



► **Katherm HK**
Trench Heating


Katherm HK

Heating or cooling with energy-efficient
EC cross-flow fans

► **Technical Catalogue**

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Katherm HK:
On-demand heating
and cooling from the
floor, individually
controlled.

A special design of Katherm HK trench heating with energy-efficient cross-flow fans ensures quiet operation and energy-savings in the new ADAC Head Office in Munich. This design of floor duct produces demand-led filtered, heated or cooled recirculating air from the floor.

Katherm HK and Katherm HK empty ducts are individually adapted to the curved external façade in this building.

01 ▶ Product Information



Katherm HK – decentralised room climate from the floor

Heaters positioned in front of windows are often unacceptable for aesthetic reasons in modern offices and other buildings with large glazed windows. At the same time, the needs of the users with regard to the climate in the space also increase.

The demand-led supply of filtered, heated or cooled recirculating air with Katherm HK solves both problems at the same time, practically and invisibly from the floor. A higher level of efficiency is achieved with energy efficient EC cross-flow fans with noise-optimised commutation electronics, resulting in energy-savings of around 60 % compared with conventional fans!

Fan speeds on Katherm HK are infinitely variable as standard, controlled either via an external 0 – 10 V signal or with KaControl technology.

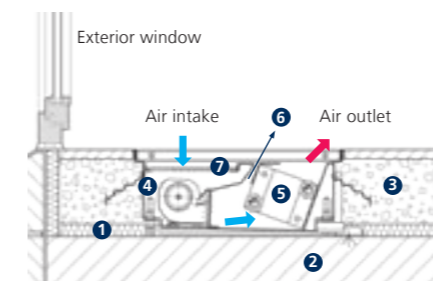
EC technology

EC fans can be operated infinitely variably within a low fan speed range even at low air volumes with intelligent, integrated electronics on demand and this energy-efficiently. Low fan speeds have a positive effect on the development of noise in areas, like offices, where the noise levels lie far below the audible threshold or the usual measuring range.

Intelligent motor management permanently detects the operating state of the fans and keeps the pre-set speed constant, regardless of the fan length and external influences. Preventative measures with internal motor problems, e.g. overheating of the motor, are automatically initiated, in this case by reducing the fan speed or switching off the motor. Faults can be temporarily displayed as a message, if necessary, and evaluated by a building automation system.

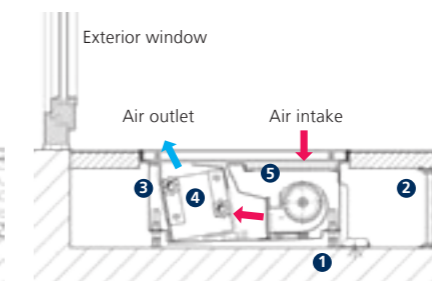
We are incorporating innovative knowledge and expertise in efficient, cost-saving heating technology with GreenTech EC fans from ebm-papst.

Example of heating unit
(Installed in screed, trench height 132 mm)



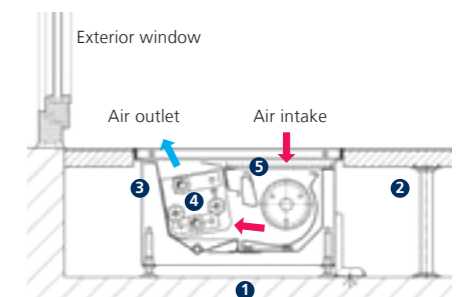
- 1 Heat and sound insulation
- 2 Concrete floor
- 3 Screed
- 4 Floor trench
- 5 High-output convector
- 6 Separating stream
- 7 Filter (optional)

Example of cooling unit
(Installed in a raised floor, trench height 150 mm)



- 1 Concrete floor
- 2 False floor
- 3 Floor trench
- 4 High-output convector
- 5 Filter (optional)

Example of cooling unit
(Installed in a raised floor, trench height 190 mm)



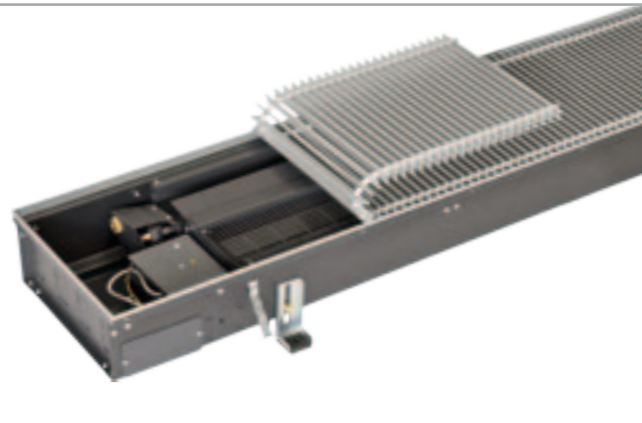
- 1 Concrete floor
- 2 False floor
- 3 Floor trench
- 4 High-output convector
- 5 Filter (optional)

Product Data



Product Features

- ▶ Heating and cooling as a 2- and 4-pipe system
- ▶ Condensation drain as standard
- ▶ EC fan - efficient in terms of noise and energy



Features:

Standard range

2 trench widths, 3 trench lengths, 3 trench heights. Notwithstanding the standard range (NP), the products can also be individually manufactured in line with the non-standard programme (MP).

Convection

- ▶ EC cross-flow fan
- ▶ LPHW
- ▶ LPCW
- ▶ ---
- ▶ Integrated
- ▶ 2-pipe
- ▶ 4-pipe

Grille finishes

- ▶ Roll-up grilles
- ▶ Linear grilles

Performance data

Heat output¹⁾ [W]

- ▶ 1287 – 8502

Sound pressure level³⁾ [dB(A)]

- ▶ 26 – 34

Cooling output²⁾ [W]

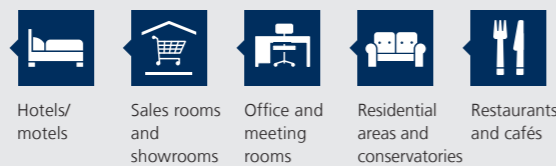
- ▶ 347 – 1569

Sound power level [dB(A)]

- ▶ 34 – 42

Uses

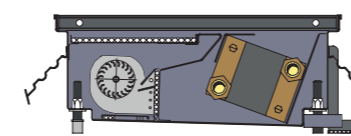
Buildings of all kinds, in which there is a high cooling load due to internal loads and the effects of sunlight. Experience has shown that Katherm HK can provide low-cost, effective cooling with low, non-disruptive sound levels.



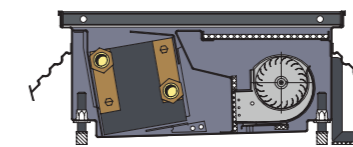
Selection Assistance: Overview of Models

Model	Trench width	Trench height	2 - 4 pipe system	Trench length	Heat output ¹⁾	Cooling output ²⁾	Sound pressure level ³⁾	Sound power level	Further information	
	[mm]	[mm]		[mm]	[W]	[W]	[dB(A)]	[dB(A)]		
HK 340	340	132	2-pipe	1250	553–3054	59–563	<20 ⁴⁾ –47	<28 ⁴⁾ –55	▶ Page 18	
				2000	1106–6108	119–1126	<20 ⁴⁾ –50	<28 ⁴⁾ –58		
				2750	1660–9162	178–1689	<20 ⁴⁾ –52	<28 ⁴⁾ –60		
		150	4-pipe	1250	431–1957	64–474	<20 ⁴⁾ –47	<28 ⁴⁾ –55		▶ Page 24
				2000	863–3915	128–948	<20 ⁴⁾ –50	<28 ⁴⁾ –58		
				2750	1294–5872	192–1422	<20 ⁴⁾ –52	<28 ⁴⁾ –60		
	190	2-pipe	1250	800–3329	97–681	<20 ⁴⁾ –40	<28 ⁴⁾ –48	▶ Page 20		
			2000	1600–6659	193–1363	<20 ⁴⁾ –43	<28 ⁴⁾ –51			
			2750	2400–9988	290–2044	<20 ⁴⁾ –45	<28 ⁴⁾ –53			
	190	4-pipe	1250	770–2302	93–650	<20 ⁴⁾ –40	<28 ⁴⁾ –48	▶ Page 26		
			2000	1541–4604	186–1299	<20 ⁴⁾ –43	<28 ⁴⁾ –51			
			2750	2311–6905	279–1949	<20 ⁴⁾ –45	<28 ⁴⁾ –53			
190	2-pipe	1250	870–5512	126–1053	<20 ⁴⁾ –42	<28 ⁴⁾ –50	▶ Page 22			
		2000	1517–9611	219–1835	<20 ⁴⁾ –44	<28 ⁴⁾ –52				
		2750	2164–13710	313–2618	<20 ⁴⁾ –46	<28 ⁴⁾ –54				
190	4-pipe	1250	778–3193	150–1081	<20 ⁴⁾ –42	<28 ⁴⁾ –50	▶ Page 28			
		2000	1357–5567	262–1854	<20 ⁴⁾ –44	<28 ⁴⁾ –52				
		2750	1936–7941	374–2688	<20 ⁴⁾ –46	<28 ⁴⁾ –54				
HK 400	400	132	4-pipe	1250	437–2423	62–609	<20 ⁴⁾ –47	<28 ⁴⁾ –55	▶ Page 30	
				2000	873–4845	124–1218	<20 ⁴⁾ –50	<28 ⁴⁾ –58		
				2750	1310–7268	186–1827	<20 ⁴⁾ –52	<28 ⁴⁾ –60		

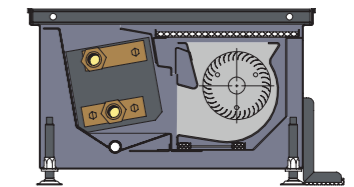
Sectional views



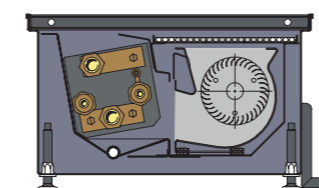
Katherm HK 340, trench height 132 mm, 2-pipe and 4-pipe



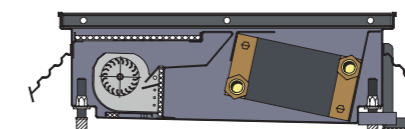
Katherm HK 340, trench height 150 mm, 2-pipe and 4-pipe



Katherm HK 340, trench height 190 mm, 2-pipe



Katherm HK 340, trench height 190 mm, 4-pipe



Katherm HK 400, trench height 132 mm, 4-pipe

¹⁾ at LPHW 75/65, t_{l1} = 20 °C, at 60% fan speed

²⁾ at LPCW 16/18, t_{l1} = 27 °C, 50% relative humidity, at 60% fan speed

³⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081), at 60% fan speed.

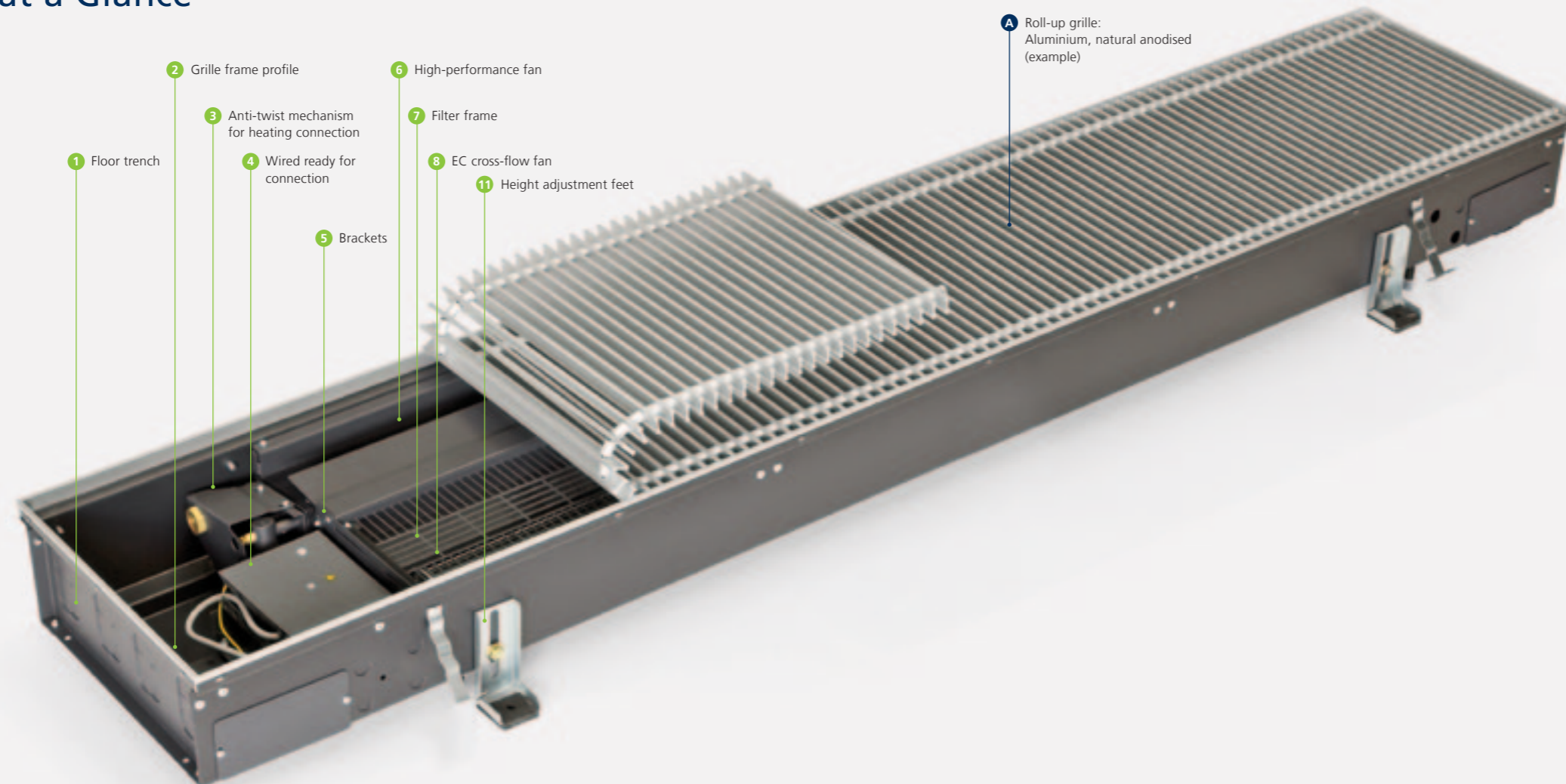
¹⁾ at LPHW 75/65, t_{l1} = 20 °C, at 60% fan speed

²⁾ at LPCW 16/18, t_{l1} = 27 °C, 50% relative humidity, at 60% fan speed

³⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081), at 60% fan speed.

⁴⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

Katherm HK at a Glance



- 1 Floor trench
- 2 Grille frame profile
- 3 Anti-twist mechanism for heating connection
- 4 Wired ready for connection
- 5 Brackets
- 6 High-performance fan
- 7 Filter frame
- 8 EC cross-flow fan
- 11 Height adjustment feet

A Roll-up grille:
Aluminium, natural anodised
(example)

Features



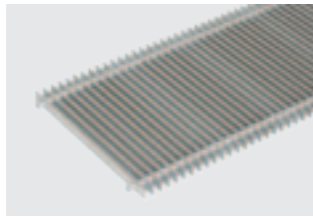
- 1 **Floor trench:**
 - ▶ Galvanised sheet steel
 - ▶ painted graphite grey on both sides
 - ▶ designed as a condensation tray¹⁾
 - ▶ with 15 mm side drain openings, on one side
 - ▶ protected against condensation water
- 2 **Grille frame profile:**
 - ▶ to match double T-profile grille
 - ▶ with protective lip on 3 sides
- 3 **Anti-twist mechanism for heating connection:**
 - ▶ prevents damage to the convector when installing the valves
 - ▶ Valves optional (accessories)
- 4 **Wired ready for connection:**
 - ▶ KaControl
- 5 **Brackets:**
 - ▶ to reinforce trench and lateral bracing
- 6 **High-performance fan:**
 - ▶ made of copper pipe with aluminium fins
 - ▶ painted graphite-grey
 - ▶ suitable for maximum continuous operating pressure of 10 bar and 120°C
 - ▶ positioned on felt underlay
 - ▶ with anti-twist mechanism on the heating and cooling side
 - ▶ 1/2" connection
 - ▶ for 2- and 4-pipe system
- 7 **Filter frame:**
 - ▶ for fleece filter, easy to remove (optional)
- 8 **EC cross-flow fan:**
 - ▶ with energy-saving EC motor
 - ▶ robust motor construction, designed as a smooth-running internal rotor motor
 - ▶ with infinitely variable speed control
 - ▶ with sound-optimised commutation electronics
 - ▶ motor monitoring with processing of error messages on the KaControl PCB
- 9 **Air flow:**
 - ▶ with a separating air stream to prevent short-circuiting between the air intake and air outlet in cooling mode (no separating air stream with 190 mm trench height)
- 10 **Cover plate:**
 - ▶ as visual protection and to protect against dirt
- 11 **Height adjustment feet:**
 - ▶ for the safe mounting of the trench
 - ▶ with sound insulation
 - ▶ as standard
- 12 **Condensation tray attachment kit (optional):**
 - ▶ to drain condensation, if necessary
 - ▶ fitted as an accessory or provided separately
- A **Aluminium, natural anodised roll-up grille (example):**
 - ▶ Grille dimensions 18 x 5 mm
 - ▶ Connections made of corrosion-proof steel springs with spacers in a matching colour
 - ▶ free area approx. 70%

¹⁾ with separate condensation tray for trench height 190 mm

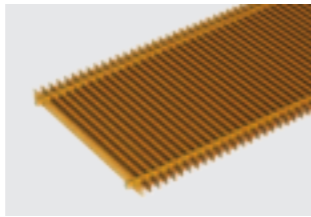
Matching grilles

Roll-up grilles

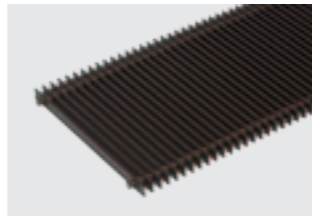
Aluminium
Natural anodised



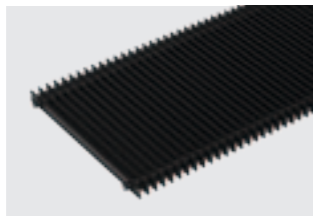
Aluminium
Brass anodised



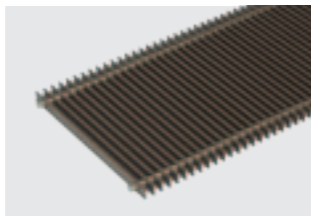
Aluminium
Bronze anodised



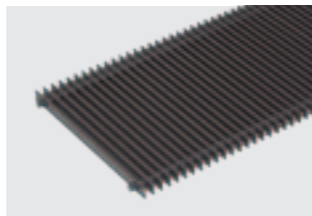
Aluminium
Black anodised



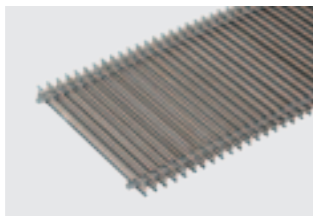
Aluminium
Bronze finish



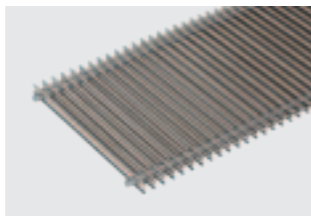
Aluminium
Painted DB 703



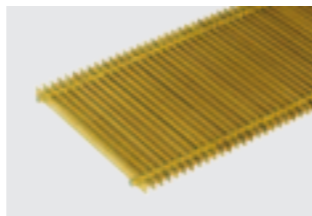
Stainless steel
Natural



Stainless steel
Polished

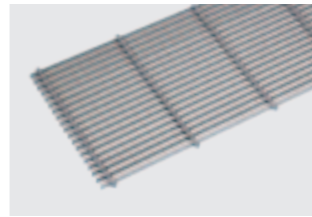


Brass
Natural CuZn 44

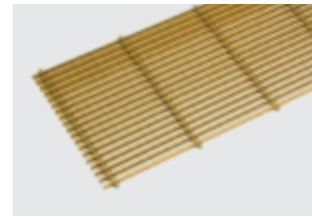


Linear grilles

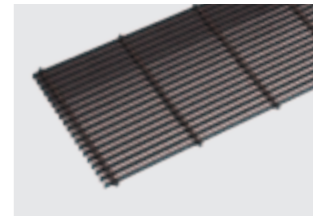
Aluminium
Natural anodised



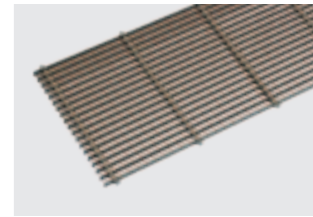
Aluminium
Brass anodised



Aluminium
Bronze anodised

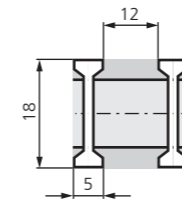


Aluminium
Bronze finish



Profile dimensions

Double-T profile



► For more grilles, please refer to Kampmann.co.uk/grilles

The above grilles are shown using a four-colour printing process and thus do not represent an exact reproduction of the original colour.

Katherm HK Optionally with Supply Air Function

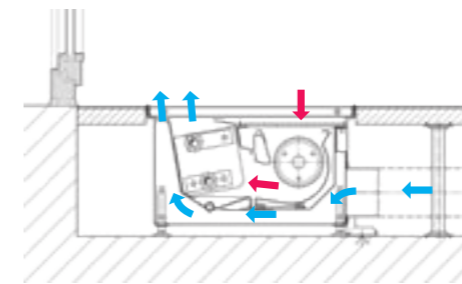


Katherm HK with supply air function are perfectly suited to supply primary air (fresh air) into a space. Heating, cooling and supply of fresh air are therefore perfectly combined.

Supply air operation

The prepared primary air generally has a slightly lower temperature than the ambient air in the room. It passes through a separate air duct in the Katherm HK. It escapes through an outlet slot arranged along the length of the floor trench and mixes with the secondary air heated or cooled by the convector before emerging into the room. Optimum shielding can be provided in front of the glazing with a slow and low-turbulence leaving air velocity. The air ducts for primary air and the flexible pipes on the floor trench can be advantageously routed in the raised floor.

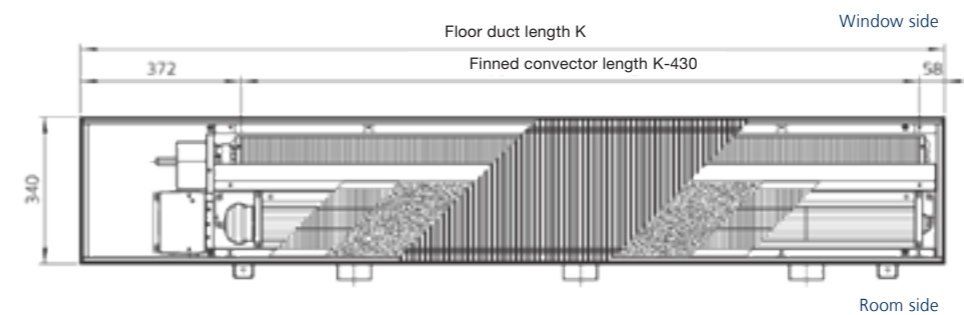
The designs of Katherm HK with supply air can be adapted on a project-by-project basis. More information on request!



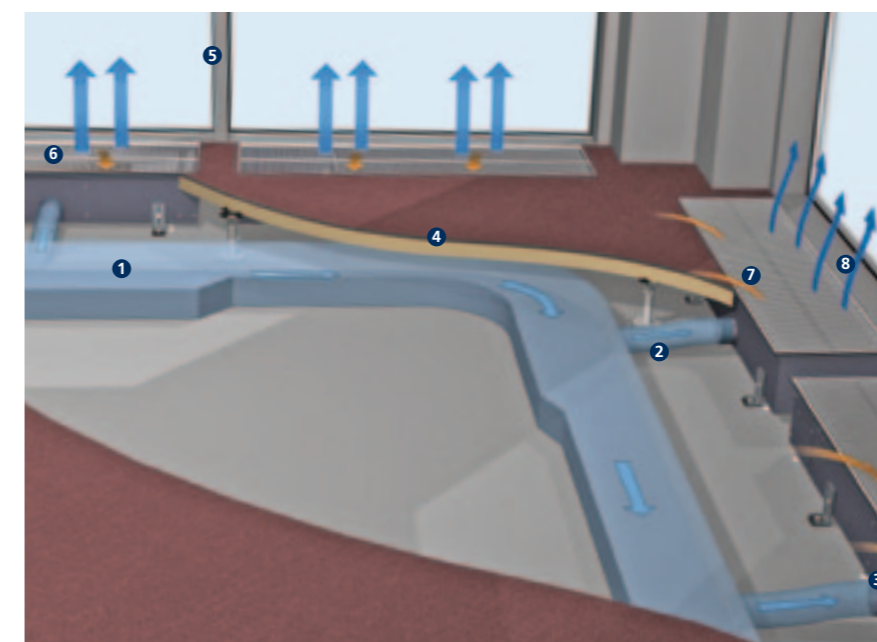
Cross-section (example showing roll-up grille)

Trench length [mm]	Supply air spigot DN 80 ¹ [Quantity]	Max. air flow per duct [m ³ /h]
1250	2	120
2000	3	180
2750	4	240

This applies only to trench height 190 mm. Price on request.



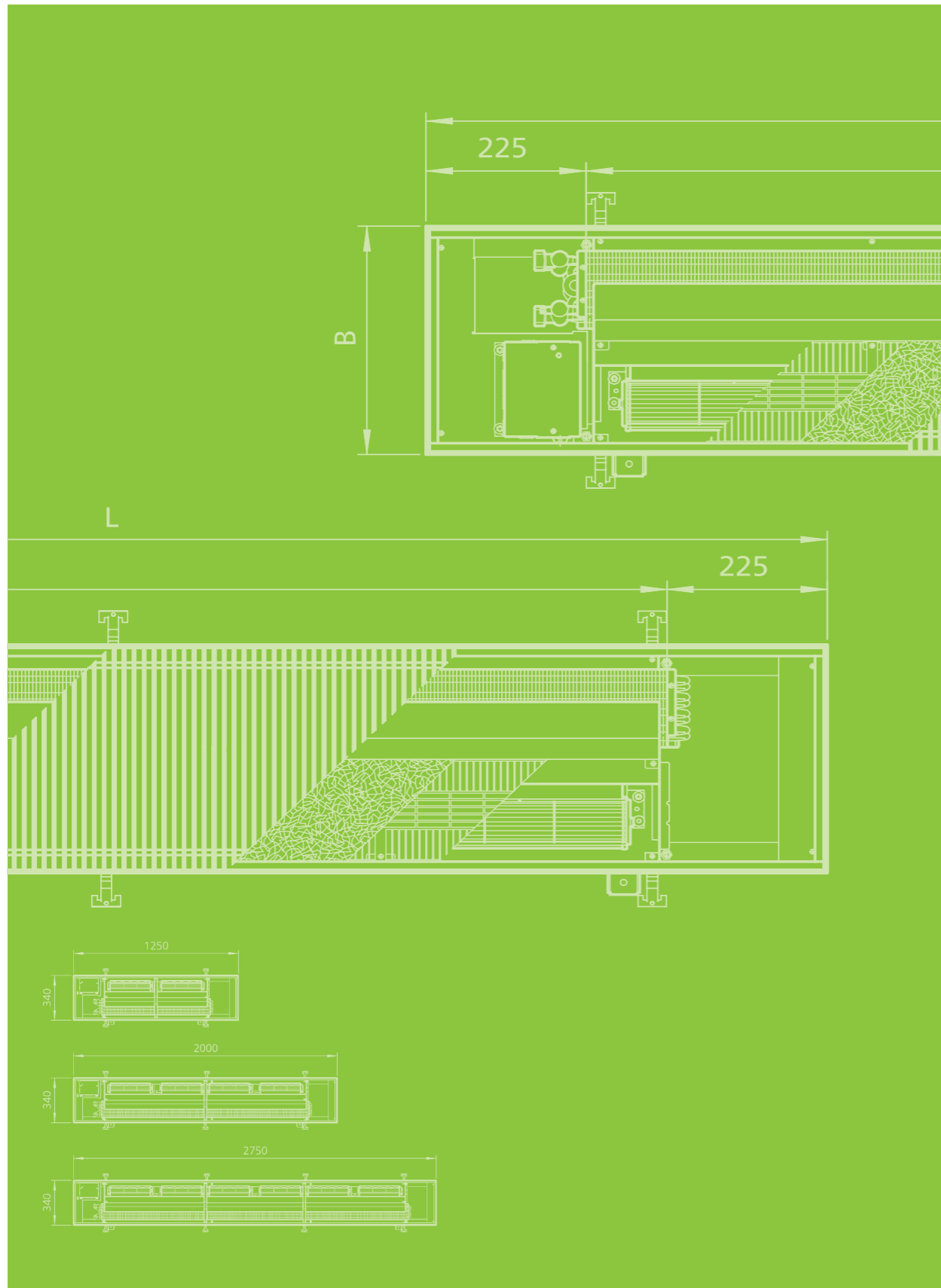
Top view (Katherm HK 340 with supply air function, trench height 190 mm)



- 1 Flat duct / Supply air (prepared air)
- 2 Flexible pipe
- 3 Supply air spigot on the Katherm HK
- 4 Raised floor
- 5 Façade element
- 6 Katherm HK
- 7 Entering room air
- 8 Escaping air

¹ Max. air volume per supply air spigot DN 80 = 60 m³/h. Other diameters of supply air spigots and air volumes on request.

02 ▶ Technical Data



Advice on Measuring Conditions

Heat and cooling outputs

The heat and cooling outputs were measured in accordance with DIN EN 16430 „Fan-assisted heaters, convectors and trench convectors“ (Version dated May 2012).

Part 1 „Technical Specification and Requirements“
Part 2 „Test Method and Evaluation of Heat Output“
Part 3 „Test Method and Evaluation of Cooling Output“

The standard regulates the performance measurements specifically of trench convectors based on DIN EN 442 „Radiators and Convectors“.

Part 1 „Technical Specification and Requirements“
Part 2 „Test Procedure and Performance Data“

The specific requirements for cooling mode are taken into account in DIN EN 16430. The reference/air temperature is measured in the centre of the test chamber (2 metres from the external wall) at a height of 0.75 metres. This reference / air temperature is not to be confused with inlet air temperature. This may differ significantly between the short circuit that cannot be avoided between the air outlet and air intake.

The heat loads are introduced into the test cabin by 10 output-controlled dummies (see photo) so that they cannot or can only reproducibly influence the outputs and functions.

Katherm HK have been developed to be optimised in terms of short-circuiting and minimise this short circuit as far as technically possible.

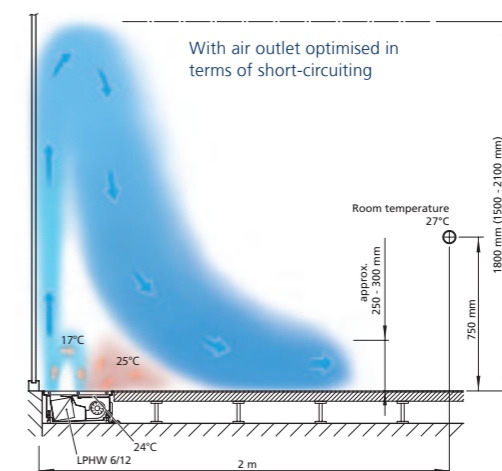
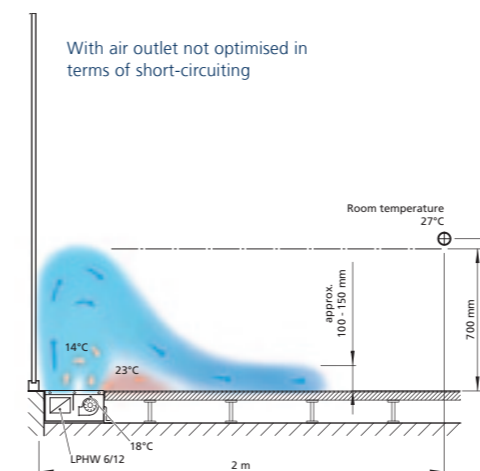
Acoustics

Katherm HK are very often used in acoustically sensitive areas. Accordingly, Katherm HK have been optimised in terms of noise levels. Determination of the sound power and sound energy levels of sources of sound from sound pressure measurements – precision 2 class of enveloping measurement surface for an essentially free sound field over a reflective plane. The sound power level is measured according to DIN EN ISO 3744 (TW) in a semi-low reflective sound measuring chamber.



Heat and cooling output test cabin

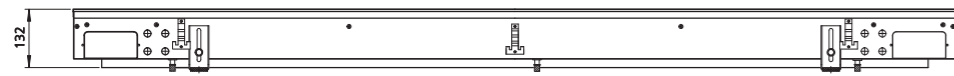
Comparison of air flow profiles



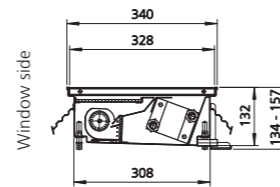
Katherm HK 340

2-pipe, trench height 132 mm

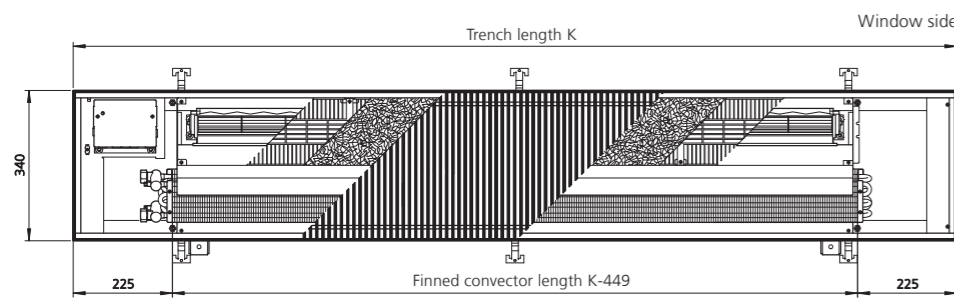
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

Specifications

Connections, female thread:
1/2", same end, on the left seen from the room side

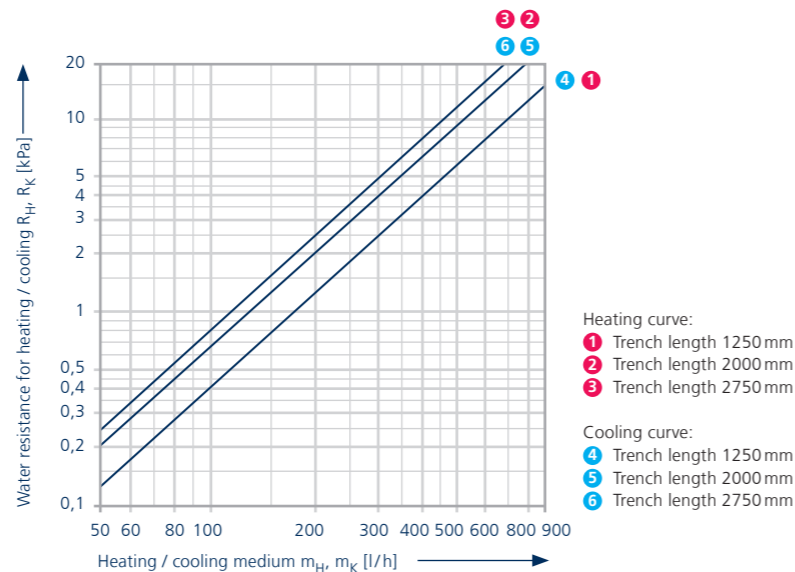
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	801	2	1
2000	1551	4	2
2750	2301	6	3

Make use of our online calculation programs to calculate your heat and cooling outputs and flow rates with a couple of clicks!

► Kampmann.co.uk/calculation_programs

Water resistance

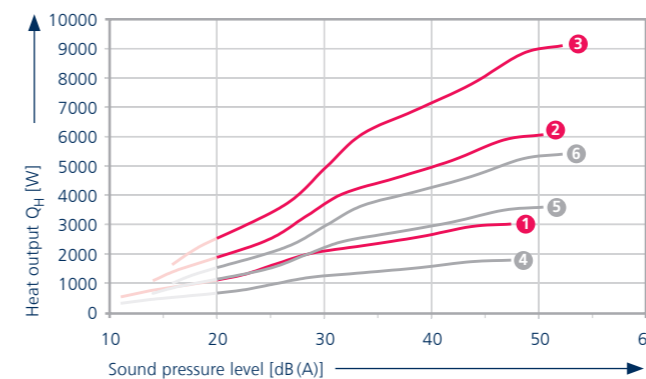


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ [W]	Current consumption [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C [W]	t _{L2} [°C]	with LPHW 55/45 °C [W]	t _{L2} [°C]	with LPCW 16/18 °C [W]	t _{L2} [°C]	with LPCW 7/12 °C [W]	t _{L2} [°C]							
Trench length 1250 mm																
Boost stage	100	3054	55.4	1814	41.1	563	563	20.3	1310	928	15.7	12.0	120	250	47	55
Design levels	80	2613	58.2	1559	42.9	469	469	19.6	1105	769	14.7	5.8	90	190	39	47
	60	2042	61.6	1225	45.0	385	385	17.8	974	655	11.3	5.1	74	125	29	37
	40	1227	66.0	743	47.9	179	179	19.1	462	311	13.2	4.4	64	65	21	29
Minimum stage	20	553	70.6	340	51.1	59	59	21.2	159	105	16.7	4.0	59	30	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	6108	55.4	3629	41.1	1126	1126	20.3	2619	1855	15.7	19.0	187	500	50	58
Design levels	80	5226	58.2	3118	42.9	938	938	19.6	2209	1538	14.7	13.0	130	380	42	50
	60	4085	61.6	2450	45.0	769	769	17.8	1947	1310	11.3	5.9	99	250	32	40
	40	2454	66.0	1486	47.9	358	358	19.1	924	622	13.2	5.2	81	135	24	32
Minimum stage	20	1106	70.6	679	51.1	119	119	21.2	318	209	16.7	4.8	72	60	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	9162	55.4	5443	41.1	1689	1689	20.3	3929	2783	15.7	28.5	281	750	52	60
Design levels	80	7839	58.2	4677	42.9	1407	1407	19.6	3314	2307	14.7	19.5	195	570	44	52
	60	6127	61.6	3675	45.0	1154	1154	17.8	2921	1965	11.3	8.9	149	375	34	42
	40	3681	66.0	2229	47.9	537	537	19.1	1386	933	13.2	7.8	122	200	26	34
Minimum stage	20	1660	70.6	1019	51.1	178	178	21.2	477	314	16.7	7.2	108	90	<20 ⁵⁾	<28 ⁵⁾

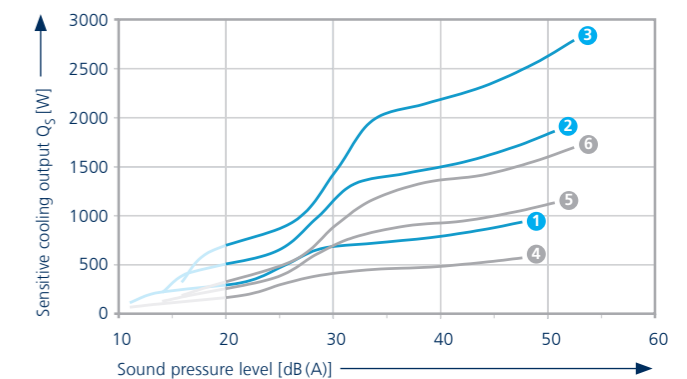
Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65 °C, t = 20 °C:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPHW 55/45 °C, t = 20 °C:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm



LPCW 7/12 °C, t_L = 27 °C, 50 % rel. humidity:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

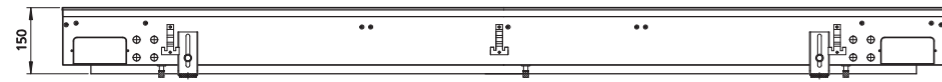
LPCW 16/18 °C, t_L = 27 °C, 50 % rel. humidity:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

¹⁾ at room temperature t_L = 20 °C;
²⁾ at room temperature t_L = 27 °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

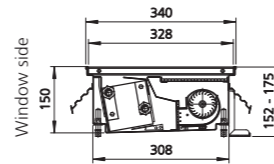
Katherm HK 340

2-pipe, trench height 150 mm

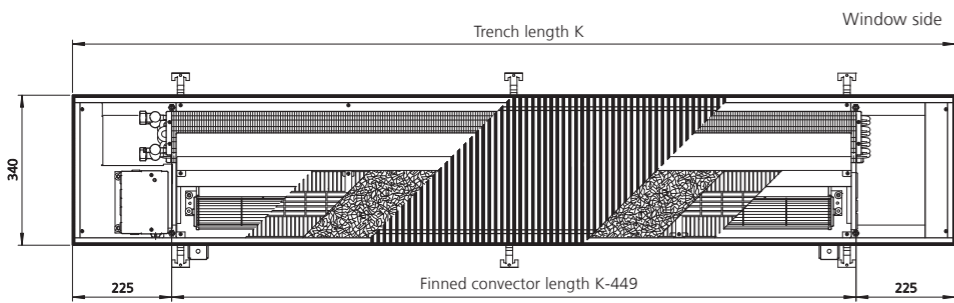
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

Specifications

Connections, female thread:
1/2", same end, on the left seen from the room side

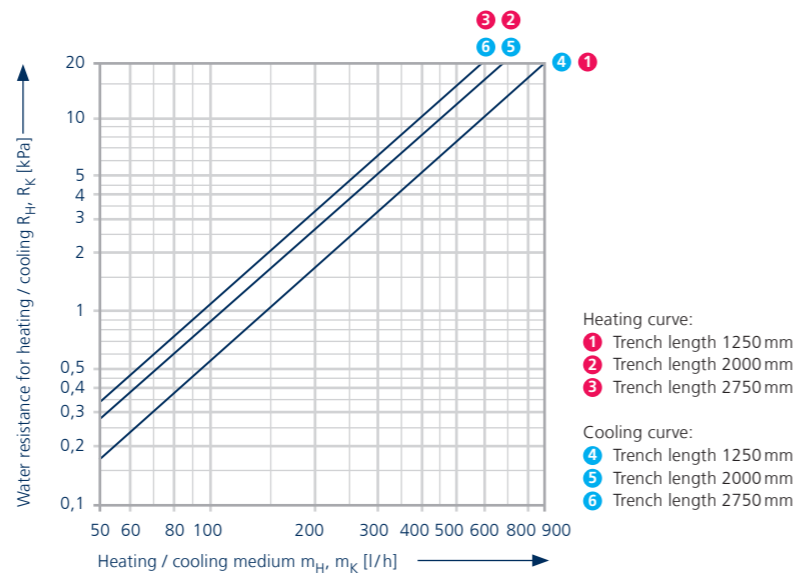
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	801	2	1
2000	1551	4	2
2750	2301	6	3

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Water resistance

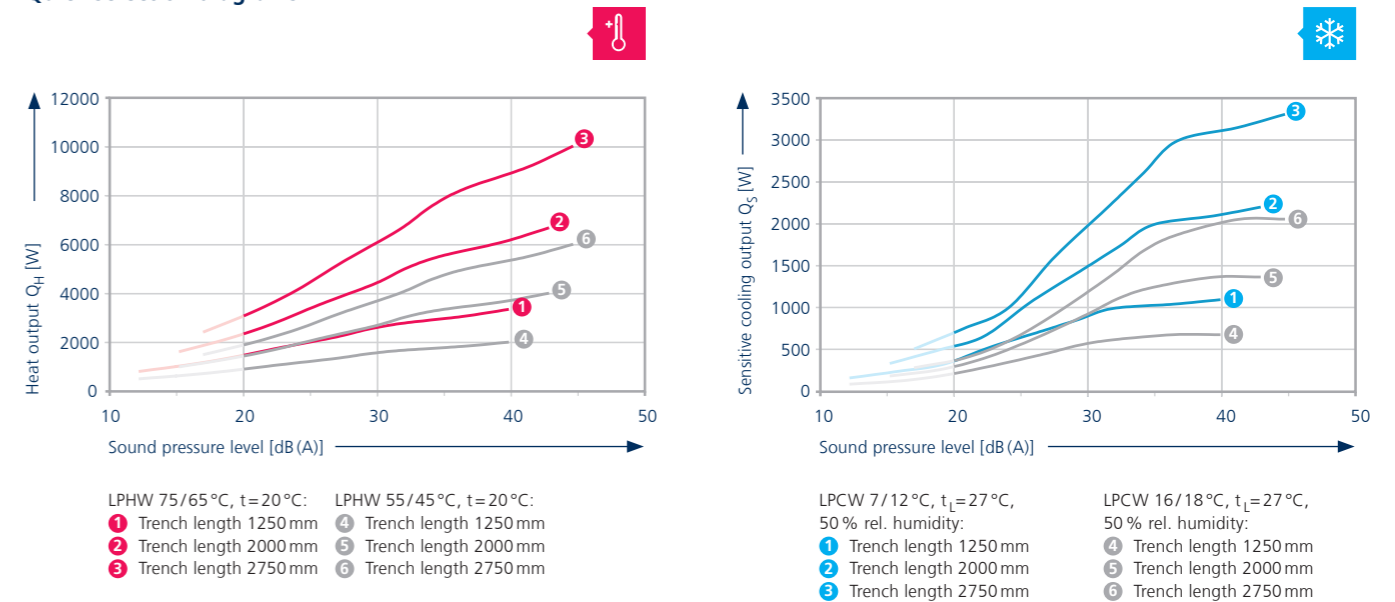


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ P [W]	Current consumption I [mA]	Air volume [m ³ /h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C		with LPHW 55/45 °C		with LPCW 16/18 °C		with LPCW 7/12 °C								
		Q _H [W]	t _{L2} [°C]	Q _H [W]	t _{L2} [°C]	Q _K [W]	Q _S [W]	t _{L2} [°C]	Q _K [W]						Q _S [W]	t _{L2} [°C]
Trench length 1250 mm																
Boost stage	100	3329	57.2	1994	42.2	681	681	19.6	1550	1094	15	13.9	136	275	40	48
Design levels	80	2756	60.4	1658	44.2	621	621	18.1	1421	990	12.7	9.3	100	210	32	40
	60	2189	65.4	1326	47.4	457	457	17.7	1091	738	12	5.3	80	145	27	35
	40	1373	64.8	838	47.3	201	201	20.7	499	332	16.5	4.7	70	95	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	800	67.6	494	49.3	97	97	21.5	262	171	17.2	4.3	64	50	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	6659	57.2	3989	42.2	1363	1363	19.6	3100	2188	15	21.0	226	545	43	51
Design levels	80	5511	60.4	3316	44.2	1241	1241	18.1	2842	1979	12.7	15.5	151	415	35	43
	60	4378	65.4	2652	47.4	914	914	17.7	2182	1475	12	10.3	110	295	30	38
	40	2746	64.8	1676	47.3	402	402	20.7	998	663	16.5	5.5	87	185	22	30
Minimum stage	20	1600	67.6	987	49.3	193	193	21.5	523	342	17.2	5.1	76	105	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	9988	57.2	5983	42.2	2044	2044	19.6	4650	3282	15	31.5	339	820	45	53
Design levels	80	8267	60.4	4974	44.2	1862	1862	18.1	4263	2969	12.7	23.3	227	625	37	45
	60	6568	65.4	3977	47.4	1371	1371	17.7	3273	2213	12	15.5	165	440	32	40
	40	4119	64.8	2515	47.3	604	604	20.7	1497	995	16.5	8.3	131	280	24	32
Minimum stage	20	2400	67.6	1481	49.3	290	290	21.5	785	513	17.2	7.7	114	155	<20 ⁵⁾	<28 ⁵⁾

Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams

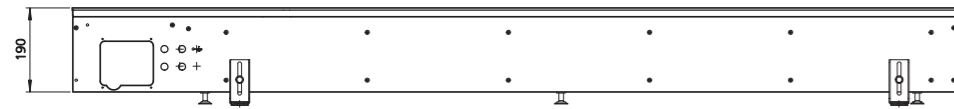


¹⁾ at room temperature t_L = 20 °C;
²⁾ at room temperature t_L = 27 °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

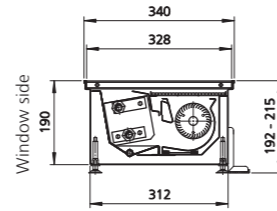
Katherm HK 340

2-pipe, trench height 190 mm

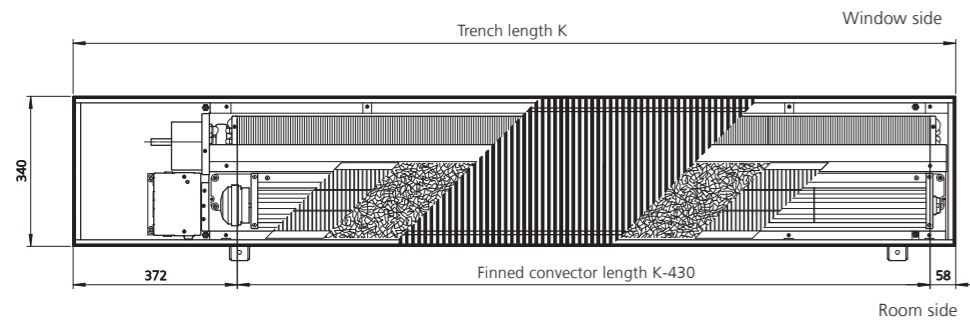
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

Specifications

Connections, female thread:
1/2", same end, on the left seen from the room side

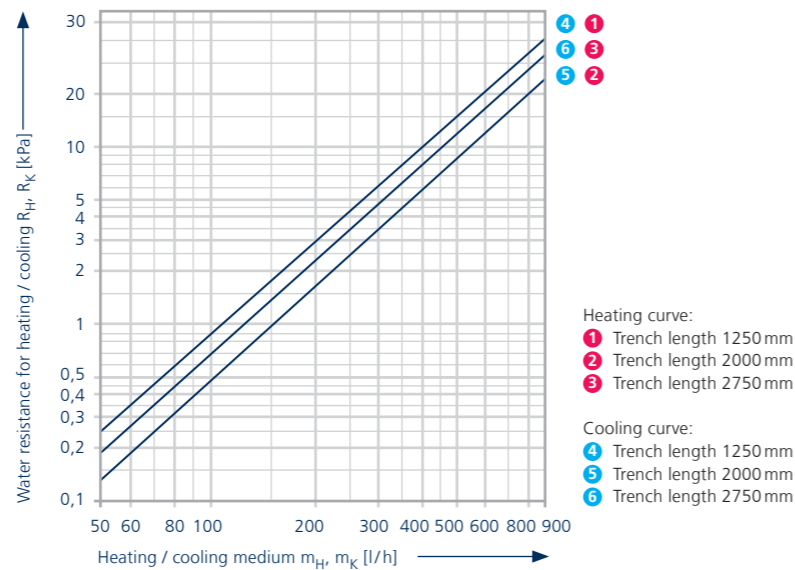
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	820	1	1
2000	1570	1	1
2750	2320	1	1

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Water resistance

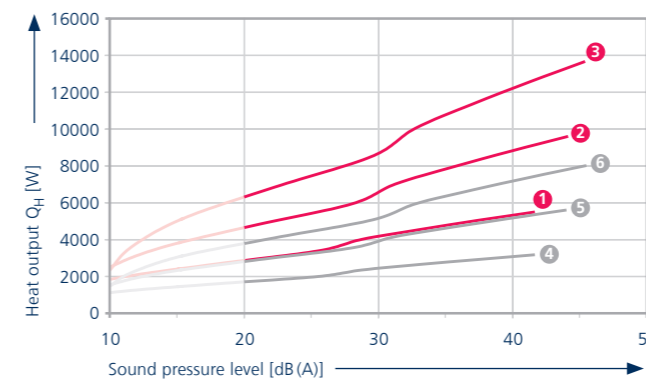


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ P [W]	Current consumption I [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C		with LPHW 55/45 °C		with LPCW 16/18 °C		with LPCW 7/12 °C								
		Q _H [W]	t _{L2} [°C]	Q _H [W]	t _{L2} [°C]	Q _K [W]	Q _S [W]	t _{L2} [°C]	Q _K [W]						Q _S [W]	t _{L2} [°C]
Trench length 1250 mm																
Boost stage	100	5512	55.5	3231	40.7	1053	1053	20.4	1931	1484	17.7	18.9	205	475	42	50
Design levels	80	4568	57.7	2694	42.2	827	827	20.4	1583	1155	17.7	12.0	144	370	33	41
	60	3418	60.6	2034	44.1	577	577	20.4	1118	791	17.9	7.5	105	260	26	34
	40	2044	64.5	1242	46.9	318	318	20.3	612	425	18.1	5.7	90	140	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	870	68.2	538	49.7	126	126	20.3	252	166	18.3	4.8	81	55	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	9611	55.5	5634	40.7	1835	1835	20.4	3360	2582	17.7	37.8	410	830	44	52
Design levels	80	7966	57.7	4697	42.2	1442	1442	20.4	2754	2010	17.7	24.0	288	645	35	43
	60	5960	60.6	3547	44.1	1006	1006	20.4	1945	1376	17.9	15.0	210	450	28	36
	40	3563	64.5	2165	46.9	554	554	20.3	1065	740	18.1	11.4	180	245	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	1517	68.2	939	49.7	219	219	20.3	438	289	18.3	9.6	162	95	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	13710	55.5	8036	40.7	2618	2618	20.4	4808	3695	17.7	56.7	615	1180	46	54
Design levels	80	11363	57.7	6700	42.2	2057	2057	20.4	3942	2876	17.7	36.0	432	925	37	45
	60	8502	60.6	5059	44.1	1435	1435	20.4	2784	1970	17.9	22.5	315	640	30	38
	40	5083	64.5	3089	46.9	791	791	20.3	1524	1058	18.1	17.1	270	350	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	2164	68.2	1339	49.7	313	313	20.3	627	413	18.3	14.4	243	140	<20 ⁵⁾	<28 ⁵⁾

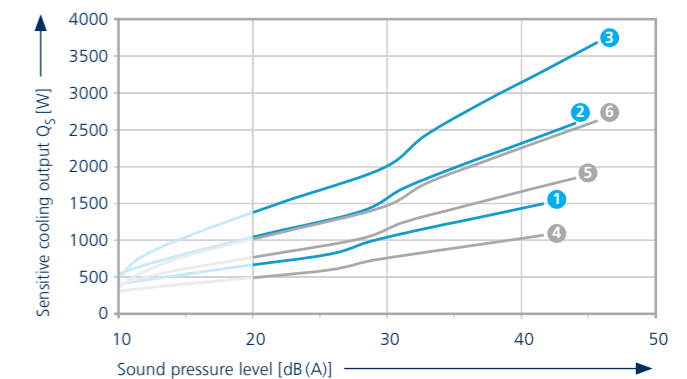
Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65 °C, t = 20 °C:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPHW 55/45 °C, t = 20 °C:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm



LPCW 7/12 °C, t_L = 27 °C, 50 % rel. humidity:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

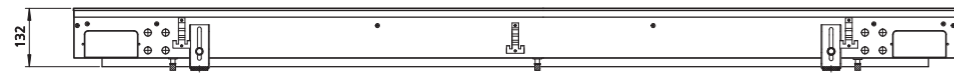
LPCW 16/18 °C, t_L = 27 °C, 50 % rel. humidity:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

¹⁾ at room temperature t_L = 20 °C;
²⁾ at room temperature t_L = 27 °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

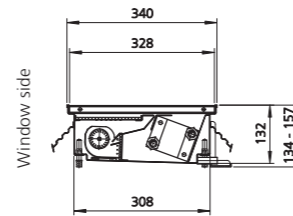
Katherm HK 340

4-pipe, trench height 132 mm

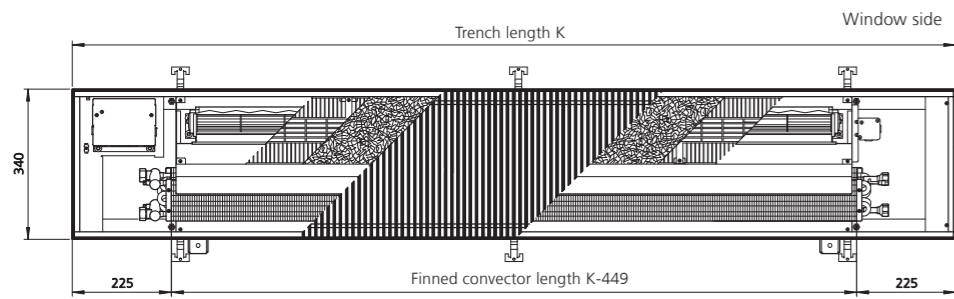
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

Specifications

Connections, female thread:
1/2", opposite end

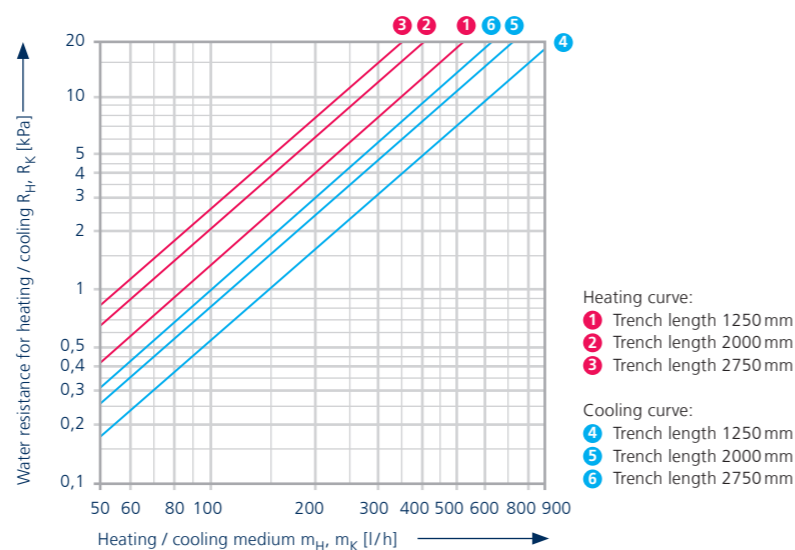
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	801	2	1
2000	1551	4	2
2750	2301	6	3

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Water resistance

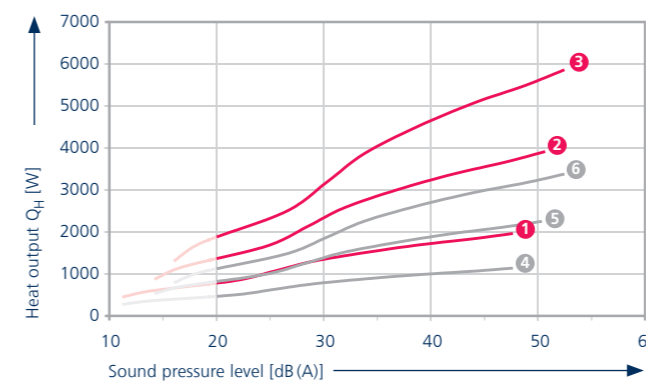


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ P [W]	Current consumption I [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C Q _H [W]	with LPHW 75/65 °C t _{L2} [°C]	with LPHW 55/45 °C Q _H [W]	with LPHW 55/45 °C t _{L2} [°C]	with LPCW 16/18 °C Q _K [W]	with LPCW 16/18 °C Q _S [W]	with LPCW 16/18 °C t _{L2} [°C]	with LPCW 7/12 °C Q _K [W]						with LPCW 7/12 °C Q _S [W]	with LPCW 7/12 °C t _{L2} [°C]
Trench length 1250 mm																
Boost stage	100	1957	44.0	1126	33.8	474	474	21.4	985	762	17.8	12.0	120	250	47	55
Design levels	80	1691	47.2	978	35.7	432	432	20.3	958	706	15.8	5.8	90	190	39	47
	60	1287	51.6	749	38.3	347	347	18.7	804	578	13.2	5.1	74	125	29	37
	40	826	57.8	487	42.2	168	168	19.6	414	286	14.4	4.4	64	65	21	29
Minimum stage	20	431	64.4	260	46.5	64	64	20.7	175	115	15.6	4.0	59	30	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	3915	44.0	2253	33.8	948	948	21.4	1970	1524	17.8	19.0	187	500	50	58
Design levels	80	3382	47.2	1956	35.7	863	863	20.3	1916	1411	15.8	13.0	130	380	42	50
	60	2574	51.6	1499	38.3	694	694	18.7	1608	1155	13.2	5.9	99	250	32	40
	40	1651	57.8	974	42.2	336	336	19.6	828	571	14.4	5.2	81	135	24	32
Minimum stage	20	863	64.4	519	46.5	128	128	20.7	350	230	15.6	4.8	72	60	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	5872	44.0	3379	33.8	1422	1422	21.4	2955	2286	17.8	28.5	281	750	52	60
Design levels	80	5073	47.2	2933	35.7	1295	1295	20.3	2874	2117	15.8	19.5	195	570	44	52
	60	3861	51.6	2248	38.3	1041	1041	18.7	2412	1733	13.2	8.9	149	375	34	42
	40	2477	57.8	1462	42.2	504	504	19.6	1242	857	14.4	7.8	122	200	26	34
Minimum stage	20	1294	64.4	779	46.5	192	192	20.7	525	345	15.6	7.2	108	90	<20 ⁵⁾	<28 ⁵⁾

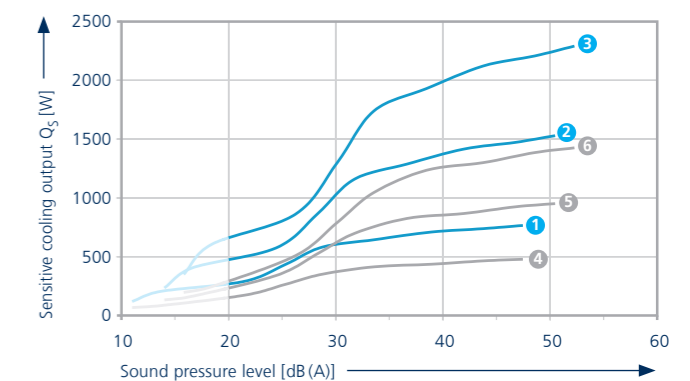
Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65 °C, t_L = 20 °C:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPHW 55/45 °C, t_L = 20 °C:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm



LPCW 7/12 °C, t_L = 27 °C, 50 % rel. humidity:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

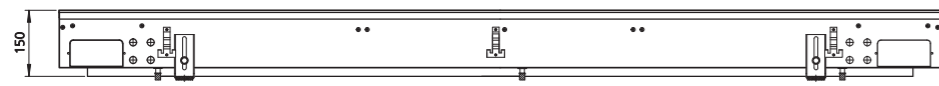
LPCW 16/18 °C, t_L = 27 °C, 50 % rel. humidity:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

¹⁾ at room temperature t_r = 20 °C;
²⁾ at room temperature t_r = 27 °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range

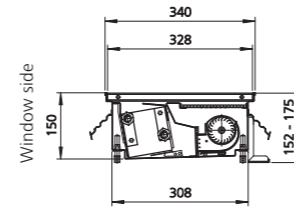
Katherm HK 340

4-pipe, trench height 150 mm

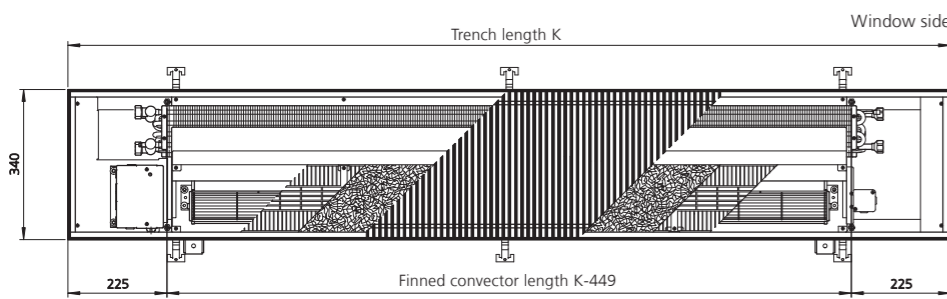
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

Specifications

Connections, female thread:
1/2", opposite end

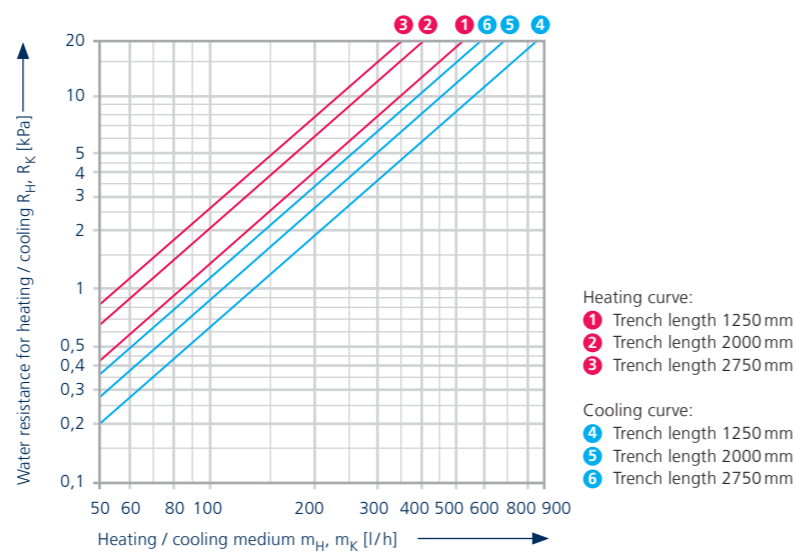
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	801	2	1
2000	1551	4	2
2750	2301	6	3

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Water resistance

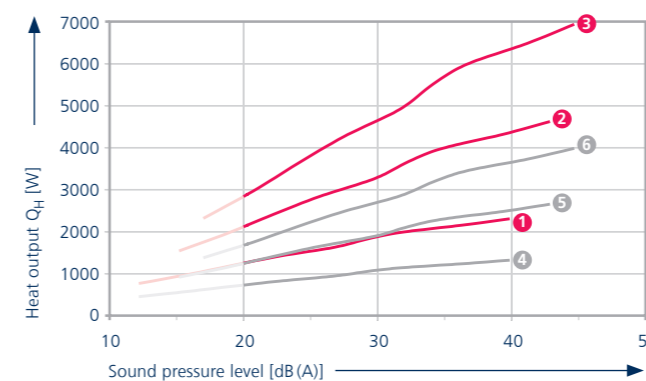


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ [W]	Current consumption [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C [W]	t _{L2} [°C]	with LPHW 55/45 °C [W]	t _{L2} [°C]	with LPCW 16/18 °C [W]	t _{L2} [°C]	with LPCW 7/12 °C [W]	t _{L2} [°C]							
Trench length 1250 mm																
Boost stage	100	2302	45.6	1322	34.7	650	650	19.9	1227	1020	15.8	13.9	136	275	40	48
Design levels	80	1985	49.0	1145	36.7	529	529	19.4	1039	818	15.2	9.3	100	210	32	40
	60	1630	53.7	946	39.6	398	398	18.9	822	613	14.5	5.3	80	145	27	35
	40	1202	59.1	704	42.9	181	181	21.3	401	285	18	4.7	70	95	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	770	65.8	459	47.2	93	93	21.7	238	159	17.9	4.3	64	50	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	4604	45.6	2644	34.7	1299	1299	19.9	2453	2039	15.8	21.0	226	545	43	51
Design levels	80	3969	49.0	2290	36.7	1059	1059	19.4	2077	1635	15.2	15.5	151	415	35	43
	60	3259	53.7	1892	39.6	796	796	18.9	1643	1225	14.5	10.3	110	295	30	38
	40	2404	59.1	1409	42.9	362	362	21.3	801	569	18	5.5	87	185	22	30
Minimum stage	20	1541	65.8	917	47.2	186	186	21.7	475	318	17.9	5.1	76	105	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	6905	45.6	3966	34.7	1949	1949	19.9	3680	3059	15.8	31.5	339	820	45	53
Design levels	80	5954	49.0	3435	36.7	1588	1588	19.4	3116	2453	15.2	23.3	227	625	37	45
	60	4889	53.7	2838	39.6	1194	1194	18.9	2465	1838	14.5	15.5	165	440	32	40
	40	3605	59.1	2113	42.9	543	543	21.3	1202	854	18	8.3	131	280	24	32
Minimum stage	20	2311	65.8	1376	47.2	279	279	21.7	713	477	17.9	7.7	114	155	<20 ⁵⁾	<28 ⁵⁾

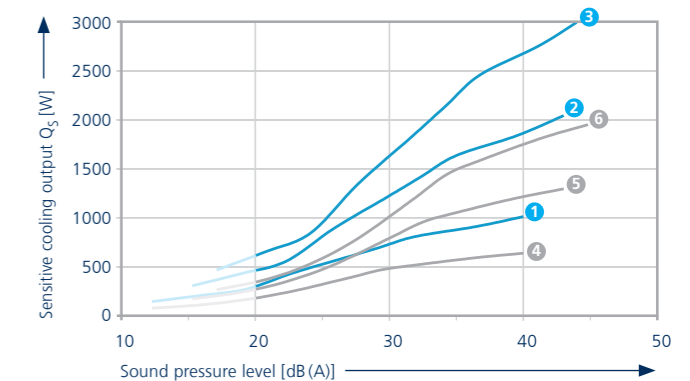
Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65 °C, t = 20 °C:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPHW 55/45 °C, t = 20 °C:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm



LPCW 7/12 °C, t_L = 27 °C, 50 % rel. humidity:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPCW 16/18 °C, t_L = 27 °C, 50 % rel. humidity:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

¹⁾ at room temperature t_L = 20 °C;

²⁾ at room temperature t_L = 27 °C, rel. humidity 50%;

³⁾ Add an additional power uptake if 3 W per valve drive type 146906;

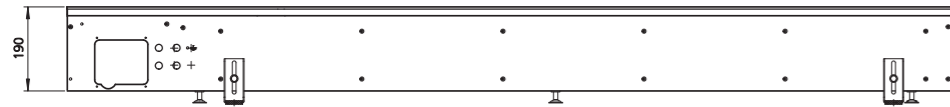
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

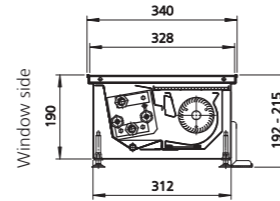
Katherm HK 340

4-pipe, trench height 190 mm

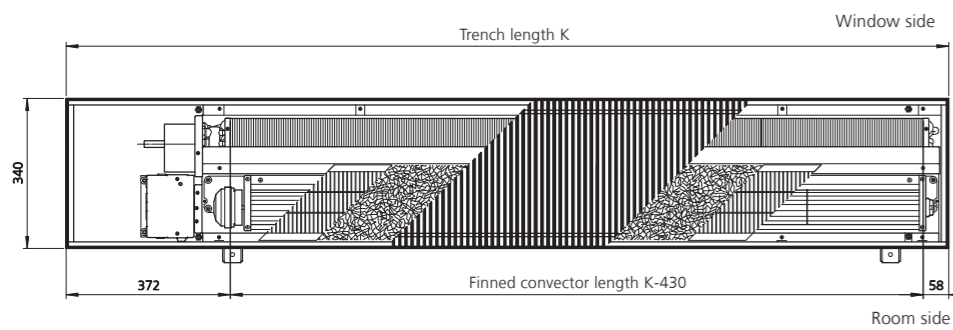
Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Draufsicht (Ansicht ohne Abdeckblech)

Specifications

Connections, female thread:
1/2", same end, on the left seen from the room side

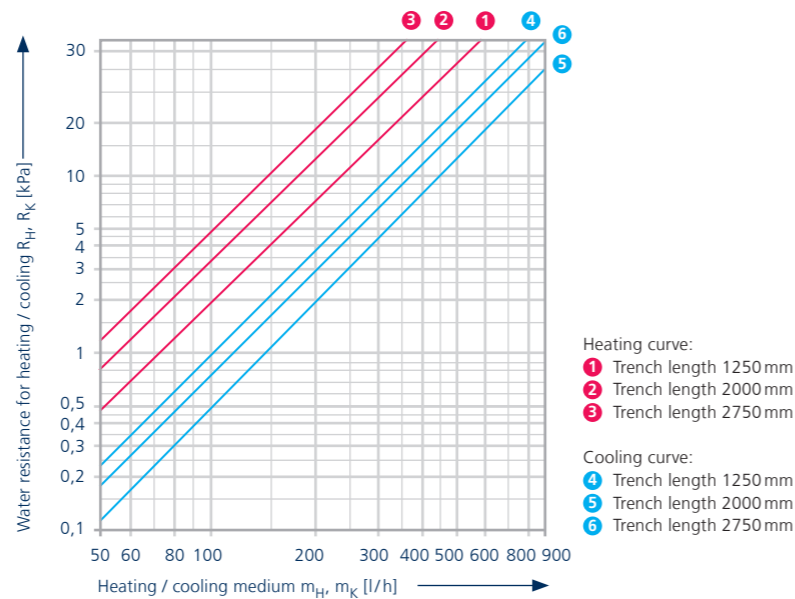
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	820	1	1
2000	1570	1	1
2750	2320	1	1

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► Kampmann.co.uk/calculation_programs

Water resistance

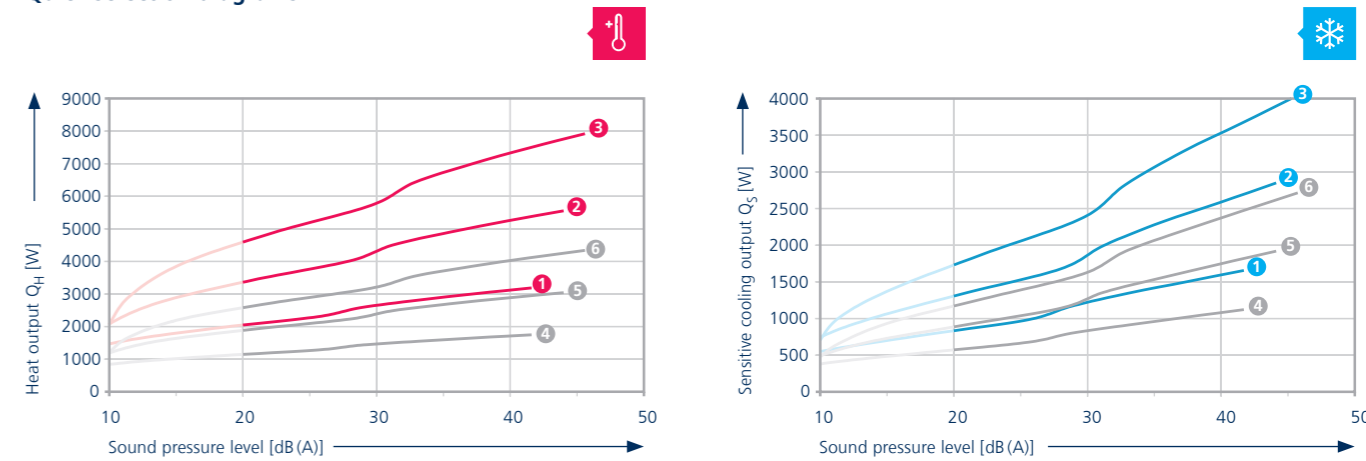


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ [W]	Current consumption [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C Q_H [W]	with LPHW 75/65 °C t_{L2} [°C]	with LPHW 55/45 °C Q_H [W]	with LPHW 55/45 °C t_{L2} [°C]	with LPCW 16/18 °C Q_K [W]	with LPCW 16/18 °C Q_S [W]	with LPCW 16/18 °C t_{L2} [°C]	with LPCW 7/12 °C Q_K [W]						with LPCW 7/12 °C Q_S [W]	with LPCW 7/12 °C t_{L2} [°C]
Trench length 1250 mm																
Boost stage	100	3193	40.5	1748	31.2	1081	1081	20.2	2098	1620	16.7	18.9	205	475	42	50
Design levels	80	2816	43.2	1550	32.8	872	872	20.0	1745	1311	16.4	12.0	144	370	33	41
	60	2305	47.3	1280	35.2	631	631	19.7	1309	941	16	7.5	105	260	26	34
	40	1578	54.3	898	39.4	364	364	19.3	794	546	15.4	5.7	90	140	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	778	63.0	456	45.1	150	150	18.9	348	229	14.7	4.8	81	55	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	5567	40.5	3047	31.2	1884	1884	20.2	3651	2819	16.7	37.8	410	830	44	52
Design levels	80	4910	43.2	2702	32.8	1520	1520	20.0	3036	2281	16.4	24.0	288	645	35	43
	60	4020	47.3	2232	35.2	1100	1100	19.7	2278	1637	16	15.0	210	450	28	36
	40	2752	54.3	1565	39.4	636	636	19.3	1382	950	15.4	11.4	180	245	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	1357	63.0	794	45.1	262	262	18.9	606	398	14.7	9.6	162	95	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	7941	40.5	4347	31.2	2688	2688	20.2	5224	4034	16.7	56.7	615	1180	46	54
Design levels	80	7005	43.2	3855	32.8	2169	2169	20.0	4345	3264	16.4	36.0	432	925	37	45
	60	5734	47.3	3184	35.2	1569	1569	19.7	3259	2343	16	22.5	315	640	30	38
	40	3925	54.3	2233	39.4	907	907	19.3	1977	1360	15.4	17.1	270	350	<20 ⁵⁾	<28 ⁵⁾
Minimum stage	20	1936	63.0	1133	45.1	374	374	18.9	867	570	14.7	14.4	243	140	<20 ⁵⁾	<28 ⁵⁾

Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65 °C, $t_L = 20$ °C:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

LPHW 55/45 °C, $t_L = 20$ °C:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

LPCW 7/12 °C, $t_L = 27$ °C, 50 % rel. humidity:
 1 Trench length 1250 mm
 2 Trench length 2000 mm
 3 Trench length 2750 mm

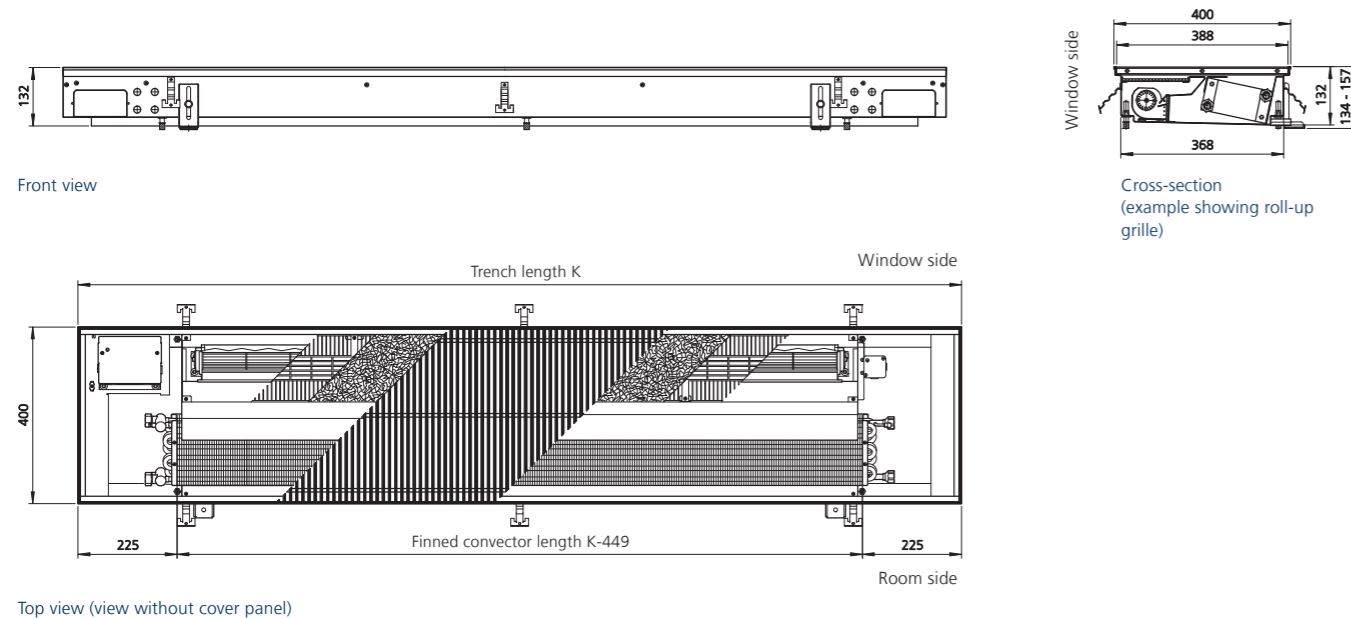
LPCW 16/18 °C, $t_L = 27$ °C, 50 % rel. humidity:
 4 Trench length 1250 mm
 5 Trench length 2000 mm
 6 Trench length 2750 mm

¹⁾ at room temperature $t_L = 20$ °C;
²⁾ at room temperature $t_L = 27$ °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

Katherm HK 400

4-pipe, trench height 132 mm

Technical Drawings (all dimensions in mm)



Specifications

Anschlüsse, Innengewinde:
1/2", opposite end

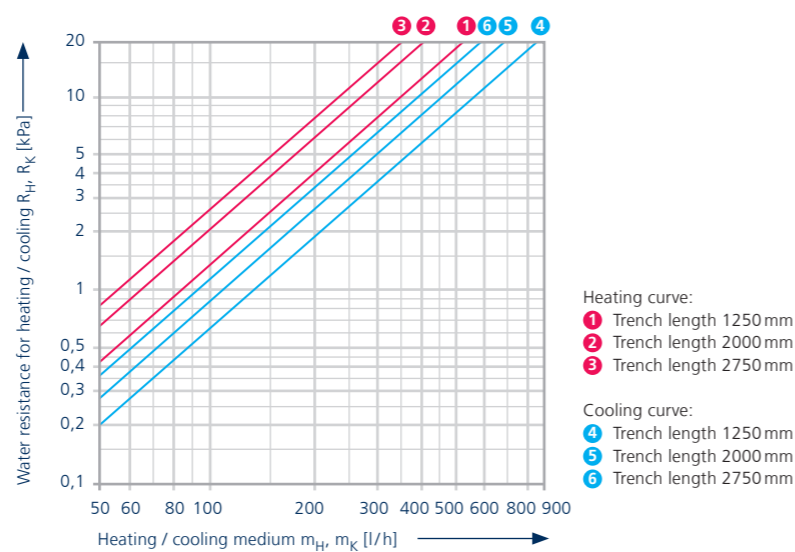
Condensation connection:
15 mm spigots

Trench length	Finned convector length	Fan impeller	Fan motors
[mm]	[mm]	[No.]	[No.]
1250	801	2	1
2000	1551	4	2
2750	2301	6	3

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► Kampmann.co.uk/calculation_programs

Water resistance

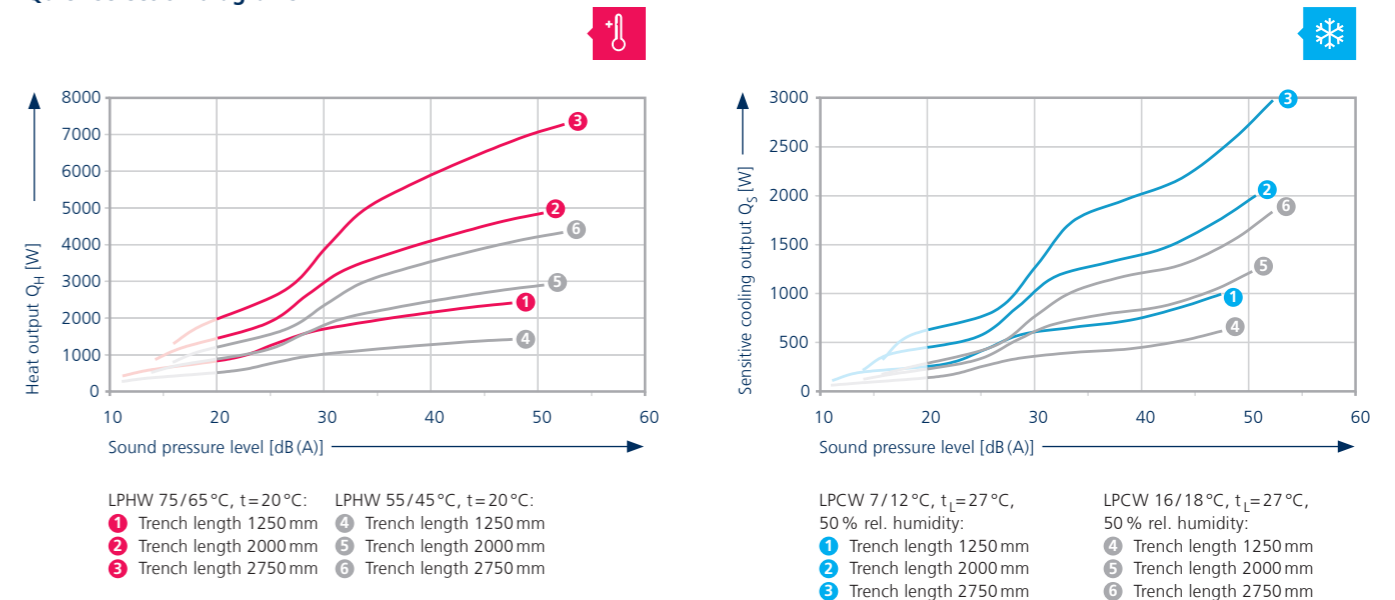


Services

Fan stage	at fan speed [%]	Heat outputs ¹⁾				Cooling outputs ²⁾				Power uptake ³⁾ [W]	Current consumption [mA]	Air volume [m³/h]	Sound pressure level ⁴⁾ [dB(A)]	Sound power level [dB(A)]		
		with LPHW 75/65 °C [W]	with LPHW 55/45 °C [W]	with LPCW 16/18 °C [W]	with LPCW 7/12 °C [W]	with LPHW 75/65 °C [W]	with LPHW 55/45 °C [W]	with LPCW 16/18 °C [W]	with LPCW 7/12 °C [W]							
Trench length 1250 mm																
Boost stage	100	2423	49.1	1444	37.3	609	609	19.9	1359	985	15.3	12.0	120	255	47	55
Design levels	80	2129	53.6	1274	40.0	430	430	20.4	1024	721	15.9	5.8	90	195	39	47
	60	1645	59.5	991	43.7	338	338	19.2	841	575	13.6	5.1	74	130	29	37
	40	923	61.3	563	45.0	156	156	20.3	413	273	15.3	4.4	64	70	21	29
Minimum stage	20	437	63.9	271	47.0	62	62	21.1	169	109	16.5	4.0	59	30	<20 ⁵⁾	<28 ⁵⁾
Trench length 2000 mm																
Boost stage	100	4845	49.1	2888	37.3	1218	1218	19.9	2717	1969	15.3	19.0	187	515	50	58
Design levels	80	4258	53.6	2548	40.0	861	861	20.4	2047	1442	15.9	13.0	130	390	42	50
	60	3289	59.5	1983	43.7	677	677	19.2	1682	1150	13.6	5.9	99	255	32	40
	40	1845	61.3	1126	45.0	313	313	20.3	825	545	15.3	5.2	81	140	24	32
Minimum stage	20	873	63.9	541	47.0	124	124	21.1	337	218	16.5	4.8	72	60	<20 ⁵⁾	<28 ⁵⁾
Trench length 2750 mm																
Boost stage	100	7268	49.1	4332	37.3	1827	1827	19.9	4076	2954	15.3	28.5	281	770	52	60
Design levels	80	6387	53.6	3822	40.0	1291	1291	20.4	3071	2163	15.9	19.5	195	585	44	52
	60	4934	59.5	2974	43.7	1015	1015	19.2	2523	1725	13.6	8.9	149	385	34	42
	40	2768	61.3	1688	45.0	469	469	20.3	1238	818	15.3	7.8	122	205	26	34
Minimum stage	20	1310	63.9	812	47.0	186	186	21.1	506	327	16.5	7.2	108	90	<20 ⁵⁾	<28 ⁵⁾

Q_H [W] = heat output; Q_K [W] = cooling output, total; Q_S [W] = cooling output, sensitive; t_{L2} [°C] = leaving air temperature

Quick selection diagrams



¹⁾ at room temperature t_L = 20 °C;
²⁾ at room temperature t_L = 27 °C, rel. humidity 50%;
³⁾ Add an additional power uptake if 3 W per valve drive type 146906;
⁴⁾ The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
⁵⁾ Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

03 ▶ Design Information



Information on Planning and Design

Katherm HK are suitable for use in all kinds of buildings in which there is a cooling load owing to internal loads and the effects of sunlight.

They are generally positioned directly in front of the external façade without a large gap. Katherm HK can provide cost-effective and efficient heating, particularly in front of large areas of glazing.

Air outlet

Katherm HK 340 with a trench height of 132 mm are positioned with the convector on the room side. Katherm HK 340 with a trench height of 150 mm and 190 mm are positioned with the air outlet to the external wall. If the air outlet is arranged on the room side, the higher air flow rate will lower levels of comfort in the public area.

Acoustics

When designing a system, it should be noted that disruptive noise may occur at higher fan speeds. The respective sound power levels of Katherm HK are indicated in the tables (see „Technical Data“). The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).

As the sound level is not only due to the Katherm HK, but is also influenced by the number of Katherm HK and also very significantly by the acoustic characteristics of the room, the actual figure may vary in practice.

We would recommend designing Katherm HK taking into account the respective permitted sound pressure level in the room.

Heat and cooling outputs

The heat and cooling outputs were calculated based on DIN EN 16430.

We would recommend our online calculation programs to convert to other operating conditions. Kampmann.co.uk/calculation_programs.

Comfort

The comfort was calculated taking into consideration DIN EN ISO 7730 (May 2006) „Ergonomics of the thermal environment – analytical determination and interpretation of thermal comfort by calculation of the PMV and the PDB indexes and criteria of local thermal comfort (ISO 7730: 2005).

A detailed optimisation of the air outlet and air flows is calculated in accordance with this standard.

Make use of our online calculation programs to calculate your heat and cooling outputs and flow rates with a couple of clicks!

▶ Kampmann.co.uk/calculation_programs

04 ▶ Control

KaControl – The all-inclusive solution for Kathern HK

Kampmann Kathern HK units complete with KaControl operating units are supplied factory-fitted with all electrical parts ready for connection.

Each Kathern HK unit is fitted with an electrical fuse. A high-performance parameterised microprocessor is designed to carry out all necessary functions and each Kathern HK unit is equipped with its own “intelligence” and can be operated by Kampmann networks in groups. Direct control via a 0 – 10 V analogue data point in the building control system is also possible.

Connection to building automation systems

KaControl Kathern HK units can be equipped with plug-in communication interfaces for controlled operation in individual rooms or for linking into superior control systems. BACnet, CANbus, LON, KNX und Modbus.

Control functions of KaControl for Kathern HK

The parameterisable KaControl offers a wide range of functions:

- ▶ Optional: 5 fan speed settings; manually adjustable
- ▶ Valve control for 2-pipe/4-pipe applications (heating/cooling) for thermoelectric valve actuators 24 Open/Close
- ▶ Optional: integrated frost protection function via clip-on pipe sensor
- ▶ Motor monitoring with fault indicator processing

Temperature control with smooth fan assistance

Kathern HK is initially operated with natural convection depending on the heat requirement measured in the room. The energy-saving cross-flow fan continues to be controlled in this way, if required. In cooling mode, the controller works in the opposite way, but always with fan assistance.

KaController operating unit



The “face” of the KaControl building automation system: The KaController operating unit.

The KaController is very easy to use with its large display and one-touch operation. With the basic principle, “as little as possible, as much as required”, even untrained users can intuitively get to grips with the control options.

The basic functions for comfortable interior temperatures are set in a user-friendly way using the KaController.

Product features

- ▶ High-quality designed wall-mounted room operating units
- ▶ Available with or without function buttons on the side
- ▶ Plastic housing, colour similar to RAL 9010
- ▶ Communication interface to Kampmann T-LAN bus system
- ▶ Large display with automatic backlight
- ▶ Integral room temperature sensor
- ▶ Press-button dial with continuous dial mode
- ▶ Integral weekly timer program
- ▶ Password-protected parameter level

KaControl Touch SEL



KaControl Touch SEL offers users the option of calling up all system states and modifying system parameters via an intuitive user interface.

The touch-screen operation consists of switchable parameter windows, which show all settings and options at-a-glance and are specifically designed for manual operation on the screen.

Users can also operate the operating pages through Internet Explorer via an Ethernet cable in addition to standard functions, like calling up temperatures and specifying setpoints.

Product features

- ▶ Display size: 7” (diagonal)
- ▶ Supply voltage: 24 V DC
- ▶ Protection class: IP 65 (front panel)
- ▶ Interface (protocol): Modbus RTU
- ▶ Dimensions W x H x D: 187 x 147 x 49 mm
- ▶ Max. number of zones: 24 zones (= 24 mode cards)

KaControl SEL panel



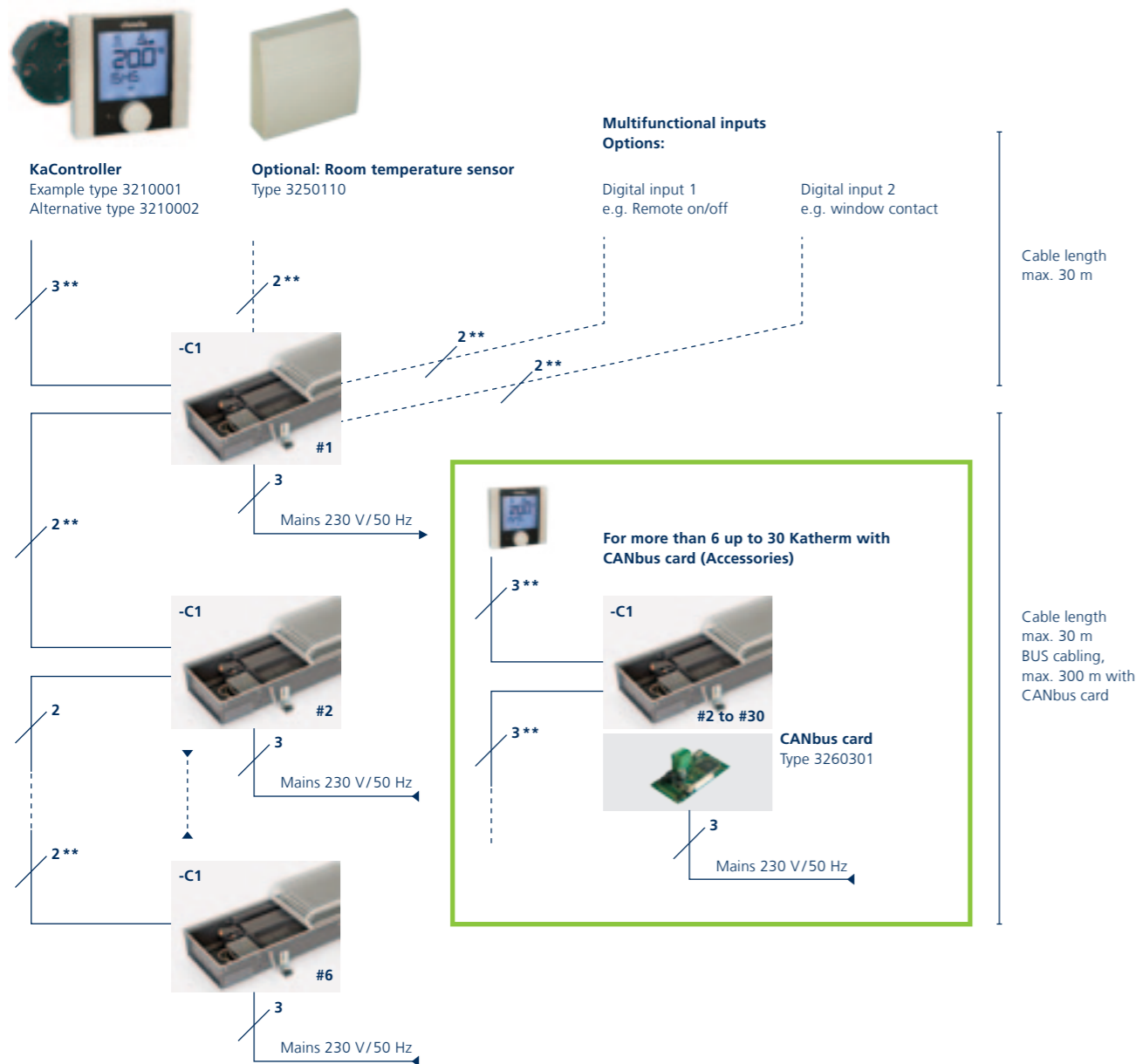
For the centralised control and monitoring of up to 24 temperature zones, unit groups or rooms.

Product features

- ▶ 3 timer programs; for 24 zones
- ▶ Summer compensation
- ▶ Room temperature target /actual values
- ▶ Central heating/cooling switch-over in 2-pipe systems by external switching contact
- ▶ Centralised temperature target value specification by an external signal 0 – 10 V
- ▶ Demand for heating via digital output
- ▶ Demand for cooling via digital output
- ▶ Collective fault in Kampmann system via digital output
- ▶ Fault detection in chiller or heat pump
- ▶ Heating/cooling changeover
- ▶ Heat generator enabled
- ▶ Chiller or heating/cooling heat pump enabled
- ▶ Fault monitoring in single units (only if all units have Modbus cards, max. 24)
- ▶ Switch-over of individual control zones:
 - ▶ On/Off or Eco/Day
 - ▶ On/Off or Eco/Day Entire system via external contact
- ▶ BACnet gateway optional

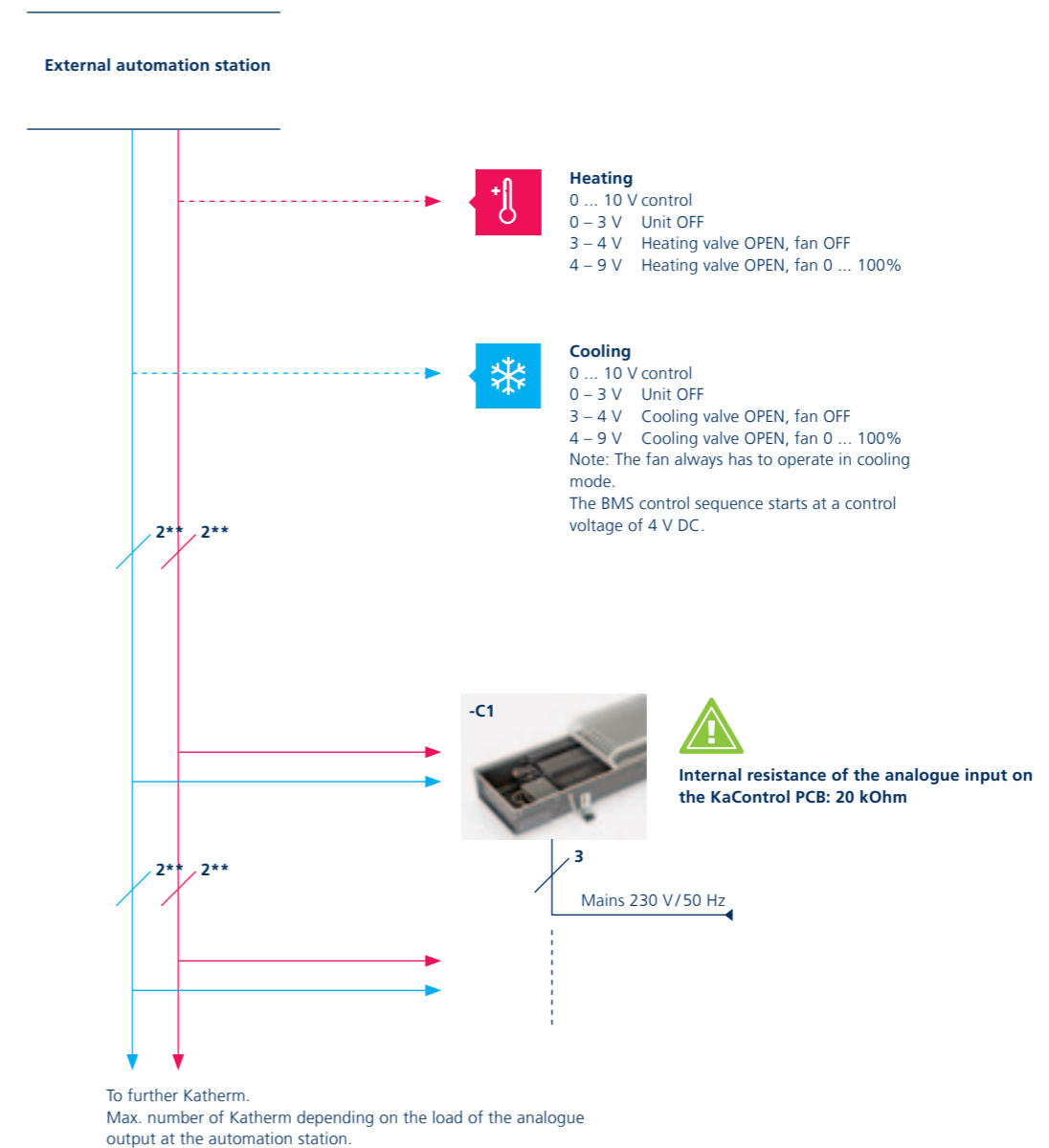
Cabling

Single circuit control – configuration



Provide a separate power supply when using a condensate pump!

System configuration for 0 ... 10 V control (by the customer)



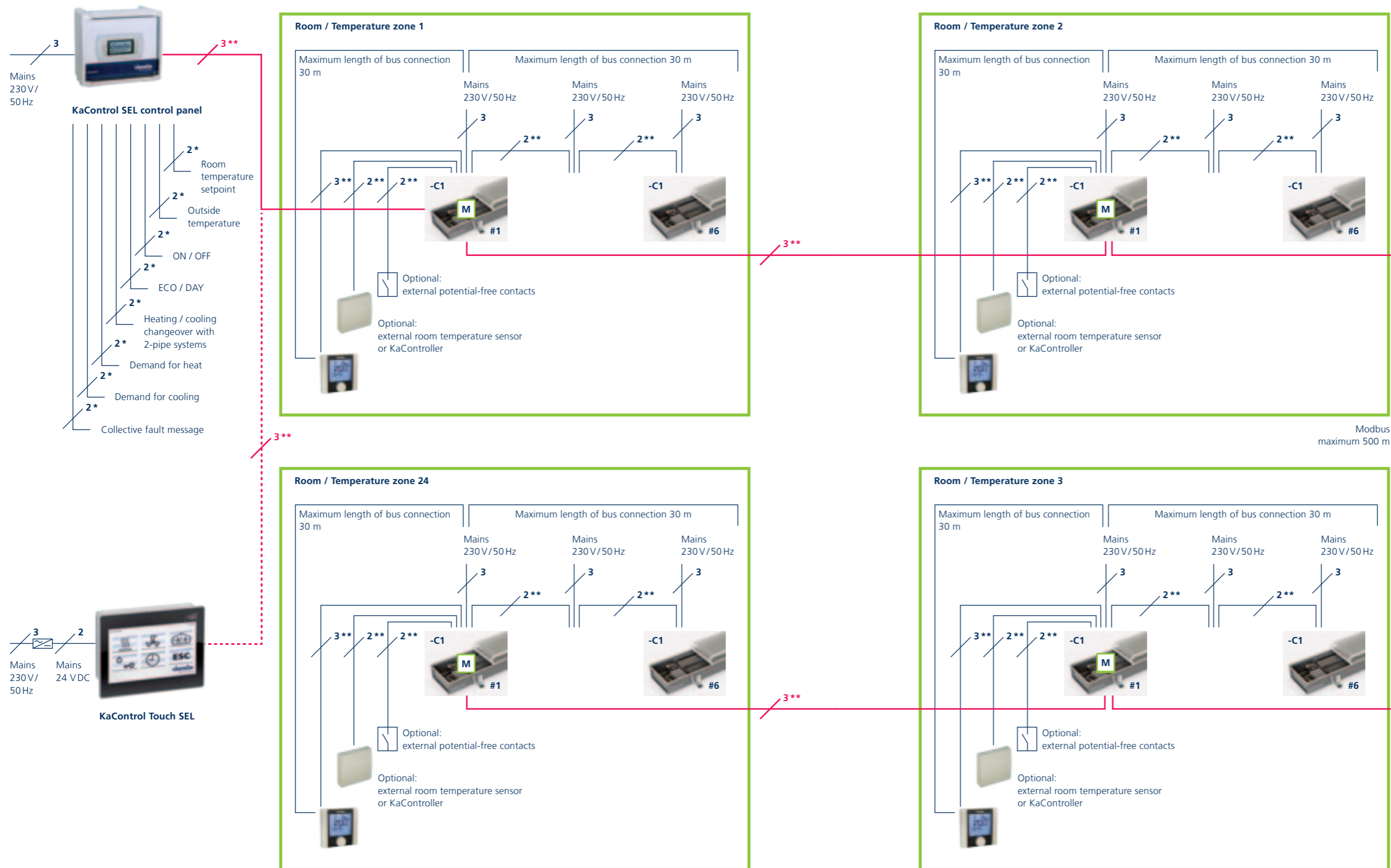
Provide a separate power supply when using a condensate pump!

** Route cables in CAT5 (AWG 23) (or similar).

Caution: All BUS connections must be laid in a line – star-shaped cabling is not allowed!

** CAT5 (AWG 23) cable connections (or similar) must be used.

KaControl System Controller



Unit groups / Fault monitoring

- ▶ A maximum of 24 units with Modbus communication can be networked.
- ▶ Five other units can be operated in parallel per Modbus unit (same temperature zone).
- ▶ Fault monitoring is possible with units with Modbus communication.

Decentralised functions

- ▶ Room temperature measurement via room temperature sensor or KaController
- ▶ KaControl (optional)
- ▶ Valve actuation via KaController
- ▶ Room temperature setpoint

Room temperature specification

The room temperature is specified depending on the timer program programmed. The user can change it on site on the KaController if required. The changes made by the user during the day are overwritten at the next centralised timer command, for example when switching from Day > ECO (night mode).

M Modbus card
The number of wires including fuse is given for each individual control unit.

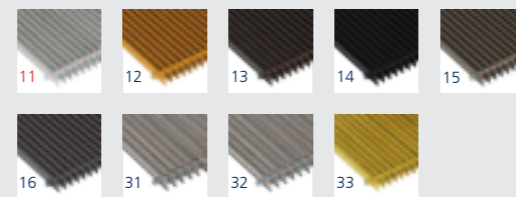
* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.
** Lay shielded, paired cables, e.g. CAT5 (AWG23) of at least the same value, separately from high-voltage cables.

05 ▶ Ordering Information

Katherm HK

Model	Trench width	Trench height	2 / 4-pipe	Grille finish	Art. no.
	[mm]	[mm]			
Trench 1250 mm, 2000 mm, 2750 mm					
HK 340	340	132	2-pipe	Roll-up grille	143062311120C1
				Linear grille	143062331120C1
			4-pipe	Roll-up grille	143064311120C1
		Linear grille		143064331120C1	
		150	2-pipe	Roll-up grille	143062511120C1
				Linear grille	143062531120C1
	4-pipe		Roll-up grille	143064511120C1	
		Linear grille	143064531120C1		
	190	2-pipe	Roll-up grille	143062911120C1	
			Linear grille	143062931120C1	
		4-pipe	Roll-up grille	143064911120C1	
	Linear grille		143064931120C1		
HK 400	400	132	4-pipe	Roll-up grille	143084311120C1
				Linear grille	143084331120C1

Trench heaters are supplied as standard with a natural anodised aluminium grille. This can be replaced by one of the following grilles at a surcharge. Please change the two red digits to the left of the red line in the article number to select an alternative grille.



Article key for grille finish (Example of Art. no.)

- 143062311120C1
- 11 → Aluminium, natural anodised (standard)
 - 12 → Aluminium, brass anodised
 - 13 → Aluminium, bronze anodised
 - 14 → Aluminium, black anodised
 - 15 → Aluminium, bronze finish
 - 16 → Aluminium, painted DB 703
 - 31 → Stainless steel, natural
 - 32 → Stainless steel, polished
 - 33 → Brass, natural CuZn 44

The available convector lengths are in 750 mm increments (1250 mm to 2750 mm). Please change the two red digits to the right of the red line in the article number to select the required convector length.

Article key for grille finish (Example of Art. no.)

- 143062311120C1
- 35 → Trench length 1250 mm
 - 50 → Trench length 2000 mm
 - 50 → Trench length 2750 mm

Accessories

Figure	Article	Properties	Suitable for	Art. no.
KaControl Accessories				
	KaController operating unit with one-touch operation	Operating unit, wall-mounted, in high-grade design, plastic housing, colour similar to RAL 9010, large LCD multifunctional display, integrated room temperature sensor, communication interface to Kampmann T-LAN bus system, automatically switching LED backlight, press/turn dial with click stop function, individually adjustable basic display, integrated day, night and week program, password-protected parameter level for C1 control option	all models	196003210001
	KaController operating unit with side operating keys	for quick access to fan settings, operating modes, Eco mode, time and timer program, otherwise as art. no.196003210001	all models	196003210002
	KaControl Touch SEL	Touch panel for overall building management of up to 24 rooms or temperature zones. Housing for mounting in the front panel. One serial RS485 card, type. no. 196003260101, is required per room/zone	all models	196003210311
	KaControl SEL panel without BACnet	KaControl electronics housed in a surface-mounted wall housing, wired ready-for-use, including KaControl operating unit for the central control of Kampmann products via a serial bus communication (Modbus); for integration of a maximum of 24 units (Modbus subscribers) (optionally with a maximum of 6 BACnet objects in a BACnet/IP network)	all models	196003232122
	KaControl SEL panel with BACnet			196003232123
	Room temperature sensor	for wall mounting, IP30 surface-mounted, colour white RAL 9010, alternative to the temperature sensor in the KaController	all models	196003250110
	Clip-on pipe sensor	for detecting the temperature of the medium, including strap, 3 m cable, to protect the unit from frost	all models	196003250115
	Serial CANbus card	to increase the number of units in a single-circuit control system	all models	196003260301
	Serial Modbus card	for connection to Modbus networks	all models	196003260101
	Serial Konnex card	for connection to KNX-/EIB networks	all models	196003260701
	Serial LON FTT10A card	for connection to LON FTT10A networks	all models	196003260501
Valves				
	Valve bodystraight, connection 1/2"	A low-noise air flow-optimised design with stainless steel spindle and double O-ring seal, to fit Katherm HK with actuator type. 194000146906, max. operating temperature 120 °C, max. operating pressure 10 bar	HK 340, 400	194000146909
	Valve body straight, connection 1/2", pre-settable		HK 340, 400	194000346909

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Figure	Article	Properties	Suitable for	Art. no.
Return valves				
	Return shut-off valve, straight, connection 1/2"	brass, nickel-plated housing with O-ring seal, max. operating temperature 120 °C, max. operating pressure 10 bar	HK 340, 400	194000145952
	Adjustment key	pre-settable	Valve bodies art. no. 194000346909	194000346915
Ventilantriebe				
	Thermoelectric actuator 24 V	Power consumption approx. 3 W, Connecting cable length approx. 1,900 mm, Overall height 69 mm, diameter 42 mm, Connecting thread 30 x 1.5 mm	Valve bodies Art. no. 194000146909, Art. no. 194000346909	194000146906
Other accessories				
	Condensation pump fitting kit	for use with Katherm HK with condensation pump max. head 8 m, max. pumping volume 3 l / h, supply voltage 230 V / 50 Hz (separate mains line required), power uptake 20 W, condensation pressurised line DN 6 mm (hose connection), signal contact for condensation overflow changeover contact, potential-free; switching output 230 V / 8 (5) A	supplied separately with HK 340, height 132 mm	194000143801
			supplied separately with HK 340, height 150 mm	194000143802
			supplied separately with HK 340, height 190 mm	194000143804
			supplied separately with HK 400, height 132 mm	194000143803
			factory fitted with HK 340, height 132 mm	194000143807
			factory fitted with HK 340, height 150 mm	194000143808
			factory fitted with HK 400, height 132 mm	194000143809
	Installation cover	timber to protect trench during installation, factory-fitted, grilles are packed separately	HK 340	194000100986
			HK 400	194000100988
	Filter for air intake		HK 340, height 132/150 mm HK 400, height 132 mm, NP 1250	143001431320
			HK 340, height 132/150 mm, HK 400, height 132 mm, NP 2000	143001431335
			HK 340, height 132/150 mm, HK 400, height 132 mm, NP 2750	143001431350
			HK 340, height 190 mm, NP 1250	143001431920
			HK 340, height 190 mm, NP 2000	143001431935
			HK 340, height 190 mm, NP 2750	143001431950

Kampmann.co.uk/katherm_hk

Kampmann GmbH
Friedrich-Ebert-Str. 128 - 130
49811 Lingen (Ems)
Germany

T +49 591 7108-0
F +49 591 7108-300
E info@kampmann.de
W Kampmann.de

Kampmann UK Ltd.
Dial House, Govett Avenue
Shepperton, Middlesex, TW17 8AG
Great Britain

T +44 (0)1932 228592
F +44 (0)1932 228949
E info@kampmann.co.uk
W Kampmann.co.uk