**Katherm HK**
Trench Heating

# Katherm HK

Heating or cooling with energy-efficient
EC tangential fans

**Technical Catalogue**

KAMPMANN
Genau mein Klima.

Kampmann.co.uk/katherm-hk

# Contents

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

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

Empty Katherm HK and Katherm HK trenches are individually adapted to the curved external façade in this building.

# 01 Product information

# Katherm HK – decentralised air conditioning 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 on-demand supply of filtered, heated or cooled recirculating air with Katherm HK solves both problems simultaneously, practically and invisibly from the floor. A higher level of efficiency is achieved with energy-efficient EC tangential fans with noise-optimised commutation electronics, resulting in energy-savings of up to 60% compared with conventional fans!
Flow-optimised barrel impellers ensure quiet operation and guarantee that air flows through the convector along its entire length.

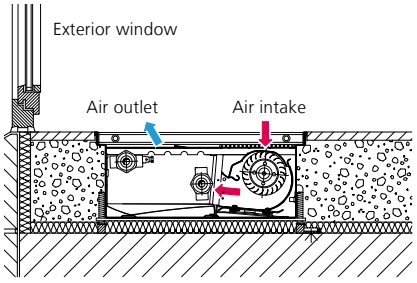
### EC technology

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 thus energy-efficiently. Low fan speeds have a positive effect on noise levels in areas, like offices, where the noise levels lie far below the audible threshold or the usual measuring range.

Katherm HK are available ex-works with integral KaControl. The KaController room control unit enables up to six units in a group to be operated autonomously. The units can be integrated into higher-level automation systems, such as KNX, Modbus or LON, via optional interfaces. There is also a control option with a 0-10 V fan control if complete control is to be provided on site.

### Example of cooling unit

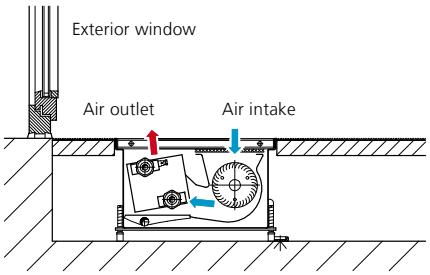
(Installed in screed,
Katherm HK 320,
trench height 130 mm)




1. Heat and sound insulation
2. Concrete slab
3. Screed
4. Floor trench
5. High-output convector
6. Filter (optional)

### Example of heating unit

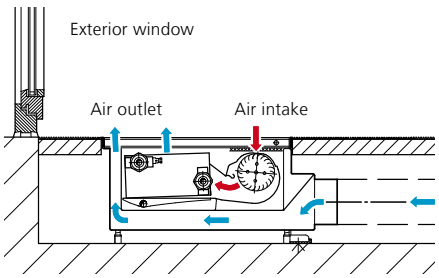
(Installed in a raised floor,
Katherm HK 290,
trench height 160 mm)




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

### Example of cooling with supply air function

(Installed in a raised floor,
Katherm HK 320,
trench height 165 mm)

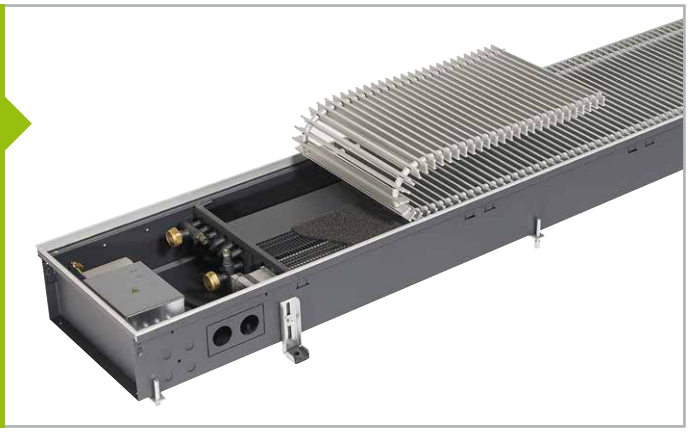



1. Concrete slab
2. Raised floor
3. Floor trench
4. High-output convector
5. Filter (optional)

# Product data

## Product features

- heating and cooling as a 2-pipe and 4-pipe system
- hygiene-certified in line with VDI 6022
- whisper-quiet, highly efficient EC tangential fan



## Features

**Standard range**
2 trench widths, 2 trench heights, 6 trench lengths
Notwithstanding the standard range (NP), the products can also be made-to-measure within the non-standard program (MP).

| | |
|---|---|
| **Convection** | EC tangential fan |
| **Heating** | LPHW |
| **Cooling** | CPW |
| **Ventilation** | supply air connection on request |
| **KaControl System** | optional |
| | 2-pipe |
| | 4-pipe |

**Grille finishes**
- roll-up grilles
- linear grilles

## Performance data

**Heat output**[1] [W]
- 530 – 14932

**Cooling output**[2] [W]
- 87 – 2712

**Sound pressure level**[3] [dB(A)]
- < 20 – 44

**Sound power level** [dB(A)]
- < 28 – 52

## Applications

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.

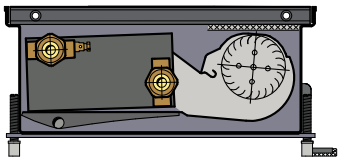
Hotels / motels
Sales rooms and showrooms
Office and meeting rooms
Homes and conservatories
Restaurants and cafés

1) at LPHW 75 / 65, $t_{L1}$ = 20°C
2) at CHW 16 / 18, $t_{L1}$ =27 °C, 48% relative humidity
3) The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 $m^3$ and a reverberation time of 0.5 s (in accordance with VDI 2081).

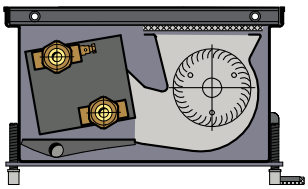
# Selection guide: overview of models

| Design | Trench width | Trench height | 2- / 4-pipe | Trench length | Heat output[1] | Cooling output[2] | Sound pressure level[3] | Sound power level | Further information |
|---|---|---|---|---|---|---|---|---|---|
| | [mm] | [mm] | | [mm] | [W] | [W] | [dB(A)] | [dB(A)] | |
| **HK 320** | 320 | 130 | 2-pipe | 915 | 690 – 2075 | 87 – 360 | <20[4] – 39 | <28[4] – 47 | ▸ Page 18 |
| | | | | 1200 | 1176 – 3602 | 150 – 634 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 1700 | 2135 – 6040 | 272 – 1064 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 2000 | 2404 – 7512 | 310 – 1342 | <20[4] – 44 | <28[4] – 52 | |
| | | | | 2500 | 3363 – 10026 | 429 – 1765 | <20[4] – 44 | <28[4] – 52 | |
| | | | | 3000 | 4324 – 12479 | 552 – 2188 | <20[4] – 44 | <28[4] – 52 | |
| | | | 4-pipe | 915 | 530 – 1206 | 87 – 355 | <20[4] – 39 | <28[4] – 47 | ▸ Page 22 |
| | | | | 1200 | 936 – 2180 | 149 – 624 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 1700 | 1720 – 3787 | 272 – 1047 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 2000 | 1985 – 4755 | 305 – 1321 | <20[4] – 44 | <28[4] – 52 | |
| | | | | 2500 | 2773 – 6361 | 428 – 1738 | <20[4] – 44 | <28[4] – 52 | |
| | | | | 3000 | 3561 – 7967 | 550 – 2155 | <20[4] – 44 | <28[4] – 52 | |
| **HK 290** | 290 | 160 | 2-pipe | 950 | 810 – 2489 | 97 – 452 | <20[4] – 36 | <28[4] – 44 | ▸ Page 20 |
| | | | | 1200 | 1369 – 4207 | 164 – 764 | <20[4] – 38 | <28[4] – 46 | |
| | | | | 1700 | 2179 – 6696 | 261 – 1216 | <20[4] – 40 | <28[4] – 48 | |
| | | | | 2000 | 2854 – 8770 | 342 – 1593 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 2500 | 3645 – 11199 | 436 – 2034 | <20[4] – 42 | <28[4] – 50 | |
| | | | | 3000 | 4860 – 14932 | 582 – 2712 | <20[4] – 43 | <28[4] – 51 | |
| | | | 4-pipe | 950 | 645 – 1453 | 92 – 420 | <20[4] – 36 | <28[4] – 44 | ▸ Page 24 |
| | | | | 1200 | 1091 – 2456 | 156 – 710 | <20[4] – 38 | <28[4] – 46 | |
| | | | | 1700 | 1736 – 3908 | 248 – 1130 | <20[4] – 40 | <28[4] – 48 | |
| | | | | 2000 | 2274 – 5119 | 325 – 1480 | <20[4] – 41 | <28[4] – 49 | |
| | | | | 2500 | 2904 – 6537 | 415 – 1890 | <20[4] – 42 | <28[4] – 50 | |
| | | | | 3000 | 3872 – 8716 | 554 – 2520 | <20[4] – 43 | <28[4] – 51 | |

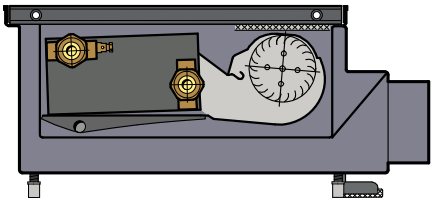
## Sectional views



Katherm HK 320, trench height 130 mm



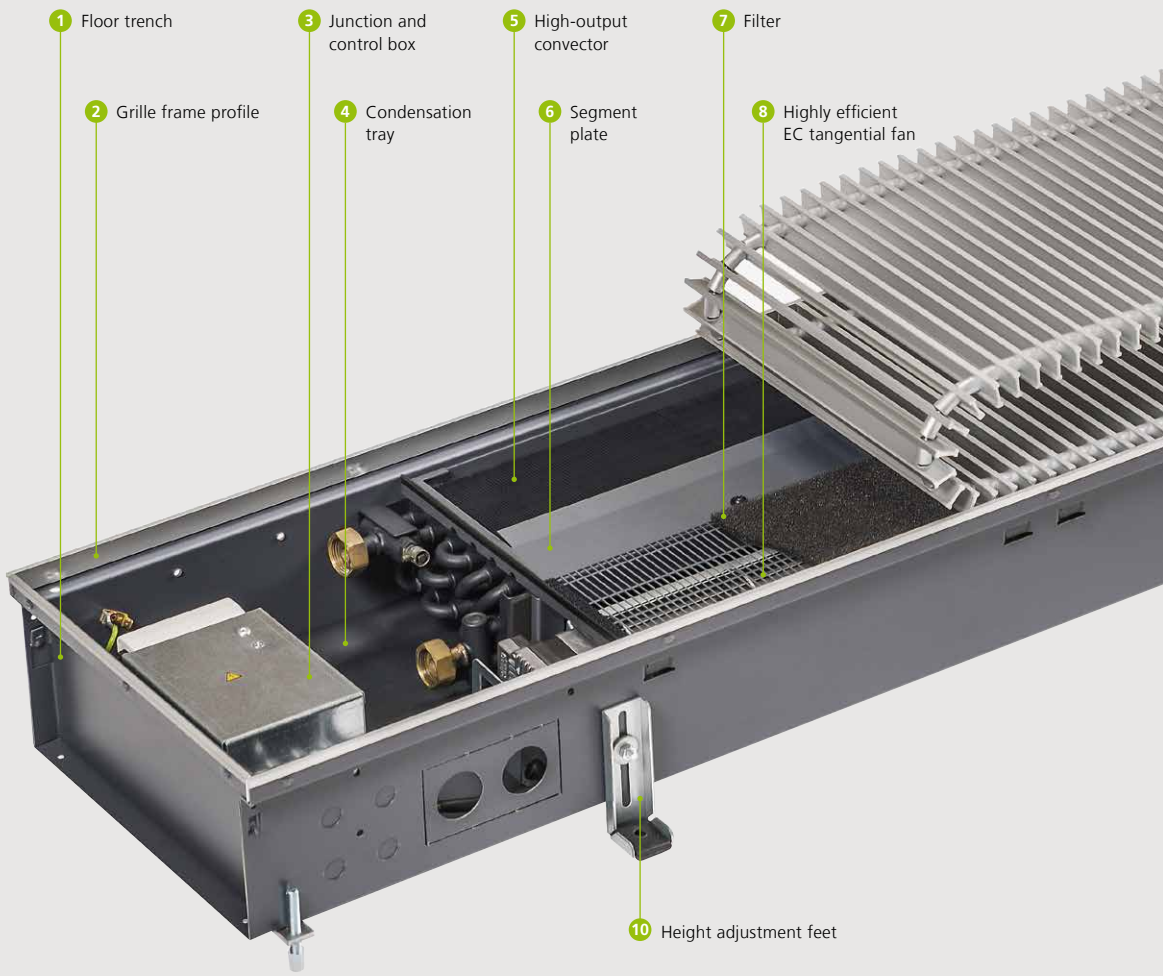
Katherm HK 290, trench height 160 mm



Katherm HK 320 with supply air function, trench height 165 mm

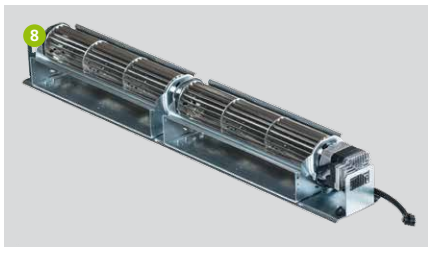
[1] at LPHW 75 / 65, $t_{L1}$ = 20°C
[2] at CHW 16 / 18, $t_{L1}$ =27 °C, 48 % relative humidity
[3] The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 $m^3$ and a reverberation time of 0.5 s (in accordance with VDI 2081).
[4] Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.

# Katherm HK at a glance




## Features







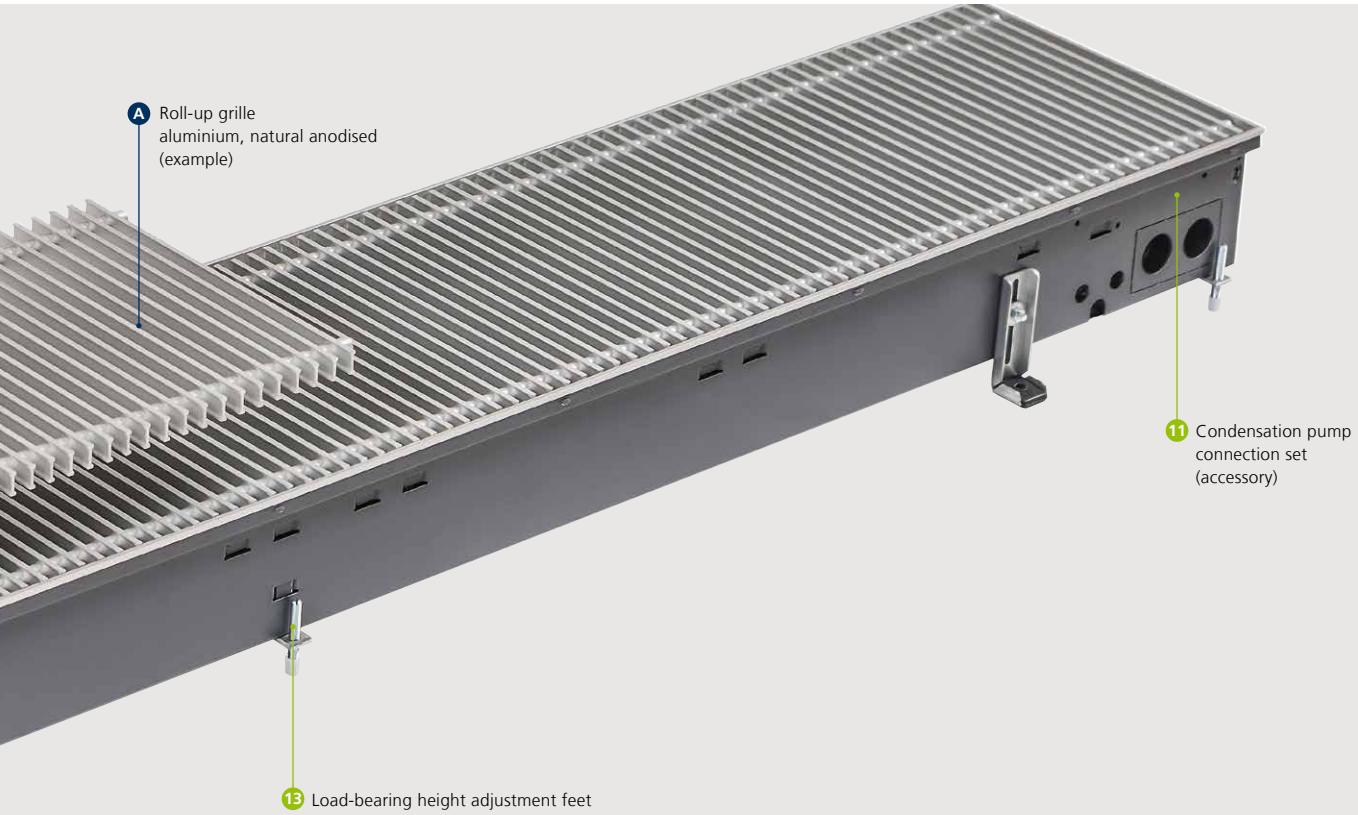




Fig. Katherm HK 320

**1 Floor trench:**
- galvanised sheet steel
- painted graphite grey on both sides

**2 Grille frame profile:**
- to match double T-profile grille
- with protective lip on 3 sides

**3 Junction and control box:**
- for fast and safe wiring, saves installation time
- with KaControl or electromechanical control

**4 Condensation tray:**
- for safe discharge of the condensate and simultaneous air guidance
- specifically designed for simple cleaning in line with the Hygiene Directive VDI 6022.
- can be removed to the room side for ease of cleaning

**5 High-output convector:**
- made of copper pipe with aluminium fins
- painted graphite-grey
- suitable for maximum continuous operating pressure of 10 bar and 120 °C.
- Eurokonus connection
- for 2-pipe and 4-pipe system

**6 Segment plate:**
- acts as a finger guard for the tangential fan, filter frame, airflow baffle, grille seat and reinforcing struts to strengthen the trench

**7 Filter:**
- optional accessory

**8 Highly efficient EC tangential fan:**
- energy-saving, with flow-optimised impellers, cascaded arrangement as a continuous fan belt (HK 320)
- to produce a uniform air flow
- robust and quiet motor construction
- infinitely variable speed control via an external 0-10 V signal
- motor monitoring with internal fault processing

**9 Cover plate:**
- as visual protection and to protect against dirt
- for connecting/return end and intermediate sections

**10 Height adjustment feet:**
- for the safe mounting of the trench
- with sound insulation
- as standard

**11 Condensation pump fitting kit:**
- available as an accessory to drain condensation, if needed
- supplied separately or factory-fitted

**12 Fixing of EC tangential fan:**
- ease of removal of the tangential fan without tool
- innovative combined coupling/ ball joint system
- simultaneous acoustic decoupling

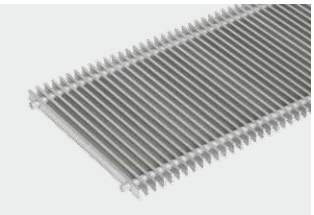
**13 Load-bearing height adjustment feet:**
- for height adjustment and support of the trench

**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 %

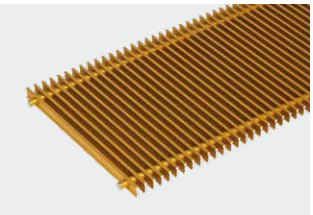
# Matching grilles

## Roll-up grilles

**Aluminium**
Natural anodised

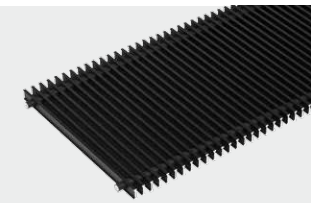


**Aluminium**
Brass anodised

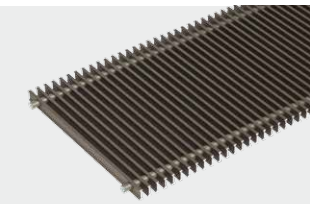


**Aluminium**
Bronze anodised

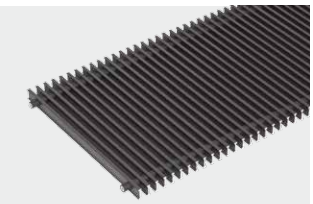
**Aluminium**
Black anodised



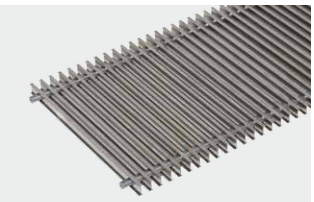
**Aluminium**
Bronze finish



**Aluminium**
Painted DB 703

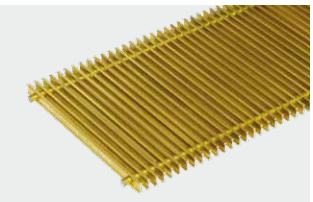


**Stainless steel**
Natural



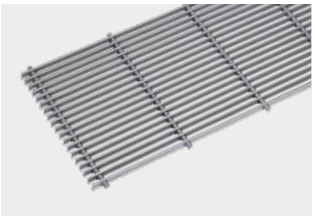
**Stainless steel**
Polished

**Brass**
natural CuZn 44

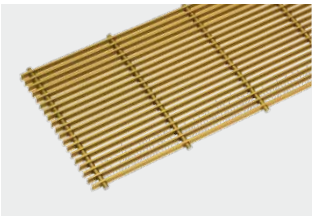


## Linear grilles

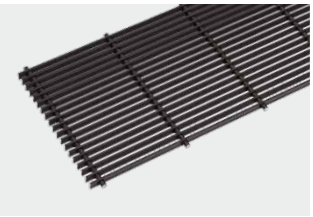
**Aluminium**
Natural anodised



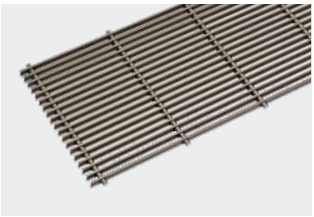
**Aluminium**
Brass anodised



**Aluminium**
Bronze anodised

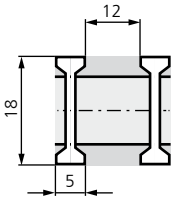


**Aluminium**
Bronze finish

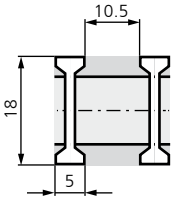


## Profile dimensions

### Double-T profile




Aluminium, brass

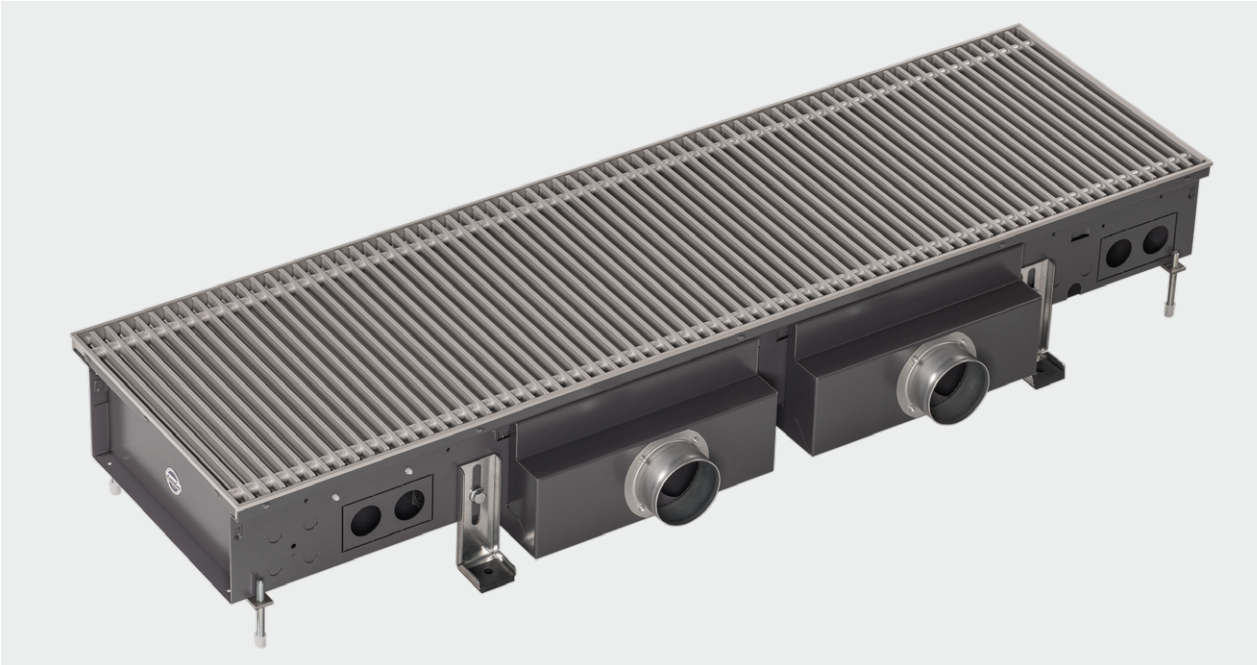



Stainless steel

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

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

# Katherm HK optionally with supply air function

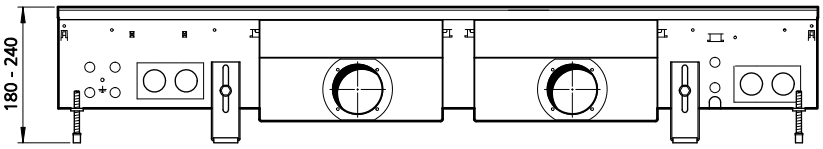


Katherm HK units with supply air function are perfectly suited to supply primary air (fresh air) into a space. Heating, cooling and supply of fresh air are therefore perfectly combined.

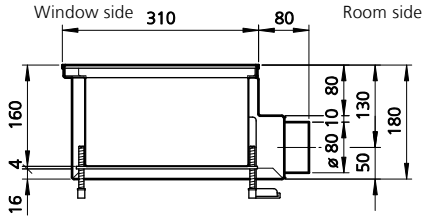
**Supply air operation**
The conditioned primary air enters through a variable number of supply air modules below the floor trench. It escapes through an outlet slot arranged along the length of the floor trench and mixes with the secondary air, heated or cooled by the convector, before being discharged into the room. Optimum shielding can be provided in front of the glazing with a slow and low-turbulence leaving air velocity. The volume of air supplied can be conveniently adjusted via the variable number of supply air modules per trench and the continuously adjustable slider. Up to 60 m³/h of primary air can be supplied per supply air module. High volumetric flow combined with low slider position can lead to noticeable air flow noises (see adjacent diagram).

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

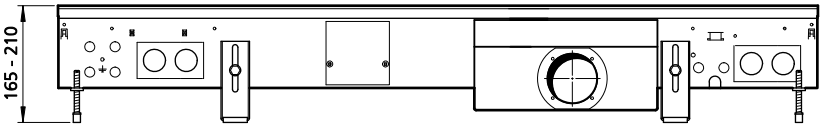
## Dimensions: Katherm HK with supply air modules



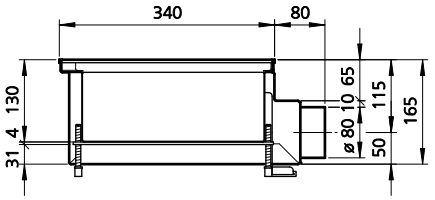

Front view of HK 290 (example shows 2 supply air modules)



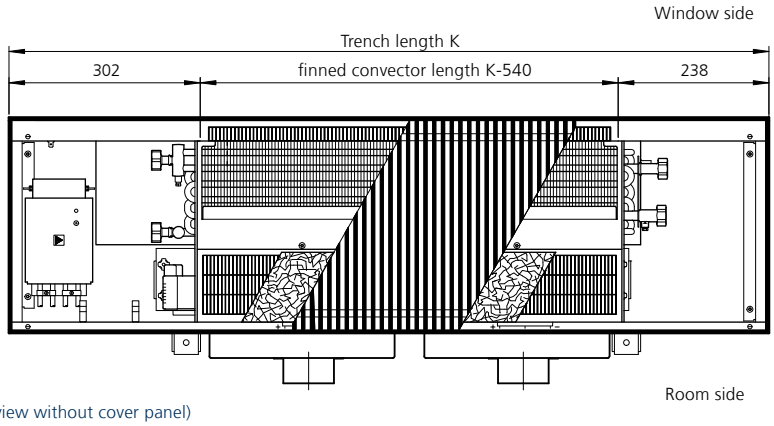

Side view of HK 290 with supply air module




Front view of HK 320 (example shows 1 supply air module)




Side view of HK 320 with supply air module

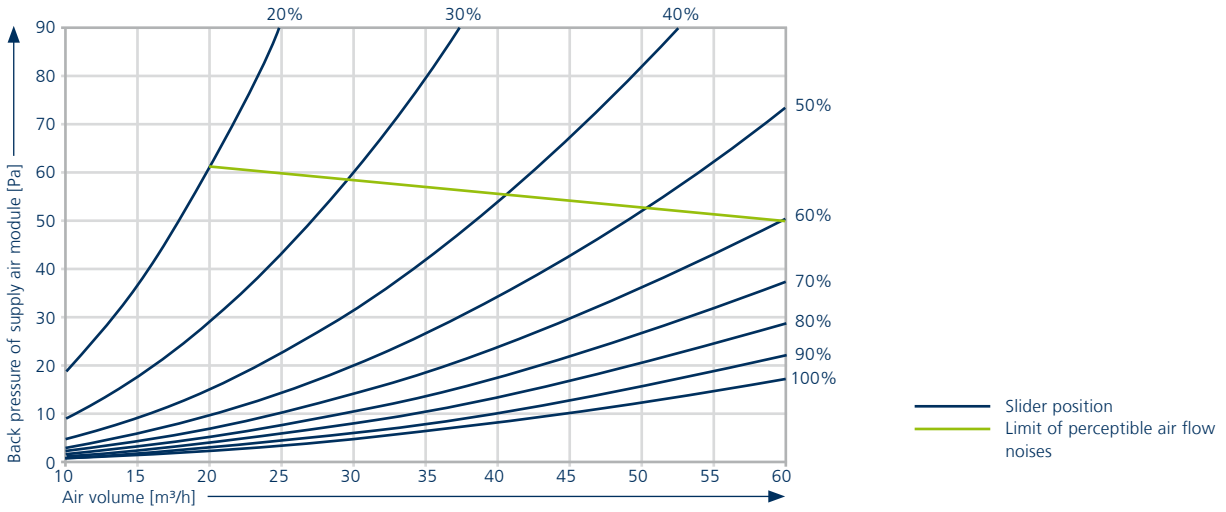



Top view (view without cover panel)

| Unit length | Max. number of supply air modules |
|---|---|
| [mm] | |
| 915 / 950* | 1 |
| 1200 | 2 |
| 1700 | 3 |
| 2000 | 4 |
| 2500 | 5 |
| 3000 | 6 |

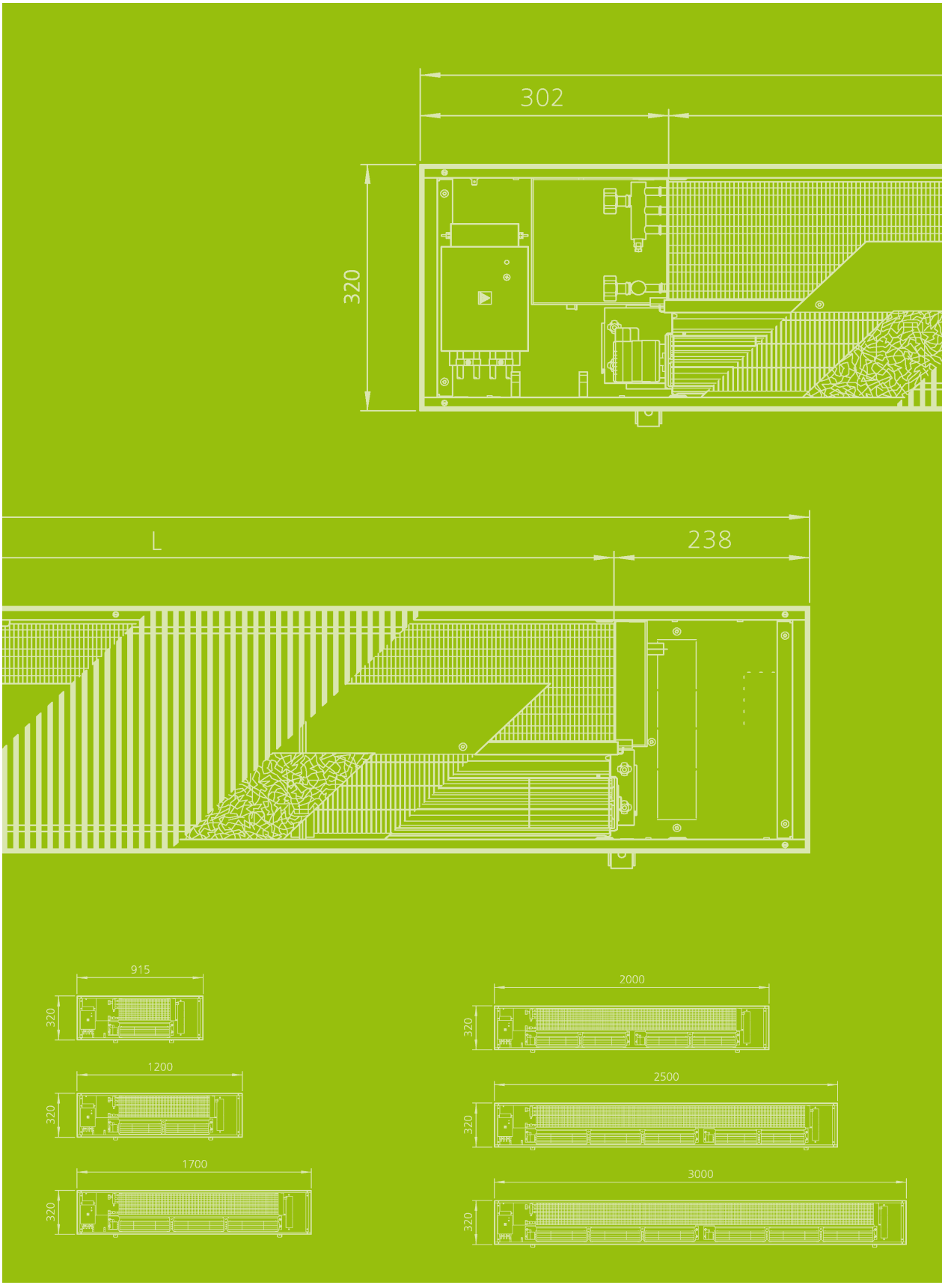
* with Katherm HK 290

## Slider positions[1)]




[1)] The slider position corresponds to the percentage of the open cross-sectional area of the supply air inlet.

# 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".

Part 1 "Technical specifications 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 under normal operating conditions 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 Part 3. 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 due to the unavoidable short circuit between the air outlet and air intake.

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

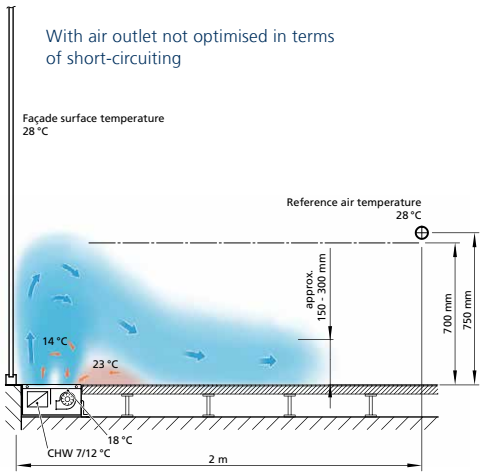
Katherm HK have been developed to be optimised in terms of short-circuiting and minimise this short circuit as far as technically possible.

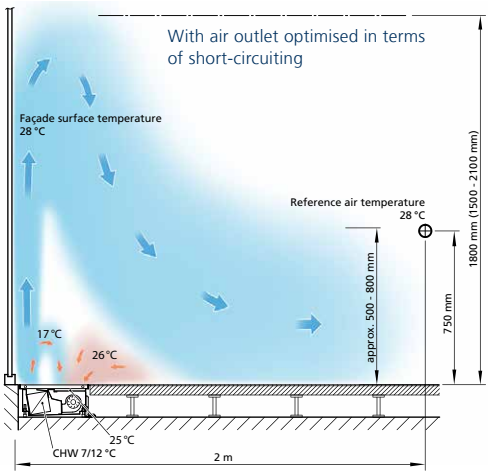
### Acoustics

Katherm HK are very often used in acoustically sensitive areas. Accordingly, Katherm HK have been optimised in terms of noise levels. The sound power level is measured in accordance with DIN EN ISO 3744. (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) in a semi-low reflective acoustic measuring chamber.

Heat and cooling output test chamber

### Comparison of air flow profiles

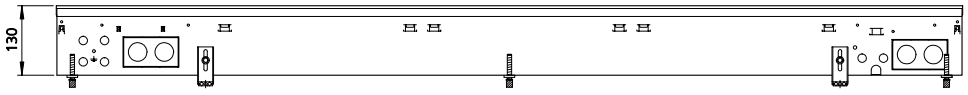


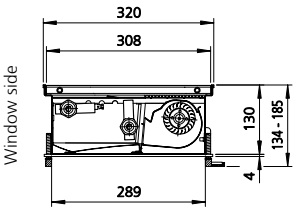
# Katherm HK 320

## 2-pipe, trench height 130 mm

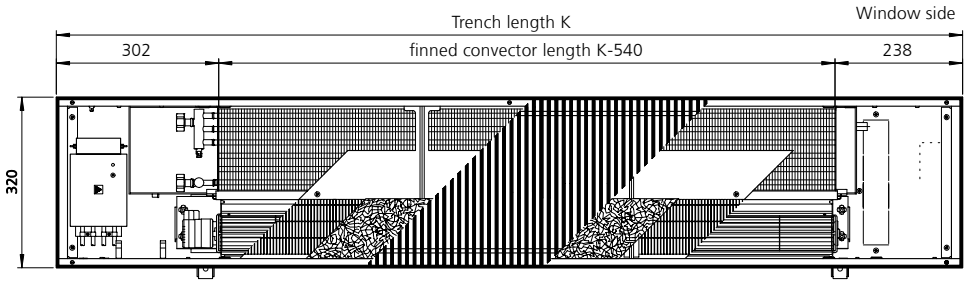
### **Technical drawings** (all dimensions in mm)




Front view




Cross-section
(example showing roll-up grille)




Top view (view without cover panel)

### Specifications

**Connections:**
Eurokonus, same end,
connections on left

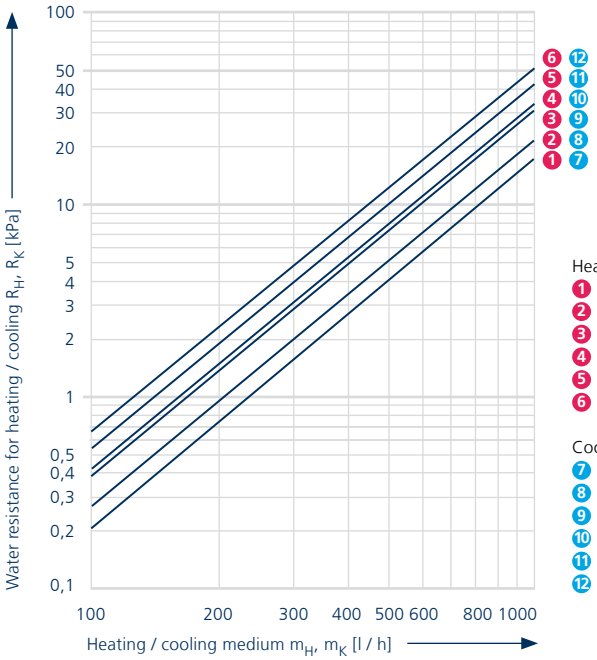
**Condensation connection:**
15 mm spigots

| Unit length | Finned convector length | Fan impellers | Fan motors |
|---|---|---|---|
| [mm] | [mm] | [Quantity] | [Quantity] |
| **915** | 375 | 1 | 1 |
| **1200** | 660 | 2 | 1 |
| **1700** | 1160 | 3 | 1 |
| **2000** | 1460 | 4 | 2 |
| **2500** | 1960 | 5 | 2 |
| **3000** | 2460 | 6 | 2 |

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

- **kampmann.co.uk/katherm-hk/calculation**

### Water resistance




Heating curves:
1. Trench length 915 mm
2. Trench length 1200 mm
3. Trench length 1700 mm
4. Trench length 2000 mm
5. Trench length 2500 mm
6. Trench length 3000 mm

Cooling curves:
7. Trench length 915 mm
8. Trench length 1200 mm
9. Trench length 1700 mm
10. Trench length 2000 mm
11. Trench length 2500 mm
12. Trench length 3000 mm

## Performance

| Fan stage | at fan setting | Heat outputs [1] | | | | Cooling outputs [2] | | | | | | Power consumption [3] | Current consumption | Air volume [6] | Sound pressure level [4] | Sound power level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | at LPHW 75 / 65 °C | | at LPHW 82 / 71 °C | | at CHW 16 / 18 °C | | | at CHW 7 / 12 °C | | | | | | | |
| | [%] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | P [W] | I [mA] | [m³/h] | [dB(A)] | [dB(A)] |
| **Trench length 915 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 2075 | 56.0 | 2361 | 61.0 | 360 | 360 | 20.1 | 623 | 536 | 15.8 | 7.9 | 82 | 175 | 39 | 47 |
| **Design stages** | 80 | 1779 | 57.9 | 2023 | 63.1 | 300 | 300 | 19.6 | 519 | 436 | 15.2 | 6.5 | 67 | 140 | 33 | 41 |
| | 60 | 1442 | 59.6 | 1639 | 65.1 | 232 | 232 | 19.3 | 405 | 331 | 14.5 | 5.6 | 58 | 110 | 27 | 35 |
| | 40 | 1079 | 61.6 | 1225 | 67.3 | 158 | 158 | 18.8 | 284 | 226 | 13.7 | 5.0 | 52 | 80 | <20 [5] | <28 [5] |
| **Minimum stage** | 20 | 690 | 64.3 | 783 | 70.3 | 87 | 87 | 18.2 | 167 | 128 | 12.8 | 4.7 | 49 | 50 | <20 [5] | <28 [5] |
| **Trench length 1200 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 3602 | 57.5 | 4089 | 62.6 | 634 | 634 | 19.6 | 1211 | 957 | 14.8 | 11.4 | 118 | 285 | 41 | 49 |
| **Design stages** | 80 | 3079 | 59.4 | 3495 | 64.7 | 524 | 524 | 19.2 | 995 | 773 | 14.2 | 8.4 | 86 | 235 | 36 | 44 |
| | 60 | 2483 | 61.0 | 2817 | 66.5 | 402 | 402 | 18.8 | 765 | 584 | 13.5 | 6.5 | 67 | 180 | 29 | 37 |
| | 40 | 1850 | 62.9 | 2098 | 68.6 | 272 | 272 | 18.4 | 528 | 396 | 12.8 | 5.5 | 57 | 130 | 20 | 28 |
| **Minimum stage** | 20 | 1176 | 65.3 | 1333 | 71.3 | 150 | 150 | 17.9 | 306 | 225 | 11.9 | 4.9 | 51 | 80 | <20 [5] | <28 [5] |
| **Trench length 1700 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 6040 | 58.8 | 6848 | 64.0 | 1064 | 1064 | 19.2 | 2124 | 1602 | 13.9 | 16.4 | 169 | 465 | 41 | 49 |
| **Design stages** | 80 | 5611 | 59.8 | 6360 | 65.2 | 963 | 963 | 19.0 | 1919 | 1437 | 13.7 | 13.3 | 137 | 420 | 38 | 46 |
| | 60 | 4523 | 61.5 | 5126 | 67.0 | 738 | 738 | 18.6 | 1464 | 1082 | 13.0 | 9.0 | 93 | 325 | 31 | 39 |
| | 40 | 3365 | 63.3 | 3813 | 69.1 | 498 | 498 | 18.2 | 1004 | 732 | 12.2 | 6.5 | 67 | 235 | 23 | 31 |
| **Minimum stage** | 20 | 2135 | 65.7 | 2417 | 71.7 | 272 | 272 | 17.8 | 579 | 416 | 11.5 | 5.3 | 55 | 140 | <20 [5] | <28 [5] |
| **Trench length 2000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 7512 | 59.1 | 8513 | 64.3 | 1342 | 1342 | 19.1 | 2736 | 2040 | 13.8 | 22.9 | 237 | 575 | 44 | 52 |
| **Design stages** | 80 | 6394 | 60.9 | 7245 | 66.3 | 1094 | 1094 | 18.8 | 2221 | 1638 | 13.2 | 16.7 | 173 | 470 | 39 | 47 |
| | 60 | 5132 | 62.3 | 5814 | 68.0 | 834 | 834 | 18.5 | 1684 | 1228 | 12.6 | 13.0 | 135 | 365 | 32 | 40 |
| | 40 | 3807 | 64.1 | 4312 | 70.0 | 568 | 568 | 18.1 | 1148 | 827 | 11.9 | 11.0 | 114 | 260 | 23 | 31 |
| **Minimum stage** | 20 | 2404 | 66.3 | 2721 | 72.4 | 310 | 310 | 17.7 | 658 | 470 | 11.2 | 9.8 | 102 | 155 | <20 [5] | <28 [5] |
| **Trench length 2500 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 10026 | 59.8 | 11356 | 65.1 | 1765 | 1765 | 19.0 | 3637 | 2680 | 13.5 | 27.8 | 288 | 750 | 44 | 52 |
| **Design stages** | 80 | 8937 | 60.8 | 10123 | 66.2 | 1535 | 1535 | 18.8 | 3151 | 2306 | 13.1 | 21.6 | 224 | 650 | 40 | 48 |
| | 60 | 7177 | 62.3 | 8128 | 67.9 | 1170 | 1170 | 18.4 | 2388 | 1728 | 12.5 | 15.5 | 160 | 505 | 33 | 41 |
| | 40 | 5325 | 64.1 | 6030 | 69.9 | 786 | 786 | 18.1 | 1626 | 1165 | 11.6 | 12.0 | 124 | 360 | 25 | 33 |
| **Minimum stage** | 20 | 3363 | 66.3 | 3806 | 72.4 | 429 | 429 | 17.6 | 932 | 661 | 11.1 | 10.2 | 106 | 220 | <20 [5] | <28 [5] |
| **Trench length 3000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 12479 | 60.0 | 14132 | 65.4 | 2188 | 2188 | 18.9 | 4538 | 3319 | 13.3 | 32.7 | 339 | 925 | 44 | 52 |
| **Design stages** | 80 | 11480 | 60.8 | 13002 | 66.2 | 1976 | 1976 | 18.8 | 4085 | 2974 | 13.0 | 26.5 | 275 | 840 | 41 | 49 |
| | 60 | 9223 | 62.3 | 10445 | 67.9 | 1507 | 1507 | 18.4 | 3094 | 2230 | 12.4 | 17.9 | 185 | 650 | 34 | 42 |
| | 40 | 6845 | 64.1 | 7749 | 69.9 | 1012 | 1012 | 18.0 | 2106 | 1504 | 11.7 | 12.9 | 134 | 465 | 26 | 34 |
| **Minimum stage** | 20 | 4324 | 66.3 | 4893 | 72.4 | 552 | 552 | 17.6 | 1206 | 853 | 11.0 | 10.6 | 110 | 280 | <20 [5] | <28 [5] |

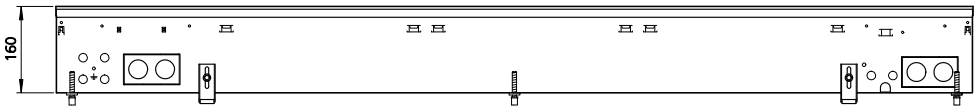
$Q_H$ [W] = heat output; $Q_K$ [W] = cooling output, total; $Q_S$ [W] = cooling output, sensitive; $t_{L2}$ [°C] = leaving air temperature

1) at room temperature $t_L$ = 20 °C;
2) at room temperature $t_L$ = 27 °C, rel. humidity 48 %;
3) Add an additional power consumption of 3 W per valve drive type 146906;
4) The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
5) Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.
6) Values rounded up within measurement tolerances.

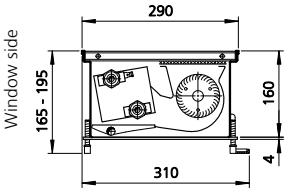
# Katherm HK 290

## 2-pipe, trench height 160 mm

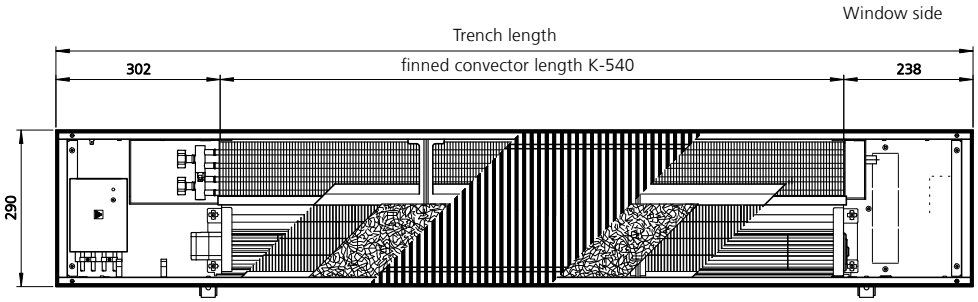
### **Technical drawings** (all dimensions in mm)




Front view




Cross-section
(example showing roll-up grille)




Top view (view without cover panel)

### Specifications

**Connections:**
Eurokonus, same end,
connections on left

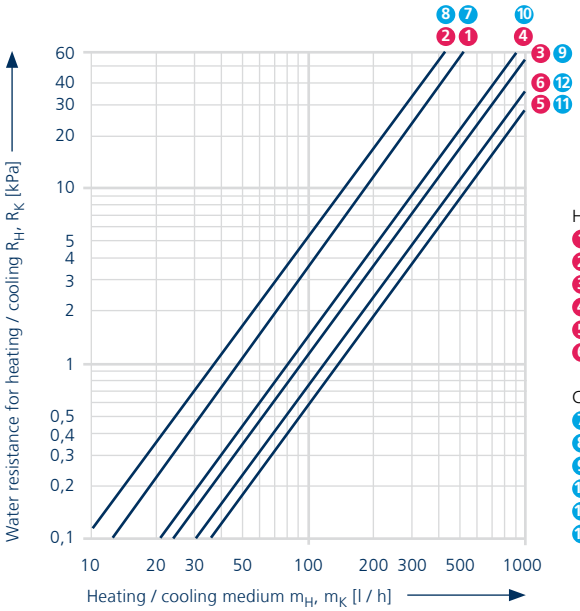
**Condensation connection:**
15 mm spigots

| Unit length | Finned convector length | Fan impellers | Fan motors |
|---|---|---|---|
| [mm] | [mm] | [Quantity] | [Quantity] |
| **950** | 410 | 1 | 1 |
| **1200** | 660 | 1 | 1 |
| **1700** | 1160 | 2 | 2 |
| **2000** | 1460 | 2 | 2 |
| **2500** | 1960 | 3 | 3 |
| **3000** | 2460 | 3 | 3 |

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

- **kampmann.co.uk/katherm-hk/calculation**

### Water resistance




Heating curves:
1. Trench length 950 mm
2. Trench length 1200 mm
3. Trench length 1700 mm
4. Trench length 2000 mm
5. Trench length 2500 mm
6. Trench length 3000 mm

Cooling curves:
7. Trench length 950 mm
8. Trench length 1200 mm
9. Trench length 1700 mm
10. Trench length 2000 mm
11. Trench length 2500 mm
12. Trench length 3000 mm

## Performance

| Fan stage | at fan setting | Heat outputs [1] | | | | Cooling outputs [2] | | | | | | Power consumption [3] | Current consumption | Air volume [6] | Sound pressure level [4] | Sound power level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | at LPHW 75 / 65 °C | | at LPHW 82 / 71 °C | | at CHW 16 / 18 °C | | | at CHW 7 / 12 °C | | | | | | | |
| | [%] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | P [W] | I [mA] | [m³/h] | [dB(A)] | [dB(A)] |
| **Trench length 950 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 2489 | 59,2 | 2813 | 64,6 | 452 | 452 | 19,4 | 836 | 648 | 13,3 | 12,6 | 124 | 190 | 36 | 44 |
| **Design stages** | 80 | 2120 | 60,2 | 2397 | 65,8 | 363 | 363 | 19,0 | 675 | 520 | 13,0 | 10,1 | 104 | 160 | 31 | 39 |
| | 60 | 1696 | 61,8 | 1917 | 67,6 | 267 | 267 | 18,5 | 501 | 383 | 12,7 | 7,1 | 82 | 125 | 24 | 32 |
| | 40 | 1277 | 63,7 | 1444 | 69,9 | 181 | 181 | 17,9 | 344 | 259 | 12,2 | 5,3 | 68 | 90 | < 20 [5] | < 28 [5] |
| **Minimum stage** | 20 | 810 | 67,1 | 915 | 73,9 | 97 | 97 | 16,9 | 188 | 139 | 11,6 | 4,1 | 59 | 50 | < 20 [5] | < 28 [5] |
| **Trench length 1200 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 4207 | 59,3 | 4755 | 64,6 | 764 | 764 | 19,4 | 1391 | 1095 | 13,3 | 18,4 | 166 | 325 | 38 | 46 |
| **Design stages** | 80 | 3584 | 60,4 | 4051 | 65,9 | 613 | 613 | 19,0 | 1124 | 879 | 13,0 | 14,2 | 133 | 270 | 33 | 41 |
| | 60 | 2866 | 61,9 | 3240 | 67,6 | 451 | 451 | 18,5 | 835 | 647 | 12,7 | 9,0 | 95 | 210 | 26 | 34 |
| | 40 | 2159 | 63,9 | 2441 | 70,0 | 306 | 306 | 17,9 | 572 | 439 | 12,2 | 5,9 | 71 | 150 | < 20[5] | < 28[5] |
| **Minimum stage** | 20 | 1369 | 67,2 | 1548 | 74,0 | 164 | 164 | 16,9 | 312 | 235 | 11,6 | 4,3 | 59 | 85 | < 20[5] | < 28[5] |
| **Trench length 1700 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 6696 | 59,4 | 7568 | 64,7 | 1216 | 1216 | 19,4 | 2183 | 1742 | 13,3 | 28,3 | 237 | 510 | 40 | 48 |
| **Design stages** | 80 | 5705 | 60,5 | 6448 | 65,9 | 976 | 976 | 19,0 | 1764 | 1399 | 13,0 | 21,3 | 188 | 430 | 35 | 43 |
| | 60 | 4562 | 62,0 | 5156 | 67,7 | 719 | 719 | 18,5 | 1310 | 1029 | 12,7 | 13,9 | 127 | 335 | 28 | 36 |
| | 40 | 3437 | 64,0 | 3885 | 70,0 | 487 | 487 | 17,9 | 899 | 698 | 12,2 | 8,3 | 92 | 240 | 21 | 29 |
| **Minimum stage** | 20 | 2179 | 67,3 | 2463 | 74,1 | 261 | 261 | 16,9 | 490 | 374 | 11,6 | 6,1 | 74 | 130 | < 20[5] | < 28[5] |
| **Trench length 2000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 8770 | 59,5 | 9912 | 64,7 | 1593 | 1593 | 19,4 | 2836 | 2282 | 13,3 | 34,8 | 293 | 670 | 41 | 49 |
| **Design stages** | 80 | 7472 | 60,6 | 8445 | 65,9 | 1279 | 1279 | 19,0 | 2292 | 1832 | 13,0 | 25,8 | 222 | 565 | 36 | 44 |
| | 60 | 5975 | 62,1 | 6754 | 67,7 | 941 | 941 | 18,5 | 1702 | 1348 | 12,7 | 15,3 | 146 | 440 | 29 | 37 |
| | 40 | 4501 | 64,1 | 5088 | 70,1 | 638 | 638 | 17,9 | 1168 | 914 | 12,2 | 9,1 | 100 | 315 | 22 | 30 |
| **Minimum stage** | 20 | 2854 | 67,4 | 3226 | 74,1 | 342 | 342 | 16,9 | 637 | 489 | 11,6 | 6,3 | 76 | 170 | < 20[5] | < 28[5] |
| **Trench length 2500 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 11199 | 59,6 | 12658 | 64,7 | 2034 | 2034 | 19,4 | 3596 | 2914 | 13,3 | 45,6 | 370 | 855 | 42 | 50 |
| **Design stages** | 80 | 9542 | 60,6 | 10785 | 66,0 | 1633 | 1633 | 19,0 | 2905 | 2339 | 13,0 | 32,5 | 274 | 720 | 37 | 45 |
| | 60 | 7630 | 62,2 | 8624 | 67,8 | 1202 | 1202 | 18,5 | 2158 | 1722 | 12,7 | 18,6 | 168 | 560 | 30 | 38 |
| | 40 | 5748 | 64,1 | 6497 | 70,1 | 815 | 815 | 17,9 | 1480 | 1167 | 12,2 | 11,3 | 113 | 400 | 23 | 31 |
| **Minimum stage** | 20 | 3645 | 67,4 | 4120 | 74,1 | 436 | 436 | 16,9 | 807 | 625 | 11,6 | 7,8 | 88 | 215 | < 20[5] | < 28[5] |
| **Trench length 3000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 14932 | 59,7 | 16878 | 64,8 | 2712 | 2712 | 19,4 | 4754 | 3886 | 13,3 | 61,8 | 478 | 1140 | 43 | 51 |
| **Design stages** | 80 | 12722 | 60,7 | 14380 | 66,0 | 2177 | 2177 | 19,0 | 3841 | 3119 | 13,0 | 41,8 | 335 | 955 | 38 | 46 |
| | 60 | 10174 | 62,2 | 11499 | 67,8 | 1602 | 1602 | 18,5 | 2853 | 2296 | 12,7 | 22,9 | 200 | 745 | 31 | 39 |
| | 40 | 7664 | 64,2 | 8663 | 70,1 | 1087 | 1087 | 17,9 | 1957 | 1557 | 12,2 | 13,0 | 127 | 530 | 24 | 32 |
| **Minimum stage** | 20 | 4860 | 67,5 | 5493 | 74,2 | 582 | 582 | 16,9 | 1067 | 833 | 11,6 | 8,1 | 92 | 290 | < 20[5] | < 28[5] |

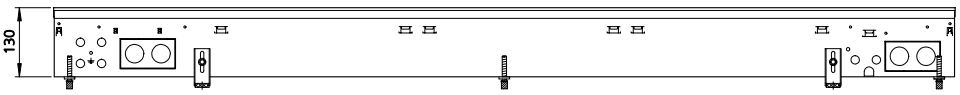
$Q_H$ [W] = heat output; $Q_K$ [W] = cooling output, total; $Q_S$ [W] = cooling output, sensitive; $t_{L2}$ [°C] = leaving air temperature

1) at room temperature $t_L$ = 20 °C;
2) at room temperature $t_L$ = 27 °C, rel. humidity 48 %;
3) Add an additional power consumption of 3 W per valve drive type 146906;
4) The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
5) Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.
6) Values rounded up within measurement tolerances.

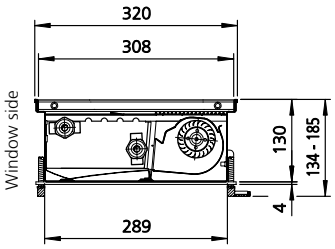
# Katherm HK 320

## 4-pipe, trench height 130 mm

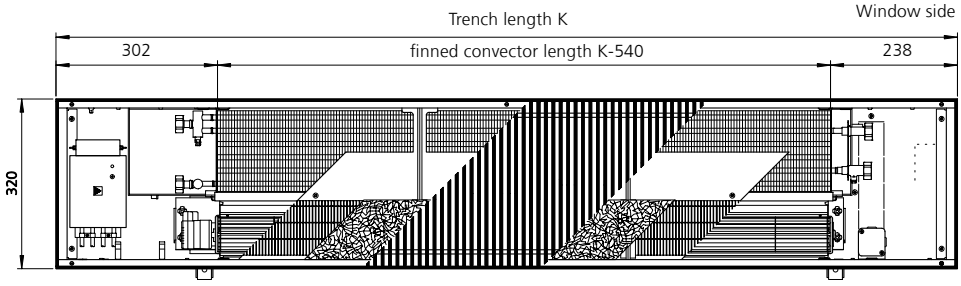
### **Technical drawings** (all dimensions in mm)




Front view




Cross-section
(example showing roll-up grille)




Top view (view without cover panel)

### Specifications

**Connections:**
Eurokonus, opposite end

**Condensation connection:**
15 mm spigots

| Unit length | Finned convector length | Fan impellers | Fan motors |
|---|---|---|---|
| [mm] | [mm] | [Quantity] | [Quantity] |
| **915** | 375 | 1 | 1 |
| **1200** | 660 | 2 | 1 |
| **1700** | 1160 | 3 | 1 |
| **2000** | 1460 | 4 | 2 |
| **2500** | 1960 | 5 | 2 |
| **3000** | 2460 | 6 | 2 |

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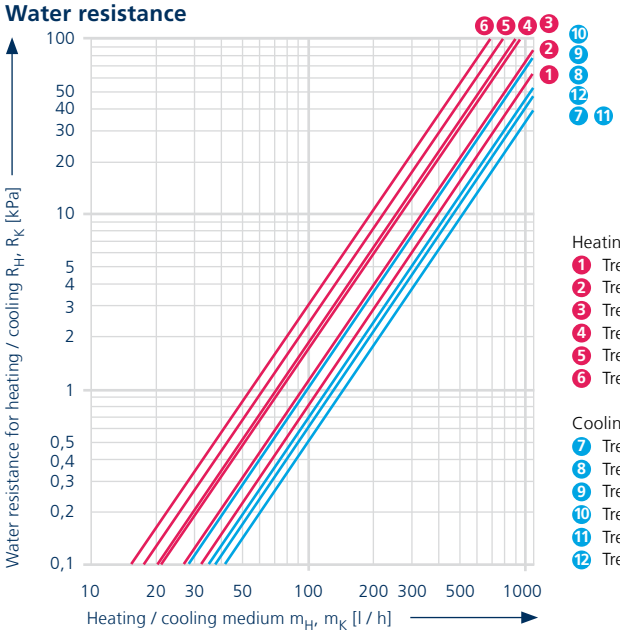
- **kampmann.co.uk/katherm-hk/calculation**

### Water resistance




Heating curves:
1. Trench length 915 mm
2. Trench length 1200 mm
3. Trench length 1700 mm
4. Trench length 2000 mm
5. Trench length 2500 mm
6. Trench length 3000 mm

Cooling curves:
7. Trench length 915 mm
8. Trench length 1200 mm
9. Trench length 1700 mm
10. Trench length 2000 mm
11. Trench length 2500 mm
12. Trench length 3000 mm

## Performance

| Fan stage | at fan setting | Heat outputs [1] | | | | Cooling outputs [2] | | | | | | Power consumption [3] | Current consumption | Air volume [6] | Sound pressure level [4] | Sound power level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | at LPHW 75 / 65 °C | | at LPHW 82 / 71 °C | | at CHW 16 / 18 °C | | | at CHW 7 / 12 °C | | | | | | | |
| | [%] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | P [W] | I [mA] | [m³/h] | [dB(A)] | [dB(A)] |
| **Trench length 915 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 1206 | 40.9 | 1379 | 43,9 | 355 | 355 | 20.2 | 609 | 531 | 15.9 | 7.9 | 82 | 175 | 39 | 47 |
| **Design stages** | 80 | 1072 | 42.8 | 1226 | 46,1 | 297 | 297 | 19.7 | 511 | 433 | 15.3 | 6.5 | 67 | 140 | 33 | 41 |
| | 60 | 923 | 45.4 | 1054 | 49,0 | 230 | 230 | 19.3 | 402 | 330 | 14.6 | 5.6 | 58 | 110 | 27 | 35 |
| | 40 | 748 | 48.9 | 855 | 53,0 | 158 | 158 | 18.8 | 284 | 226 | 13.7 | 5.0 | 52 | 80 | <20 [5] | <28 [5] |
| **Minimum stage** | 20 | 530 | 54.0 | 605 | 58,8 | 87 | 87 | 18.2 | 168 | 129 | 12.7 | 4.7 | 49 | 50 | <20 [5] | <28 [5] |
| **Trench length 1200 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 2180 | 42.7 | 2482 | 45,8 | 624 | 624 | 19.7 | 1174 | 943 | 15.0 | 11.4 | 118 | 285 | 41 | 49 |
| **Design stages** | 80 | 1933 | 44.7 | 2200 | 45,1 | 518 | 518 | 19.3 | 973 | 766 | 14.4 | 8.4 | 86 | 235 | 36 | 44 |
| | 60 | 1657 | 47.3 | 1886 | 51,1 | 399 | 399 | 18.9 | 754 | 580 | 13.6 | 6.5 | 67 | 180 | 29 | 37 |
| | 40 | 1336 | 51.0 | 1520 | 55,2 | 271 | 271 | 18.5 | 525 | 395 | 12.8 | 5.5 | 57 | 130 | 20 | 28 |
| **Minimum stage** | 20 | 936 | 56.1 | 1064 | 61,0 | 149 | 149 | 17.9 | 306 | 225 | 11.9 | 4.9 | 51 | 80 | <20 [5] | <28 [5] |
| **Trench length 1700 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 3787 | 44.3 | 4301 | 47,6 | 1047 | 1047 | 19.3 | 2057 | 1577 | 14.2 | 16.4 | 169 | 465 | 41 | 49 |
| **Design stages** | 80 | 3566 | 45.3 | 4050 | 48,8 | 951 | 951 | 19.1 | 1866 | 1419 | 13.9 | 13.3 | 137 | 420 | 38 | 46 |
| | 60 | 3054 | 48.0 | 3468 | 51,8 | 732 | 732 | 18.8 | 1438 | 1073 | 13.1 | 9.0 | 93 | 325 | 31 | 39 |
| | 40 | 2459 | 51.7 | 2792 | 55,9 | 495 | 495 | 18.3 | 994 | 728 | 12.3 | 6.5 | 67 | 235 | 23 | 31 |
| **Minimum stage** | 20 | 1720 | 56.8 | 1952 | 61,8 | 272 | 272 | 17.8 | 577 | 415 | 11.5 | 5.3 | 55 | 140 | <20 [5] | <28 [5] |
| **Trench length 2000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 4755 | 44.8 | 5397 | 48,1 | 1321 | 1321 | 19.2 | 2646 | 2006 | 14.0 | 22.9 | 237 | 575 | 44 | 52 |
| **Design stages** | 80 | 4205 | 46.9 | 4771 | 50,5 | 1082 | 1082 | 18.9 | 2167 | 1618 | 13.4 | 16.7 | 173 | 470 | 39 | 47 |
| | 60 | 3589 | 49.6 | 4073 | 53,6 | 828 | 828 | 18.5 | 1657 | 1218 | 12.7 | 13.0 | 135 | 365 | 32 | 40 |
| | 40 | 2871 | 53.3 | 3257 | 57,7 | 558 | 558 | 18.1 | 1138 | 824 | 12.0 | 11.0 | 114 | 260 | 23 | 31 |
| **Minimum stage** | 20 | 1985 | 58.2 | 2251 | 63,3 | 305 | 305 | 17.7 | 656 | 469 | 11.2 | 9.8 | 102 | 155 | <20 [5] | <28 [5] |
| **Trench length 2500 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 6361 | 45.3 | 7214 | 48,6 | 1738 | 1738 | 19.1 | 3519 | 2635 | 13.8 | 27.8 | 288 | 750 | 44 | 52 |
| **Design stages** | 80 | 5849 | 46.7 | 6633 | 50,3 | 1516 | 1516 | 18.9 | 3067 | 2273 | 13.4 | 21.6 | 224 | 650 | 40 | 48 |
| | 60 | 4996 | 49.4 | 5665 | 53,4 | 1161 | 1161 | 18.5 | 2344 | 1713 | 12.6 | 15.5 | 160 | 505 | 33 | 41 |
| | 40 | 4001 | 53.1 | 4537 | 57,5 | 783 | 783 | 18.1 | 1609 | 1159 | 11.9 | 12.0 | 124 | 360 | 25 | 33 |
| **Minimum stage** | 20 | 2773 | 58.1 | 3142 | 63,2 | 428 | 428 | 17.7 | 927 | 659 | 11.1 | 10.2 | 106 | 220 | <20 [5] | <28 [5] |
| **Trench length 3000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 7967 | 45.6 | 9032 | 49,0 | 2155 | 2155 | 19.1 | 4392 | 3265 | 13.6 | 32.7 | 339 | 925 | 44 | 52 |
| **Design stages** | 80 | 7496 | 46.6 | 8498 | 50,2 | 1951 | 1951 | 18.9 | 3971 | 2933 | 13.3 | 26.5 | 275 | 840 | 41 | 49 |
| | 60 | 6405 | 49.4 | 7259 | 53,3 | 1494 | 1494 | 18.5 | 3034 | 2207 | 12.6 | 17.9 | 185 | 650 | 34 | 42 |
| | 40 | 5133 | 53.0 | 5818 | 57,4 | 1007 | 1007 | 18.1 | 2082 | 1494 | 11.8 | 12.9 | 134 | 465 | 26 | 34 |
| **Minimum stage** | 20 | 3561 | 58.1 | 4035 | 63,2 | 550 | 550 | 17.6 | 1199 | 850 | 11.1 | 10.6 | 110 | 280 | <20 [5] | <28 [5] |

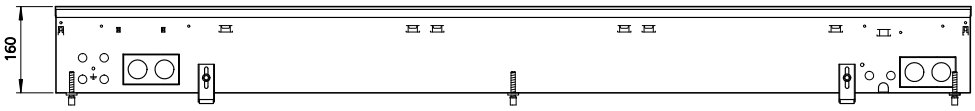
$Q_H$ [W] = heat output; $Q_K$ [W] = cooling output, total; $Q_S$ [W] = cooling output, sensitive; $t_{L2}$ [°C] = leaving air temperature

1) at room temperature $t_L$ = 20 °C;
2) at room temperature $t_L$ = 27 °C, rel. humidity 48 %;
3) Add an additional power consumption of 3 W per valve drive type 146906;
4) The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
5) Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.
6) Values rounded up within measurement tolerances.

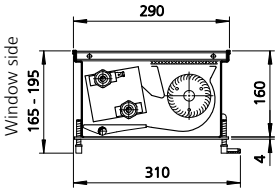
# Katherm HK 290

## 4-pipe, trench height 160 mm

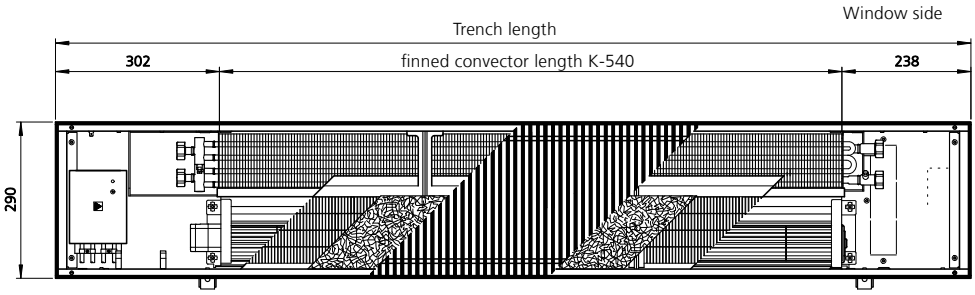
### **Technical drawings** (all dimensions in mm)




Front view




Cross-section
(example showing roll-up grille)




Top view (view without cover panel)

### Specifications

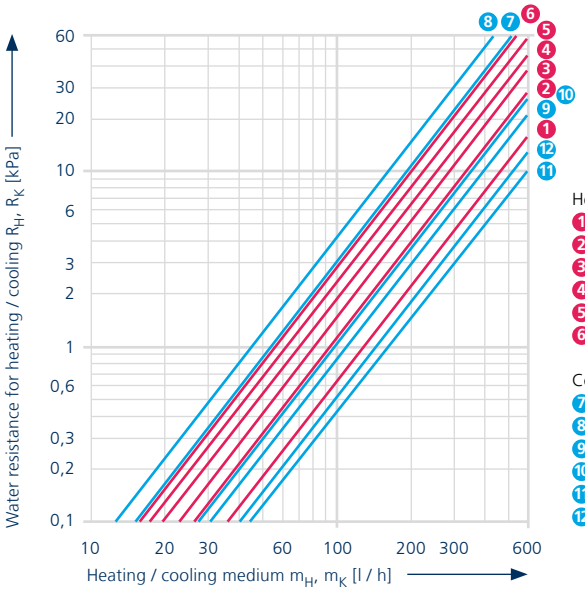
**Connections:**
Eurokonus, opposite end

**Condensation connection:**
15 mm spigots

| Unit length | Finned convector length | Fan impellers | Fan motors |
|---|---|---|---|
| [mm] | [mm] | [Quantity] | [Quantity] |
| **950** | 410 | 1 | 1 |
| **1200** | 660 | 1 | 1 |
| **1700** | 1160 | 2 | 2 |
| **2000** | 1460 | 2 | 2 |
| **2500** | 1960 | 3 | 3 |
| **3000** | 2460 | 3 | 3 |

Make use of our online calculation programs to calculate your heat outputs and flow rates with a couple of clicks!
- **kampmann.co.uk/katherm-hk/calculation**

### Water resistance




Heating curves:
1. Trench length 950 mm
2. Trench length 1200 mm
3. Trench length 1700 mm
4. Trench length 2000 mm
5. Trench length 2500 mm
6. Trench length 3000 mm

Cooling curves:
7. Trench length 950 mm
8. Trench length 1200 mm
9. Trench length 1700 mm
10. Trench length 2000 mm
11. Trench length 2500 mm
12. Trench length 3000 mm

## Performance

| Fan stage | at fan setting | Heat outputs [1] | | | | Cooling outputs [2] | | | | | | Power consumption [3] | Current consumption | Air volume [6] | Sound pressure level [4] | Sound power level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | at LPHW 75 / 65 °C | | at LPHW 82 / 71 °C | | at CHW 16 / 18 °C | | | at CHW 7 / 12 °C | | | | | | | |
| | [%] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_H$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | $Q_K$ [W] | $Q_S$ [W] | $t_{L2}$ [°C] | P [W] | I [mA] | [m³/h] | [dB(A)] | [dB(A)] |
| **Trench length 950 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 1453 | 41,7 | 1640 | 45,2 | 420 | 420 | 20,0 | 814 | 630 | 14,3 | 12,6 | 124 | 190 | 36 | 44 |
| **Design stages** | 80 | 1294 | 43,3 | 1461 | 47,1 | 338 | 338 | 19,5 | 660 | 508 | 13,9 | 10,1 | 104 | 160 | 31 | 39 |
| | 60 | 1101 | 45,8 | 1243 | 49,9 | 250 | 250 | 18,9 | 492 | 375 | 13,5 | 7,1 | 82 | 125 | 24 | 32 |
| | 40 | 897 | 49,3 | 1013 | 54,0 | 171 | 171 | 18,1 | 340 | 256 | 12,9 | 5,3 | 68 | 90 | < 20 [5] | < 28 [5] |
| **Minimum stage** | 20 | 645 | 55,8 | 729 | 61,8 | 92 | 92 | 16,9 | 187 | 139 | 12,1 | 4,1 | 59 | 50 | < 20 [5] | < 28 [5] |
| **Trench length 1200 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 2456 | 42,6 | 2773 | 46,1 | 710 | 710 | 20,0 | 1354 | 1065 | 14,2 | 18,4 | 166 | 325 | 38 | 46 |
| **Design stages** | 80 | 2187 | 44,2 | 2470 | 48,0 | 572 | 572 | 19,5 | 1098 | 858 | 13,9 | 14,2 | 133 | 270 | 33 | 41 |
| | 60 | 1861 | 46,7 | 2101 | 50,8 | 423 | 423 | 18,8 | 819 | 635 | 13,4 | 9,0 | 95 | 210 | 26 | 34 |
| | 40 | 1516 | 50,1 | 1712 | 54,9 | 289 | 289 | 18,0 | 566 | 433 | 12,8 | 5,9 | 71 | 150 | < 20 [5] | < 28 [5] |
| **Minimum stage** | 20 | 1091 | 56,7 | 1232 | 62,6 | 156 | 156 | 16,8 | 311 | 234 | 12,0 | 4,3 | 59 | 85 | < 20 [5] | < 28 [5] |
| **Trench length 1700 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 3908 | 43,6 | 4413 | 47,0 | 1130 | 1130 | 19,9 | 2126 | 1696 | 14,1 | 28,3 | 237 | 510 | 40 | 48 |
| **Design stages** | 80 | 3481 | 45,1 | 3930 | 48,9 | 910 | 910 | 19,4 | 1724 | 1366 | 13,8 | 21,3 | 188 | 430 | 35 | 43 |
| | 60 | 2962 | 47,5 | 3344 | 51,7 | 673 | 673 | 18,8 | 1286 | 1010 | 13,3 | 13,9 | 127 | 335 | 28 | 36 |
| | 40 | 2413 | 51,0 | 2725 | 55,7 | 459 | 459 | 18,0 | 888 | 689 | 12,8 | 8,3 | 92 | 240 | 21 | 29 |
| **Minimum stage** | 20 | 1736 | 57,4 | 1960 | 63,4 | 248 | 248 | 16,8 | 489 | 373 | 12,0 | 6,1 | 74 | 130 | < 20 [5] | < 28 [5] |
| **Trench length 2000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 5119 | 44,1 | 5780 | 47,6 | 1480 | 1480 | 19,9 | 2763 | 2221 | 14,1 | 34,8 | 293 | 670 | 41 | 49 |
| **Design stages** | 80 | 4559 | 45,7 | 5148 | 49,4 | 1192 | 1192 | 19,4 | 2240 | 1789 | 13,8 | 25,8 | 222 | 565 | 36 | 44 |
| | 60 | 3879 | 48,1 | 4380 | 52,2 | 882 | 882 | 18,7 | 1671 | 1323 | 13,3 | 15,3 | 146 | 440 | 29 | 37 |
| | 40 | 3161 | 51,5 | 3569 | 56,2 | 602 | 602 | 17,9 | 1153 | 903 | 12,8 | 9,1 | 100 | 315 | 22 | 30 |
| **Minimum stage** | 20 | 2274 | 57,9 | 2567 | 63,9 | 325 | 325 | 16,7 | 635 | 488 | 11,9 | 6,3 | 76 | 170 | < 20 [5] | < 28 [5] |
| **Trench length 2500 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 6537 | 44,7 | 7381 | 48,1 | 1890 | 1890 | 19,9 | 3502 | 2836 | 14,1 | 45,6 | 370 | 855 | 42 | 50 |
| **Design stages** | 80 | 5822 | 46,2 | 6574 | 49,9 | 1523 | 1523 | 19,4 | 2840 | 2285 | 13,8 | 32,5 | 274 | 720 | 37 | 45 |
| | 60 | 4954 | 48,6 | 5593 | 52,7 | 1126 | 1126 | 18,7 | 2119 | 1690 | 13,3 | 18,6 | 168 | 560 | 30 | 38 |
| | 40 | 4037 | 52,0 | 4558 | 56,7 | 768 | 768 | 17,9 | 1462 | 1153 | 12,7 | 11,3 | 113 | 400 | 23 | 31 |
| **Minimum stage** | 20 | 2904 | 58,4 | 3279 | 64,3 | 415 | 415 | 16,7 | 805 | 623 | 11,9 | 7,8 | 88 | 215 | < 20 [5] | < 28 [5] |
| **Trench length 3000 mm** | | | | | | | | | | | | | | | | |
| **Boost stage** | 100 | 8716 | 45,3 | 9841 | 48,7 | 2520 | 2520 | 19,8 | 4630 | 3781 | 14,1 | 61,8 | 478 | 1140 | 43 | 51 |
| **Design stages** | 80 | 7763 | 46,9 | 8765 | 50,5 | 2030 | 2030 | 19,4 | 3754 | 3046 | 13,7 | 41,8 | 335 | 955 | 38 | 46 |
| | 60 | 6605 | 49,2 | 7457 | 53,3 | 1502 | 1502 | 18,7 | 2801 | 2253 | 13,3 | 22,9 | 200 | 745 | 31 | 39 |
| | 40 | 5382 | 52,6 | 6077 | 57,2 | 1025 | 1025 | 17,9 | 1933 | 1537 | 12,7 | 13,0 | 127 | 530 | 24 | 32 |
| **Minimum stage** | 20 | 3872 | 58,9 | 4372 | 64,9 | 554 | 554 | 16,7 | 1065 | 831 | 11,9 | 8,1 | 92 | 290 | < 20 [5] | < 28 [5] |

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

1) at room temperature $t_L$ = 20 °C;
2) at room temperature $t_L$ = 27 °C, rel. humidity 48 %;
3) Add an additional power consumption of 3 W per valve drive type 146906;
4) The sound pressure levels were calculated with an assumed room insulation of 8 dB(A). This corresponds to a distance of 2 m, a room volume of 100 m³ and a reverberation time of 0.5 s (in accordance with VDI 2081).
5) Sound pressure level < 20 dB (A) and sound power level < 28 dB (A) outside the usual measuring and audible range.
6) Values rounded up within measurement tolerances.

# 03 Design information

# Information on planning and design

Katherm HK units 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 320 with a trench height of 130 mm or HK 290 with a trench height of 160 mm, are arranged with the convector on the façade side. If the air outlet is arranged on the room side, the high air flow rate will lower levels of comfort in the public area.

### Acoustics

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

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

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

### Heat and cooling outputs

The heat and cooling outputs were calculated based on DIN EN 16430. We would recommend our online calculation programs to convert to other operating conditions: kampmann.co.uk/katherm-hk/calculation

### Comfort

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: 2004).

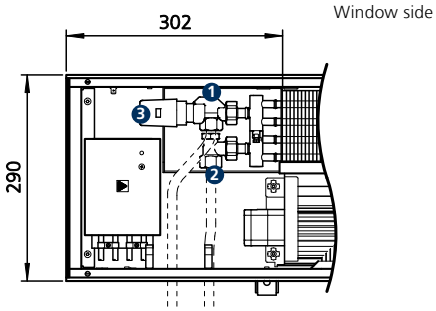
A detailed optimisation of the air outlet and air flows are calculated in accordance with this standard.

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

- **kampmann.co.uk/katherm-hk/calculation**

# Water connections – Pipe openings

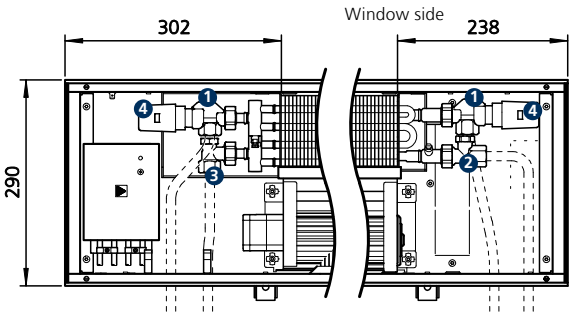
## Katherm HK 290, 2-pipe, trench height 160 mm




Plan view

1. 1/2" valve body, axial,
   Type 246909 and/or Type 346911 (flow-dependent)
2. 1/2" return shut-off valve, angled, Type 145953
3. Thermoelectric actuator, Type 146906
   Alternatively: Valve kit Type 143241 or
   Type 143211 (flow-dependent)

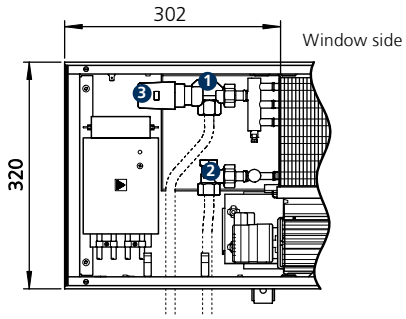
## Katherm HK 290, 4-pipe, trench height 160 mm




Plan view

1. 1/2" valve body, axial,
   Type 246909 and/or Type 346911
2. 1/2" return shut-off valve, straight version,
   Type 145952
3. 1/2" return shut-off valve, angled, Type 145953
4. Thermoelectric actuator, Type 146906
   Alternatively: Valve kit Type 143441 or
   Type 143411 (flow-dependent)

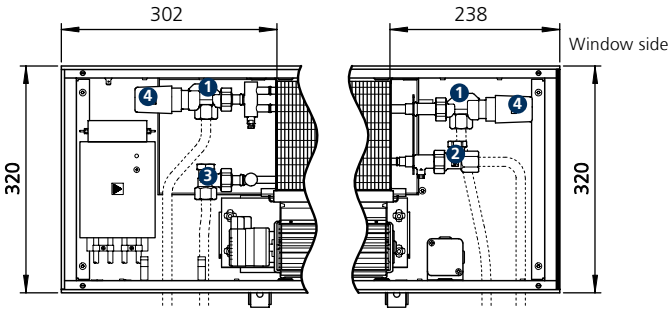
## Katherm HK 320, 2-pipe, trench height 130 mm




Plan view

1. 1/2" valve body, axial,
   Type 246909 and/or Type 346911
2. 1/2" return shut-off valve, angled, Type 145953
3. Thermoelectric actuator, Type 146906
   Alternatively: Valve kit Type 143241 or
   Type 143211 (flow-dependent)

## Katherm HK 320, 4-pipe, trench height 130 mm




Plan view

1. 1/2" valve body, axial,
   Type 246909 and/or Type 346911
2. 1/2" return shut-off valve, straight version,
   Type 145952
3. 1/2" return shut-off valve, angled, Type 145953
4. Thermoelectric actuator, Type 146906
   Alternatively: Valve kit Type 143441 or
   Type 143411 (flow-dependent)

# 04 Controls

## 24 V electromechanical model

Model for complete on-site control of trench heaters or via convenient clock thermostats.

### Product features

- The operating voltage must be provided by a central on-site 24 V DC voltage supply.
- External power supply ensures space-saving connections in the floor trench so that the hydraulic connection can be conveniently performed.
- In the event of a motor fault, e.g. overloading, the fault signal is internally evaluated and the fan is automatically disabled.

### Electromechanical control Type 30456

Flush-mounted clock thermostat with 10-stage fan speed setting including day and week program

### Product features:

- large illuminated display with four sensor keys
- can be integrated into any 50x50 switch program
- can be integrated using an intermediate frame into a 55x55 switch program
- white cover panel and frame (similar to RAL 9010)
- integral room temperature sensor
- room/frost protection function (temperature measurement within the clock thermostats)
- integrated day or weekly program timer programs with automatic summer/winter changeover
- 24 V operating and output voltage (0-10V fan control)

### Connection values for HK 320, trench height 130 mm

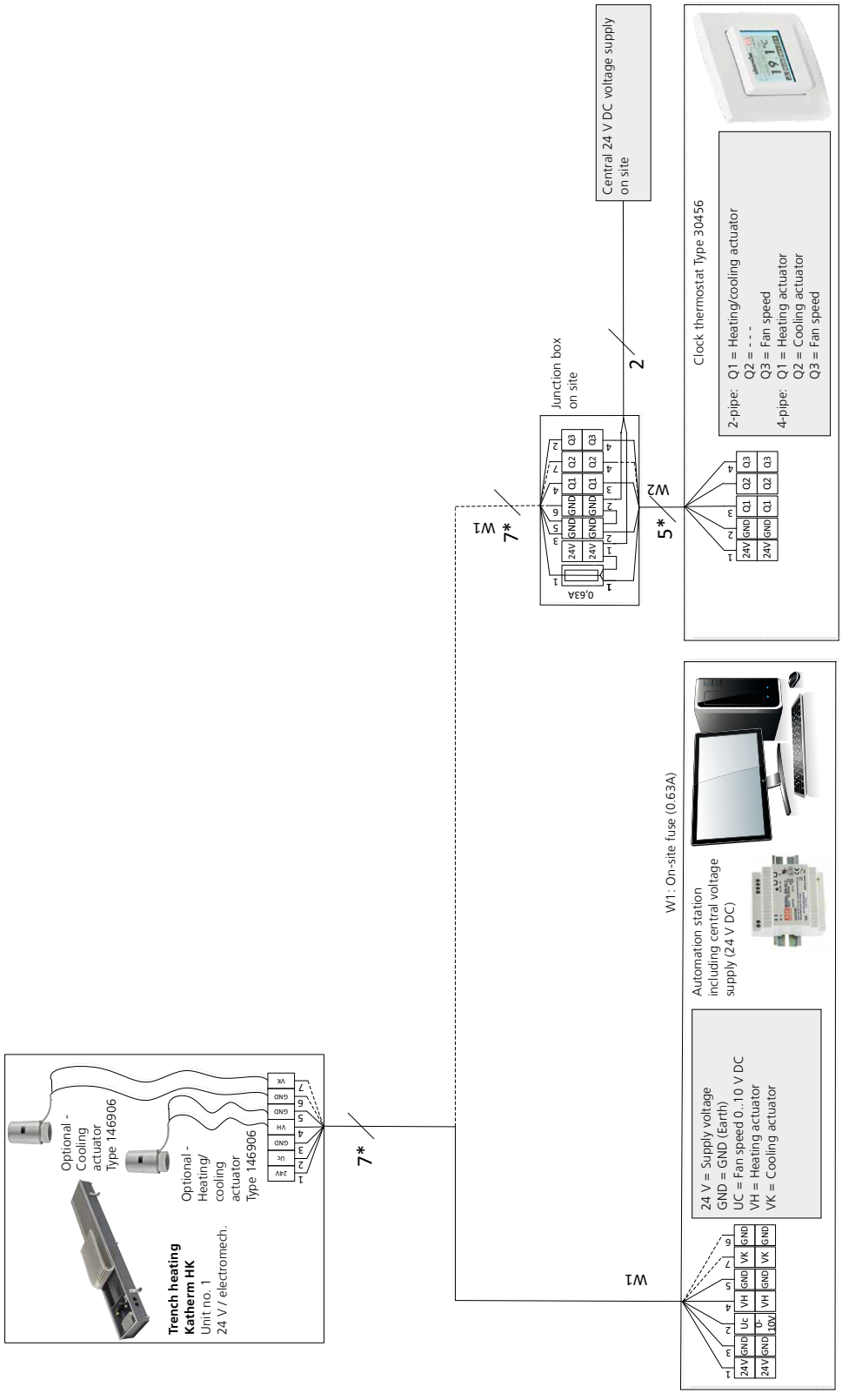
| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 915 | max. 8 | max. 0.09 |
| 1200 | max. 12 | max. 0.12 |
| 1700 | max. 17 | max. 0.17 |
| 2000 | max. 23 | max. 0.24 |
| 2500 | max. 28 | max. 0.29 |
| 3000 | max. 33 | max. 0.34 |

### Connection values for HK 290, trench height 160 mm

| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 950 | max. 13 | max. 0,13 |
| 1200 | max. 19 | max. 0,17 |
| 1700 | max. 29 | max. 0,24 |
| 2000 | max. 35 | max. 0,30 |
| 2500 | max. 46 | max. 0,37 |
| 3000 | max. 62 | max. 0,48 |

The power and current consumption of the actuators (3 W) is not taken into account.

# Electrical cabling – Control via clock thermostat, Type 30456




* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.
W1: Voltage supply (on-site fuse, 0.64 A) and control signal for fan and actuator.

# 230 V electromechanical model

Design for on-site control or for room regulation with intuitive operation of the trench units.

### Product features

- The Katherm HK has a built-in 230 V AC power supply.
- Any motor fault, for instance overloading, is analysed by the electronics within the EC motor and via a potential-free contact.
- Kampmann offers an extensive range of control accessories for all required functions.

### Room thermostat Type 30155

Climate controller for the 3-stage speed control for surface wall-mounted installation with an attractive restrained design

### Product features

- colour: pure white (similar to RAL 9010)
- user-friendly
- functional and robust design
- 2- and 4-pipe applications
- Day/ECO/Off operating mode with room frost protection function
- built-in room sensor, connection option for external room sensor
- digital input for switchover between ECO and OFF
- digital output for heating/cooling changeover with 2-pipe systems
- only in conjunction with 230 V actuator, Type 146905

### Connection values HKS 320, trench height 130 mm

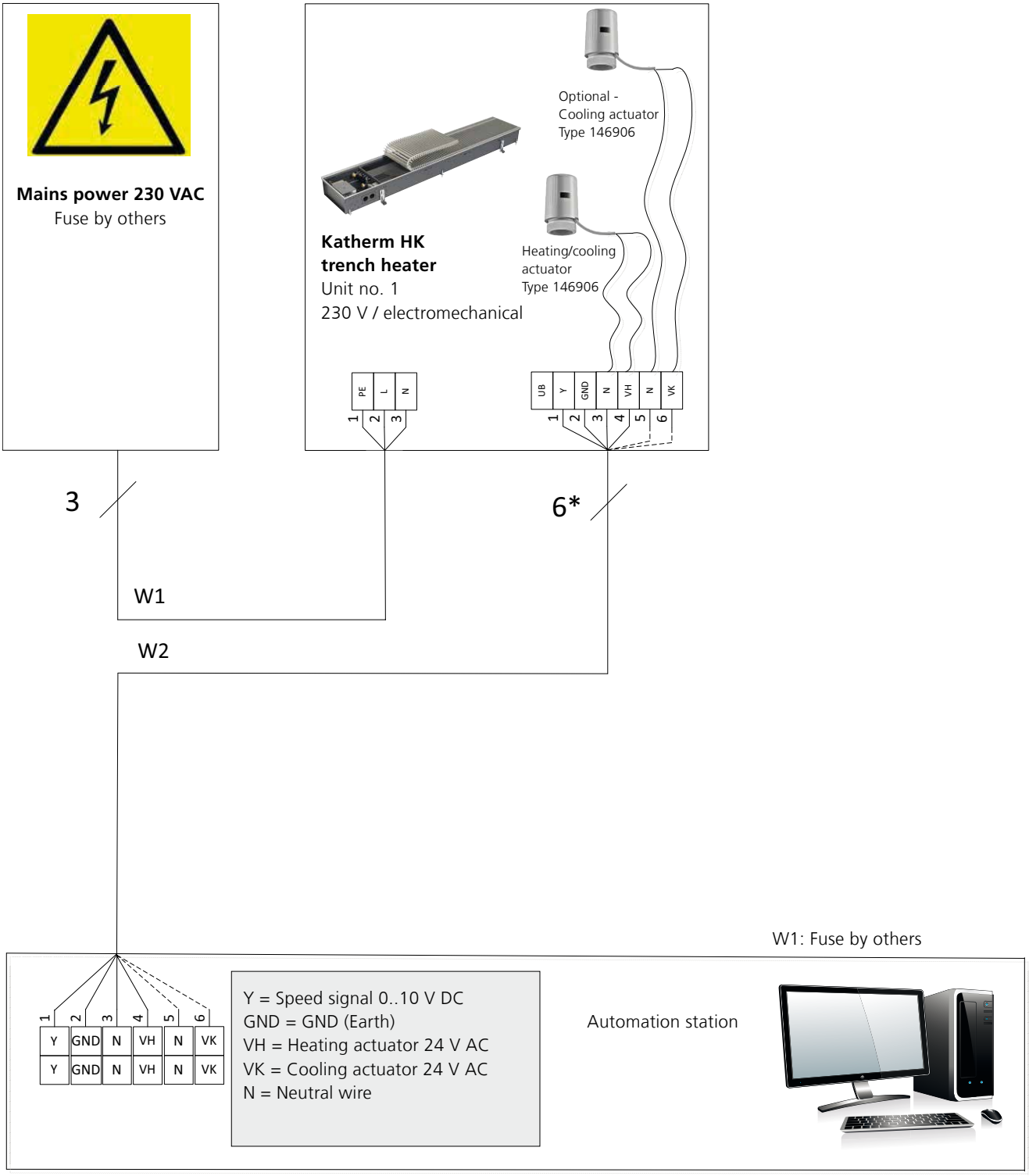
| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 915 | max. 8 | max. 0.09 |
| 1200 | max. 12 | max. 0.12 |
| 1700 | max. 17 | max. 0.17 |
| 2000 | max. 23 | max. 0.24 |
| 2500 | max. 28 | max. 0.29 |
| 3000 | max. 33 | max. 0.34 |

### Connection values HK 290, trench height 160 mm

| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 950 | max. 13 | max. 0,13 |
| 1200 | max. 19 | max. 0,17 |
| 1700 | max. 29 | max. 0,24 |
| 2000 | max. 35 | max. 0,30 |
| 2500 | max. 46 | max. 0,37 |
| 3000 | max. 62 | max. 0,48 |

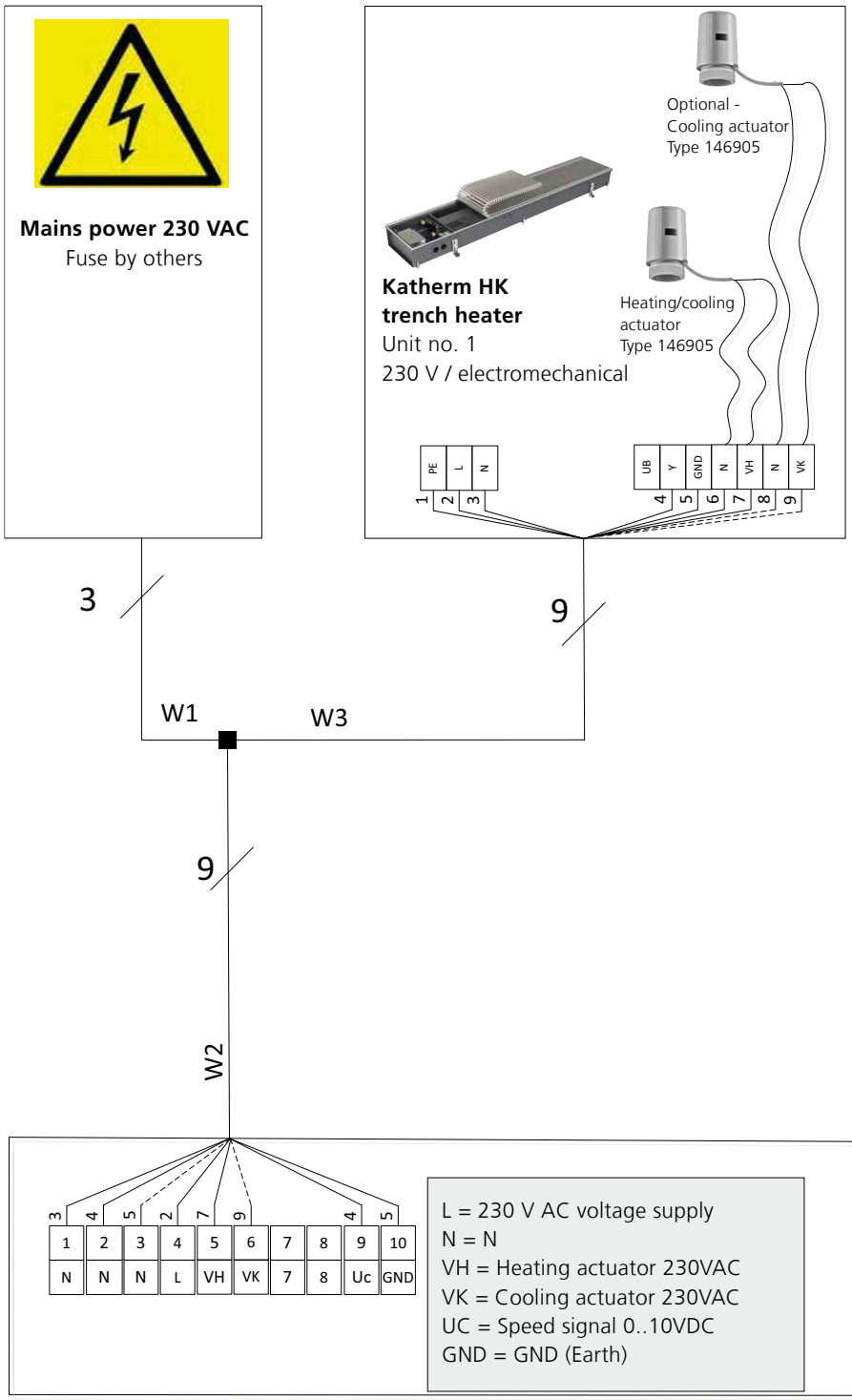
The power and current consumption of the actuators (3 W) is not taken into account.

## Electrical cabling – BMS control




* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.
W1: Voltage supply (fuse by others)
W2: Control signal for fan and actuator

# Electrical cabling
## Room thermostat control, Type 30155




W1: Voltage supply (fuse by others)
W2: Voltage supply, control signal for fan and actuator.
W3: Voltage supply, control signal for fan and actuator.

# KaControl model

The all-inclusive solution for room automation and networking

### Product features
A high-performance parametrised microprocessor is designed to carry out all necessary functions. Each unit therefore is equipped with its own "intelligence" and can be operated in groups via Kampmann networks.

### Connection to building automation systems
Units with KaControl can be equipped with plug-in communication interfaces for controlled operation in individual rooms or for linking into higher-order control systems: BACnet, CAN bus, LON, KNX and Modbus. Direct control via an active 0-10 V signal from the on-site building management system is alternatively possible.

### Motor protection
- Any faults with the motor e.g. overloading are analysed by the electronics within the EC motor. This then switches the fan off.

### KaControl
The parametrisable KaControl offers a wide range of functions:
- optional: 5 fan speed settings; manually adjustable
- valve control for 2-pipe applications for thermoelectric valve actuators 24 V DC OPEN/ CLOSE
- integrated timer program for programming day and week switching functions in the KaController unit
- motor monitoring with fault signal processing

### Connection values HK 320, trench height 130 mm

| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 915 | max. 8 | max. 0.09 |
| 1200 | max. 12 | max. 0.12 |
| 1700 | max. 17 | max. 0.17 |
| 2000 | max. 23 | max. 0.24 |
| 2500 | max. 28 | max. 0.29 |
| 3000 | max. 33 | max. 0.34 |

### Connection values HK 290, trench height 160 mm

| Unit length | Power consumption | Current consumption |
|---|---|---|
| [mm] | P [W] | I [A] |
| 950 | max. 13 | max. 0,13 |
| 1200 | max. 19 | max. 0,17 |
| 1700 | max. 29 | max. 0,24 |
| 2000 | max. 35 | max. 0,30 |
| 2500 | max. 46 | max. 0,37 |
| 3000 | max. 62 | max. 0,48 |

The power and current consumption of the actuators (3 W) is not taken into account.

## KaController operating unit


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

With a large display and one-touch operation, the KaController is very easy to use. 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 unit
- available with or without function buttons on the side
- plastic housing, white (similar to RAL 9010) and black (similar to RAL 9017) (Only available in black without side function keys)
- communication interface to Kampmann T-LAN-bus-system
- large display with automatic back light
- integral room temperature sensor
- push-turn navigator dial with endless turn/lock function
- built-in weekly switching program
- password-protected parameter level

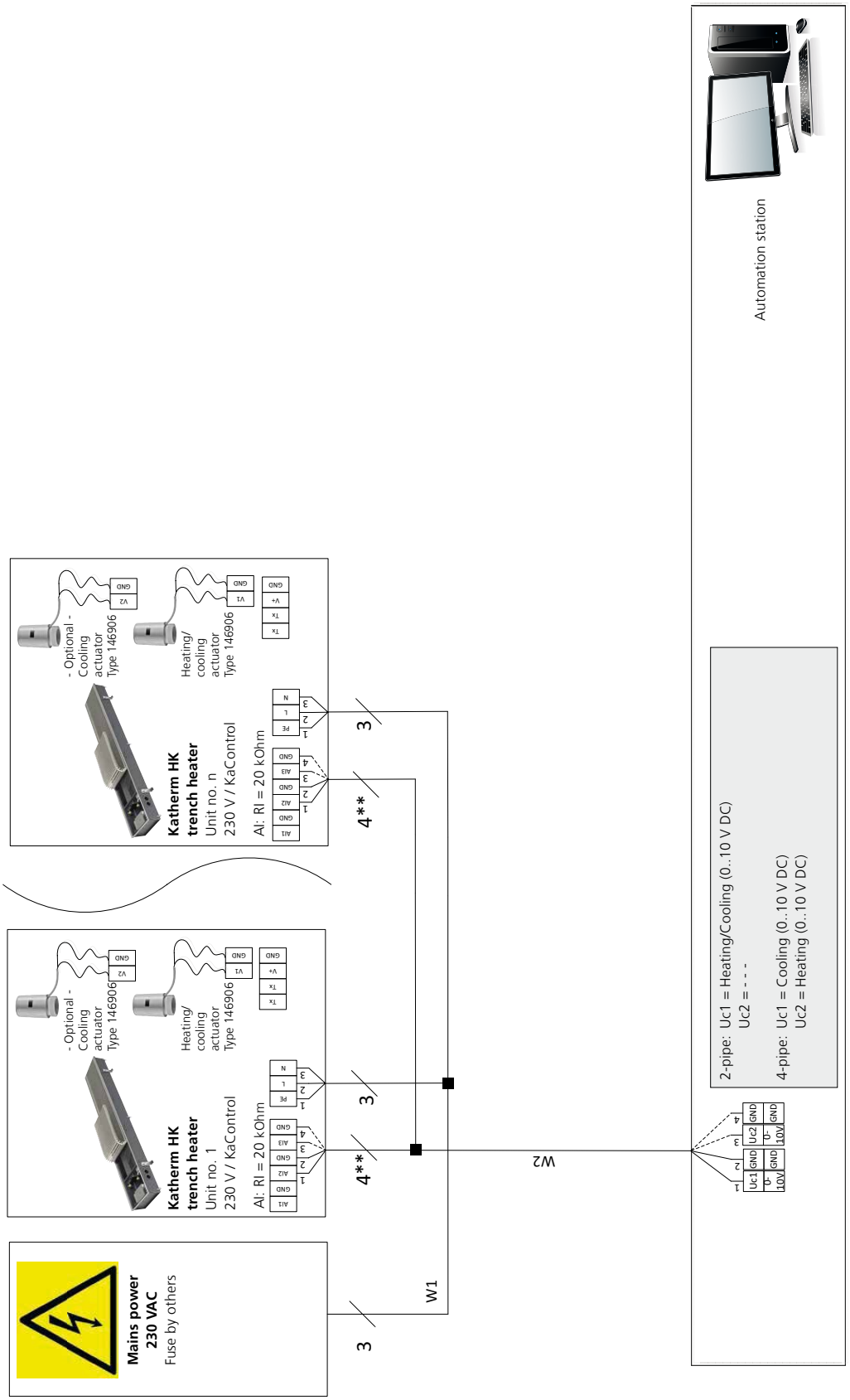
## KaControl SEL control panel


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

### Product features

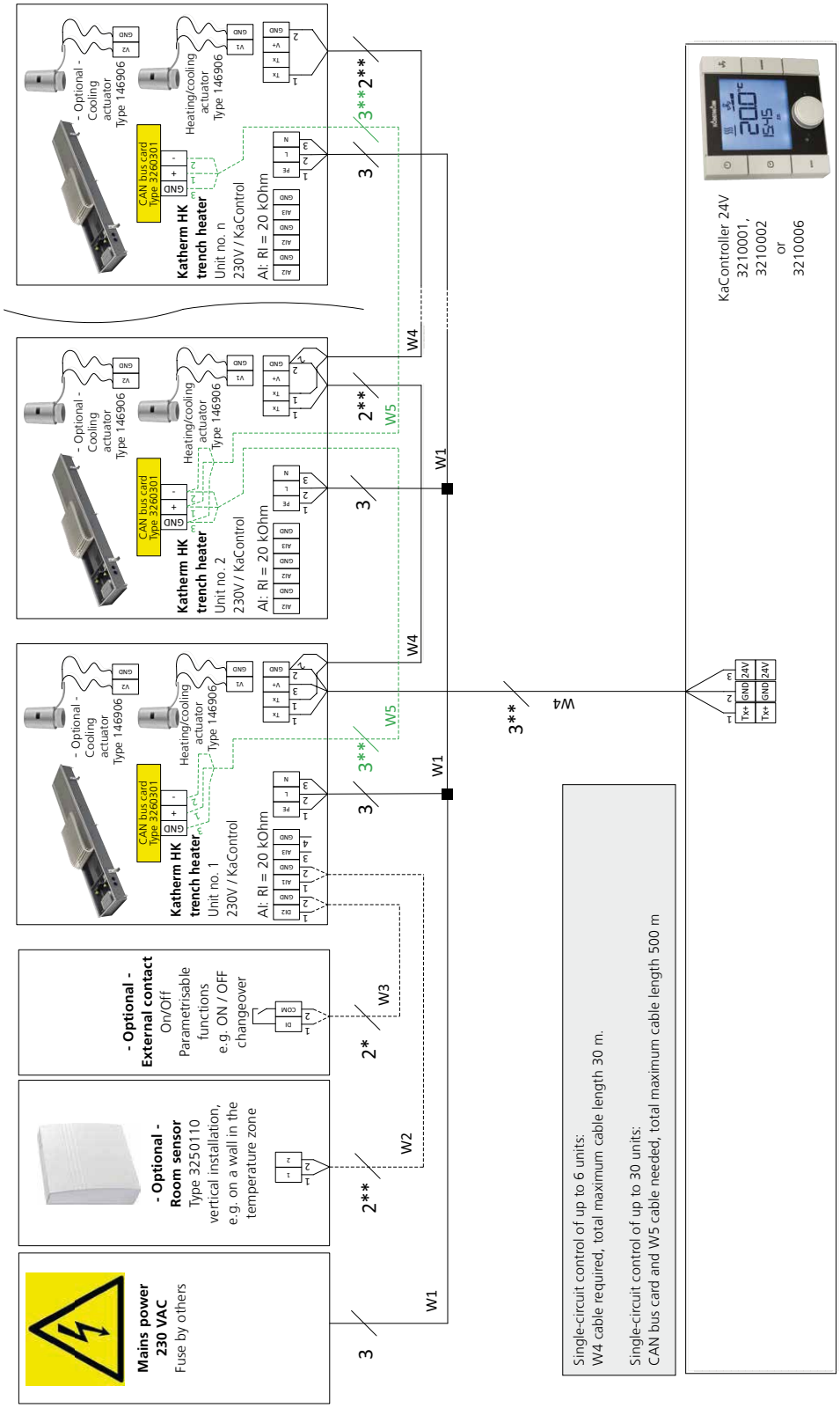
- 3 timer programs for 24 zones
- summer compensation
- room temperature setpoints / actual values
- central heating/cooling switchover in 2-pipe systems by external switching contact
- centralised temperature target value specification by an external signal 0 – 10 V
- demand for heating via digital output
- demand for cooling via digital output
- collective fault alert 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 activation
- fault monitoring in single units (only if all units have Modbus cards, max. 24)
- switchover of individual control zones:
  - On / Off or Eco / Day
  - On / Off or Eco / Day – entire system via external contact
- optional BACnet gateway

# Electrical cabling – KaControl, BMS control




* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.
** Route shielded, paired cables, e.g. UNITRONIC® BUS LD 2x2x0.22 or of the same value, separately from high-voltage cables.
W1: Power supply
W2: Voltage supply, control signal for fan and actuator.

# Electrical cabling – KaControl, master unit and slave units




* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.

** Route shielded, paired cables, e.g. UNITRONIC® BUS LD 2x2x0.22 or of the same value, separately from high-voltage cables.

W1: Power supply

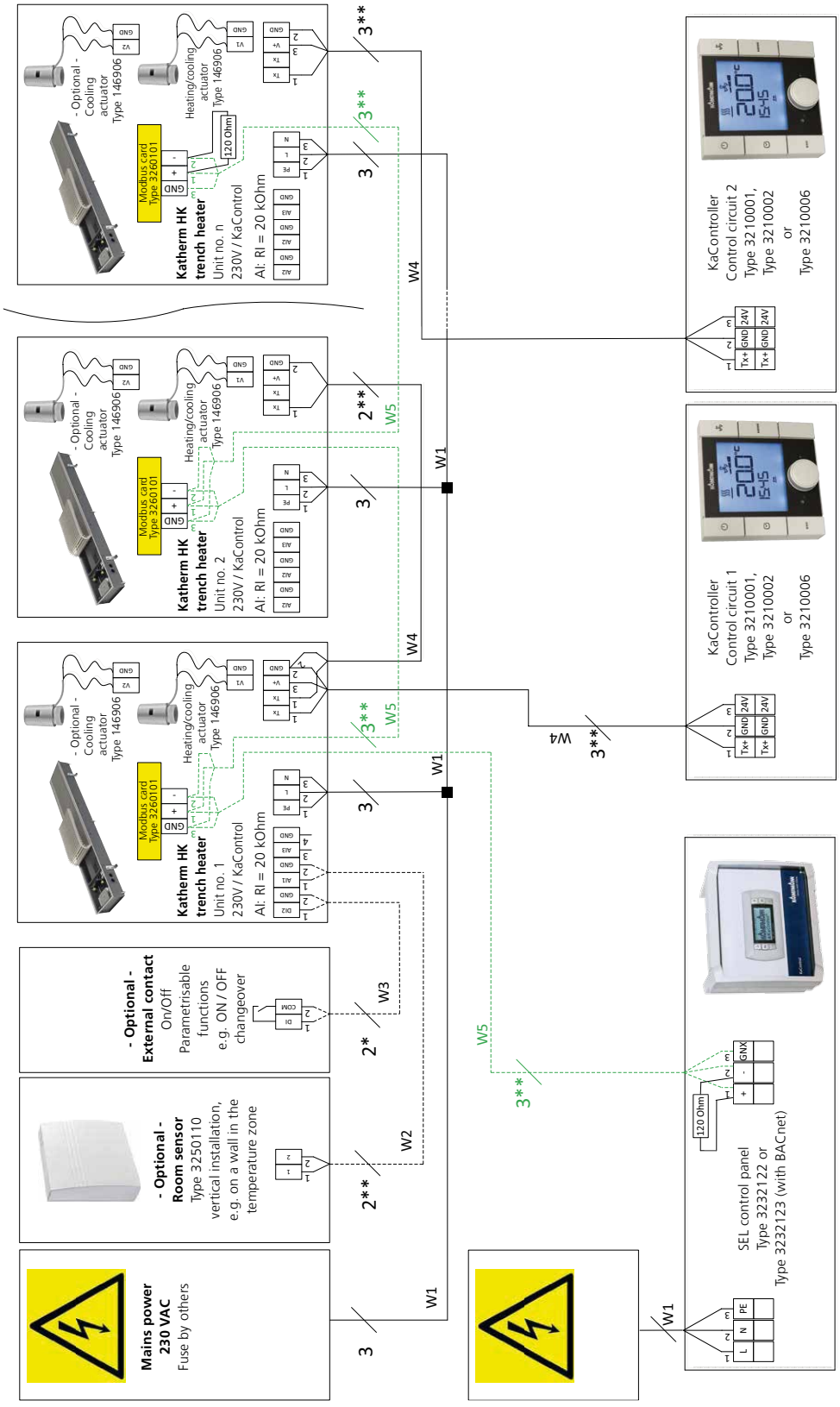
W2: Analogue input AI1 (optional connection)

W3: Digital input DI1 (optional connection)

W4: Bus signal (tLan)

W5: Bus signal (CANbus) Only needed in a single-circuit control of up to 30 units.

# Electrical cabling – KaControl, control via SEL control panel



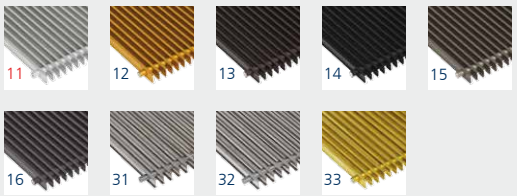

* Lay shielded cables (e.g. IY(ST)Y, 0.8 mm), separately from high-voltage cables.
** Route shielded, paired cables, e.g. UNITRONIC® BUS LD 2x2x0.22 or of the same value, separately from high-voltage cables.
W1: Power supply
W2: Analogue input AI1 (optional connection)
W3: Digital input DI1 (optional connection)
W4: Bus signal (tLan)
W5: Bus signal (Modbus)

# 05 Ordering information

## Katherm HK

| Design | Trench width | Trench height | 2- / 4-pipe | Grille finish | Art. No. |
|---|---|---|---|---|---|
| | [mm] | [mm] | | | |
| **KaControl model** | | | | | |
| **Trench lengths 915 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 320 | 320 | 130 | 2-pipe | Roll-up grille | 1433223111**3C1** |
| | | | | Linear frame | 1433223311**3C1** |
| | | | 4-pipe | Roll-up grille | 1433243111**3C1** |
| | | | | Linear frame | 1433243311**3C1** |
| **Trench lengths 950 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 290 | 290 | 160 | 2-pipe | Roll-up grille | 1432926111**4C1** |
| | | | | Linear frame | 1432926311**4C1** |
| | | | 4-pipe | Roll-up grille | 1432946111**4C1** |
| | | | | Linear frame | 1432946311**4C1** |
| **230 V electromechanical model** | | | | | |
| **Trench lengths 915 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 320 | 320 | 130 | 2-pipe | Roll-up grille | 1433223111**300** |
| | | | | Linear frame | 1433223311**300** |
| | | | 4-pipe | Roll-up grille | 1433243111**300** |
| | | | | Linear frame | 1433243311**300** |
| **Trench lengths 950 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 290 | 290 | 160 | 2-pipe | Roll-up grille | 1432926111**400** |
| | | | | Linear frame | 1432926311**400** |
| | | | 4-pipe | Roll-up grille | 1432946111**400** |
| | | | | Linear frame | 1432946311**400** |
| **24 V electromechanical model** | | | | | |
| **Trench lengths 915 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 320 | 320 | 130 | 2-pipe | Roll-up grille | 1433223111**324** |
| | | | | Linear frame | 1433223311**324** |
| | | | 4-pipe | Roll-up grille | 1433243111**324** |
| | | | | Linear frame | 1433243311**324** |
| **Trench lengths 950 mm, 1200 mm, 1700 mm, 2000 mm, 2500 mm, 3000 mm** | | | | | |
| HK 290 | 290 | 160 | 2-pipe | Roll-up grille | 1432926111**424** |
| | | | | Linear frame | 1432926311**424** |
| | | | 4-pipe | Roll-up grille | 1432946111**424** |
| | | | | Linear frame | 1432946311**424** |

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.)

1433223111**3C1**
- **11** — Aluminium, natural anodised (standard)
- **12** — Aluminium, brass anodised
- **13** — Aluminium, bronze anodised
- **14** — Aluminium, black anodised
- **15** — Aluminium, bronze finish
- **16** — Aluminium, painted DB 703
- **31** — Stainless steel, natural
- **32** — Stainless steel, polished
- **33** — Brass, natural CuZn 44

HK 320 is supplied in lengths 915 mm to 3000 mm. HK 290 is supplied in lengths 950 mm to 3000 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 trench length** (Example of art. no.)

**HK 320:**

1433223111**13C1**
- **13C1** — Trench length 915 mm
- **19** — Trench length 1200 mm
- **29** — Trench length 1700 mm
- **35** — Trench length 2000 mm
- **45** — Trench length 2500 mm
- **55** — Trench length 3000 mm

**HK 290:**

1432926111**14C1**
- **14C1** — Trench length 950 mm
- **19** — Trench length 1200 mm
- **29** — Trench length 1700 mm
- **35** — Trench length 2000 mm
- **45** — Trench length 2500 mm
- **55** — Trench length 3000 mm

# Accessories

| Figure | Article | Properties | Suitable for | Art. No. |
|---|---|---|---|---|
| | **24 V electromechanical control accessories** | | | |
|  | **Clock thermostat Type 30456** | clock thermostat 24 V, heating/cooling with 2-pipe system, flush-mounted, continuously variable, with LCD operating menu and integrated timer program, heating/cooling changeover by means of external potential-free contact (low voltage) | Katherm HK, 24 V electromechanical model | **196000030456** |
| | **230 V electromechanical control accessories** | | | |
|  | **Room thermostat Type 30155** | heating/cooling 2-pipe/4-pipe surface-mounted, 3-stage, with Off/Manual/Automatic fan changeover, max. two units can be connected, heating/cooling changeover by external potential-free contact (low voltage) | Katherm HK, electromechanical 230 V model, only in conjunction with 230 V actuator, type 194000146905 | **196000030155** |
| | **KaControl accessories** | | | |
|  | **KaController operating unit** with one-touch operation | operating unit, wall-mounted, in high-grade design, plastic housing, colour similar to RAL 9010, large LCD multifunctional display, integrated room temperature sensor, communication interface to Kampmann T-LAN bus system, automatically switching LED backlight, press/turn dial with click stop function, individually adjustable basic display, integrated day, night and week program, password-protected parameter level for C1 control option | all models | **196003210001** |
|  | **KaController operating unit** with side function keys | for quick access to fan setting, operating modes, Eco mode, time and timer program, otherwise as art. no. 196003210001 | all models | **196003210002** |
|  | **KaController operating unit** with one-touch operation | room control unit for wall mounting, high-quality design, plastic housing, colour similar to RAL 9017, otherwise as art. no. 169003210001 | all models | **196003210006** |
|  | **KaControl SEL panel without BACnet** | KaControl electronics housed in a surface-mounted wall housing, wired ready-for-use, including KaControl operating unit for the central control of Kampmann products via a serial bus communication (Modbus); for integration of a maximum of 24 units (Modbus subscribers) (optionally with a maximum of 6 BACnet objects in a BACnet/IP network) | all models | **196003232122** |
| | **KaControl SEL panel with BACnet** | | | **196003232123** |
|  | **Room temperature sensor** | for wall mounting, IP30 surface-mounted, colour white RAL 9010, alternative to the temperature sensor in the KaController | all models | **196003250110** |
|  | **Pipe clip-on sensor** | for detecting the temperature of the medium, including strap, 3 m cable, to protect the unit from frost | all models | **196003250115** |

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| Figure | Article | Properties | Suitable for | Art. No. |
|---|---|---|---|---|
|  | **Serial CAN bus card** | to increase the number of units in a single-circuit control system | all models | **196003260301** |
|  | **Serial Modbus card** | for connection to Modbus networks | all models | **196003260101** |
|  | **Serial Konnex card** | for integration into KNX-/EIB networks | all models | **196003260701** |
|  | **Serial LON FTT10A card** | for integration into LON FTT10A networks | all models | **196003260501** |
| | **Connection accessories** | | | |
|  | **Valve kit for Katherm HK** | 2-pipe heating/cooling with<br>1 no. valve body, axial, pre-adjustable, ½" connection,<br>1 no. return shut-off valve body, angled, ½" connection,<br>1 no. thermoelectric actuator 24 V, supplied loose | all Katherm HK 320/290 | **194000143211** |
|  | **Valve kit for Katherm HK** | 4-pipe heating/cooling with<br>2 no. valve bodies, axial, pre-adjustable, ½" connection,<br>1 no. return shut-off valve body, angled, ½" connection,<br>1 no. return shut-off valve body, straight, ½" connection<br>2 no. thermoelectric actuators 24 V, supplied loose | | **194000143411** |
|  | **Valve kit for Katherm HK for higher flow rates** | 2-pipe heating/cooling with<br>1 no. valve body, axial, pre-adjustable, ½" connection,<br>1 no. return shut-off valve body, angled, ½" connection,<br>1 no. thermoelectric actuator 24 V, supplied loose | all Katherm HK 320/290, recommended for higher flow rates above 250 l/h | **194000143241** |
|  | **Valve kit for Katherm HK for higher flow rates** | 4-pipe heating/cooling with<br>2 no. valve bodies, axial, pre-adjustable, ½" connection,<br>1 no. return shut-off valve body, angled, ½" connection,<br>1 no. return shut-off valve body, straight, ½" connection<br>2 no. thermoelectric actuators 24 V, supplied loose | | **194000143441** |
|  | **Valve, axial,** ½" connection, pre-settable | low-noise, airflow-optimised design with stainless steel spindle and double O-ring seal,<br>max operating temperature 120 °C<br>maximum operating pressure 10 bar | all Katherm HK 320/290 | **194000346911** |
|  | **Valve, for higher flow rate,** axial, ½" connection, pre-settable | low-noise, airflow-optimised design with maintenance-free spindle seal and double O-ring seal,<br>max operating temperature 120 °C<br>maximum operating pressure 16 bar | all Katherm HK 320/290, recommended for higher flow rates above 250 l/h | **194000346914** |

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| Figure | Article | Properties | Suitable for | Art. No. |
|---|---|---|---|---|
| | **Adjustment key** | | | |
|  | **Adjustment key** | for pre-adjustable valves and valve kits | for pre-adjustable valves and valve kits with art. no.<br>194000346911<br>194000143211<br>194000143411 | **194000346915** |
|  | **Pre-setting kit for valves with higher flow rate** | pre-setting kit for valves with higher flow rate | for pre-adjustable valves and valve kits with art. no.<br>194000346914<br>194000143241<br>194000143441 | **194000346916** |
| | **Return valves** | | | |
|  | **Return shut-off valve** straight, ½ connection | brass, nickel-plated housing, with O-ring seal<br>max operating temperature 120 °C<br>maximum operating pressure 10 bar | all Katherm HK 320/290 | **194000146952** |
|  | **Return shut-off valve** angled, ½ connection | brass, nickel-plated housing, with O-ring seal<br>max operating temperature 120 °C<br>maximum operating pressure 10 bar | HK 320/HK 290 | **194000146953** |
| | **Valve actuators** | | | |
|  | **Thermoelectric actuator, 24 V** | 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 | all valve bodies | **194000146906** |
|  | **Thermoelectric actuator, 230 V** | power consumption approx. 5 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<br>(only in conjunction with room thermostat, type 30155) | all valve bodies, in conjunction with room thermostat type 30155 | **194000146905** |
| | **Other accessories** | | | |
|  | **Condensation pump connection kit** | 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 (separate mains line required),<br>power consumption 20 W,<br>condensation pressurised line DN 6 mm (hose connection),<br>signal contact for condensation overflow changeover contact, potential-free;<br>switching output 230 V / 8 (4) A | supplied separately<br>HK 320, height 130 mm | **194000143813** |
| | | | supplied separately<br>HK 340, height 190 mm | **194000143815** |
| | | | factory-fitted<br>HK 290, height 160 mm | **194000143814** |
| | | | factory-fitted<br>HK 290, height 160 mm | **194000143816** |
|  | **Installation cover** | made of wood to provide protection during installation, factory-fitted,<br>grilles are supplied separately | trench width 320 mm | **194000100320** |
| | | | trench width 290 mm | **194000100290** |

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| Figure | Article | Properties | Suitable for | Art. No. |
|---|---|---|---|---|
| | **Other accessories** | | | |
|  | **Filter for air intake** | | HK 320, height 130 mm, length 915 mm | **143014313013** |
| | | | HK 320, height 130 mm, length 1200 mm | **143014313019** |
| | | | HK 320, height 130 mm, length 1700 mm | **143014313029** |
| | | | HK 320, height 130 mm, length 2000 mm | **143014313035** |
| | | | HK 320, height 130 mm, length 2500 mm | **143014313045** |
| | | | HK 320, height 130 mm, length 3000 mm | **143014313055** |
| | | | HK 290, height 160 mm, length 950 mm | **143014316014** |
| | | | HK 290, height 160 mm, length 1200 mm | **143014316019** |
| | | | HK 290, height 160 mm, length 1700 mm | **143014316029** |
| | | | HK 290, height 160 mm, length 2000 mm | **143014316035** |
| | | | HK 290, height 160 mm, length 2500 mm | **143014316045** |
| | | | HK 290, height 160 mm, length 3000 mm | **143014316055** |

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