent® GV

Unit type	GV-3	GV-5
Gas appliance type <sup>1)</sup>	B <sub>23</sub> , C <sub>13</sub> , C <sub>33</sub>	B <sub>23</sub> , C <sub>13</sub> , C <sub>33</sub>
Gas connection	G ½" (internal)	G ¾" (internal)
Combustion air connection	DN 80	DN 80
Flue gas connection	DN 80	DN 80
Max. length of flue gas duct <sup>2)</sup>		
Ceiling installation	2 m	2 m
Wall mounting	6 m	8 m
1) according to method of flue gas evacuation and combustion air supply 2) Equivalent length of formed parts: – 90° elbow ..... 2 m – 45° elbow ..... 1 m – 90° T-piece ... 2 m		

Table 11: TopVent® GV gas circuit connections

## 6.5 Sound level

### TopVent® TG, MG

Unit type		TG-6	TG-9	MG-6	MG-9	
Sound pressure level (at a dist. of 5 m) <sup>1)</sup>	dB(A)	50	54	58	61	
Total sound power level	dB(A)	72	76	80	83	
Octave sound power level	63 Hz	dB	47	42	57	55
	125 Hz	dB	54	56	62	62
	250 Hz	dB	59	63	67	69
	500 Hz	dB	64	68	72	76
	1000 Hz	dB	68	72	77	79
	2000 Hz	dB	65	69	74	77
	4000 Hz	dB	59	63	68	71
	8000 Hz	dB	52	56	60	63
1) with a hemispherical radiation pattern in a low-reflection room						

Table 12: TopVent® TG, MG sound level

### TopVent® GV

Unit type		GV-3	GV-5
Sound pressure level (at a distance of 5 m) <sup>1)</sup>	dB(A)	59	64
Total sound power level	dB(A)	84	89
1) with a hemispherical radiation pattern in a low-reflection room			

Table 13: TopVent® GV sound level

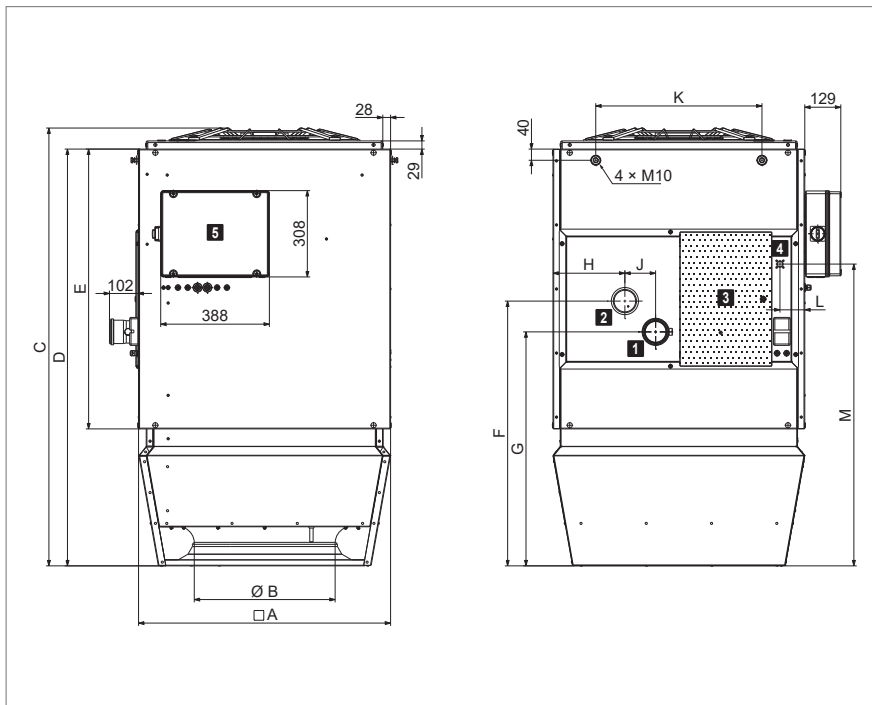
## 6.6 Heating capacity

Unit type		TG-6 MG-6	TG-9 MG-9	GV-3	GV-5
Rated heating capacity (P <sub>rated,h</sub> )	kW	28.9	61.2	28.9	50.7
Minimum capacity (P <sub>min</sub> )	kW	17.0	37.9	17.0	31.5

Table 14: Heating capacity

6.7 Dimensions and weights

TopVent® TG



Unit type	TG-6	TG-9	
A	mm	900	1100
B	mm	500	630
C	mm	1565	1672
D	mm	1490	1570
E	mm	1000	1000
F	mm	946	1019
G	mm	836	909
H	mm	257	461
J	mm	110	110
K	mm	594	846
L	mm	89	89
M	mm	1079	1094
Weight	kg	125	170

- 1** Flue gas connection with measuring opening (DN 80)
- 2** Combustion air connection (DN 80)
- 3** Inspection door with measuring opening for combustion air temperature
- 4** Gas connection (TG-6: G 1/2", TG-9: G 3/4")
- 5** Unit control box

Fig. 10: TopVent® TG dimensions and weights



TopVent® GV

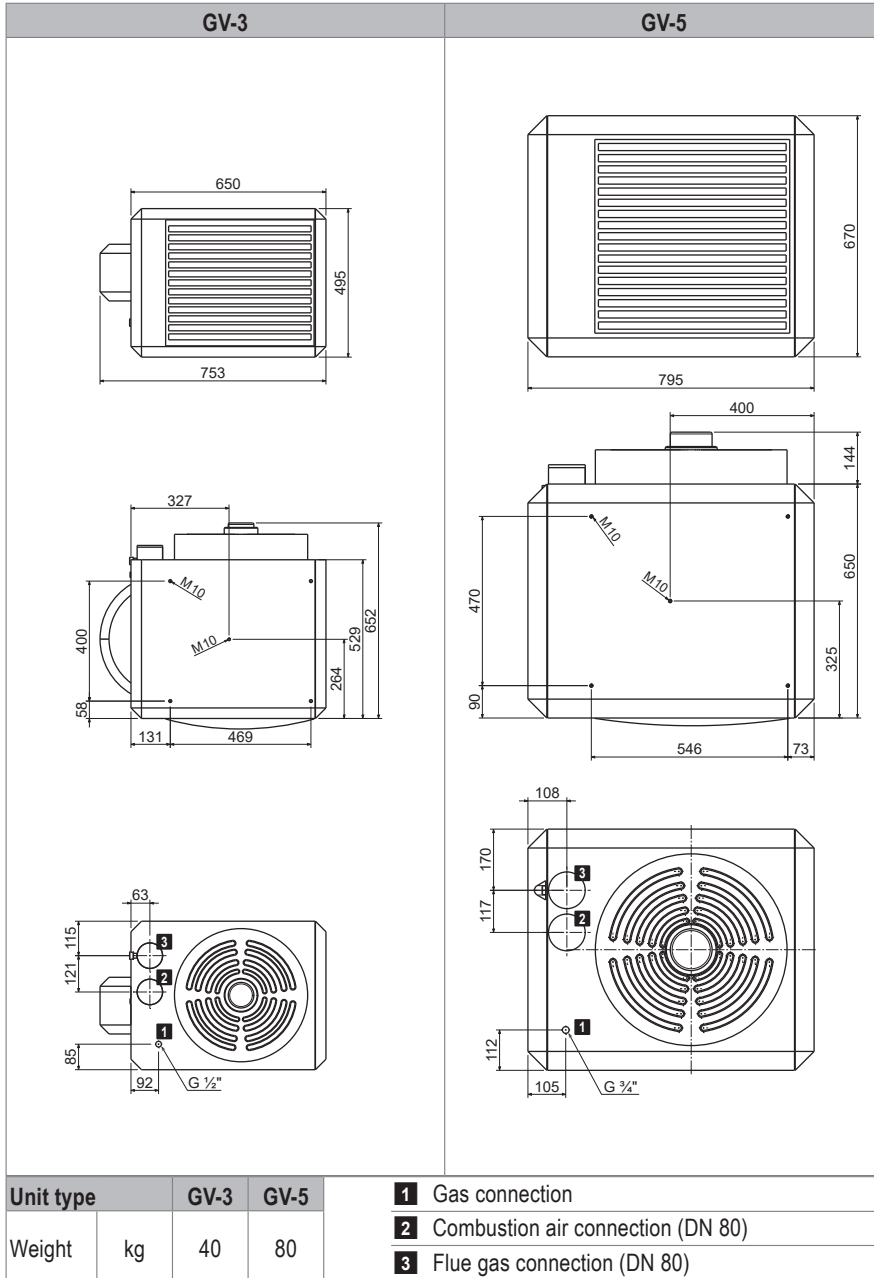
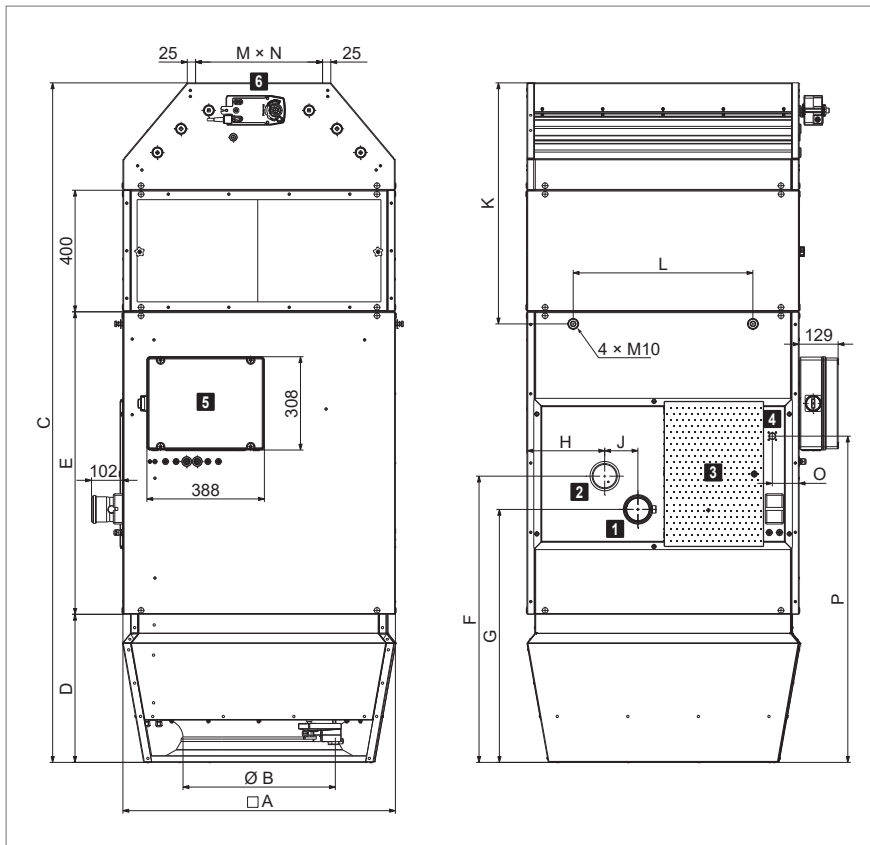


Fig. 11: TopVent® GV dimensions and weights

TopVent® MG



Unit type		MG-6	MG-9	
A	mm	900	1100	<b>1</b> Flue gas connection with measuring opening (DN 80)
B	mm	500	630	<b>2</b> Combustion air connection (DN 80)
C	mm	2246	2333	<b>3</b> Inspection door with measuring opening for combustion air temperature
D	mm	490	570	<b>4</b> Gas connection (MG-6: G ½", MG-9: G ¾")
E	mm	1000	1000	<b>5</b> Unit control box
F	mm	946	1019	<b>6</b> Fresh air duct connection
G	mm	836	909	
H	mm	257	461	
J	mm	110	110	
K	mm	797	803	
L	mm	594	846	
M x N	mm	420 x 850	500 x 1050	
O	mm	89	89	
P	mm	1079	1094	
Weight	kg	175	230	

Fig. 12: TopVent® MG dimensions and weights

## 7 Options

### 7.1 Outlet nozzle

The outlet nozzle replaces the Air-Injector. The external dimensions of the unit remain the same. The weight is reduced:

- Size 6: –15 kg
- Size 9: –21 kg

The air discharge angle cannot be adjusted. Units with outlet nozzle are well-suited for applications with lower comfort requirements and for large mounting heights (e.g. in high-bay warehouses).

### 7.2 Suspension set

For ease of installation of the units, there are suspension sets available (complete with nuts and bolts).

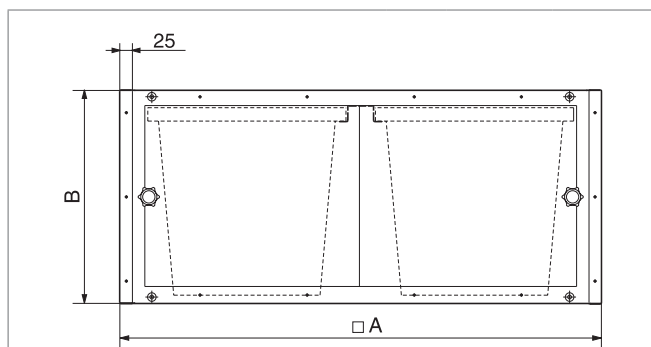
### 7.3 Air filtration

For hygiene reasons, Hoval recommends always fitting TopVent® TG units with a filter.

#### 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.



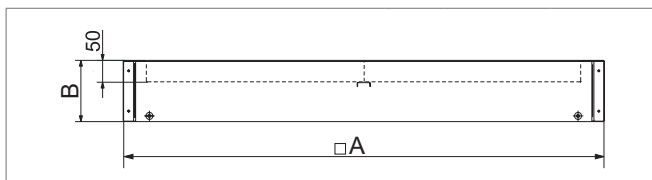
Size		6	9
A	mm	900	1100
B	mm	400	400
Filter class		ISO coarse 60 % (G4)	
Weight	kg	20	24
Factory setting of differential pressure switches	Pa	120	120

Table 15: 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
Filter class		ISO coarse 60 % (G4)	
Weight	kg	10	12.5
Factory setting of differential pressure switches	Pa	50	50

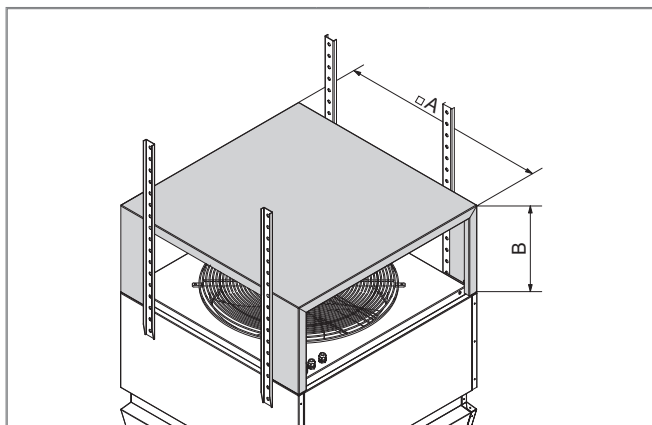
Table 16: Flat filter box technical data

**7.4 Paint finish**

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

**7.5 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 17: Recirculation silencer dimensions and weights

### 7.6 Acoustic cowl

The acoustic cowl reduces the noise level in the room; it is installed in the Air-Injector. This does not change the outside dimensions of the Air-Injector. Insertion attenuation is 4 dB compared with the total sound power level of each TopVent® unit.

### 7.7 Flue gas accessories

#### Flue gas kits

For simple, room air independent installation of TopVent® gas units:

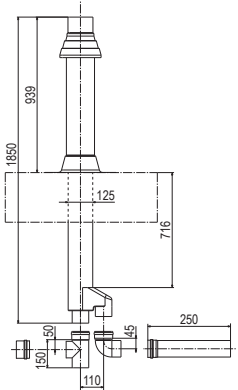
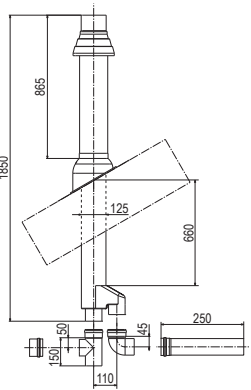
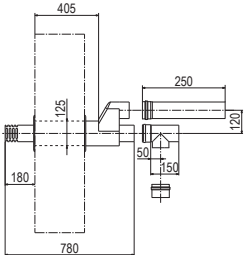
Flue gas kit flat roof DN 80	Flue gas kit pitched roof DN 80	Flue gas kit wall DN 80
	 <p data-bbox="427 1317 710 1361">Appropriate for roof inclinations between 25° and 45°</p>	
<p><b>Components:</b></p> <ul style="list-style-type: none"> <li>■ Roof feed-through</li> <li>■ Flat roof flange</li> <li>■ Flue gas pipe</li> <li>■ T-piece</li> <li>■ Condensate cap</li> <li>■ Elbow bend 90°</li> </ul>	<p><b>Components:</b></p> <ul style="list-style-type: none"> <li>■ Roof feed-through</li> <li>■ Lead pan with shell</li> <li>■ Flue gas pipe</li> <li>■ T-piece</li> <li>■ Condensate cap</li> <li>■ Elbow bend 90°</li> </ul>	<p><b>Components:</b></p> <ul style="list-style-type: none"> <li>■ Wall feed-through</li> <li>■ Flue gas pipe</li> <li>■ T-piece</li> <li>■ Condensate cap</li> </ul>

Table 18: Flue gas kit dimensions and components (dimensions in mm)

#### Individual parts

For the adaptation of the flue gas kit to the particular situation:

- Flue gas pipe (250 / 500 / 1000 mm)
- Elbow (90° / 45°)
- T-piece
- Length adjustment piece
- Condensate cap
- Pipe clamp

## 8 Transport and installation



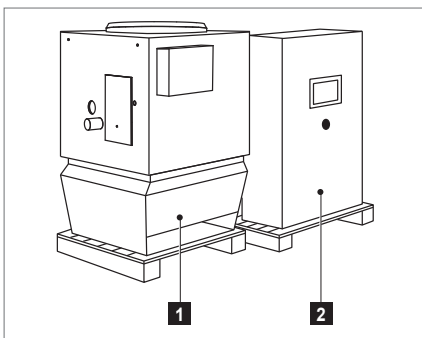
### Caution

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

### 8.1 Scope of delivery

The scope of delivery includes:

- TopVent® unit
- Accessories (flue gas duct, installation material, temperature sensors)
- Optional components



1 TopVent® unit

2 Zone control panel

Fig. 13: 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)
- Installation material (in the Air-Injector)
- Flue gas duct

### Options

The following optional components are supplied separately:

- Additional room temperature sensors (in the zone control panel)
- Zone control panel C-SYS
- Room temperature controller TempTronic MTC

### Preparation

- Use a forklift with a sufficiently long fork to unload (at least 1.3 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.

### 8.2 Storage

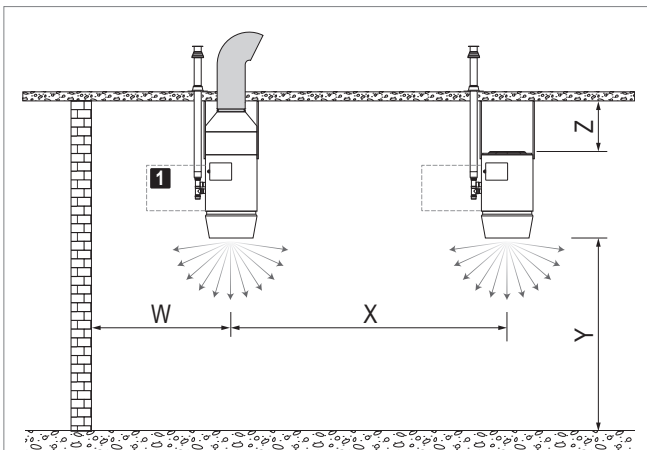
If you do not install the unit immediately:

- Remove the packaging film to avoid water vapour condensation.
- Store the unit in a dry, dust-free room.
- Keep the storage temperature between  $-30\text{ °C}$  and  $+50\text{ °C}$ .
- 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.

### 8.3 Requirements for the installation site

- Comply with the minimum and maximum distances.
- Only secure the unit to ceilings or walls with sufficient load-bearing capacity.
- The surface temperature of the flue gas pipes amounts to 200 °C. Please observe the regulations of the responsible fire protection authorities.
- Position the unit in such a way that no one is endangered by flue gas and radiant heat and no fires can break out.
- 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.
- The unit must be accessible for maintenance work. The connecting lines must be able to be dismantled.
- Make sure that supply air units draw in fresh air via the fresh air duct.

#### TopVent® TG / MG



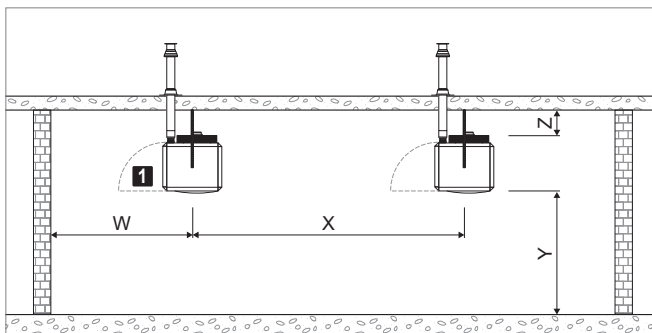
1 Clearance of approx. 1.5 m for maintenance work

Unit type		TG		MG		
Size		6	9	6	9	
Distance from ceiling Z	min.	m	0.3	0.4	0.3	0.4
Mounting height Y	max. 1)	m	Approx. 9...25			
	min.	m	4	5	4	5
<b>Applications with higher comfort requirements</b>						
■ Distance from wall W	max.	m	13	16	13	16
	min.	m	6	8	6	8
■ Unit clearance X	max.	m	26	36	26	36
	min.	m	13	16	13	16
<b>Applications with low comfort requirements</b>						
■ Distance from wall W	max.	m	13	20	-	-
	min.	m	6	8	-	-
■ Unit clearance X	max.	m	27	40	-	-
	min.	m	13	16	-	-

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)

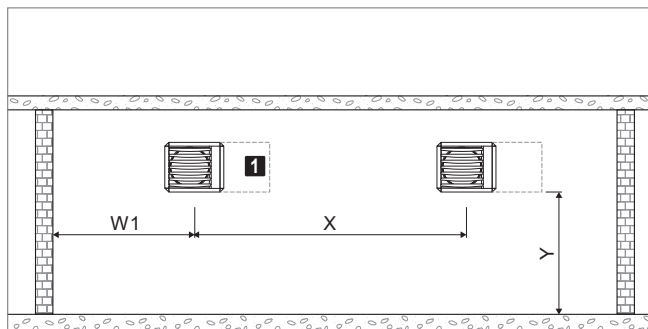
Table 19: TopVent® TG / MG minimum and maximum distances

TopVent® GV – vertical air flow



1 Free space to open inspection door

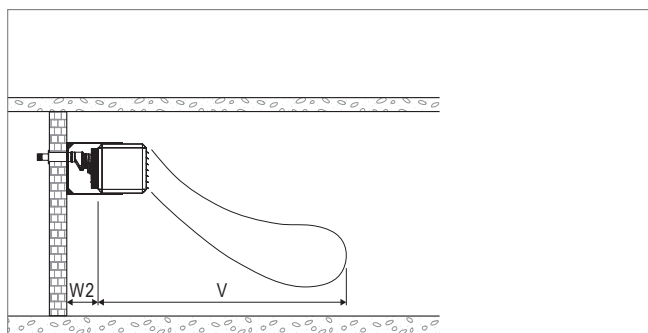
TopVent® GV – horizontal air flow



1 Free space to open inspection door

Unit type			GV-3	GV-5
Distance from ceiling Z	min.	m	0.3	0.3
	max.	m	4.0	4.0
Mounting height Y	min.	m	4.0	4.0
	max.	m	5.0	6.0
Distance from wall W	max.	m	7.0	10.0
	min.	m	3.5	5.0
Unit clearance X	max.	m	12.0	16.0
	min.	m	7.0	10.0

Table 20: TopVent® GV distances for vertical air flow (ceiling mounting)



Unit type			GV-3	GV-5
Mounting height Y	min.	m	1.7	1.7
	max.	m	5.0	6.0
Distance from wall W1	max.	m	7.0	10.0
	min.	m	3.5	5.0
Unit clearance X	max.	m	12.0	16.0
	min.	m	7.0	10.0
Distance from wall W2 <sup>1)</sup>	min.	m	0.3	0.3
Reach V		m	23.0	28.8

1) The effective distance from wall depends on the method of flue gas evacuation chosen.

Table 21: TopVent® GV distances for horizontal air flow (wall mounting)



## 8.4 Flue gas evacuation and combustion air supply

- In all cases, use only the original flue gas accessories approved for use with the units for the installation. Do not combine systems from different manufacturers.
- Observe national and local regulations when planning the flue gas evacuation and the combustion air supply. From an early stage, coordinate the installation with the responsible district chimney sweep authorities and obtain the necessary authorisation from the local building authority.
- Provide suitable openings for the roof and wall feed-through of the flue gas ducts.
- Use flue pipes with the same diameter as the combustion air and flue gas connections on the unit.
- Observe the maximum length of the flue gas duct (see Table 10 and Table 11).



### Attention

Risk of damage to the unit from condensate flowback. Do not exceed the maximum permitted lengths of the flue gas pipe!

- Condensation may form in horizontal flue gas ducts > 4 m long or in ducts through cool rooms:
  - Insulate the pipes using temperature-resistant, non-flammable material.
  - Insert a condensate cap.
- Install horizontal flue gas ducts with at least 3° inclination (50 mm/m) towards the unit so that condensate can flow to the air heater.
- The surface temperature of the flue gas pipes amounts to 200 °C. During the planning process, please observe the regulations of the responsible fire protection authorities.
- For the flue gas path test, Hoval recommends installing an inspection T-piece (included in the flue gas kit).
- For all diversions, install an inspection T-piece in the flue gas pipe as well.
- In some countries, an annual inspection and emission measured by the responsible authorities is legally required. For this purpose, measurement openings have been provided in the exhaust spout and the access panel.
- In some countries (e.g. in Germany), an emission measurement from the roof is also permissible. For this purpose, provide measurement openings in the flue gas pipe and in the combustion air pipe directly above the roof (on-site installation in 3-shell pipe).

### Room air-dependent installation

- The units can be installed as room air dependent (Type B<sub>23</sub>) or room air independent (Type C<sub>13</sub>, C<sub>33</sub>) appliances.
- For room air dependent operation the combustion air is taken directly from the room in which the unit is installed. Ensure the room is sufficiently ventilated and that the combustion air is free from pollutants and aggressive substances (halogens such as chlorides, fluorides, etc.).
- In case of room air dependent installation (Type B<sub>23</sub>), close off the combustion air connection using a protective screen.

## 8.5 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 or similar

### Ceiling mounting TopVent® TG, GV, MG

- Insert the roof feed-through of the flue gas kit in the roof opening.
  - If necessary, shorten the concentric pipe of the roof feed-through as appropriate in order to adapt it to the particular conditions required.
- 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 filter box, mixed air box or recirculation silencer.

- 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°.

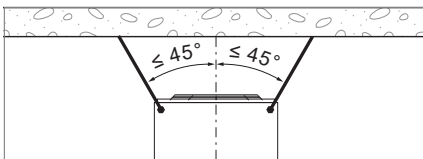


Fig. 17: Non-vertical suspension

- TopVent® MG:
  - Connect supply air units to the fresh air duct via a canvas connection and connect both flanges with an earth wire.
- Attach the flue gas accessories to the unit.
  - Do not use lubricants.
  - Perform all pipe connections gas-tight.
  - If necessary adjust the pipe lengths to the local conditions.



Fig. 14: TopVent® TG installation

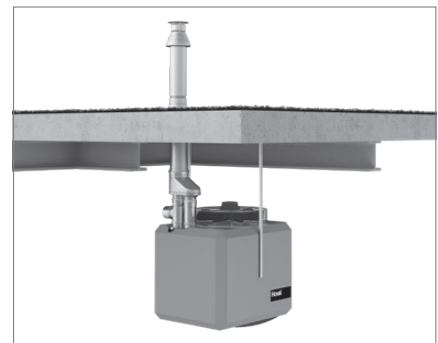


Fig. 15: TopVent® GV installation



Fig. 16: TopVent® MG installation

**TopVent® GV wall installation**

- Insert the wall feed-through in the wall opening.
  - If necessary, shorten the concentric pipe of the wall feed-through as appropriate in order to adapt it to the particular conditions required.
- Transport the unit to the installation site.
- Mount the suspension set on the designated suspension points.
- Install the unit on the wall.
- Do not attach any additional loads.
- Attach the flue gas accessories to the unit.
  - Do not use lubricants.
  - Perform all pipe connections gas-tight.
  - If necessary adjust the pipe lengths to the local conditions.

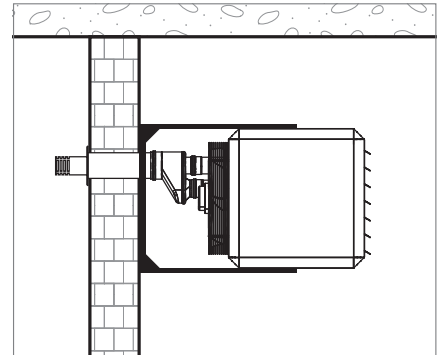


Fig. 18: TopVent® GV installation

8.6 Gas connection



**Caution**

Risk of injury from incorrect handling. Gas connection must be carried out by trained specialists only!

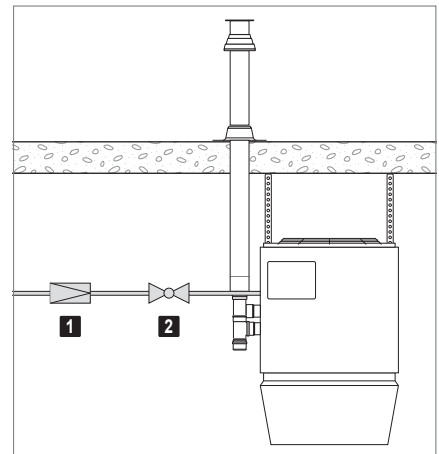
Please note the following:

- The fuel used is natural gas. Check the type of gas the unit is set to work with and, if necessary, have Hoval Customer Service reset the unit to the type of gas supplied locally.
- During operation of the unit, the required quantity of gas and the necessary pressure of gas must be present constantly.
- Connect the gas supply line with appropriate bolted joints which can be loosened, tension-free and vibration-free (gas hose, compensator).
- The connection of the unit to the gas supply line must be gas-tight.
- Install a gas pressure regulator and a gas shut-off valve in the gas supply line immediately upstream of the unit, as well as other components required by local regulations, such as gas filter, gas pressure regulator, pressure gauge with push-button tap, etc. (not included in the scope of delivery).
- Clean the inside of the gas supply pipe before connecting it to the unit. Install a gas filter if necessary.



**Attention**

When using pressures above 60 mbar to test the gas supply line, always close the manual isolation valve of the air heater.



**1** Gas pressure regulator (20...50 mbar)

Recommended settings:

- Natural gas G20 20 mbar
- Natural gas G25 25 mbar

**2** Cut-off-valve

Fig. 19: Gas pressure regulator and cut-off valve in the gas supply line

## 8.7 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.

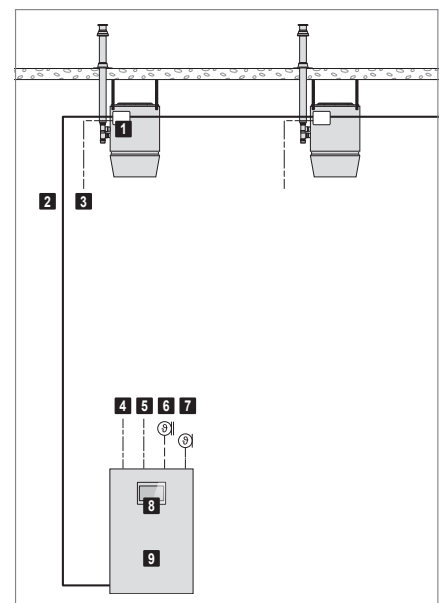
### TopVent® TG, MG, GV with TopTronic® C

- Connect the power supply to the unit control box.
- Connect the zone bus to the unit control box.
- TopVent® MG:
  - Make sure that the ground cable is installed in the flange of the fresh air duct.
- Option TopVent® MG:
  - Wire up the signal for emergency shut-off (Forced off) to the unit control box.

### 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.



- |   |                                |
|---|--------------------------------|
| 1 | Unit control box               |
| 2 | Zone bus                       |
| 3 | Power supply for TopVent®      |
| 4 | Power supply for control panel |
| 5 | Collective alarm               |
| 6 | Fresh air temperature sensor   |
| 7 | Room temperature sensor        |
| 8 | System operator terminal       |
| 9 | Zone control panel             |

Fig. 20: TopTronic® C connection diagram

**TopVent® GV with TempTronic MTC**

- Connect the power supply to the control box in the unit and, if present, to the option module.
- Install a main switch for the complete installation in the on-site control panel.
- Lay the system bus according to the system layout.
- Depending on the project, lay signal lines from the building control system to the option module.
- Address the TopVent® GV units using switches S1 and J14 on the burner control unit inside the unit:
  - Use micro switch J14 to give each unit its own number.
  - Set switch S1 in the pilot unit to '1' and in the other units to '0'.

**i Notice**  
The unit must be switched off when setting the switches. Otherwise, the settings will have no effect.

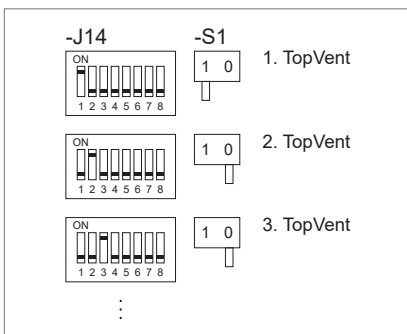


Fig. 21: Addressing the units

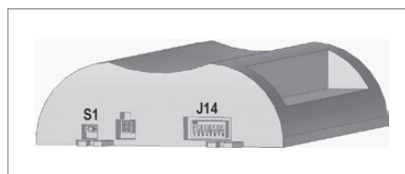
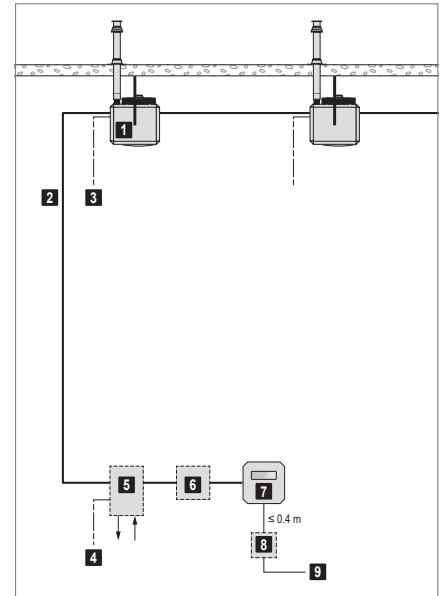


Fig. 22: Location of the S1 and J14 switches on the burner control

- Install the TempTronic MTC or the external room air 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.).



- 1 TopVent® GV (max. 8)
- 2 System bus
- 3 Power supply for TopVent® GV
- 4 Power supply for option module
- 5 Option module
- 6 External room temperature sensor
- 7 TempTronic MTC
- 8 Relay (on-site)
- 9 External switching

Fig. 23: TempTronic MTC connection diagram

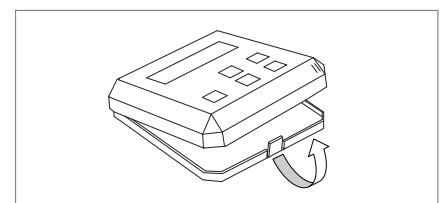


Fig. 24: Opening TempTronic MTC

## 9 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.

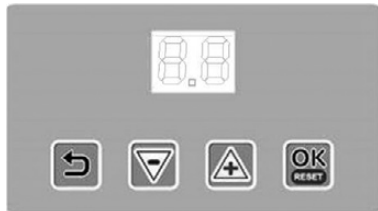
### 9.1 Checklist to prepare for commissioning

- Mechanical installation
  - Indoor climate units
  - Zone control panels
  - Operator terminals
- Gas installation
  - Gas supply line and gas connection
  - Flue gas evacuation and combustion air supply
  - Compliance with all relevant regulations
  - Approval of the local building authority
- Electrical installation
  - Power supply for indoor climate units, zone control panels
  - 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, ...)
  - 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)

The unit is checked at the factory and preset according to the specifications on the type label.

## 9.2 Commissioning of the gas burner

- Open the main shutoff device in the gas supply line.
- Wait until the gas pressure regulator has reduced the connection pressure to the set value.
- Slowly open the cut-off valve in front of the device.
- Switch on the electric power supply.
- Set the following on the operating terminal (see operating instructions):
  - 'Recirculation' operating mode
  - a room temperature set value that is higher than the current room temperature (→ heat demand).
- The operation sequence for heat demand begins. The burner control display shows the current status:



Display	Status	Description
0	Standby	Waiting for heat demand
1	Reset	Software reset
3	Pre-check	Zero position check pressure switch
4	Pre-purge	30 s pre-ventilation by the gas blower
5	Pre-ignition	Ignition without opening the gas valve
6	Ignition	5 seconds of ignition and opening of the gas valve
7	Flame check	The controller checks if a flame is present.
8	Burn	The heater fires up and starts to modulate.
9	Partial load operation	Before the flame stops the burner will modulate to partial load operation.
10	Burner off	The gas valve closes. The flame stops.
11	Post-purge	Gas blower purges with fresh air. The fan continues to run to cool down the heat exchanger.

Table 22: Burner control display

### 9.3 Service mode

The following operating modes can be forced for maintenance work (emission measurement, setting of the gas control valve):

- Partial load operation (→ min. heat output, min. air flow rate)
- Full load operation (→ max. heat output, max. air flow rate)

Activate the service mode at the burner control display:

- Press and hold the [↵] and [-] buttons for a few seconds.
  - The display will alternate between 'Lo' and 'St'.
  - The heater starts up in partial load operation.
- Press the [-] and [+] buttons to toggle between partial load and full load operation.
- Press the [-] button until '0' is displayed to exit the service mode.
  - The fan continues to run to cool down the heat exchanger.

The service mode will automatically end after 10 minutes.



#### Attention

For service operation, the control system must be installed. Otherwise, the fan does not run and the heat exchanger will get too hot.

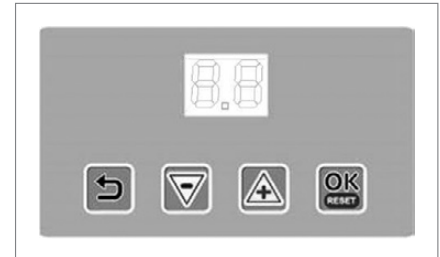


Fig. 25: Burner control display

### 9.4 Emission measurement

A flue gas analyser is required which records the following measured values:

- CO concentration of the flue gas
- CO<sub>2</sub> concentration of the flue gas
- Combustion air temperature
- Flue gas temperature
- Flue gas loss

Perform the emission measurements under partial load and full load operation. For this purpose, use the measurement openings in the exhaust spout and the access panel. To measure the combustion air temperature, remove the plugs in the measuring opening and insert the sensor to a depth of approx. 150 mm.



#### Notice

For emission measurements from the roof (where this is permitted), suitable measurement openings in the 3-shell pipe must be installed directly over the roof and be sealed gas-tight.

Proceed as follows:

- Force partial load or full load operation (see section 9.3).
- Wait approx. 5 minutes until the unit is in the steady-state condition. Then perform the emission measurement.
- Prepare a measurement report and deliver this to the operator for safekeeping.



### 9.5 Setting of the gas control valve



**Caution**

Danger of poisoning. An incorrect setting of the gas control valve can lead to carbon monoxide production and overheating. It is absolutely necessary to check the correct settings during commissioning!

You need a calibrated flue gas analyser.

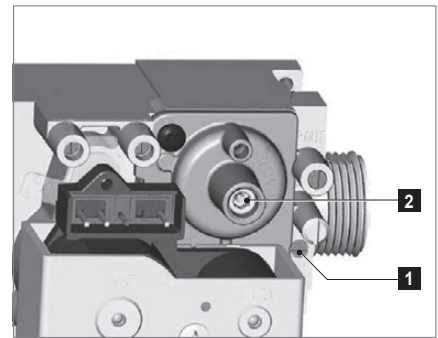
Proceed as follows:

- Connect the flue gas analyser.
- Force full load operation (see section 9.3).
- Measure the CO<sub>2</sub> content of the flue gas and compare the measured value with the target value in Table 23.
- If the difference is more than 0.3% adjust the setting as follows:
  - CO<sub>2</sub> value too low:.....Turn the adjuster **1** to the left.
  - CO<sub>2</sub> value too high: .....Turn the adjuster **1** to the right.
- Force partial load operation and measure the CO<sub>2</sub> content of the flue gas. Adjust the setting as follows:
  - CO<sub>2</sub> value too low:.....Turn the adjuster **2** to the right.
  - CO<sub>2</sub> value too high: .....Turn the adjuster **2** to the left.
- Return to full load operation and readjust the CO<sub>2</sub> value with the adjuster **1**.
- Return to partial load operation and readjust the CO<sub>2</sub> value with the adjuster **2**.
- Repeat the steps above until both CO<sub>2</sub> values are correct.



**Attention**

Always measure the CO content of the flue gas at the same time. A value over 100 ppm means the gas mixture is too rich. Turn the adjuster **1** to the right.



**1** Ratio adjuster (full load)

**2** Offset adjuster (partial load)

Fig. 26: Gas control valve

Unit type		TG-6 MG-6	TG-9 MG-9	GV-3	GV-5
CO <sub>2</sub> full load	%	9.0	9.0	9.0	9.0
CO <sub>2</sub> partial load	%	8.5	8.6	8.5	8.6
O <sub>2</sub> full load	%	4.9	4.9	4.9	4.9
O <sub>2</sub> partial load	%	5.8	5.8	5.8	5.8

Table 23: Target values for setting the gas control valve

### 9.6 Programming the control system

Program the control system using the operating instructions.

## 10 Operation

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.

## 11 Troubleshooting

In the event of a burner malfunction, an alarm is displayed on the operating terminal (see operating instructions).

### 11.1 Locking burner malfunctions

The following burner malfunctions lock the unit. Acknowledge the alarm on the control unit or press the [OK] button on the burner control display after remedy of the fault for putting into operation again.

Display		Error type	Description	Case #
Burner control	TopTronic® C			
L-0	0	Internal error	Internal error	13
L-1	1	Ignition error	Flame lasts only 5 seconds after ignition	1
			No flame after ignition	2
L-2 and 3	2 and 3	Internal error	Internal error	13
L-4	4	E-error	E-error for more then 24 hours	12
L-5	5	Gas blower error	Gas blower does not work	6
L-6 and 7	6 and 7	Gas blower error	Gas blower rotates at the wrong speed	7
L-8 to 12	8 to 12	Internal error	Internal error	13
L-13	13	Pressure switch error	Pressure switch is closed in standby mode	14
L-14	14	Pressure switch error	Pressure switch does not close during pre-purge	11
L-15	15	Overheating	Heat exchanger sensor is overheated	3
L-16	16	Flue gas temperature error	Flue gas temperature sensor is overheated	3
L-17 to 19	17 to 19	Internal error	Internal error	13
L-20	20	Flame error	Flame detected after closing the gas valve	15
L-21	21	Flame error	Flame detected before opening the gas valve	16
L-22	22	Flame error	Flame failure during burning	5
L-23	23	Internal error	Internal error	13
L-25	25	Temperature sensor error	Heat exchanger sensor failure	4
L-26	26	Temperature sensor error	Flue gas temperature sensor failure	4
L-27 to 31	27 to 31	Internal error	Internal error	13
L-32	32	Temperature sensor error	Heat exchanger sensor failure	4
L-42	42	Flue gas temperature error	Too many flue gas temperature errors	3
L-43	43	Overheating	Heat exchanger sensor is overheated too often	3

Table 24: Locking burner malfunctions

### 11.2 Temporary burner malfunctions

The following burner faults only switch off the unit temporarily. After remedy of the fault, the unit automatically goes into operation again.

Display		Error type	Description	Case #
Burner control	TopTronic® C			
E-00 to 04	100 to 104	Internal error	Internal error	13
E-05	105	Overheating	Heat exchanger sensor is overheated	3
E-06 to 13	106 to 113	Internal error	Internal error	13
E-14	114	Flame error	Flame detected when there should not be one	16
E-15 to 19	115 to 119	Internal error	Internal error	13
E-20 and 21	120 and 121	Heat exchanger sensor error	Heat exchanger sensor not detected	4
E-23 and 24	123 and 124	Flue gas temperature sensor error	Flue gas temperature sensor not detected	4
E-27 and 28	127 and 128	Heat exchanger sensor error	Heat exchanger sensor short circuit	4
E-30 and 31	130 and 131	Flue gas temperature sensor error	Flue gas temperature sensor short circuit	4
E-34	134	Reset button error	Too many reset actions in a short time span	9
E-36	136	Overheating	Heat exchanger sensor is overheated	3
E-38 and 39	138 and 139	Heat exchanger sensor error	Heat exchanger sensor not detected	4
E-47 and 48	147 and 148	Heat exchanger sensor error	Heat exchanger sensor short circuit	4
E-49 to 64	149 to 164	Internal error	Internal error	4
E-67	167	Pressure switch error	Too many pressure switch errors	11
E-68	168	Flue gas temperature error	Flue gas temperature sensor is overheated	3
E-69	169	Configuration error	Heating configuration error	19

Table 25: Temporary burner malfunctions

### 11.3 Warnings

The following warnings may be displayed temporarily. The heater may still be working, or stops until the cause has been resolved.

Display		Error type	Description	Case #
Burner control	TopTronic® C			
A-02	202	Configuration error	Heating configuration error	19
A-07	207	Overheating	Heat exchanger sensor is almost overheated	3
A-08	208	Overheating	Flue gas temperature sensor is almost overheated	3

Table 26: Warnings

## 11.4 Measures

After identifying the problem, use the Case number to find the possible cause in this paragraph.

### Case 1: Flame lasts only 5 seconds after ignition

- No flame is detected:
  - Check the ignition/ionisation cable and the electrode. The cable should have a resistance of 1 kΩ.
- The unit is not earthed properly.
- The circuit board is defective.

### Case 2: No flame after ignition

- There is not enough gas pressure.
- The gas mixture is too poor.
  - Re-adjust the gas valve (see section 9.5).
- The gas valve does not open.
  - During ignition, check for a 230 V voltage on the valve.
- Check if the ignition electrode sparks. If not:
  - Check the cable and electrode.
  - Check if the burner control gives a spark output.
  - Replace defective components.

### Case 3: Heat exchange sensor or flue gas sensor overheated

- Check if the connectors J12 and J6 are plugged in correctly and if the terminals J12-1 / J12-4 (optional overheating protection) are jumpered.
- Check if the system fan supplies enough air.
- Check the settings of the gas valve.

### Case 4: Heat exchange sensor or flue gas sensor not detected, or short circuit

- The heat exchange sensor consists of 2 internal sensors. The readings of these sensors may differ too much.
  - Measure the resistance of each sensor. The resistance should be 20 kΩ at 25 °C and 25 kΩ at 20 °C.
  - If the measured values differ too much, replace the sensor.

### Case 5: Too many flame failures while burning

- The gas supply is not constant. This results in a drop in gas supply pressure while burning.
  - Check the gas supply pressure while the heater is burning.
- The burner pressure for partial load operation is too low.
  - Check the burner pressure in partial load operation and adjust if necessary.
- Flue gas is sucked back into the air inlet, resulting into a lack of oxygen.
  - Check the flue gas system and combustion air supply. Only certified, original parts should be used.

### Case 6: Gas blower does not work

- Check if the gas blower fan is blocked.
- Check if the wiring is damaged.
- The gas blower is defective.

### Case 7: Gas blower rotates at the wrong speed

- Check if the gas blower runs smoothly.
- Check if the wiring is damaged.

**Case 9: Too many reset actions in a short time span**

- This error will disappear after some time or if the main power is disconnected for a while.

**Case 11: Insufficient air passage through the heat exchanger, pressure switch does not close**

- Check if the gas blower is running.
- Check if the flue system is blocked or restricted.
- Check the pressure switch and the connections.
- Check the heat exchanger for flue leakage.

**Case 12: E-error for more than 24 hours**

- Switch the air heater off and on and check the error code.

**Case 13: Internal error**

- Isolate the electrical supply and reenergise. If this does not help:
  - Replace the burner control unit.

**Case 14: Pressure switch is closed in standby mode**

- Check if the contact is stuck. If so:
  - Replace the pressure switch.
- Check if there is water in the hose. If so:
  - Dry the hose.

**Case 15: Flame detected after closing the gas valve**

- Check if the gas valve closes too slow. If so:
  - Replace the gas valve.
- Check if the ionisation electrode is wet. If so:
  - Dry, clean or replace the electrode.

**Case 16: Flame detected before opening the gas valve**

- Check if there really is a flame before ignition. If so:
  - Replace the gas valve.
- Check if the ionisation electrode is wet. If so:
  - Dry, clean or replace the electrode.

**Case 19: Heating configuration error**

- Contact Hoval customer service.

## 11.5 Further troubleshooting

Other possible malfunctions are:

### Explosive ignition and/or frequent flame failures

- Check if the gas control settings are correct (see section 9.5).
  - A correct CO<sub>2</sub> value is important for a proper ignition.
- Check the ignition cable.
  - It should have a resistance of 1 kΩ.
- Check the position of the ignition electrode.
  - The spark has to be formed between the two electrodes, not between the electrode and the burner.

### Insufficient output

The heat output of the air heater is insufficient if there is too much resistance in the inlet or outlet flue gas system. The gas blower still rotates at full speed, but the resistance prevents enough gas mixture from entering the burner.

- Check the flue gas system for blockage.
- Check the burner for dust or other pollution.

### Non-modulating system fan (TopVent® GV)

- Check the functioning of this fan by connecting it to a supply of 230 V.
- Check if the fan is energised. Use a multi-meter. If so, the cause of the problem lies in the burner control unit.

## 12 Maintenance and repair

**Caution**

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

### 12.1 Safety

Before performing any work on the unit:

- Switch off heating operation:
  - TopTronic C: Switch the unit to the 'L\_OFF' mode.
  - TempTronic MTC: Set the room temperature to the lowest setting.
- Close the cut-off valve in the gas supply line.
- Let the unit cool off. The fan continues to run to cool down the heat exchanger.

**Attention**

Fire hazard due to hot components. Do not switch off the power supply until the fan comes to a complete stop!

- When the fan comes to a stop: switch off the plant on the main switch.

**Caution**

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

- Wait at least 3 minutes after switching the unit off.

**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.

- 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.

12.2 Maintenance

Maintenance schedule


Activity	Procedure	Interval
Clean unit	<ul style="list-style-type: none"> <li>■ Clean inside of unit with vacuum cleaner.</li> <li>■ Clean fan with vacuum cleaner or plastic brush.</li> <li>■ Clean Air-Injector with vacuum cleaner or plastic brush. (TopVent® TG / MG)</li> </ul>	1 × annually
Functional check	<ul style="list-style-type: none"> <li>■ Check function of the fan.</li> <li>■ Check function of the Air-Injector. (TopVent® TG / MG)</li> <li>■ Check function of the control system.</li> </ul>	1 × annually
Heat exchanger and burner	<ul style="list-style-type: none"> <li>■ Dismantle connecting lines.</li> <li>■ Loosen screws on the flange of the gas module and pull out gas module.</li> <li>■ Visual inspection of the heat exchanger outside</li> <li>■ Clean heat exchanger with plastic brush (do not use steel brush).</li> </ul> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <p><b>Caution</b> Fire hazard due to overheating. Dust build-up on the heat exchanger may lead to overheating and fire. It is essential to thoroughly clean the heat exchanger.</p> </div> <ul style="list-style-type: none"> <li>■ Dismantle burner and gas blower by loosening the hexagon socket screws on the burner flange.</li> <li>■ Visual inspection of the burner</li> <li>■ Check ignition and ionisation electrode. If necessary, carefully clean with fine sandpaper and readjust.</li> <li>■ Replace burner flange in the event of corrosion or material fatigue.</li> <li>■ Visual inspection of the heat exchanger inside, clean where necessary.</li> <li>■ Reinstall burner and gas blower; use new seals for this.</li> <li>■ Reinstall connecting lines.</li> </ul>	1 × annually
Flue gas path test	<ul style="list-style-type: none"> <li>■ Visual inspection of the installed components</li> <li>■ Remove condensate cap on all inspection T-pieces and clean flue gas pipe on the inside as needed.</li> </ul>	1 × annually
Emission measurement	<ul style="list-style-type: none"> <li>■ Check setting of the gas control valve and readjust where necessary.</li> </ul>	1 × annually
Filter change (TopVent® TG / MG)	<ul style="list-style-type: none"> <li>■ Renew air filter.</li> </ul>	When the filter alarm is displayed, at least annually

Table 27: Maintenance schedule



**Notice**

Record maintenance work carried out in a maintenance log.

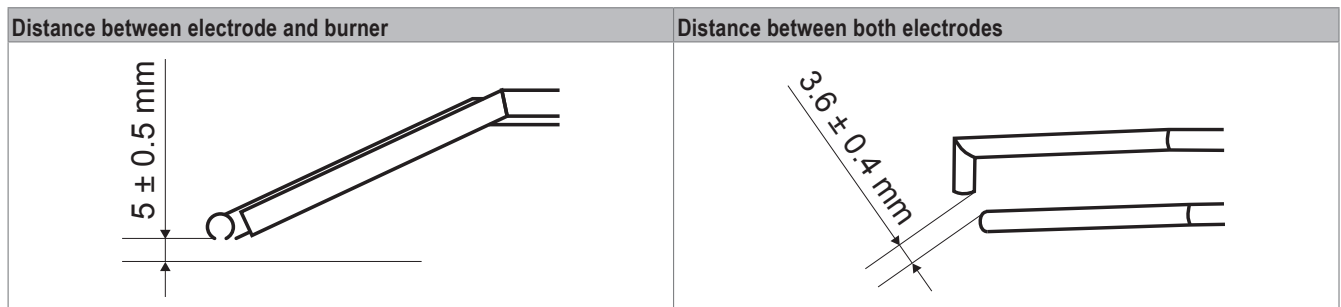


Fig. 27: Setting of the ignition and ionisation electrode



**Filter sets**

Filter set	Design	Filter class	Mat. no.
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

Table 28: Material numbers for filter sets

**Changing the filters (TopVent® TG, MG)**

- 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.
- Dispose of the filters in accordance with local regulations.
  - The disposal of used filters depends on the contents.

**12.3 Repair**

If repairs are necessary, contact the manufacturer's customer service department.

**13 Changing the type of gas****13.1 Switching to a different type of natural gas**

- Adjust the gas control valve according to the specifications in Table 23.
- Make the changed settings (gas category, gas supply pressure) clearly and permanently visible near the type label.

**13.2 Switching from natural gas to liquid gas**

The burner must be replaced for the switch-over from natural gas to liquid gas. Contact Hoval customer service.

## 14 Dismantling

**Caution**

- Risk of injury caused by falling load and improper handling.
- Wear personal protective equipment.
  - Do not stand under suspended loads.
  - Use cranes or helicopters with sufficient load-bearing capacity.

- Switch off heating operation:
  - TopTronic C: Switch the unit to the 'L\_OFF' mode.
  - TempTronic MTC: Set the room temperature to the lowest setting.
- Close the cut-off valve in the gas supply line.
- Let the unit cool off. The fan continues to run to cool down the heat exchanger.

**Attention**

Fire hazard due to hot components. Do not switch off the power supply until the fan comes to a complete stop!

- When the fan comes to a stop: switch off the plant on the main switch.

**Caution**

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

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

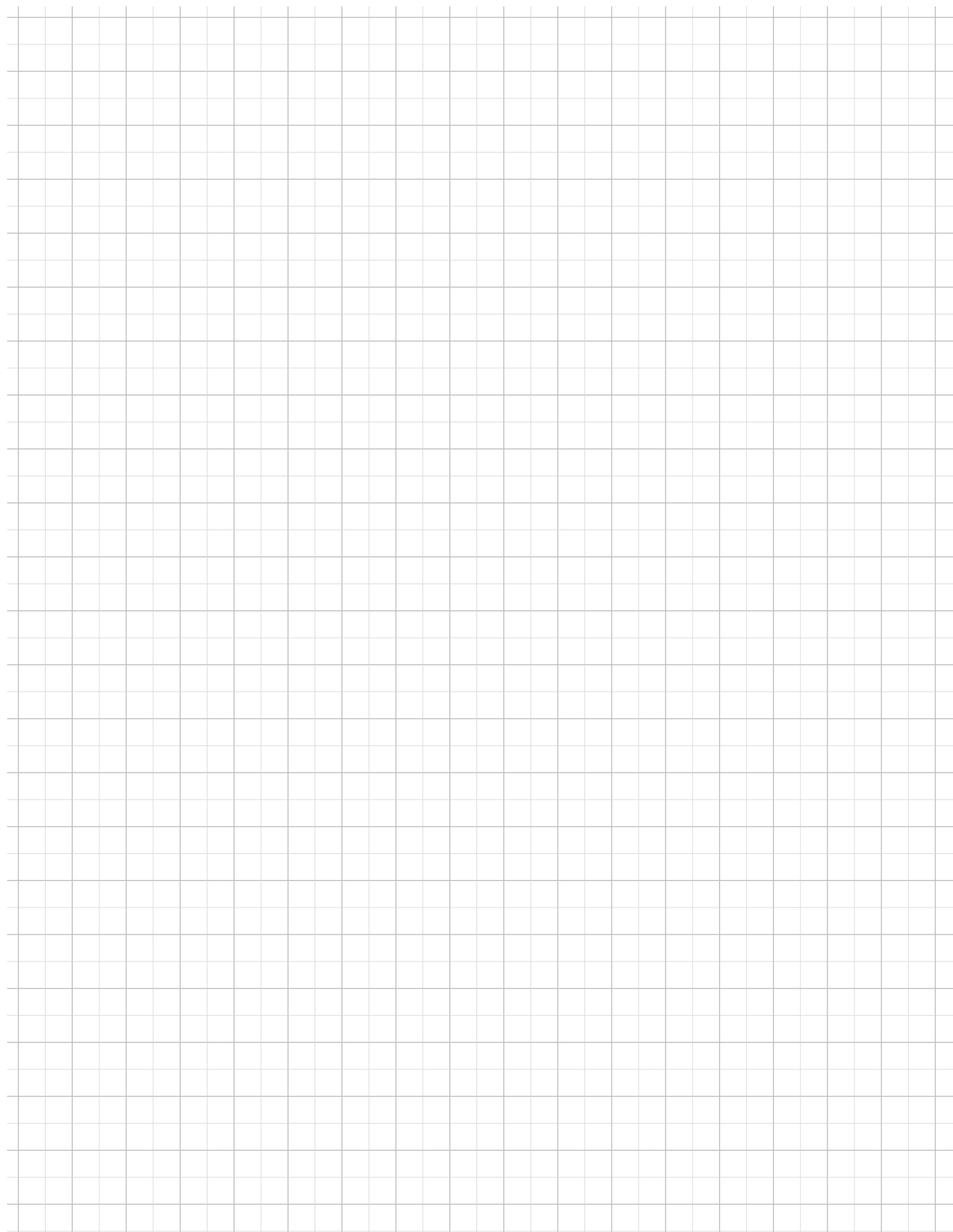
**Caution**

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.

- Dismantle all media connections.
- Dismantle the flue gas pipe.
- Support the unit.
- Disconnect the unit from the ceiling.
- Remove the unit.

## 15 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 filters are fully incinerable; the disposal of used filters depends on the contents.



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