



► **Katherm HK**  
Trench Heating

# Katherm HK


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

► **Technical Catalogue**



# Contents

|  |           |
|--|-----------|
| <b>01 ▶ Product Information</b>                | <b>6</b>  |
| ▶ Overview                                     | 7         |
| ▶ Product Data                                 | 8         |
| ▶ Selection Assistance: Overview of Models     | 9         |
| ▶ Katherm HK at a Glance                       | 10        |
| ▶ Grilles                                      | 12        |
| ▶ Katherm HK with Supply Air Function          | 14        |
| <b>02 ▶ Technical Data</b>                     | <b>16</b> |
| ▶ Advice on Measuring Conditions               | 17        |
| ▶ Katherm HK 340, 2-pipe, Trench height 132 mm | 18        |
| ▶ Katherm HK 340, 2-pipe, Trench height 150 mm | 20        |
| ▶ Katherm HK 340, 2-pipe, Trench height 190 mm | 22        |
| ▶ Katherm HK 340, 4-pipe, Trench height 132 mm | 24        |
| ▶ Katherm HK 340, 4-pipe, Trench height 150 mm | 26        |
| ▶ Katherm HK 340, 4-pipe, Trench height 190 mm | 28        |
| ▶ Katherm HK 400, 4-pipe, Trench height 132 mm | 30        |
| <b>03 ▶ Design Information</b>                 | <b>32</b> |
| ▶ Information on Planning and Design           | 33        |
| <b>04 ▶ Control</b>                            | <b>34</b> |
| ▶ KaControl                                    | 34        |
| ▶ Cabling                                      | 36        |
| <b>05 ▶ Ordering Information</b>               | <b>40</b> |
| ▶ Katherm HK                                   | 40        |
| ▶ Accessories                                  | 41        |



**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

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# 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

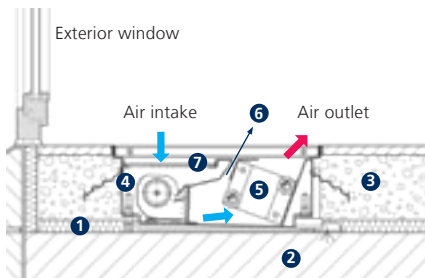
EC fans can be operated infinitely variably within a low fan speed range even at low air volumes with intelligent, integrated electronics on demand and this energy-efficiently. Low fan speeds have a positive effect on the development of noise in areas, like offices, where the noise levels lie far below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

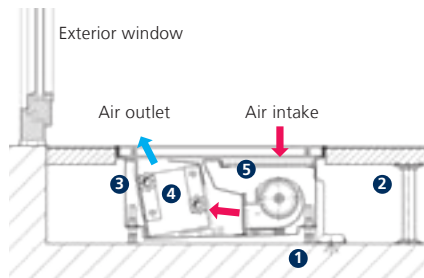
(Installed in screed, trench height 132 mm)



- 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

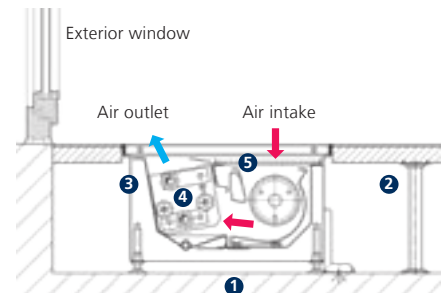
(Installed in a raised floor, trench height 150 mm)



- 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)

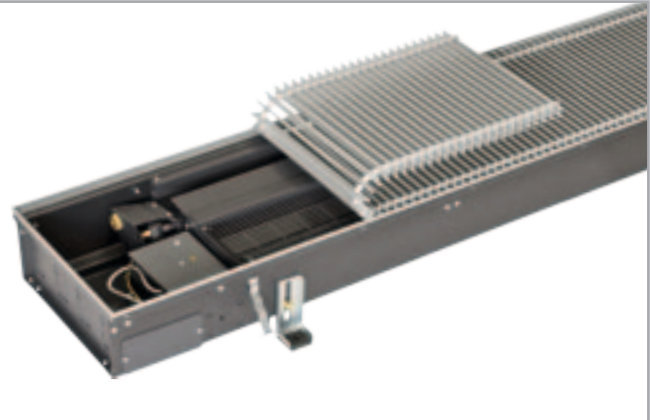


## Product Data



### 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
- Heating** ▶ LPHW
- Cooling** ▶ LPCW
- Ventilation** ▶ ---
- KaControl System** ▶ Integrated
- ▶ 2-pipe
- ▶ 4-pipe

#### Grille finishes

- ▶ Roll-up grilles
- ▶ Linear grilles

### Performance data

#### Heat output<sup>1)</sup> [W]

- ▶ 1287 – 8502

#### Cooling output<sup>2)</sup> [W]

- ▶ 347 – 1569

#### Sound pressure level<sup>3)</sup> [dB(A)]

- ▶ 26 – 34

#### 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.



Hotels/  
motels



Sales rooms  
and  
showrooms



Office and  
meeting  
rooms



Residential  
areas and  
conservatories



Restaurants  
and cafés

<sup>1)</sup> at LPHW 75/65,  $t_{l1} = 20^\circ\text{C}$ , at 60% fan speed

<sup>2)</sup> at LPCW 16/18,  $t_{l1} = 27^\circ\text{C}$ , 50% relative humidity, at 60% fan speed

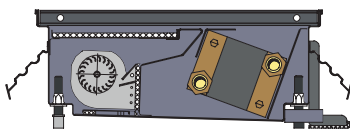
<sup>3)</sup> The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081), at 60% fan speed.



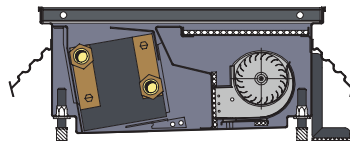
# Selection Assistance: Overview of Models

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

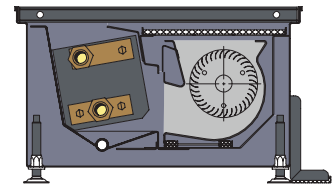
## Sectional views



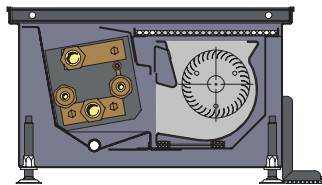
Katherm HK 340, trench height 132 mm, 2-pipe and 4-pipe



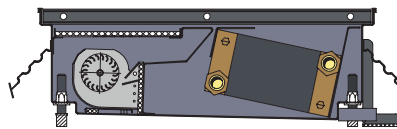
Katherm HK 340, trench height 150 mm, 2-pipe and 4-pipe



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

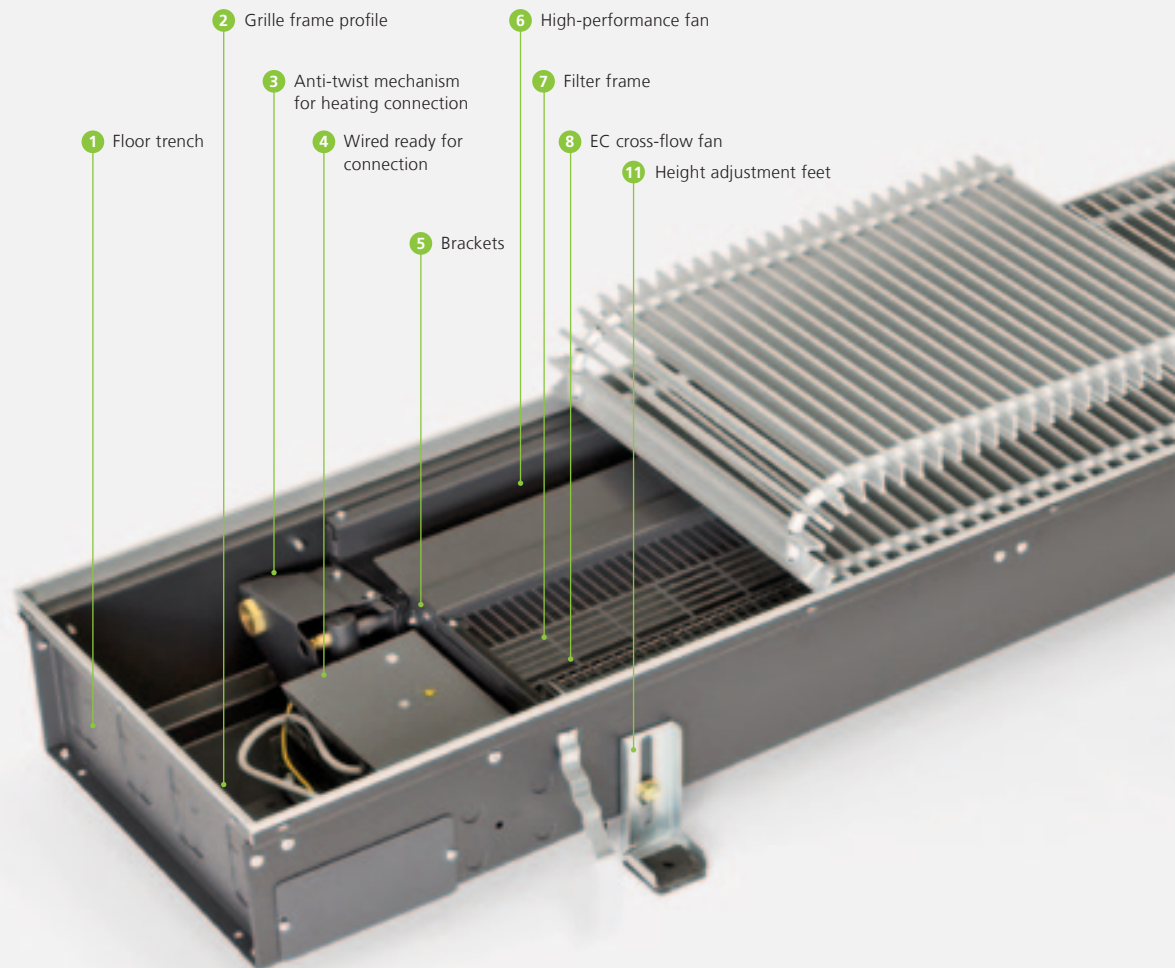
<sup>1)</sup> at LPHW 75/65, t<sub>L1</sub>=20 °C, at 60% fan speed

<sup>2)</sup> at LPCW 16/18, t<sub>L1</sub>=27 °C, 50% relative humidity, at 60% fan speed

<sup>3)</sup> 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 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081), at 60% fan speed.

<sup>4)</sup> 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



### Features





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

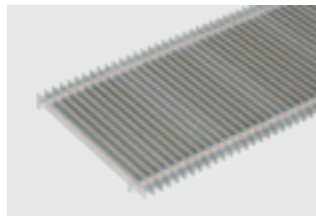
- 1 Floor trench:**
  - ▶ Galvanised sheet steel
  - ▶ painted graphite grey on both sides
  - ▶ designed as a condensation tray<sup>1)</sup>
  - ▶ with 15 mm side drain openings, on one side
  - ▶ protected against condensation water
- 2 Grille frame profile:**
  - ▶ to match double T-profile grille
  - ▶ 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%

<sup>1)</sup> with separate condensation tray for trench height 190 mm

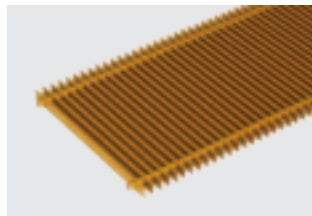
## Matching grilles

### Roll-up grilles

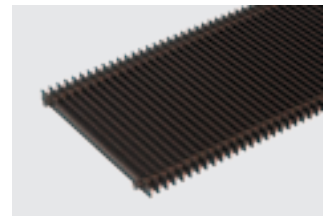
**Aluminium**  
Natural anodised



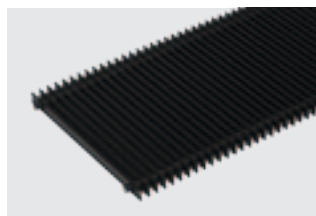
**Aluminium**  
Brass anodised



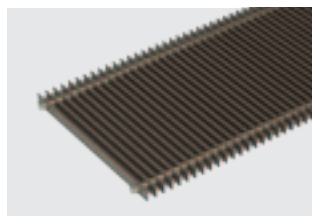
**Aluminium**  
Bronze anodised



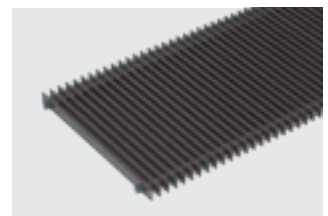
**Aluminium**  
Black anodised



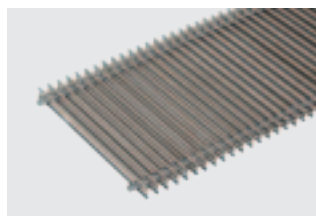
**Aluminium**  
Bronze finish



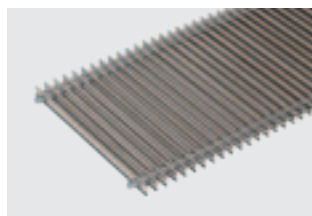
**Aluminium**  
Painted DB 703



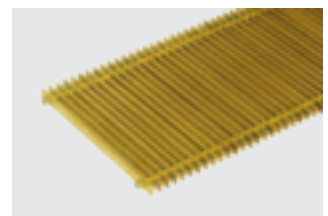
**Stainless steel**  
Natural



**Stainless steel**  
Polished



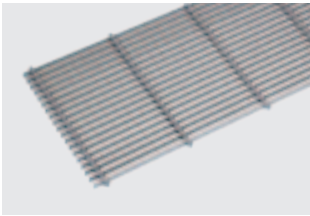
**Brass**  
Natural CuZn 44



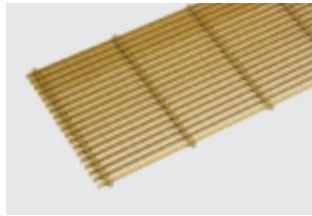


## Linear grilles

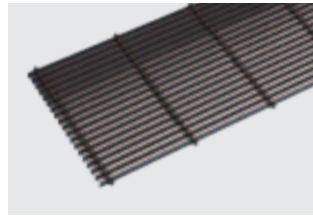
**Aluminium**  
Natural anodised



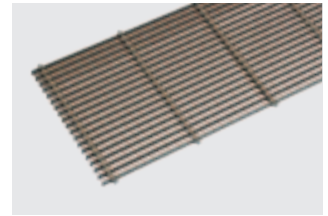
**Aluminium**  
Brass anodised



**Aluminium**  
Bronze anodised

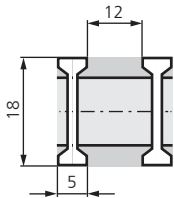


**Aluminium**  
Bronze finish



## Profile dimensions

### Double-T profile



► For more grilles, please refer to [Kampmann.co.uk/grilles](http://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

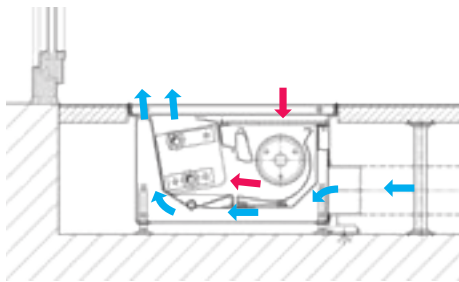


Katherm HK with supply air function are perfectly suited to supply primary air (fresh air) into a space. Heating, cooling and supply of fresh air are therefore perfectly combined.

### **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.

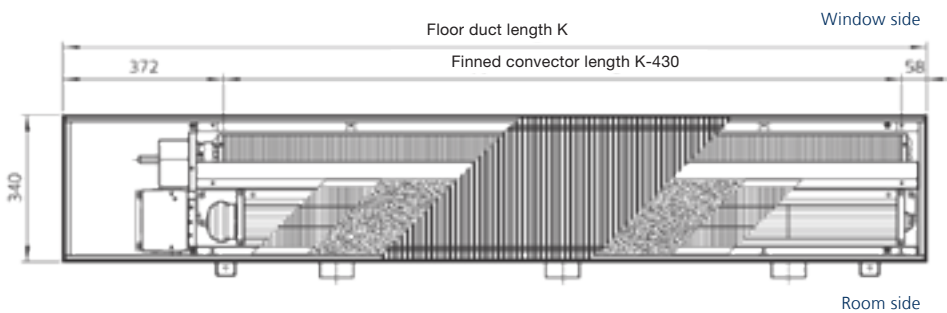
The designs of Katherm HK with supply air can be adapted on a project-by-project basis. More information on request!



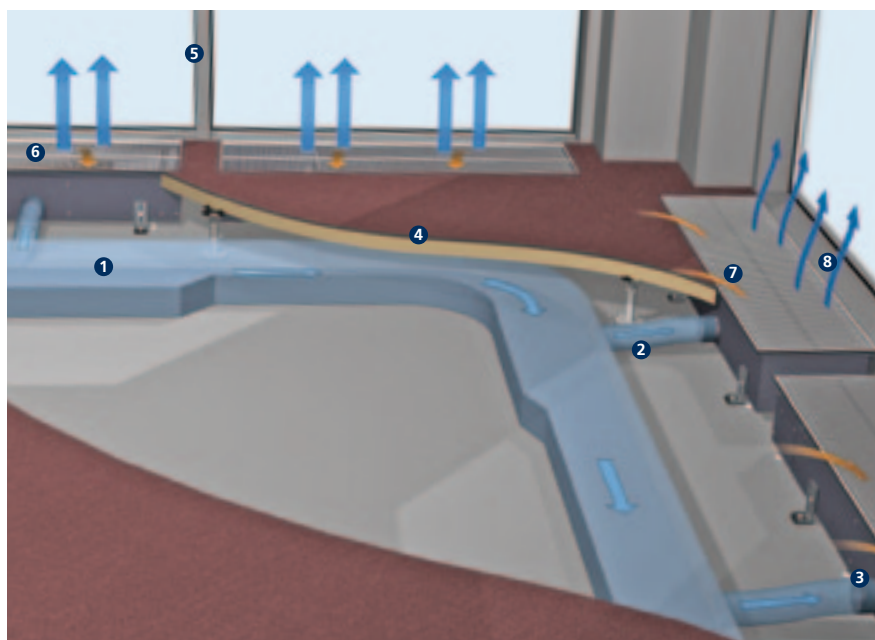
Cross-section (example showing roll-up grille)

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

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



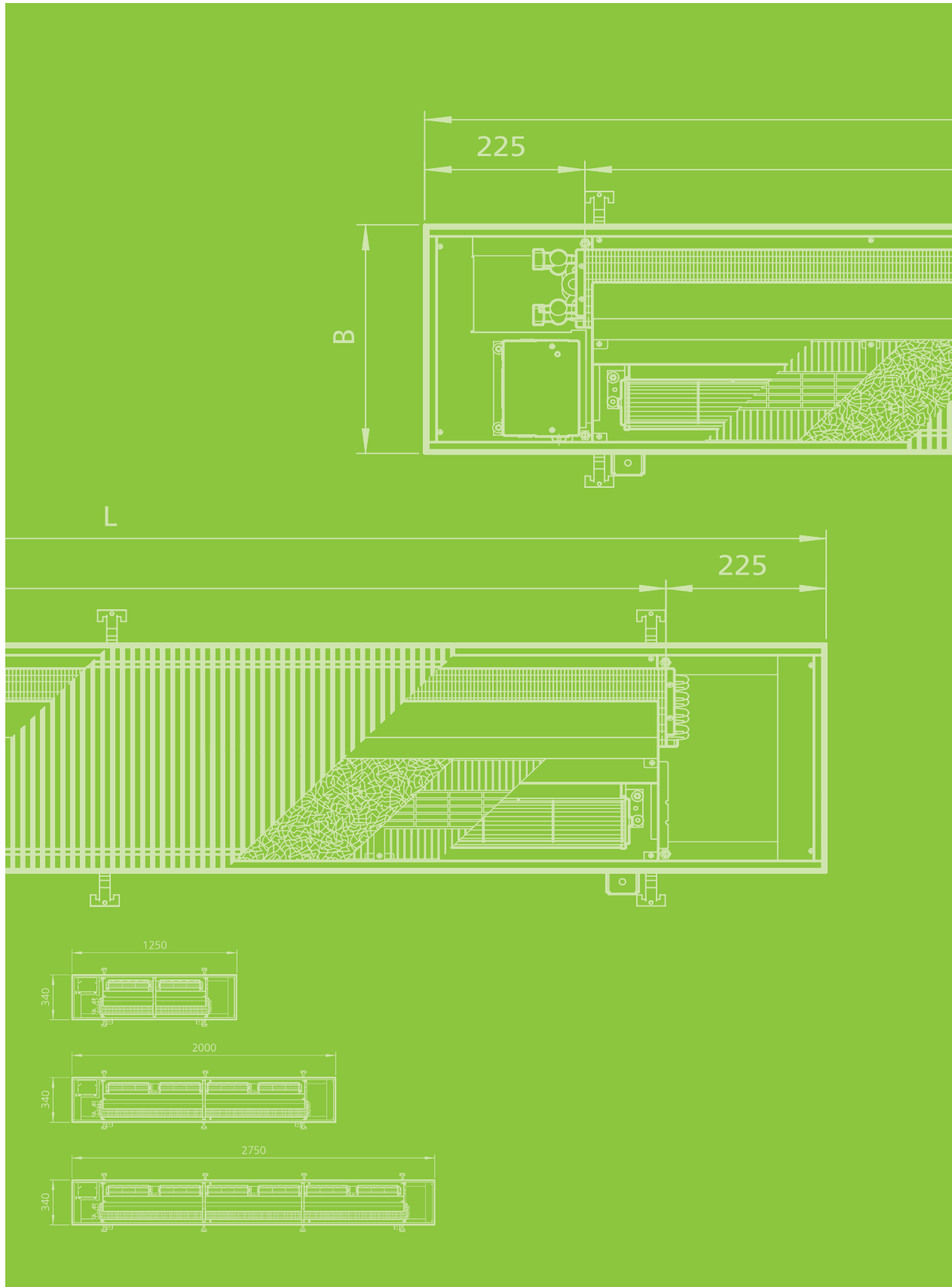
Top view (Katherm HK 340 with supply air function, trench height 190 mm)



- 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

<sup>1</sup> Max. air volume per supply air spigot DN 80 = 60 m<sup>3</sup>/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 sort-circuiting and minimise this short circuit as far as technically possible.

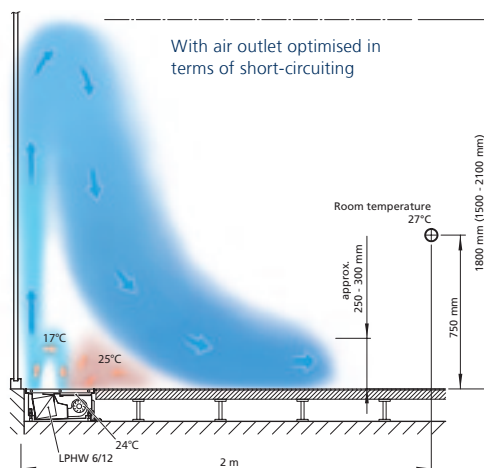
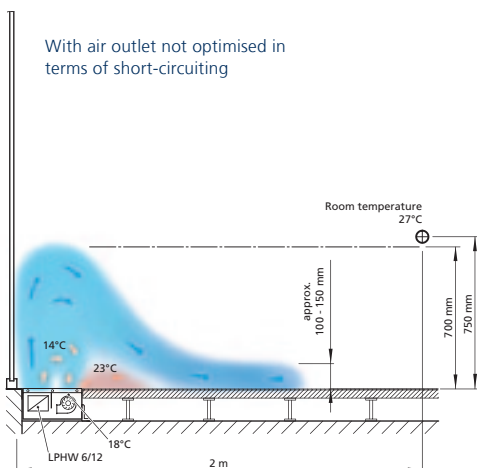
## Acoustics

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

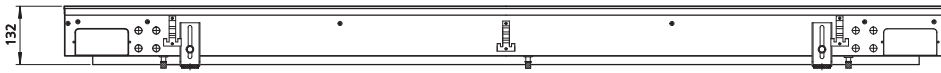
## Comparison of air flow profiles



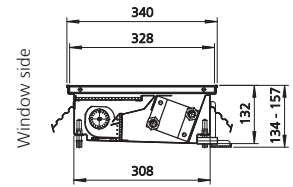
# Katherm HK 340

## 2-pipe, trench height 132 mm

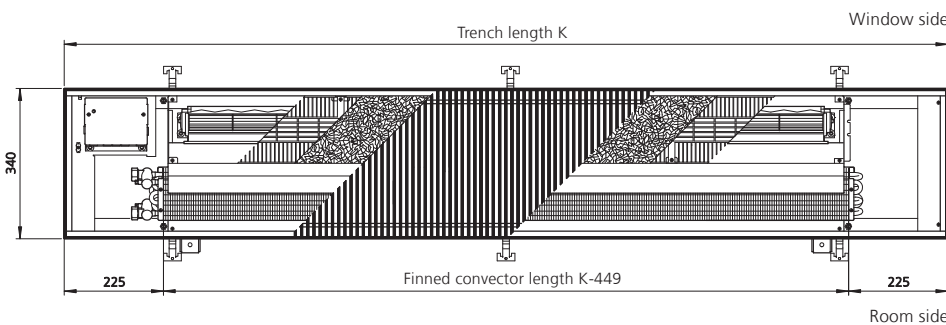
### Technical Drawings (all dimensions in mm)



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:

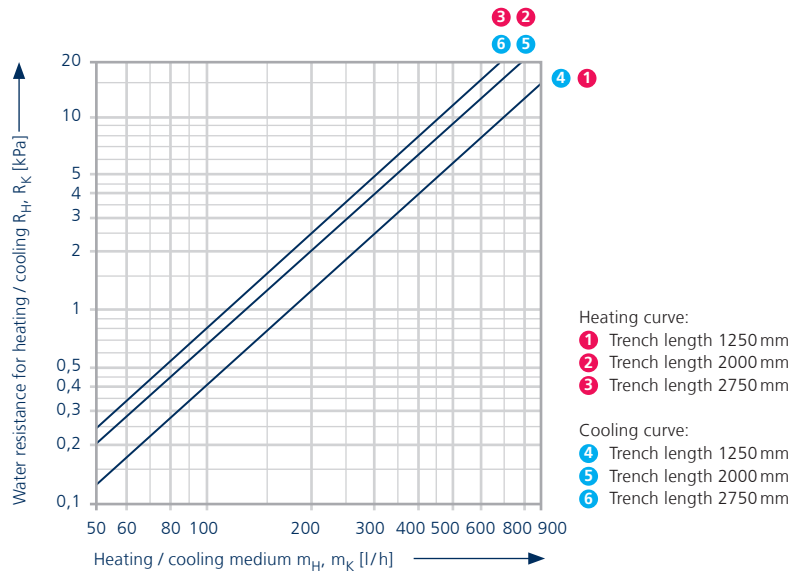
15 mm spigots

| 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          |

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### Water resistance



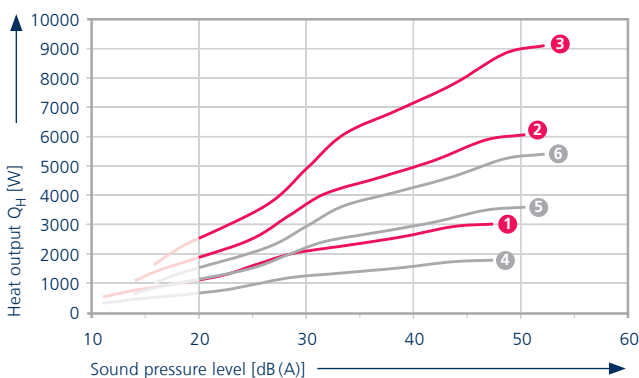
Services



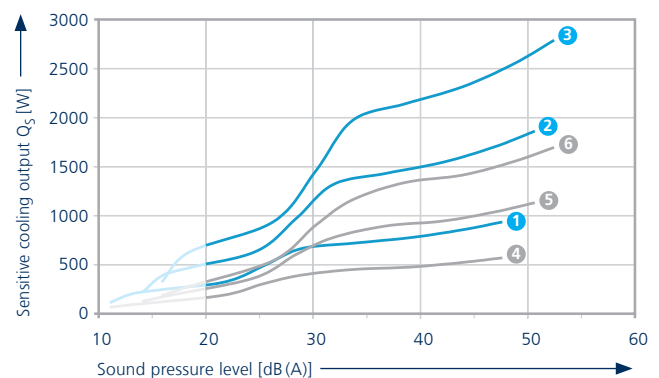
| Fan stage                    | at fan speed | Heat outputs <sup>1)</sup> |                      |                    |                      |                    |                    | Cooling outputs <sup>2)</sup> |                    |                    |                      |      |     | Power uptake <sup>3)</sup> | Current consumption | Air volume        | Sound pressure level <sup>4)</sup> | Sound power level |
|------------------------------|--------------|----------------------------|----------------------|--------------------|----------------------|--------------------|--------------------|-------------------------------|--------------------|--------------------|----------------------|------|-----|----------------------------|---------------------|-------------------|------------------------------------|-------------------|
|                              |              | with LPHW 75/65°C          |                      | with LPHW 55/45°C  |                      | with LPCW 16/18°C  |                    |                               | with LPCW 7/12°C   |                    |                      |      |     |                            |                     |                   |                                    |                   |
|                              |              | Q <sub>H</sub> [W]         | t <sub>L2</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C]          | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] |      |     |                            |                     |                   |                                    |                   |
| <b>Trench length 1250 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2000 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2750 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub> = 20°C: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPHW 55/45°C, t<sub>L</sub> = 20°C: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm



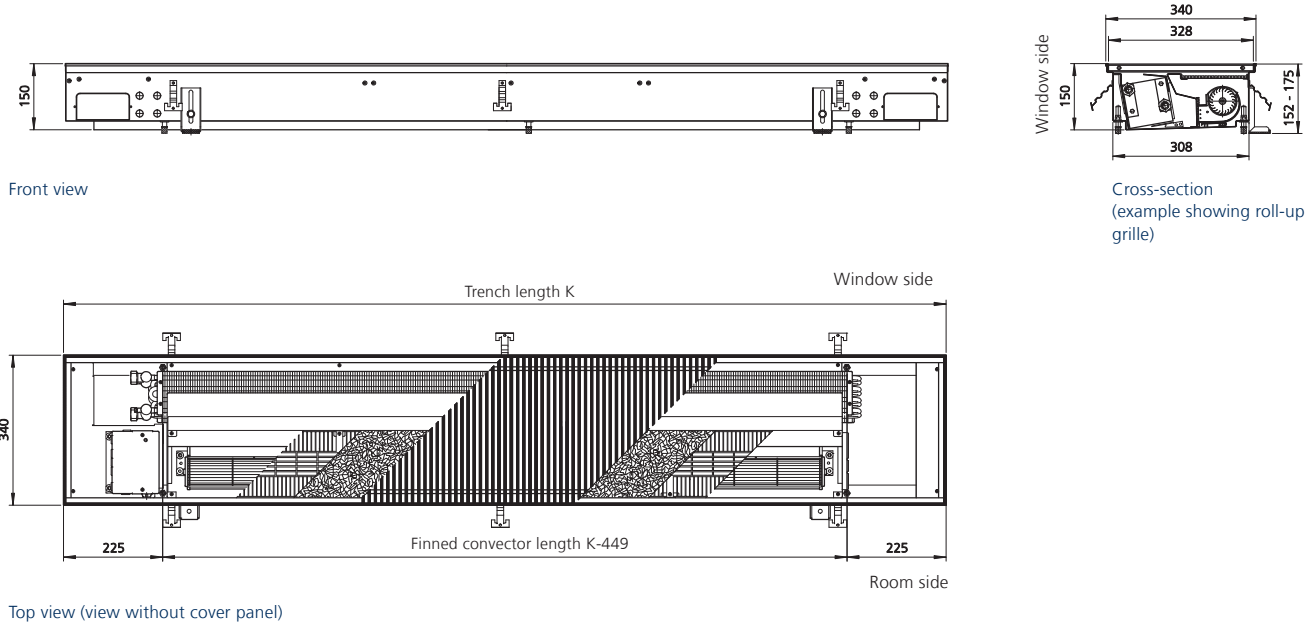
LPCW 7/12°C, t<sub>L</sub> = 27°C, 50% rel. humidity: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPCW 16/18°C, t<sub>L</sub> = 27°C, 50% rel. humidity: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm

<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> 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 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081).  
<sup>5)</sup> 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)



### Specifications

#### Connections, female thread:

1/2", same end, on the left seen from the room side

#### Condensation connection:

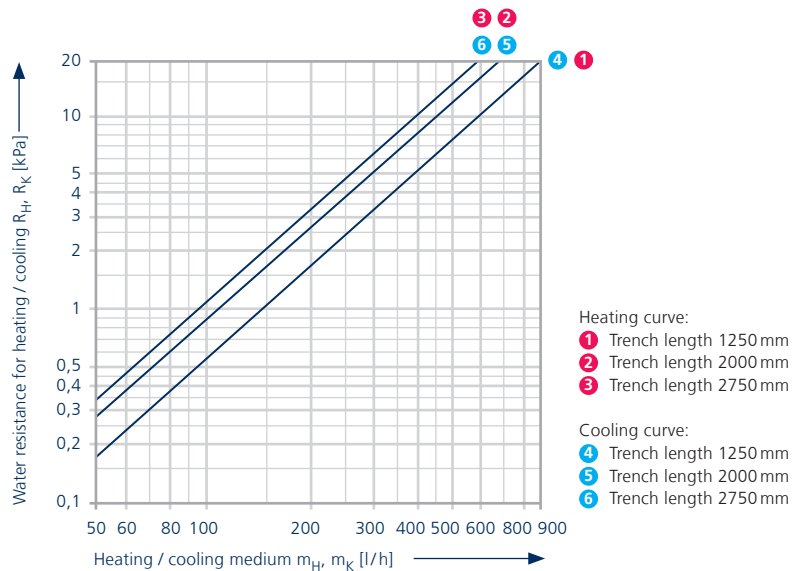
15 mm spigots

| 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



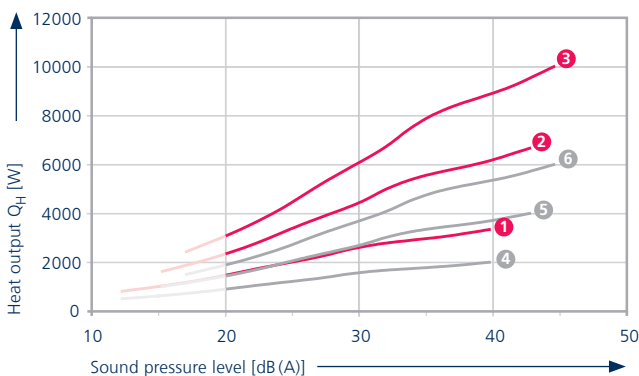
Services



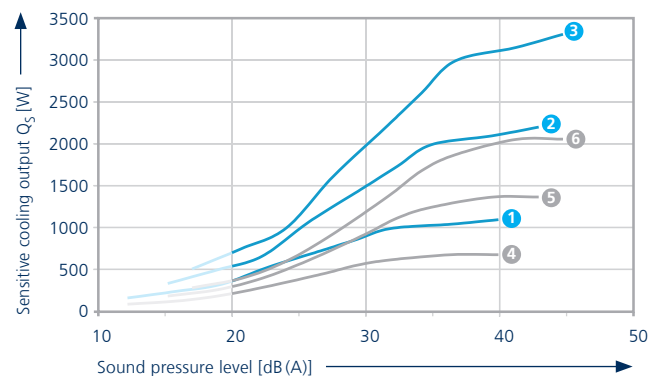
| Fan stage                    | at fan speed | Heat outputs <sup>1)</sup> |                     |                    |                     |                    |                    | Cooling outputs <sup>2)</sup> |                    |                    |                     |      |     | Power uptake <sup>3)</sup> | Current consumption | Air volume        | Sound pressure level <sup>4)</sup> | Sound power level |
|------------------------------|--------------|----------------------------|---------------------|--------------------|---------------------|--------------------|--------------------|-------------------------------|--------------------|--------------------|---------------------|------|-----|----------------------------|---------------------|-------------------|------------------------------------|-------------------|
|                              |              | with LPHW 75/65°C          |                     | with LPHW 55/45°C  |                     | with LPCW 16/18°C  |                    |                               | with LPCW 7/12°C   |                    |                     |      |     |                            |                     |                   |                                    |                   |
|                              |              | Q <sub>H</sub> [W]         | t <sub>L</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L</sub> [°C]           | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L</sub> [°C] |      |     |                            |                     |                   |                                    |                   |
| <b>Trench length 1250 mm</b> |              |                            |                     |                    |                     |                    |                    |                               |                    |                    |                     |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| Minimum stage                | 20           | 800                        | 67.6                | 494                | 49.3                | 97                 | 97                 | 21.5                          | 262                | 171                | 17.2                | 4.3  | 64  | 50                         | <20 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2000 mm</b> |              |                            |                     |                    |                     |                    |                    |                               |                    |                    |                     |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2750 mm</b> |              |                            |                     |                    |                     |                    |                    |                               |                    |                    |                     |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub> = 20°C: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPHW 55/45°C, t<sub>L</sub> = 20°C: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm



LPCW 7/12°C, t<sub>L</sub> = 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<sub>L</sub> = 27°C, 50% rel. humidity: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm

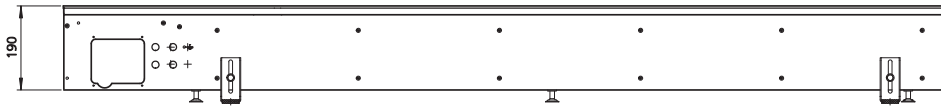
<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> The sound pressure levels were calculated with an assumed room insulation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



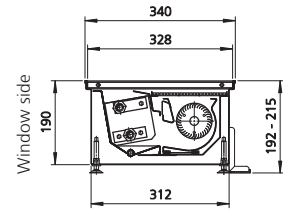
# Katherm HK 340

## 2-pipe, trench height 190 mm

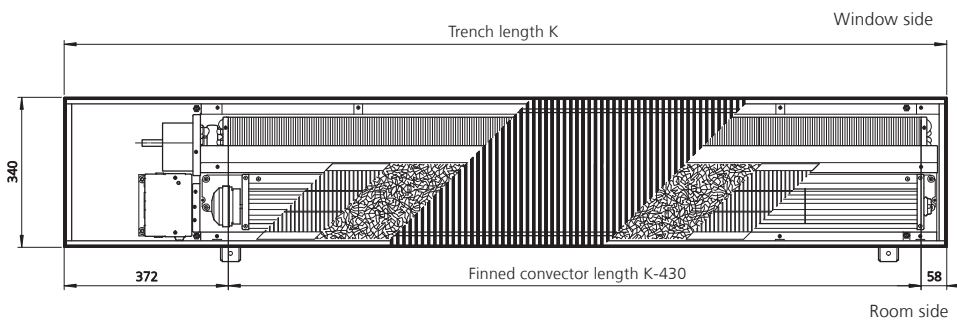
### Technical Drawings (all dimensions in mm)



Front view



Cross-section  
(example showing roll-up grille)



Top view (view without cover panel)

### Specifications

#### Connections, female thread:

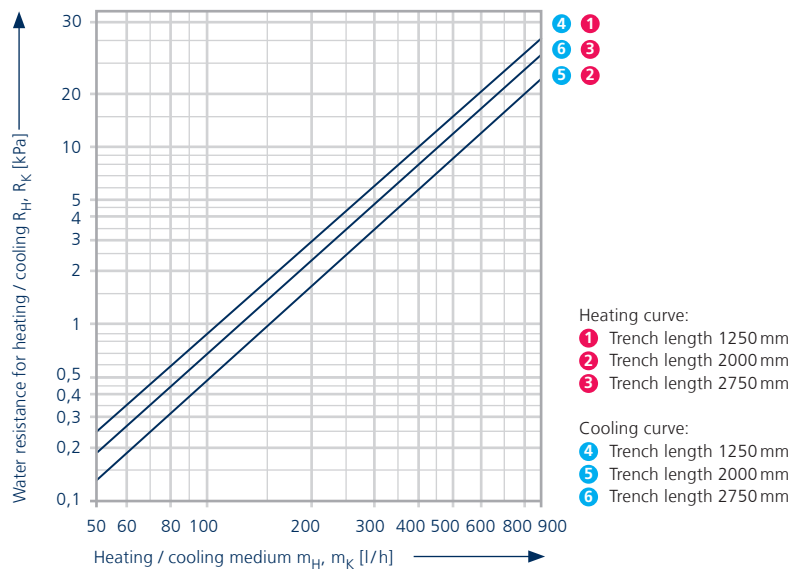
1/2", same end, on the left seen from the room side

#### 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          |

### Water resistance



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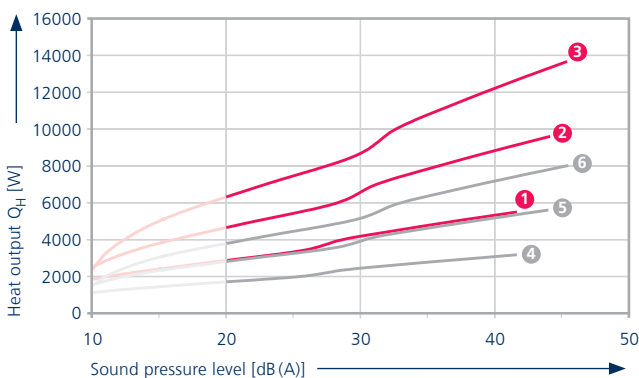
Services



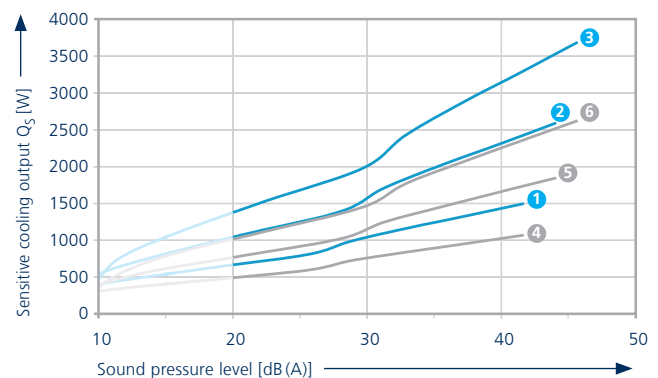
| Fan stage                    | at fan speed<br>[%] | Heat outputs <sup>1)</sup> |                         |                       |                         | Cooling outputs <sup>2)</sup> |                       |                         |                       |                       |                         | Power uptake <sup>3)</sup><br>P [W] | Current consumption<br>I [mA] | Air volume<br>[m <sup>3</sup> /h] | Sound pressure level <sup>4)</sup><br>[dB(A)] | Sound power level<br>[dB(A)] |  |
|------------------------------|---------------------|----------------------------|-------------------------|-----------------------|-------------------------|-------------------------------|-----------------------|-------------------------|-----------------------|-----------------------|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|---|------------------------------|--|
|                              |                     | with LPHW<br>75/65°C       |                         | with LPHW<br>55/45°C  |                         | with LPCW<br>16/18°C          |                       |                         | with LPCW<br>7/12°C   |                       |                         |                                     |                               |                                   |   |                              |  |
|                              |                     | Q <sub>H</sub><br>[W]      | t <sub>L2</sub><br>[°C] | Q <sub>H</sub><br>[W] | t <sub>L2</sub><br>[°C] | Q <sub>K</sub><br>[W]         | Q <sub>S</sub><br>[W] | t <sub>L2</sub><br>[°C] | Q <sub>K</sub><br>[W] | Q <sub>S</sub><br>[W] | t <sub>L2</sub><br>[°C] |                                     |                               |                                   |   |                              |  |
| <b>Trench length 1250 mm</b> |                     |                            |                         |                       |                         |                               |                       |                         |                       |                       |                         |                                     |                               |                                   |   |                              |  |
| 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 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |
| Minimum stage                | 20                  | 870                        | 68.2                    | 538                   | 49.7                    | 126                           | 126                   | 20.3                    | 252                   | 166                   | 18.3                    | 4.8                                 | 81                            | 55                                | <20 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |
| <b>Trench length 2000 mm</b> |                     |                            |                         |                       |                         |                               |                       |                         |                       |                       |                         |                                     |                               |                                   |   |                              |  |
| 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 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |
| Minimum stage                | 20                  | 1517                       | 68.2                    | 939                   | 49.7                    | 219                           | 219                   | 20.3                    | 438                   | 289                   | 18.3                    | 9.6                                 | 162                           | 95                                | <20 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |
| <b>Trench length 2750 mm</b> |                     |                            |                         |                       |                         |                               |                       |                         |                       |                       |                         |                                     |                               |                                   |   |                              |  |
| 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 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |
| Minimum stage                | 20                  | 2164                       | 68.2                    | 1339                  | 49.7                    | 313                           | 313                   | 20.3                    | 627                   | 413                   | 18.3                    | 14.4                                | 243                           | 140                               | <20 <sup>5)</sup>                             | <28 <sup>5)</sup>            |  |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



- LPHW 75/65°C, t<sub>L</sub> = 20°C:    LPHW 55/45°C, t<sub>L</sub> = 20°C:
- 1 Trench length 1250 mm    4 Trench length 1250 mm
  - 2 Trench length 2000 mm    5 Trench length 2000 mm
  - 3 Trench length 2750 mm    6 Trench length 2750 mm



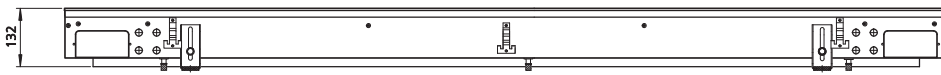
- LPCW 7/12°C, t<sub>L</sub> = 27°C, 50% rel. humidity:    LPCW 16/18°C, t<sub>L</sub> = 27°C, 50% rel. humidity:
- 1 Trench length 1250 mm    4 Trench length 1250 mm
  - 2 Trench length 2000 mm    5 Trench length 2000 mm
  - 3 Trench length 2750 mm    6 Trench length 2750 mm

<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> 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 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081).  
<sup>5)</sup> Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

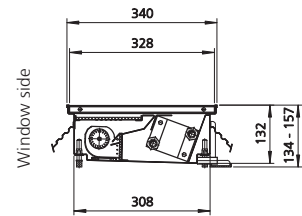
# Katherm HK 340

## 4-pipe, trench height 132 mm

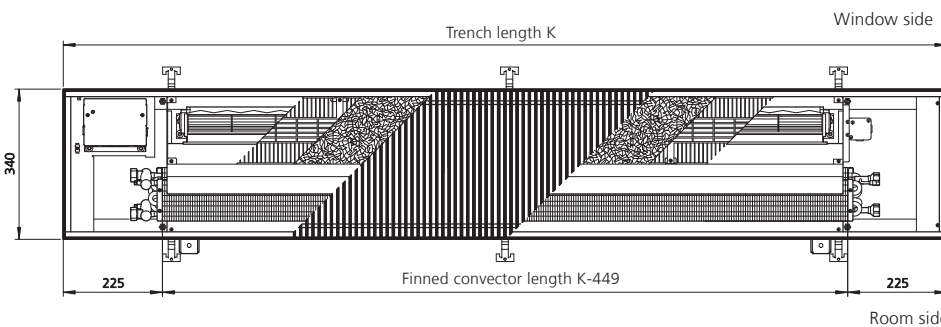
### Technical Drawings (all dimensions in mm)



Front view



Cross-section (example showing roll-up grille)



Top view (view without cover panel)

### Specifications

#### Connections, female thread:

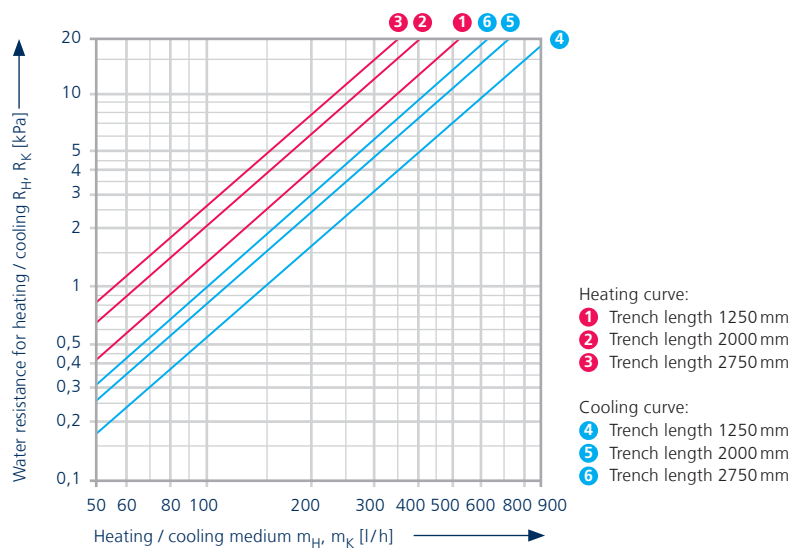
1/2", opposite end

#### 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          |

### Water resistance



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

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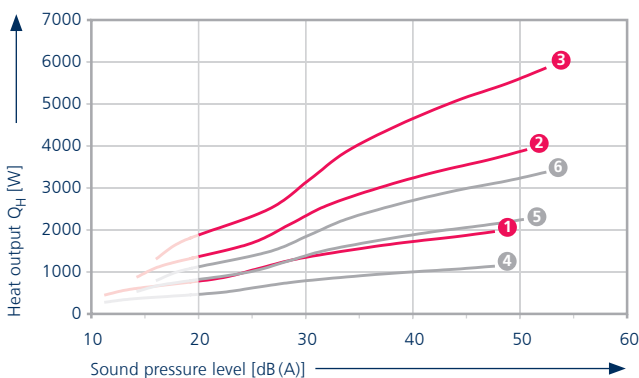
Services



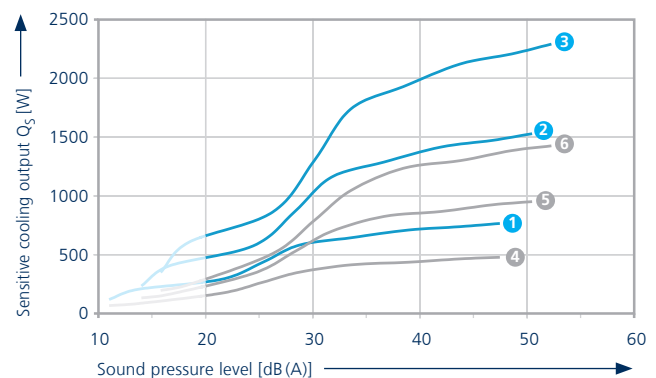
| Fan stage                    | at fan speed | Heat outputs <sup>1)</sup> |                      |                    |                      |                    |                    | Cooling outputs <sup>2)</sup> |                    |                    |                      |      |     | Power uptake <sup>3)</sup> | Current consumption | Air volume        | Sound pressure level <sup>4)</sup> | Sound power level |
|------------------------------|--------------|----------------------------|----------------------|--------------------|----------------------|--------------------|--------------------|-------------------------------|--------------------|--------------------|----------------------|------|-----|----------------------------|---------------------|-------------------|------------------------------------|-------------------|
|                              |              | with LPHW 75/65°C          |                      | with LPHW 55/45°C  |                      | with LPCW 16/18°C  |                    |                               | with LPCW 7/12°C   |                    |                      |      |     |                            |                     |                   |                                    |                   |
|                              |              | Q <sub>H</sub> [W]         | t <sub>L2</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C]          | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] |      |     |                            |                     |                   |                                    |                   |
| <b>Trench length 1250 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2000 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2750 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |      |     |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub>=20°C: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPHW 55/45°C, t<sub>L</sub>=20°C: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm



LPCW 7/12°C, t<sub>L</sub>=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<sub>L</sub>=27°C, 50% rel. humidity: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm

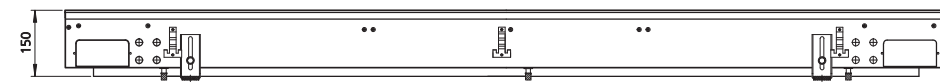
<sup>1)</sup> at room temperature t<sub>L</sub> = 20 °C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27 °C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> The sound pressure levels were calculated with an assumed room insulation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



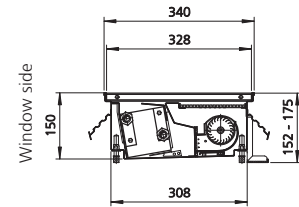
# Katherm HK 340

## 4-pipe, trench height 150 mm

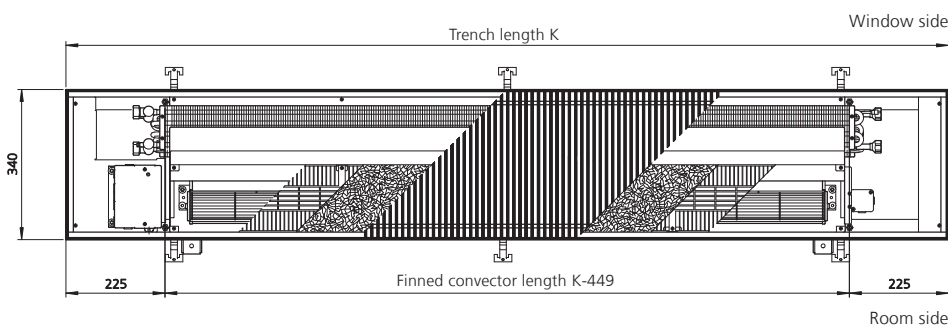
### Technical Drawings (all dimensions in mm)



Front view



Cross-section  
(example showing roll-up grille)



Top view (view without cover panel)

### Specifications

**Connections, female thread:**

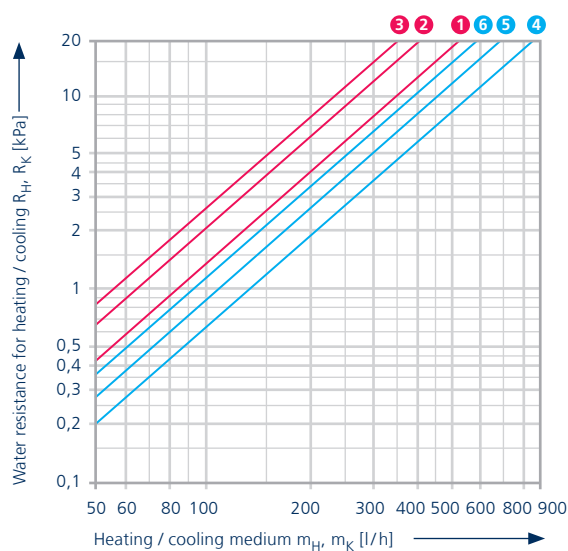
1/2", opposite end

**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          |

### Water resistance



Heating curve:  
 1 Trench length 1250 mm  
 2 Trench length 2000 mm  
 3 Trench length 2750 mm

Cooling curve:  
 4 Trench length 1250 mm  
 5 Trench length 2000 mm  
 6 Trench length 2750 mm

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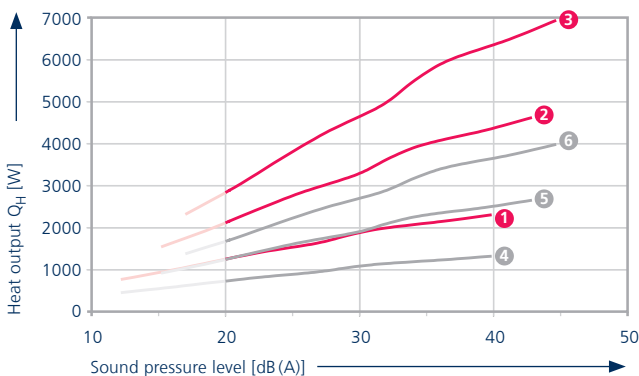
Services



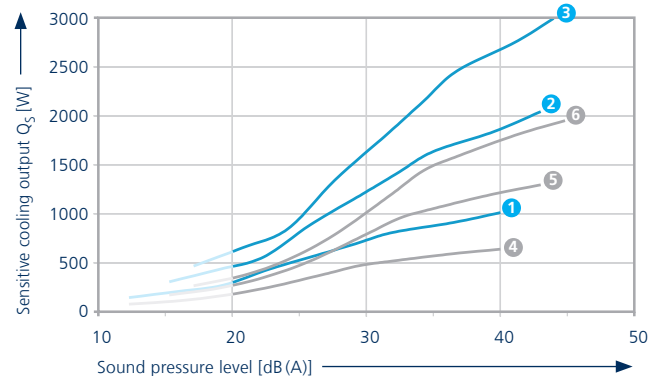
| Fan stage                    | at fan speed | Heat outputs <sup>1)</sup> |                      |                    |                      |                    |                    | Cooling outputs <sup>2)</sup> |                    |                    |                      |       |        | Power uptake <sup>3)</sup> | Current consumption | Air volume        | Sound pressure level <sup>4)</sup> | Sound power level |
|------------------------------|--------------|----------------------------|----------------------|--------------------|----------------------|--------------------|--------------------|-------------------------------|--------------------|--------------------|----------------------|-------|--------|----------------------------|---------------------|-------------------|------------------------------------|-------------------|
|                              |              | with LPHW 75/65°C          |                      | with LPHW 55/45°C  |                      | with LPCW 16/18°C  |                    |                               | with LPCW 7/12°C   |                    |                      |       |        |                            |                     |                   |                                    |                   |
|                              |              | Q <sub>H</sub> [W]         | t <sub>L2</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C]          | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] | P [W] | I [mA] |                            |                     |                   |                                    |                   |
| <b>Trench length 1250 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |       |        |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| Minimum stage                | 20           | 770                        | 65.8                 | 459                | 47.2                 | 93                 | 93                 | 21.7                          | 238                | 159                | 17.9                 | 4.3   | 64     | 50                         | <20 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2000 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |       |        |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |
| <b>Trench length 2750 mm</b> |              |                            |                      |                    |                      |                    |                    |                               |                    |                    |                      |       |        |                            |                     |                   |                                    |                   |
| 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 <sup>5)</sup>   | <28 <sup>5)</sup> |                                    |                   |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub> = 20°C: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPHW 55/45°C, t<sub>L</sub> = 20°C: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm



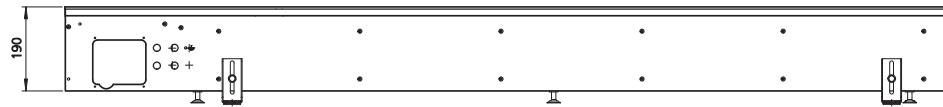
LPCW 7/12°C, t<sub>L</sub> = 27°C, 50% rel. humidity: 1 Trench length 1250 mm, 2 Trench length 2000 mm, 3 Trench length 2750 mm  
 LPCW 16/18°C, t<sub>L</sub> = 27°C, 50% rel. humidity: 4 Trench length 1250 mm, 5 Trench length 2000 mm, 6 Trench length 2750 mm

<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> 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 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081).  
<sup>5)</sup> Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

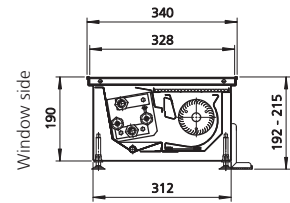
# Katherm HK 340

## 4-pipe, trench height 190 mm

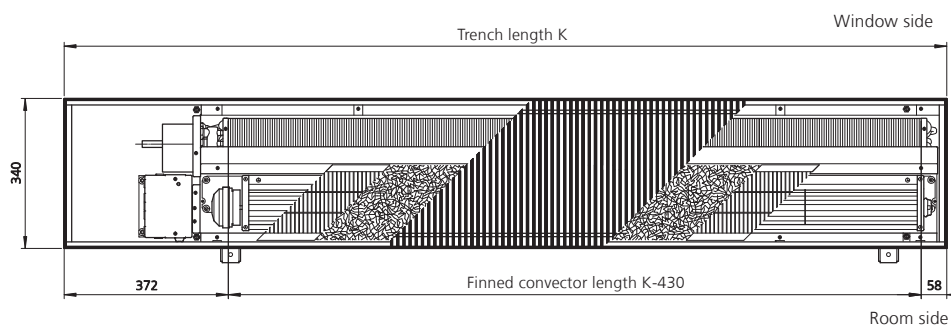
### Technical Drawings (all dimensions in mm)



Front view



Cross-section  
(example showing roll-up grille)



Draufsicht (Ansicht ohne Abdeckblech)

### Specifications

#### Connections, female thread:

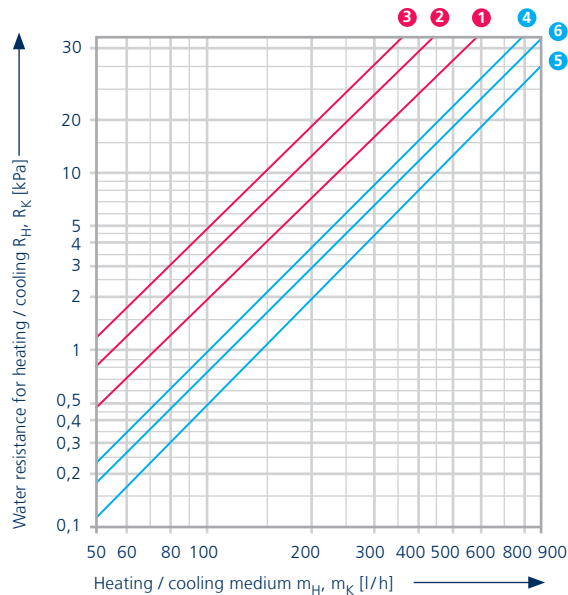
1/2", same end, on the left seen from the room side

#### 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          |

### Water resistance



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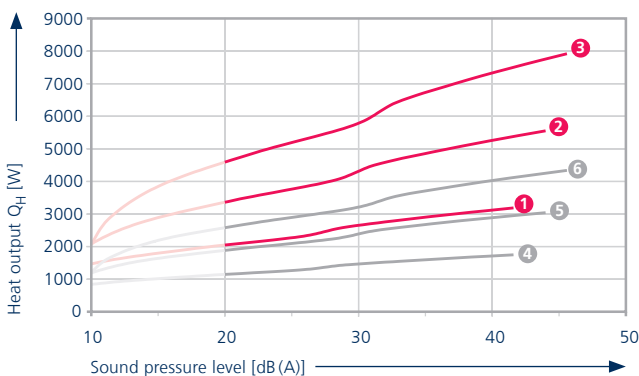
Services



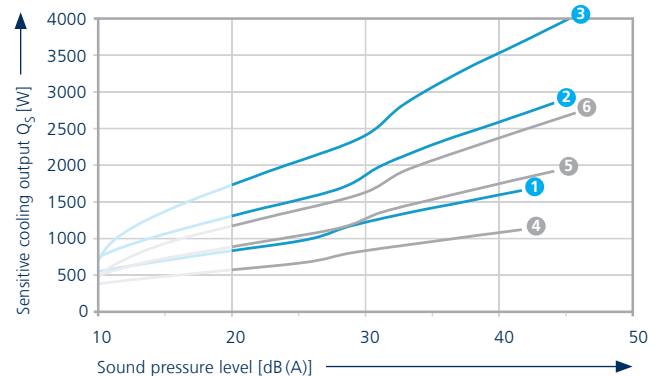
| Fan stage                    | at fan speed | Heat outputs <sup>1)</sup> |                      |                    |                      | Cooling outputs <sup>2)</sup> |                    |                      |                    |                    |                      | Power uptake <sup>3)</sup> | Current consumption | Air volume | Sound pressure level <sup>4)</sup> | Sound power level |
|------------------------------|--------------|----------------------------|----------------------|--------------------|----------------------|-------------------------------|--------------------|----------------------|--------------------|--------------------|----------------------|----------------------------|---------------------|------------|------------------------------------|-------------------|
|                              |              | with LPHW 75/65°C          |                      | with LPHW 55/45°C  |                      | with LPCW 16/18°C             |                    |                      | with LPCW 7/12°C   |                    |                      |                            |                     |            |                                    |                   |
|                              | [%]          | Q <sub>H</sub> [W]         | t <sub>L2</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W]            | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] | P [W]                      | I [mA]              | [m³/h]     | [dB(A)]                            | [dB(A)]           |
| <b>Trench length 1250 mm</b> |              |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                            |                     |            |                                    |                   |
| 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 <sup>5)</sup>                  | <28 <sup>5)</sup> |
| Minimum stage                | 20           | 778                        | 63.0                 | 456                | 45.1                 | 150                           | 150                | 18.9                 | 348                | 229                | 14.7                 | 4.8                        | 81                  | 55         | <20 <sup>5)</sup>                  | <28 <sup>5)</sup> |
| <b>Trench length 2000 mm</b> |              |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                            |                     |            |                                    |                   |
| 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 <sup>5)</sup>                  | <28 <sup>5)</sup> |
| Minimum stage                | 20           | 1357                       | 63.0                 | 794                | 45.1                 | 262                           | 262                | 18.9                 | 606                | 398                | 14.7                 | 9.6                        | 162                 | 95         | <20 <sup>5)</sup>                  | <28 <sup>5)</sup> |
| <b>Trench length 2750 mm</b> |              |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                            |                     |            |                                    |                   |
| 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 <sup>5)</sup>                  | <28 <sup>5)</sup> |
| Minimum stage                | 20           | 1936                       | 63.0                 | 1133               | 45.1                 | 374                           | 374                | 18.9                 | 867                | 570                | 14.7                 | 14.4                       | 243                 | 140        | <20 <sup>5)</sup>                  | <28 <sup>5)</sup> |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub> = 20°C:    LPHW 55/45°C, t<sub>L</sub> = 20°C:  
 1 Trench length 1250 mm    4 Trench length 1250 mm  
 2 Trench length 2000 mm    5 Trench length 2000 mm  
 3 Trench length 2750 mm    6 Trench length 2750 mm



LPCW 7/12°C, t<sub>L</sub> = 27°C, 50% rel. humidity:    LPCW 16/18°C, t<sub>L</sub> = 27°C, 50% rel. humidity:  
 1 Trench length 1250 mm    4 Trench length 1250 mm  
 2 Trench length 2000 mm    5 Trench length 2000 mm  
 3 Trench length 2750 mm    6 Trench length 2750 mm

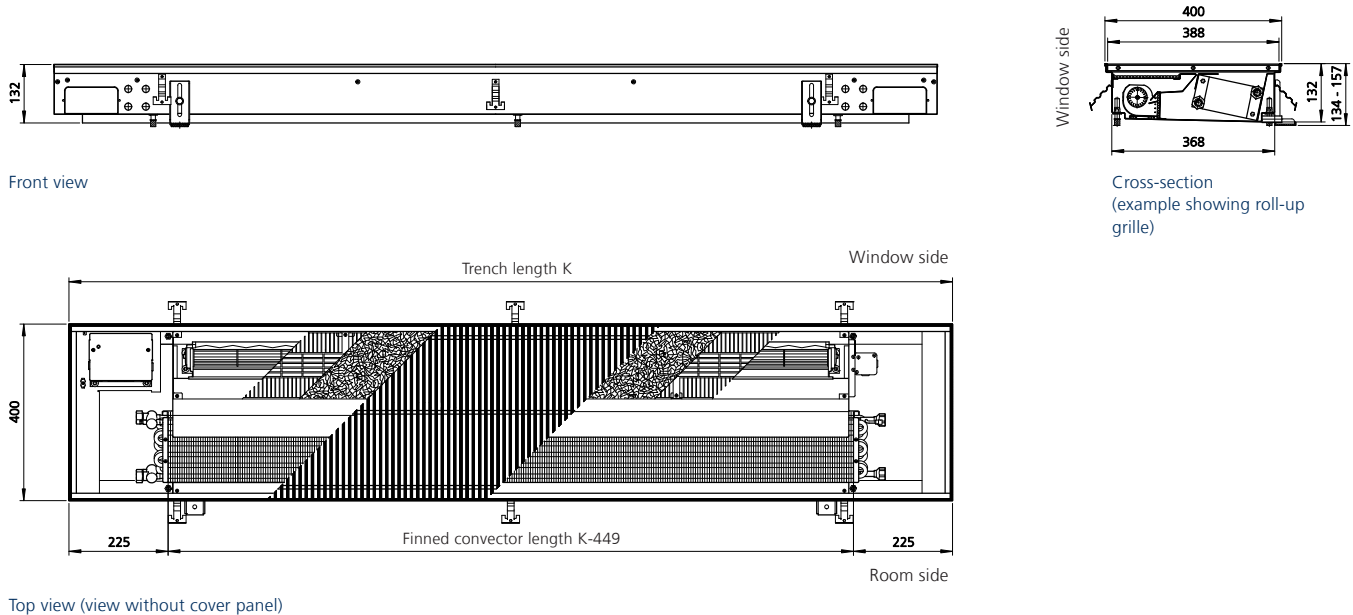
<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> The sound pressure levels were calculated with an assumed room insulation 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).  
<sup>5)</sup> 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:

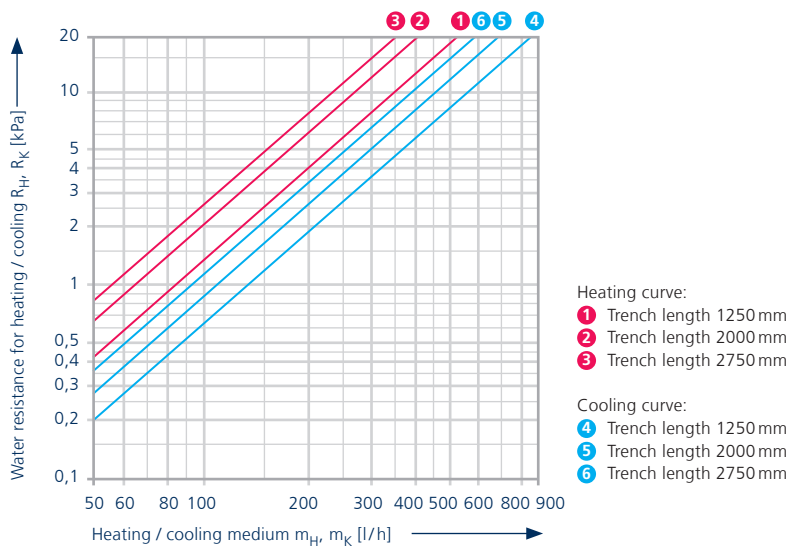
1/2", opposite end

#### 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          |

### Water resistance



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](http://Kampmann.co.uk/calculation_programs)

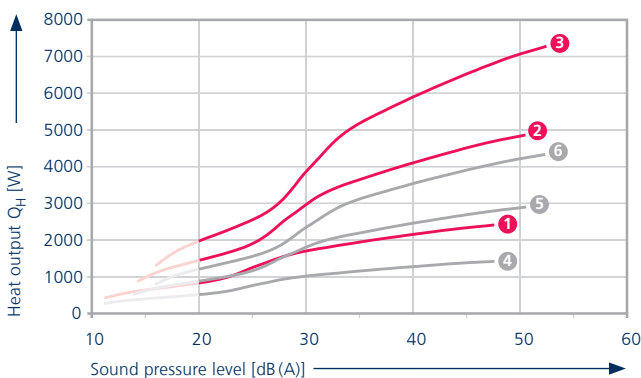
Services



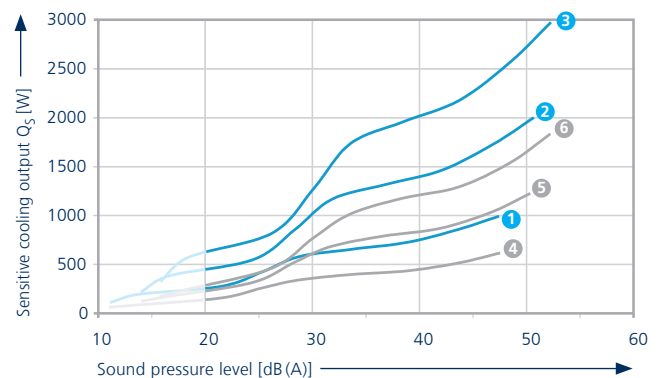
| Fan stage                    | at fan speed [%] | Heat outputs <sup>1)</sup> |                      |                    |                      | Cooling outputs <sup>2)</sup> |                    |                      |                    |                    |                      | Power uptake <sup>3)</sup> P [W] | Current consumption I [mA] | Air volume [m <sup>3</sup> /h] | Sound pressure level <sup>4)</sup> [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 <sub>H</sub> [W]         | t <sub>L2</sub> [°C] | Q <sub>H</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W]            | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] | Q <sub>K</sub> [W] | Q <sub>S</sub> [W] | t <sub>L2</sub> [°C] |                                  |                            |                                |  |                           |  |
| <b>Trench length 1250 mm</b> |                  |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                                  |                            |                                |  |                           |  |
| 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 <sup>5)</sup>                          | <28 <sup>5)</sup>         |  |
| <b>Trench length 2000 mm</b> |                  |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                                  |                            |                                |  |                           |  |
| 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 <sup>5)</sup>                          | <28 <sup>5)</sup>         |  |
| <b>Trench length 2750 mm</b> |                  |                            |                      |                    |                      |                               |                    |                      |                    |                    |                      |                                  |                            |                                |  |                           |  |
| 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 <sup>5)</sup>                          | <28 <sup>5)</sup>         |  |

Q<sub>H</sub> [W] = heat output; Q<sub>K</sub> [W] = cooling output, total; Q<sub>S</sub> [W] = cooling output, sensitive; t<sub>L2</sub> [°C] = leaving air temperature

Quick selection diagrams



LPHW 75/65°C, t<sub>L</sub> = 20°C: 1) Trench length 1250 mm, 2) Trench length 2000 mm, 3) Trench length 2750 mm  
 LPHW 55/45°C, t<sub>L</sub> = 20°C: 4) Trench length 1250 mm, 5) Trench length 2000 mm, 6) Trench length 2750 mm



LPCW 7/12°C, t<sub>L</sub> = 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<sub>L</sub> = 27°C, 50% rel. humidity: 4) Trench length 1250 mm, 5) Trench length 2000 mm, 6) Trench length 2750 mm

<sup>1)</sup> at room temperature t<sub>L</sub> = 20°C;  
<sup>2)</sup> at room temperature t<sub>L</sub> = 27°C, rel. humidity 50%;  
<sup>3)</sup> Add an additional power uptake if 3 W per valve drive type 146906;  
<sup>4)</sup> 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 m<sup>3</sup> and a reverberation time of 0.5 s (in accordance with VDI 2081).  
<sup>5)</sup> Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

# 03 ▶ Design Information

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## 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 m<sup>3</sup> 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](http://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](http://Kampmann.co.uk/calculation_programs)

# 04 ▶ Control

## KaControl – The all-inclusive solution for Katherm HK

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

Each Katherm HK unit is fitted with an electrical fuse. A high-performance parameterised microprocessor is designed to carry out all necessary functions and each Katherm 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 Katherm 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 Katherm 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

Katherm 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.

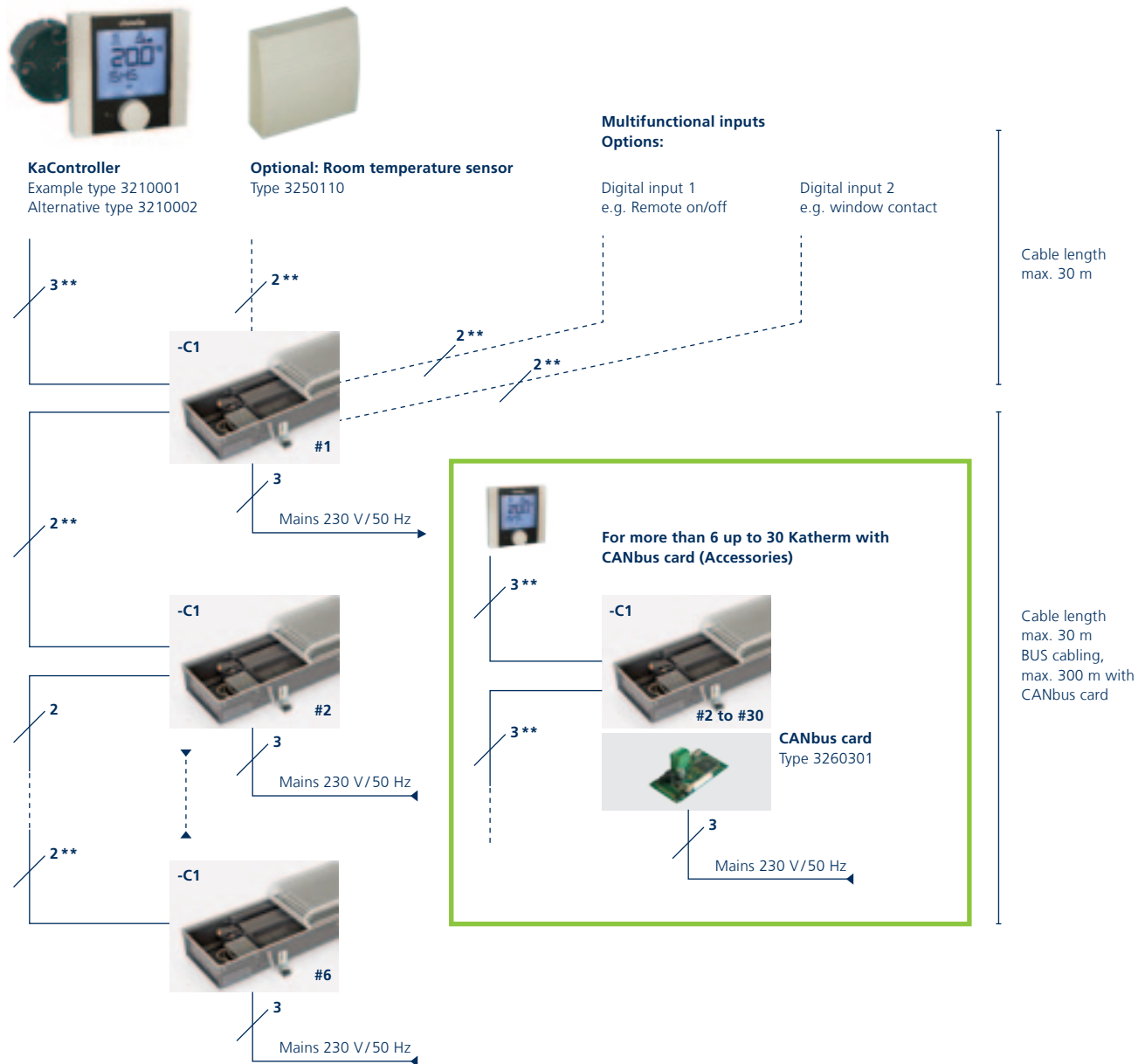
#### Product features

- ▶ 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

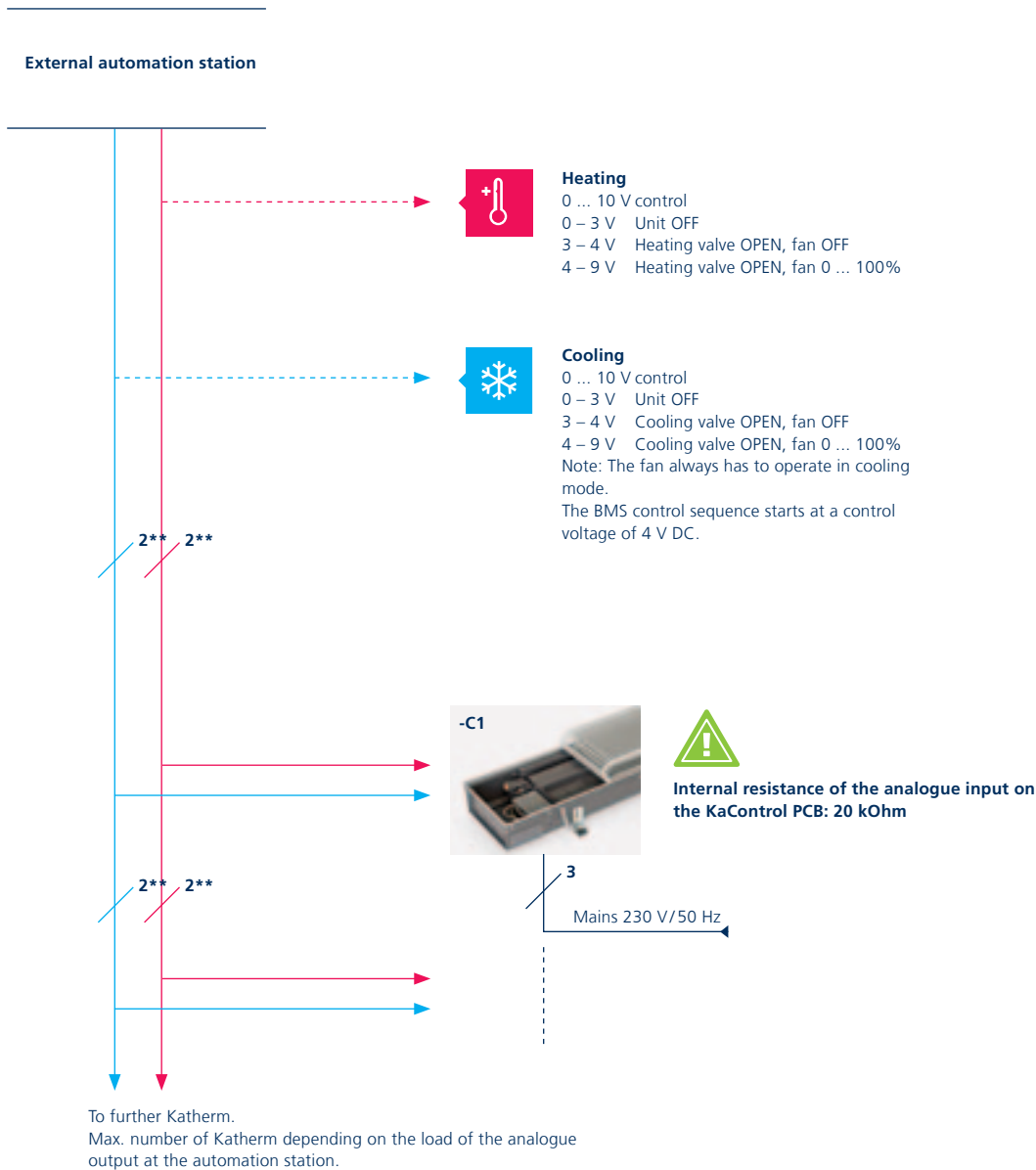


Provide a separate power supply when using a condensate pump!

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

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

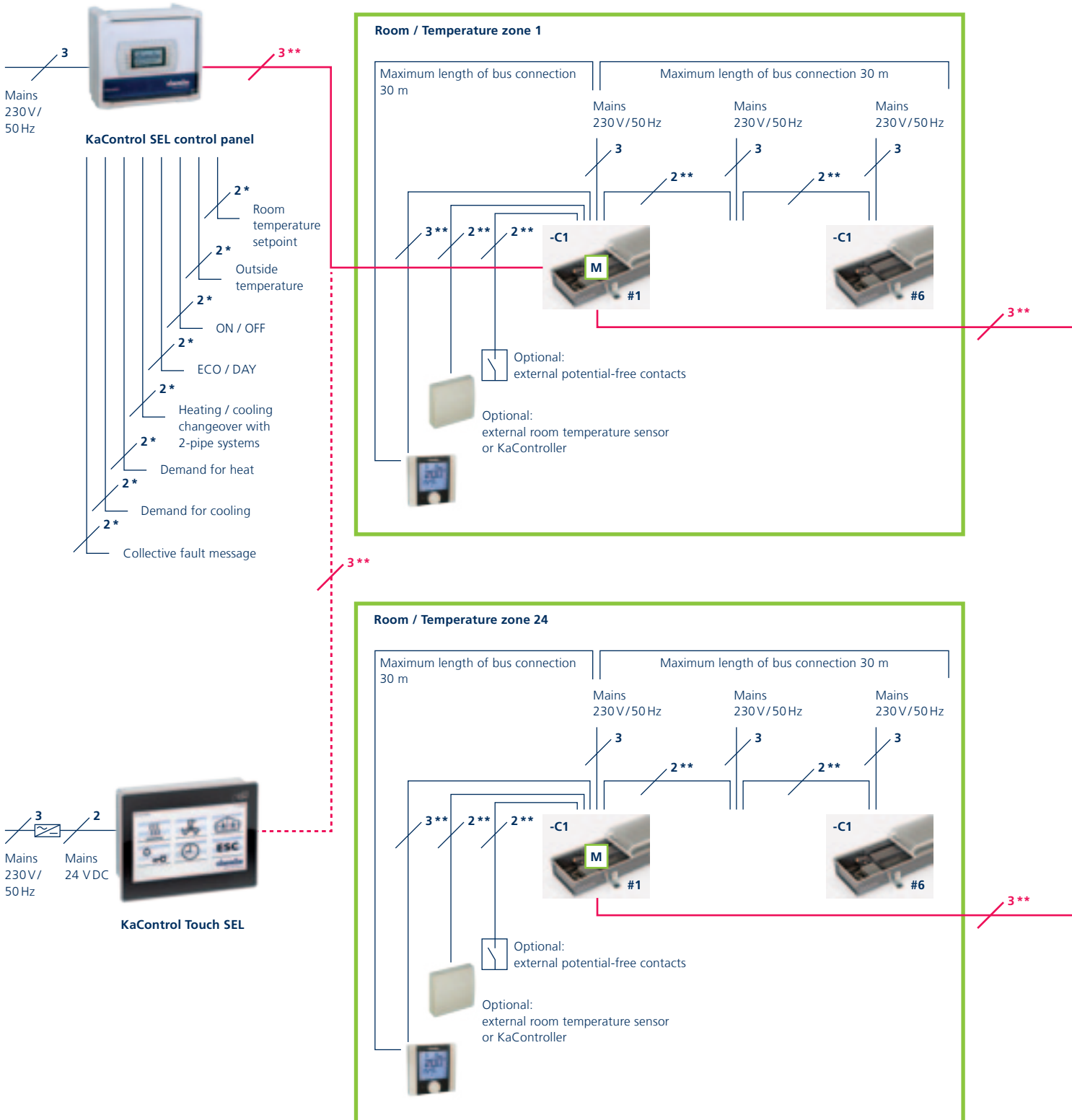
## System configuration for 0 ... 10 V control (by the customer)



**Provide a separate power supply when using a condensate pump!**

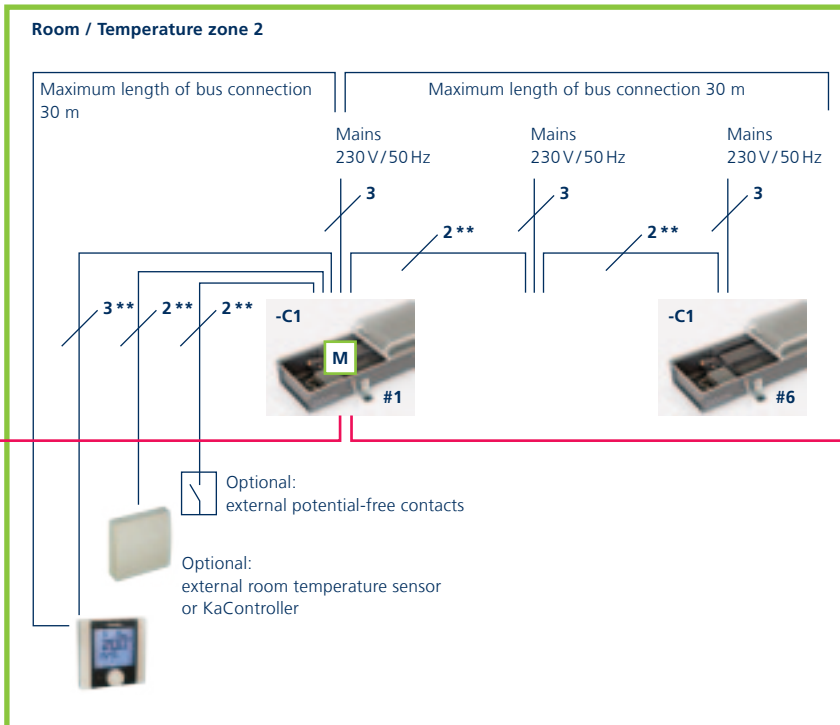
\*\* CAT5 (AWG 23) cable connections (or similar) must be used.

## KaControl System Controller

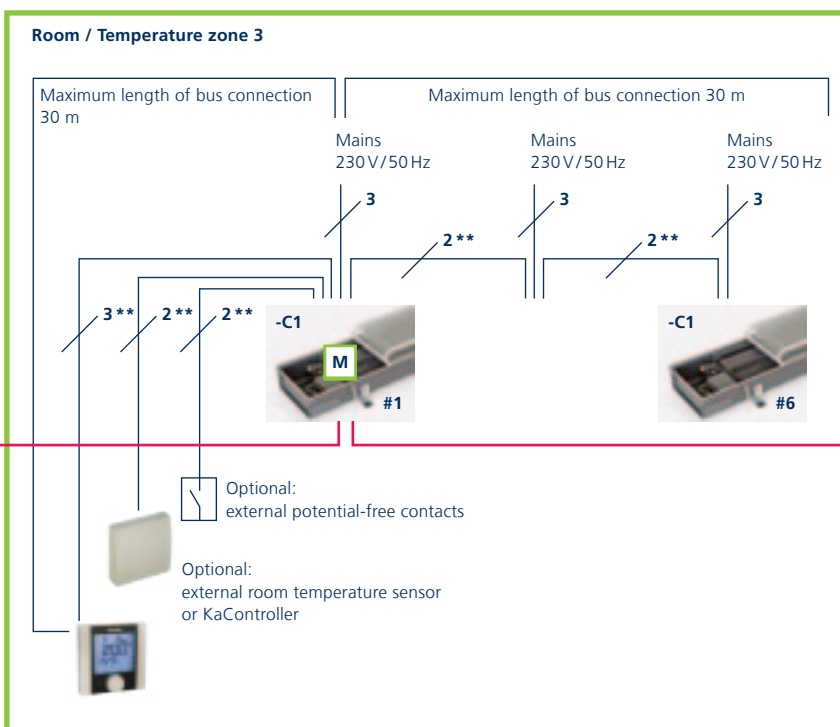


**M** Modbus card

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



Modbus  
maximum 500 m



### 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).

\* 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.

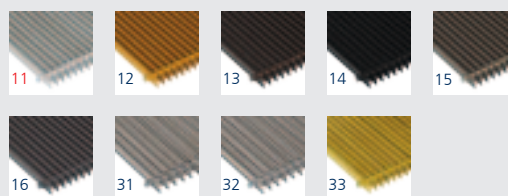
# 05 ▶ Ordering Information

## 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 |

0→0→

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.)

|    |                |                            |  |
|----|----------------|----------------------------|--|
| 0→ | 143062311120C1 | →                          | 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.)

|    |                |                       |                       |
|----|----------------|-----------------------|-----------------------|
| 0→ | 143062311120C1 | →                     | Trench length 1250 mm |
| 35 | →              | Trench length 2000 mm |                       |
| 50 | →              | Trench length 2750 mm |                       |

# Accessories

| Figure  | Article   | Properties   | Suitable for | Art. no.            |
|---|---|--|--------------|---------------------|
| <b>KaControl Accessories</b>  |   |  |              |                     |
|    | <b>KaController operating unit</b><br>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   | <b>196003210001</b> |
|    | <b>KaController operating unit</b><br>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   | <b>196003210002</b> |
|    | <b>KaControl Touch SEL</b>                                      | 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   | <b>196003210311</b> |
|  | <b>KaControl SEL panel without BACnet</b>                       | 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   | <b>196003232122</b> |
|   | <b>KaControl SEL panel with BACnet</b>                          |  |              | <b>196003232123</b> |
|  | <b>Room temperature sensor</b>                                  | for wall mounting, IP30 surface-mounted, colour white RAL 9010, alternative to the temperature sensor in the KaController  | all models   | <b>196003250110</b> |
|  | <b>Clip-on pipe sensor</b>                                      | for detecting the temperature of the medium, including strap, 3 m cable, to protect the unit from frost  | all models   | <b>196003250115</b> |
|  | <b>Serial CANbus card</b>                                       | to increase the number of units in a single-circuit control system   | all models   | <b>196003260301</b> |
|  | <b>Serial Modbus card</b>                                       | for connection to Modbus networks  | all models   | <b>196003260101</b> |
|  | <b>Serial Konnex card</b>                                       | for connection to KNX-/EIB networks  | all models   | <b>196003260701</b> |
|  | <b>Serial LON FTT10A card</b>                                   | for connection to LON FTT10A networks  | all models   | <b>196003260501</b> |
| <b>Valves</b>   |   |  |              |                     |
|  | <b>Valve</b><br>bodystraight,<br>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  | <b>194000146909</b> |
|   | <b>Valve body</b><br>straight, connection 1/2",<br>pre-settable |  | HK 340, 400  | <b>194000346909</b> |

more »



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



[Kampmann.co.uk/katherm\\_hk](http://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](mailto:info@kampmann.de)  
**W** [Kampmann.de](http://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](mailto:info@kampmann.co.uk)  
**W** [Kampmann.co.uk](http://Kampmann.co.uk)