1 Use

1.1 Intended use

TopVent® TH units are recirculation units for heating spaces up to 25 m in height with central heat supply. They have the following functions:

- Heating (with connection to a hot water supply)
- Recirculation operation
- Air distribution and destratification with adjustable Air-Injector
- Air filtration (option)

TopVent® TH units comply with all the requirements of the Ecodesign Directive 2009/125/EC relating to environmentally friendly design of energy-related products. It is a system of the 'fan coil unit' type.

The Hoval TopTronic® C integrated control system ensures energy-efficient, demand-based operation of Hoval indoor climate systems.

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.

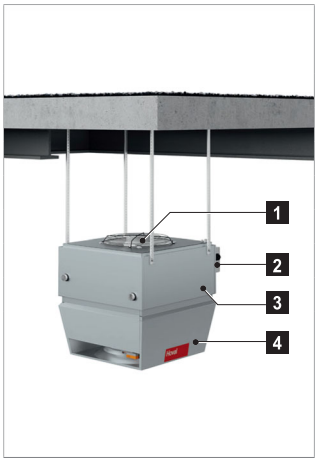
2 Construction and operation

2.1 Construction

The TopVent® TH unit consists of the following components:

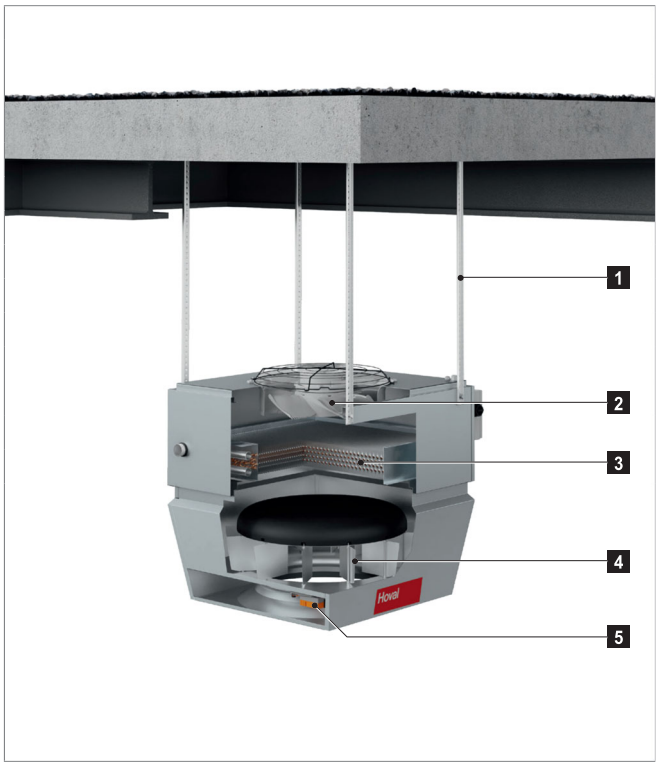
- Fan unit:
  Axial fan with energy-saving EC motor, maintenance-free and infinitely variable
- Heating section:
  Contains the heating coil for heating the supply air with hot water
- Air-Injector:
  The Air-Injector is a patented, infinitely variable vortex air distributor for the draught-free introduction of air into the hall under changing operating conditions.

As part of the TopTronic® C control system, the unit control box is an integral component.



1	Fan unit
2	Unit control box
3	Heating section
4	Air-Injector

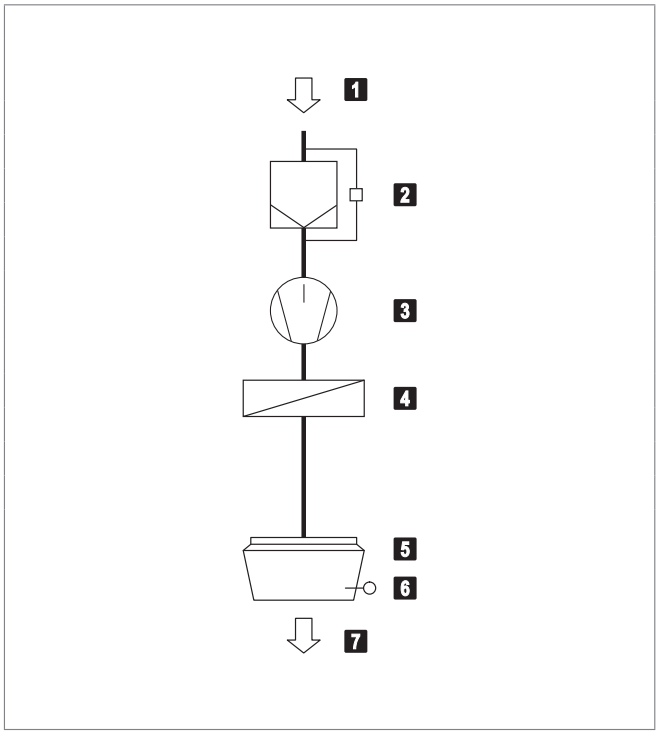
Fig. B1: TopVent® TH components



1	Suspension set
2	Fan
3	Heating coil
4	Air-Injector
5	Actuator Air-Injector

Fig. B2: TopVent® TH construction

2.2 Function diagram



1	Extract air
2	Air filter with differential pressure switch (option)
3	Fan
4	Heating coil
5	Air-Injector with actuator
6	Supply air temperature sensor
7	Supply air

Fig. B3: TopVent® TH function diagram

2.3 Operating modes

The TopVent® TH 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® TH unit can operate individually in a local operating mode: Off, Recirculation, Recirculation speed 1.

Code	Operating mode	Description
REC	**Recirculation** 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 [1] Heating ..... on [1] Depending on heat 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 demand (either in permanent operation or in on/off operation depending on the temperature stratification, as desired).	Fan ..... speed 2 Heating ..... off
REC1	**Recirculation speed 1** The same as REC, but the unit operates only at speed 1 (low air flow rate)	Fan ..... speed 1 [1] Heating ..... on [1] Depending on heat demand
DES	■ Destratification: The same as for REC, but the unit operates only at speed 1	Fan ..... speed 1 Heating ..... off
ST	**Standby** 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
L_OFF	**Off** (local operating mode) The unit is switched off.	Fan ..... off Heating ..... off
–	**Forced heating** 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 B1: TopVent® TH operating modes

3 Technical data

3.1 Type code

TH - 6 A - ...

Unit type
TopVent® TH

Unit size
6 or 9

Heating section
A with coil type A
B with coil type B
C with coil type C

Further options

Table B2: TopVent® TH type code

3.2 Application limits

Extract air temperature	max.	°C	50
Moisture content of extract air	max.	g/kg	15
Supply air temperature	max.	°C	60
Temperature of the heating medium [1]	max.	°C	90
Pressure of the heating medium	max.	kPa	800
The units cannot be used in: ■ Damp locations ■ Places with a corrosive or aggressive environment ■ Spaces with a large amount of dust ■ Areas where there is danger of explosion			
[1] Design for higher temperatures on request			

Table B3: TopVent® TH application limits

3.3 Electrical connection

Unit type		TH-6	TH-9
Supply voltage	V AC	3 × 400	3 × 400
Permitted voltage tolerance	%	± 5	± 5
Frequency	Hz	50	50
Connected load	kW	1.5	2.1
Current consumption max.	A	2.9	4.0
Series fuse	A	13	13
Protection rating	-	IP 54	IP 54

Table B4: TopVent® TH electrical connection

3.4 Air flow rate

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

Table B5: TopVent® TH air flow rate

3.5 Sound level

Unit type			TH-6C	TH-9C
Sound pressure level (at a distance of 5 m) [1]		dB(A)	55	58
Total sound power level		dB(A)	77	80
Octave sound power level	63 Hz	dB	55	61
	125 Hz	dB	60	65
	250 Hz	dB	65	69
	500 Hz	dB	70	73
	1000 Hz	dB	74	75
	2000 Hz	dB	70	75
	4000 Hz	dB	64	70
	8000 Hz	dB	56	63
[1] with a hemispherical radiation pattern in a low-reflection room				

Table B6: TopVent® TH sound level

3.6 Heat output

Heating medium temperature			80/60 °C					60/40 °C				
Size	Type	t_{room}	Q	H_{max}	t_S	Δp_W	m_W	Q	H_{max}	t_S	Δp_W	m_W
		°C	kW	m	°C	kPa	l/h	kW	m	°C	kPa	l/h
TH-6	A	16	32.8	13.4	34.2	7	1410	18.8	16.8	27.3	2	807
		20	30.3	14.0	37.0	6	1301	16.2	17.9	30.0	2	697
	B	16	47.0	11.6	41.3	13	2020	26.9	14.6	31.3	4	1157
		20	43.4	12.0	43.5	11	1864	23.3	15.5	33.5	3	1001
	C	16	76.0	9.4	55.6	18	3267	45.0	11.8	40.3	6	1935
		20	70.3	9.8	56.8	16	3022	39.3	12.5	41.5	5	1690
TH-9	A	16	55.5	13.6	36.6	8	2386	31.7	17.0	28.5	3	1364
		20	51.2	14.1	38.9	7	2201	27.4	18.1	31.1	2	1179
	B	16	71.2	12.2	41.5	12	3060	40.6	15.4	31.4	4	1746
		20	65.7	12.7	43.7	10	2823	35.1	16.5	33.6	3	1509
	C	16	117.9	9.8	56.9	18	5066	69.9	12.3	41.1	6	3003
		20	109.1	10.2	58.0	15	4686	61.0	13.1	42.1	5	2622

Legend:
Type = Type of coil
t_{room} = Room air temperature
Q = Heat output
H_{max} = Maximum mounting height
t_S = Supply air temperature
Δp_W = Water pressure drop
m_W = 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

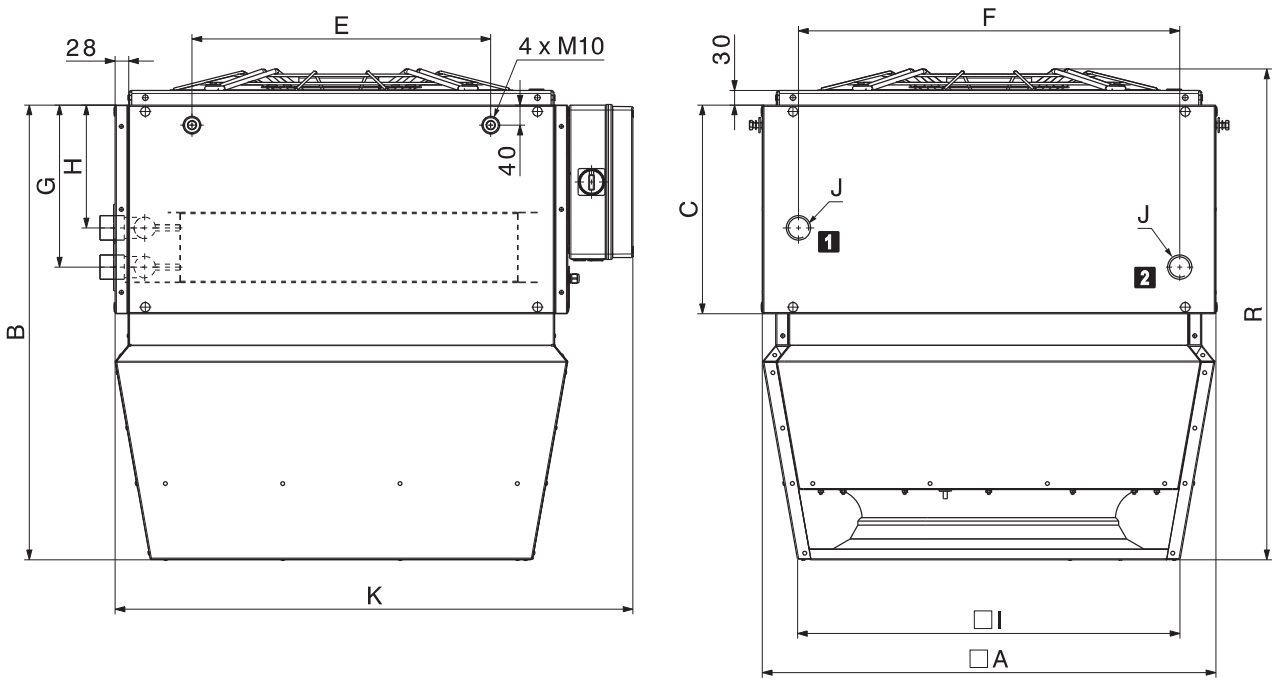
Table B7: TopVent® TH heat output

3.7 Product information according to ErP

Model	TopVent® TH						Unit
	6 A	6B	6C	9 A	9B	9C	
Cooling capacity (sensible) ($P_{rated,c}$)	–	–	–	–	–	–	kW
Cooling capacity (latent) ($P_{rated,c}$)	–	–	–	–	–	–	kW
Heating capacity ($P_{rated,h}$)	13.2	18.9	29.8	22.6	28.5	46.2	kW
Total electric power input (P_{elec})	0.46	0.53	0.74	0.84	0.96	1.26	kW
Sound power level (L_{WA})	73	75	77	76	77	78	dB
Contact details	Hoval Aktiengesellschaft Austrasse 70, 9490 Vaduz, Liechtenstein www.hoval.com						

Table B8: Product information according to Commission Regulation (EU) 2016/2281, Table 13

3.8 Dimensions and weights



1 Return heating
2 Flow heating

Fig. B4: TopVent® TH dimensional drawing

Unit size		TH-6			TH-9		
Coil type		A	B	C	A	B	C
A	mm			900			1100
B	mm			905			1050
C	mm			415			480
E	mm			594			846
F	mm			758			882
G	mm			322			367
H	mm			244			289
I	mm			760			935
K	mm			1030			1230
R	mm			977			1152
J	"		Rp 1¼ (internal)			Rp 1½ (internal)	
Water content of heating coil	l	4.6	4.6	7.9	7.4	7.4	12.4
Weight	kg	104	104	111	155	155	166

Table B9: TopVent® TH dimensions and weights