

Katherm QK

Trench convector with EC tangential fan

▶ **Assembly and installation instructions**

Keep these instructions in a safe place for future use!

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench convectors

Assembly and installation instructions

Key to symbols:



Caution! Danger!

Non-compliance with this information can lead to serious personal injuries or damage to property.



Danger from electrocution!

Non-compliance with this information can lead to serious personal injuries or damage to property by electrocution.

Carefully read these instructions in full prior to any assembly and installation work!

Anyone involved with the installation, commissioning and use of this product is obliged to pass these instructions on to trades people who are involved at the same time or subsequently, as well as to end users or operators. Retain these instructions until final decommissioning!

Content or design-related changes may be made without any prior notice!

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1. Intended use

Kampmann **Katherm** QK are constructed in line with the state of the art and recognised safety regulations. Nevertheless their use can result in danger to people or damage to the unit or other material property if they are not properly installed or properly used.

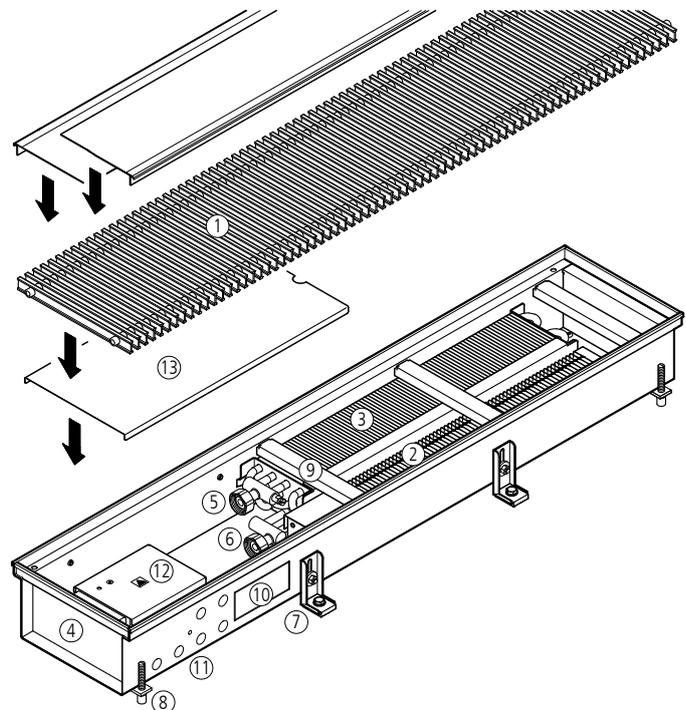
Katherm QK should only be used indoors (e.g. residential properties, offices, show-rooms etc.) They are not suitable for use in humid environments, such as swimming pools or outdoors. Protect the products from any moisture during installation. Check the application with the manufacturer in case of any doubt. Any use other than the use specified above is deemed not to be correct and proper. The operator of the unit is solely responsible for any damage arising as a result of this. Intended use is deemed to include observing the installation instructions described in these instructions.

The installation of this product requires specialist knowledge of heating, cooling, ventilation and electrical engineering. This knowledge, generally learned in vocational training in the fields mentioned in section 2, is not described separately. Errors caused by connection or modifications can lead to the unit being damaged! The manufacturer is not liable for any damage caused by the wrong connection and/or improper handling.

Important: Roll-up and linear grilles can be walked upon. Avoid point loads (e.g. chair legs)! They can result in lasting damage to the grilles.

Katherm QK

- ① Roll-up grille (alternatively: linear grille)
- ② Compact EC tangential fan
- ③ Cu/Al high-performance convector
- ④ Floor trench
- ⑤ Flow, 1/2", Eurokonus
- ⑥ Return, 1/2", Eurokonus
- ⑦ Height adjustment feet with sound insulation
- ⑧ Raised floor feet with sound insulation
- ⑨ Bracing
- ⑩ Water pipe opening
- ⑪ Cable openings
- ⑫ Electrical wiring and control box
- ⑬ Cover plate



Important: Do not remove bracing

Example: **Katherm** QK 215

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench convectors

Assembly and installation instructions

Limits of operation and use

Limits of operation		
Min./max. water temperature	°C (°F)	15-90 (59-194)
Min./max. air intake temperature	°C (°F)	15-40 (59-104)
Min./max. air humidity	%	15-75
Max. operating pressure	bar (psi)	10 (145)
Min./max. glycol percentage	%	25-50

The following values provide further guidance.

The water used should be free of contamination, such as suspended substances and reactive substances.

Water quality		
pH ^{*1}		8-9
Conductivity ^{*1}	µS/cm	< 700
Oxygen content (O ₂)	mg/l	< 0.1
Hardness	°dH	4-8.5
Sulphur ions (S)		not measurable
Sodium ions (Na ⁺)	mg/l	< 100
Iron ions (Fe ²⁺ , Fe ³⁺)	mg/l	< 0.1
Manganese ions (Mn ²⁺)	mg/l	< 0.05
Ammonia ions (NH ⁴⁺)	mg/l	< 0.1
Chlorine ions (Cl)	mg/l	< 100
CO ₂	ppm	< 50
Sulfate ions (SO ₄ ²⁻)	mg/l	< 50
Nitrite ion (NO ₂ ⁻)	mg/l	< 50
Nitrate ion (NO ₃ ⁻)	mg/l	< 50



2. Safety information

Only allow a qualified electrician to perform installation, assembly and maintenance work on electrical units in compliance with NEC guidelines. Wiring should comply with the applicable NEC regulations and provisions laid down by the regional electricity providers. Non-compliance with the regulations and operating instructions can result in the units malfunctioning with consequential damage and danger to people. There is a danger of fatal injury caused by wires being crossed due to incorrect wiring! Disconnect all parts of the system from the mains power supply and prevent them from being reconnected before starting any connection and maintenance work! The unit should only be connected to fixed cabling. Please read this manual in full to ensure correct and proper installation.

Please note the following safety-relevant information:

- Disconnect all parts of the system that are being worked on.
- Ensure that the system cannot be accidentally re-connected!
- Before commencing installation/maintenance work, wait until the fan has come to a standstill after the unit has been switched off.
- Caution! Pipes, casings and fittings can become very hot depending on the operating mode!
- Qualified personnel must have undergone training to provide them with adequate knowledge of the following:
 - Safety and accident prevention regulations
 - Guidelines and recognised technical regulations, i.e. National Electric Code (NEC)
 - CSA and UL standards
 - Technical wiring regulations issued by the regional electricity providers

Modifications to the unit

Do not undertake any modifications or upgrades on the **Katherm** QK without discussing them with the manufacturer as they can impair the safety and operation of the unit. Do not carry out any measures on the unit not described in this manual. Make sure that on-site systems and cabling are suitable for connection to the intended system!



The floor duct has openings provided for the installation of a potential compensation line.

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

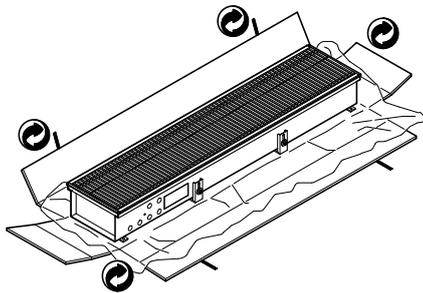
Ready-to-install convector-based trench converters

Assembly and installation instructions

3. Scope of delivery

Katherm QK trench converters are supplied as standard in a box with:

- Height adjustment feet ① with rubber pads for acoustic decoupling ②, screws and rawlplugs to be provided on site
- Raised floor feet with plastic cap for acoustic decoupling ③, ④.



4. Alignment and positioning

4.1 Alignment using height-adjustment feet and raised floor brackets

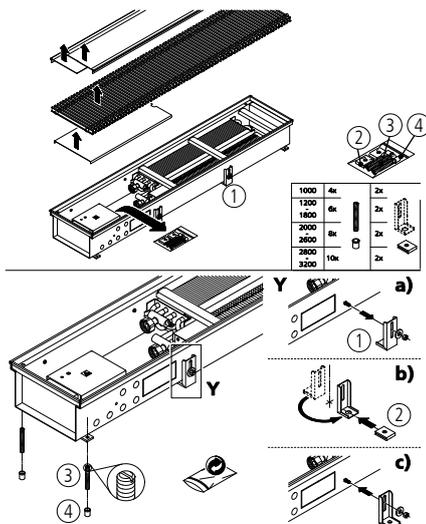
- Remove the outer film and the packaging.
- Flap open the transparent protective cover.

Important: Do not remove bracing during installation and operation.

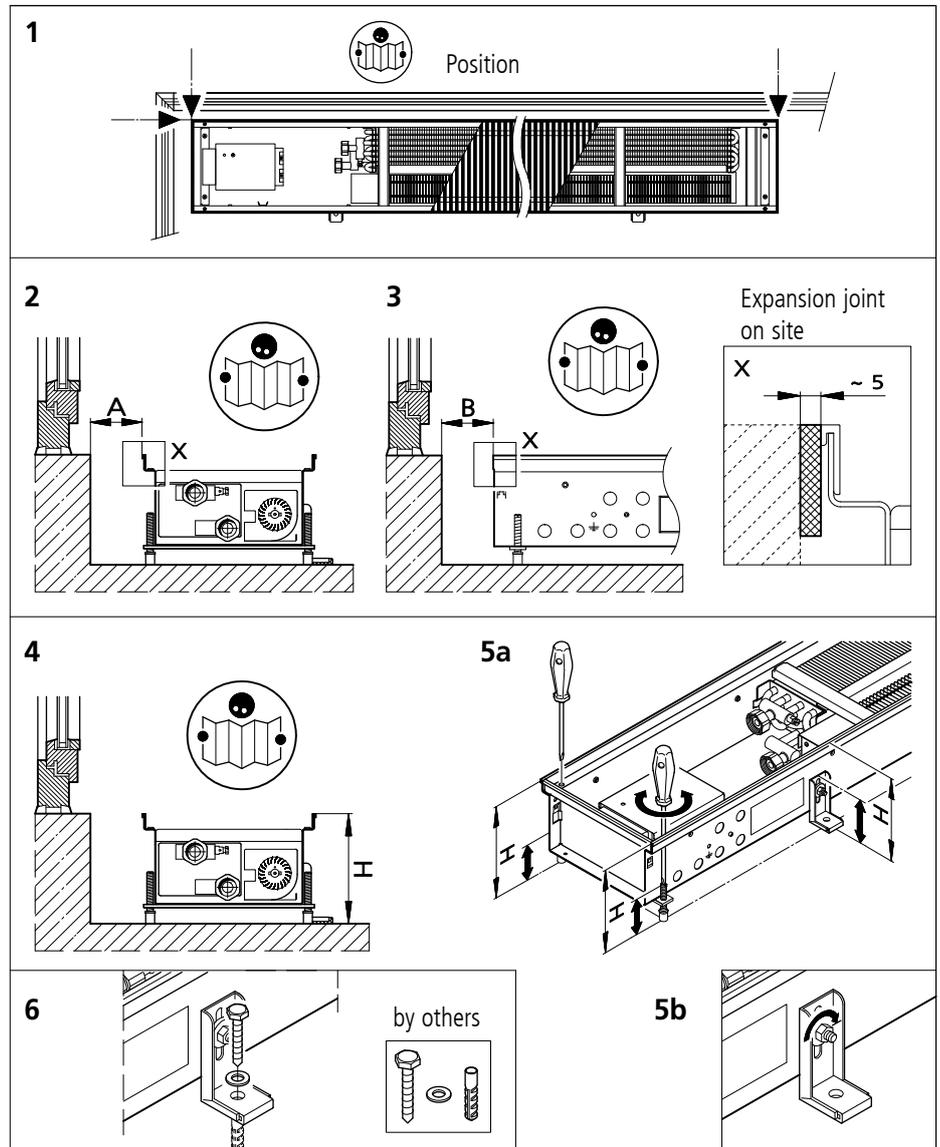
- Arrange the **Katherm** QK with the convector on the window side.

Important: The height adjustment feet are already fitted to the trench convector. They are fixed the wrong way round for transport reasons. To install and adjust the height of the trench, loosen the outer fixing nuts on the adjustment feet and turn the height adjustment feet 180° so that the foot is pointing outwards (see Fig.)

- Then level the trench convector and adjust the height using the adjustment feet and adjustment screws on the raised floor brackets ③.
- Ensure that the trench is horizontal and not twisted. Otherwise the grille will not fit into the floor trench.
- Use screws and dowels to fix the height-adjustment feet ① with rubber pads for sound insulation ②.



4.2. Positioning and fixing at the installation site



Move the **Katherm** QK into its final installation position (1). Pay attention to the prescribed spacings to walls and façades (2) and (3) on site. Align the **Katherm** QK into its final horizontal position (4, 5a and 5b) and used screws and rawlplugs (by others) to fix the **Katherm** QK to the floor (6).

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

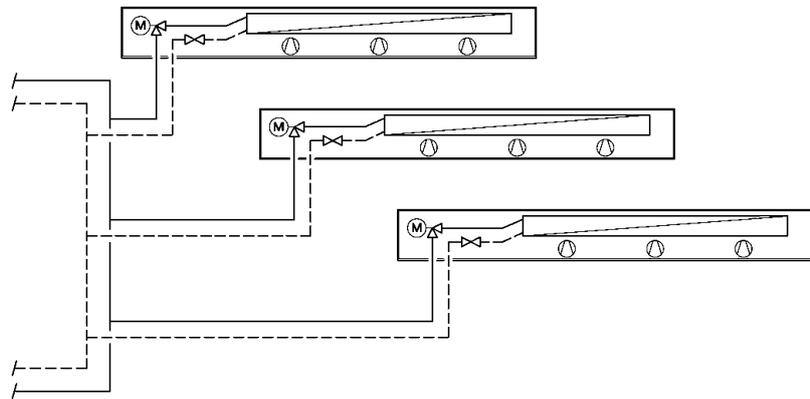
Ready-to-install convector-based trench convectors

Assembly and installation instructions

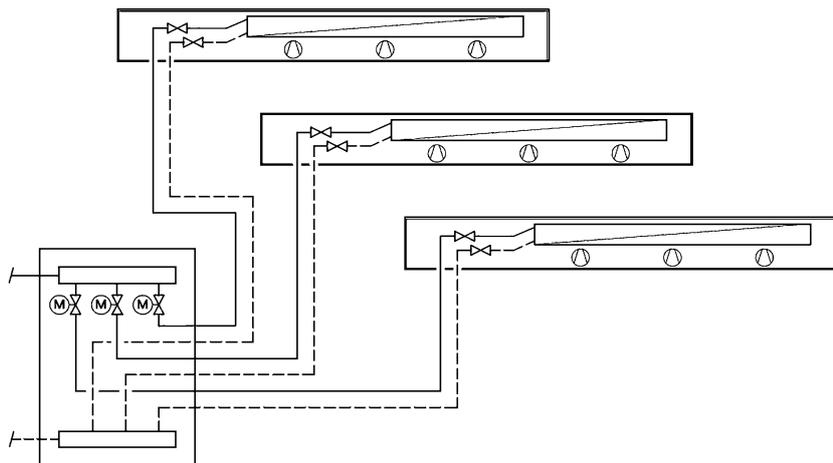
5. Water connections

- Use the punched pipe openings for the water-side connection. Screw the connecting accessories until tight onto the convector connections. Remove the punched pipe opening. Screw the thermostat valve and the return shut-off valve using an appropriate sealant (e.g. NEO Fermit) to the Eurokonus connections on the convector.
- Then fit the flow and return pipes.
- Perform a pressure test.
- Adhere these installation instructions very visibly to the trench heater for subsequent trades.
- Cover the grille and trench with the installation cover to protect it from dirt or cement.

Hydraulic set-up options

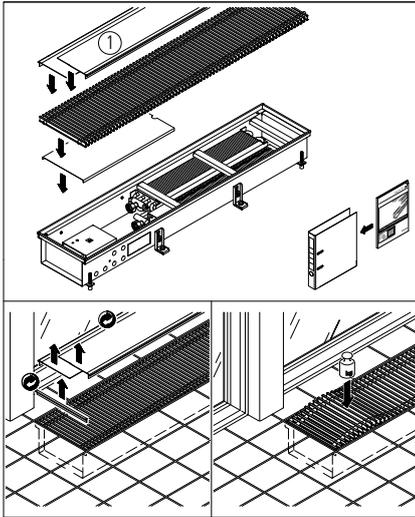


Decentralised valve control



Central heating circuit distributor

6. Screeding / Protection from dirt



- ① Dust and protective cover:
(remove the transparent dust and protective cover before commissioning the unit)

Before commencing screeding, check whether

- the water connection has been correctly done
- the electrical connection has been correctly done
- the height and distance of the trench from the window is correct
- the grille is covered (Caution! Cement destroys the surface of the grille!)
- sound insulation (not with raised floors) is fitted underneath the trench heater
- there are no sound bridges to the concrete slab, especially close to the height-adjustment feet
- appropriate materials have been used to seal all openings and punched openings of the trench convector from the ingress of screed
- the openings and punched openings of the trench convector are sealed when using screed or other low-viscosity floor coverings.

Important: Do not allow screed or the floor to press the floor trench. Provide expansion joints if necessary.

Roll-up grilles packed separately, for instance when using installation covers to protect the trenches from dirt, are rolled up in the factory. The grille can become slightly over-long due to the steel springs extending. Unrolling the grille and laying it flat for a few hours can return the grille to its original length. Laying the grille into the trench, as shown on the figure above, helps it to fit more easily into the frame.

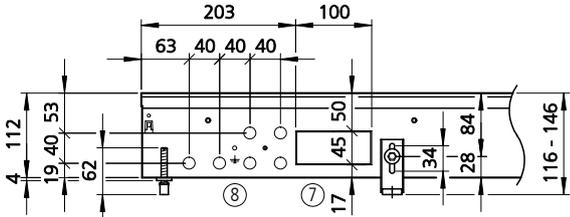
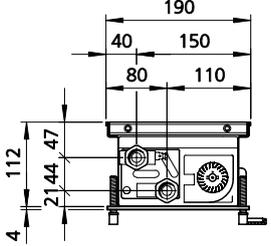
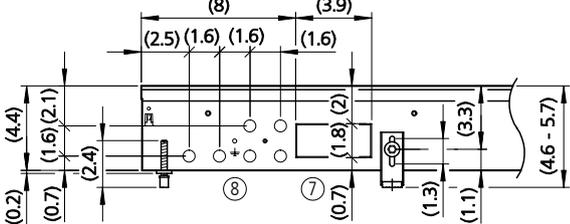
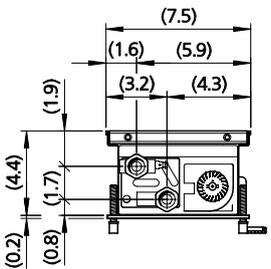
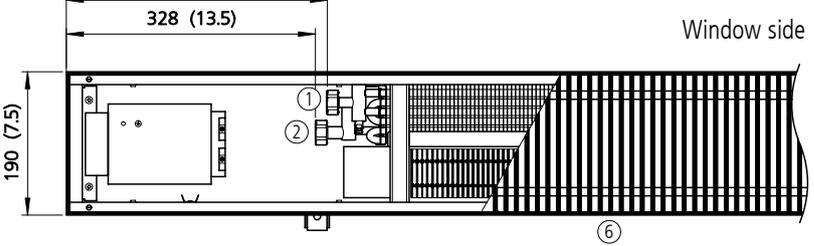
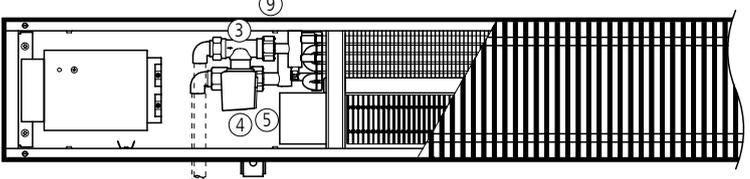
1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench converters

Assembly and installation instructions

7. Connection openings · Pipe openings · Water connection

Katherm QK 190

Design	Room-side connection
<p>Katherm QK 190</p> <ul style="list-style-type: none"> ① Flow ② Return ③ Valve body, 1/2" straight, type 346909, pre-settable ④ Thermolectric actuator 24 V, type 146906 ⑤ 1/2" return shut-off valve, straight, type 145952 ⑥ Unit shown with roll-up grille ⑦ Pipe openings for water connection, punched ⑧ Electrical cable openings, punched ⑨ Alternatively: Valve kit type 142110, consisting of valve body 1/2" pre-settable, actuator 24 V and return shut-off valve 1/2" 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Front view [mm]</p> </div> <div style="text-align: center;">  <p>Side view [mm] (cross-section)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Front view [inch]</p> </div> <div style="text-align: center;">  <p>Side view [inch] (cross-section)</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  <p>Top view (without cover panel) [mm (inch)]</p> <p style="text-align: right;">Window side</p> <p style="text-align: right;">Room side</p> </div> <div style="text-align: center; margin-top: 20px;">  <p>Top view (without cover panel)</p> <p style="text-align: right;">Window side</p> <p style="text-align: right;">Room side</p> </div>

Katherm QK 215

Design	Room-side connection
<p>Katherm QK 215</p> <ul style="list-style-type: none"> ① Flow ② Return ③ Valve body, 1/2" straight, type 346909, pre-settable ④ Thermoelectric actuator 24 V, type 146906 ⑤ 1/2" return shut-off valve, straight, type 145952 ⑥ Unit shown with roll-up grille ⑦ Pipe openings for water connection, punched ⑧ Electrical cable openings, punched ⑨ Alternatively: Valve kit type 142110, consisting of valve body 1/2" pre-settable, actuator 24 V and return shut-off valve 1/2" 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Front view [mm]</p> </div> <div style="text-align: center;"> <p>Side view [mm] (cross-section)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>Front view [inch]</p> </div> <div style="text-align: center;"> <p>Side view [inch] (cross-section)</p> </div> </div> <div style="margin-top: 20px;"> <p>Top view (without cover panel) [mm (inch)]</p> <p style="text-align: right;">Window side Room side ⑥</p> </div> <div style="margin-top: 20px;"> <p>Top view (without cover panel)</p> <p style="text-align: right;">Window side Room side ⑨</p> </div>

1.42 Katherm QK – Trench convactor with energy-efficient EC tangential fan

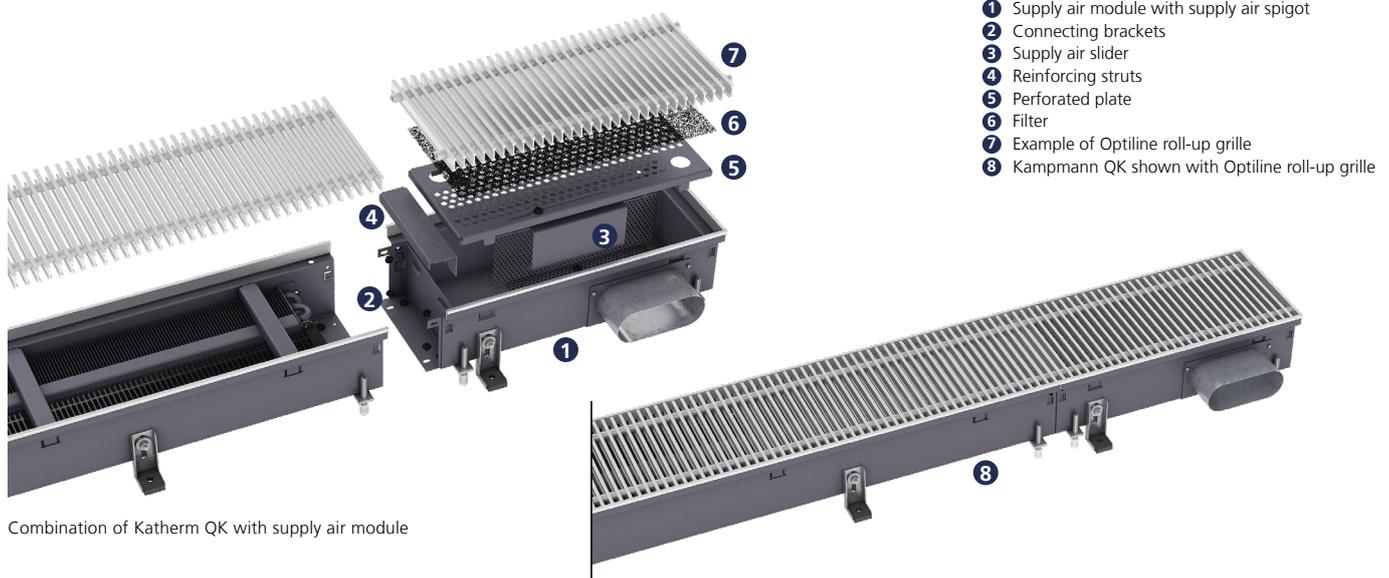
Ready-to-install convactor-based trench convectors

Assembly and installation instructions

8. Number of height adjustment feet and raised floor feet

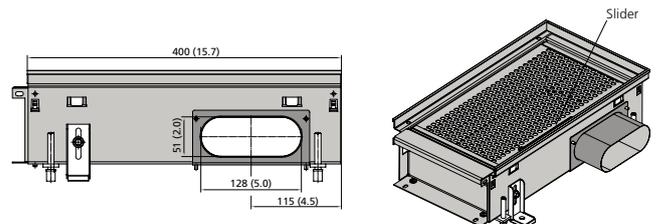
Katherm QK 190 / Katherm QK 215			
Trench length		Number of	
[mm]	[inch]	Height adjustment feet	Raised floor height adjustment feet
1000	39.4	2	2
1200	47.2	2	3
1400	55.1	2	3
1600	63.0	2	3
1800	70.9	2	3
2000	78.7	2	4
2200	86.6	2	4
2400	94.5	2	4
2600	102.4	2	5
2800	110.2	2	5
3000	118.1	2	5
3200	126.0	2	5

9. Supply air modules, Katherm QK

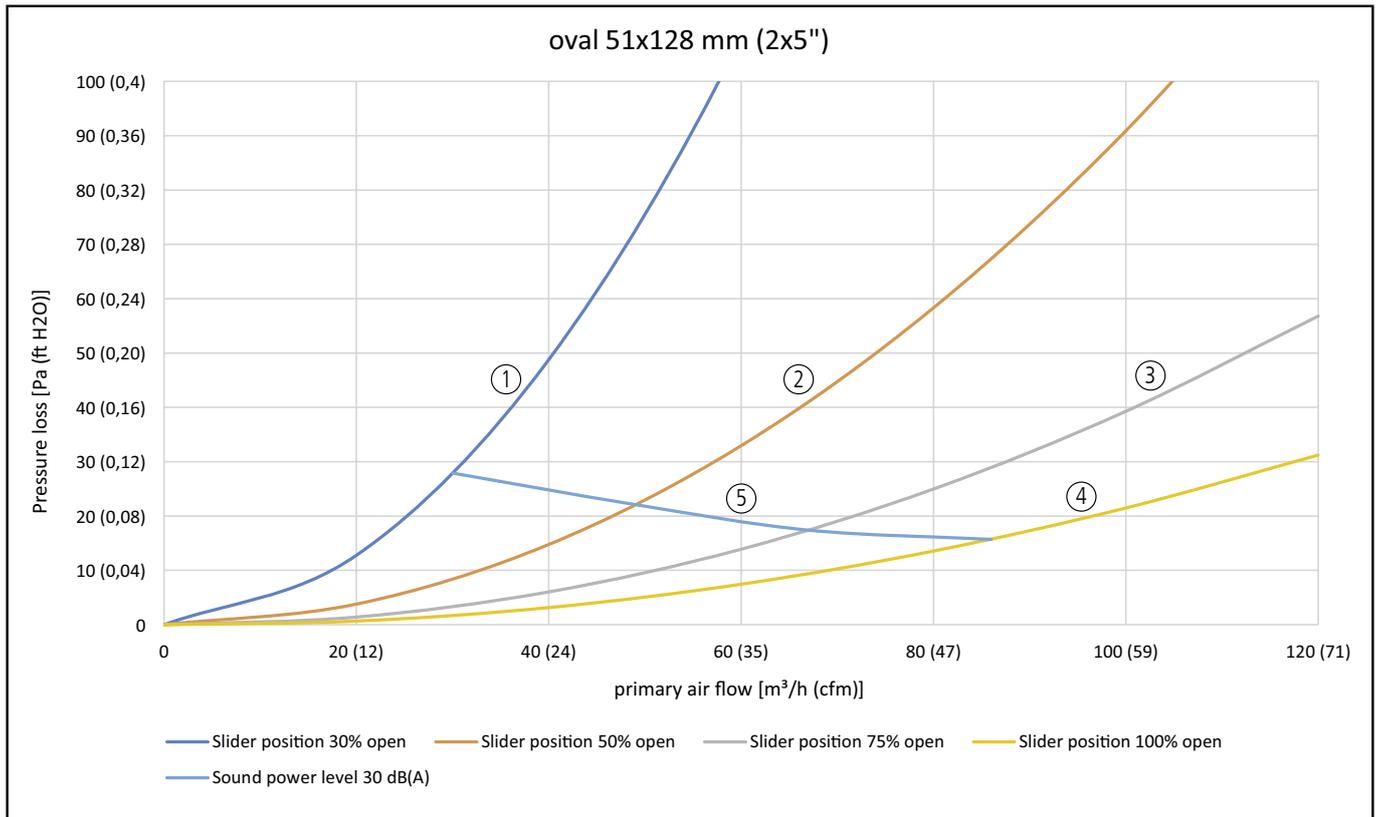


Combination of Katherm QK with supply air module

Trench width		Trench length		Trench height		Supply air spigot		Design air volume	
[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[m³/h]	[cfm]
190	7.5	400	15.7	112	4.4	oval 51x128	oval 2x5	70	41
215	8.5	400	15.7	112	4.4	oval 51x128	oval 2x5	70	41

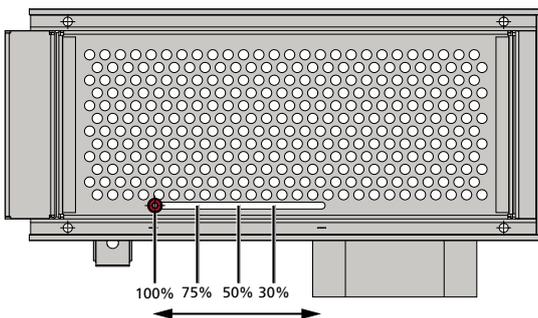


Example of supply air module for the Katherm QK 190/112 (7.5/4.4) [mm (inch)]



- ① Slider position 30% open
- ② Slider position 50% open
- ③ Slider position 75% open
- ④ Slider position 100% open
- ⑤ Sound power level 30 dB(A)

Adjusting the slider position



Like all standard units, the height of the supply air module is adjusted using the threaded rods and connected by the installation brackets to the substrate. The slider can be moved into different positions to adjust the required volumetric flow at the supply air module. The drawing on the left shows 4 different slider positions (100%, 75%, 50% and 30% opened). They are also shown in the design diagrams below in which the pressure losses, sound levels and airflows can be seen. Intermediate values can be interpolated.

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench convectors

Assembly and installation instructions

10. Maintenance

Important

Only permit trained qualified personnel to perform maintenance work on **Katherm** QK trench heaters in compliance with the installation and operating instructions as well as any regulations currently in force. Regularly maintain and inspect **Katherm** QK units to ensure their proper function and performance.

Important: Disconnect and de-energise all equipment before commencing maintenance work and prevent it from being re-connected.

The maintenance schedule below describes the maintenance work needed for the proper and trouble-free operation of the equipment.

If there are signs of increased wear during regular checks, adjust the required maintenance intervals to the actual wear and tear. Contact the manufacturer with any questions about maintenance work and intervals.

10.1 Maintenance schedule

Interval	Maintenance task
as required	Visual inspection of the grilles (roll-up or linear), if dirty, remove and use a cloth to clean
every six months	Visual inspection of the tangential fans; remove and clean if dirty (see "Cleaning tangential fans")
every six months	Visual inspection of the floor trench; remove internal components and clean if dirty (see "Cleaning the floor trench").
every six months	Visual inspection of the convector; clean if dirty (see "Cleaning the convector")
every six months	Check the water-side connections and valves for leaks.
every six months	Check that the electrical cables and connections are tight.

Cleaning the tangential fan

A dirty tangential fan impairs the airflow and thus also the output of the unit.

- If dirty, carefully clean the surfaces of the tangential fan with a cloth.

Clean the floor trench

A dirt floor trench, possibly caused by coarse dirt, impairs the airflow.

- If dirty, carefully vacuum the floor trench or use a cloth to clean if after removing all components (grille, lid, bracing, tangential fans).

Clean the convector

A dirt convector, e.g. dusty deposits between the fins, impairs the airflow, heat transfer and thus also the output of the unit.

- Carefully vacuum the heat exchanger if dirty. Do not use water to clean the heat exchanger!

Caution: Fins bend easily!

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench convectors

Assembly and installation instructions

11. Electrical wiring

Personnel:

- Installation personnel
- Qualified electrician

Protective equipment:

- Safety shoes
- Protective gloves
- Workwear



Only allow qualified electricians to perform electrical work. Further connections, for instance to building control systems or external controllers, may be necessary. Refer to the manufacturer's literature in this respect.

- Wire the unit in accordance with the enclosed wiring diagram.
- Only wire the unit in accordance with currently applicable NEC guidelines, as well as Technical Wiring Regulations stipulated by the regional energy supply companies.
- Only connect the unit to fixed cables.

Important:

Provide an all-pole mains separator in the wiring on site that can be reliably secured to avoid the system being reconnected (e.g. a lockable switch with a contact opening of at least 3 mm up to a rated voltage of 480 V).



No protective measures are indicated in the Kampmann wiring diagrams. These must be provided additionally when installing the system and when connecting the units in accordance with NEC and the regulations of each of the respective energy supply companies.

11.1 Controls at a glance



The **Katherm** QK comes in a series of different electrical versions. Connect it via a terminal strip in the electrical junction box. This is located on the side of the **Katherm** QK's water connection. Wire the unit as per the wiring diagram, which is different for each version.

Design	Art. no. suffix
24 V electromechanical	_24
230 V electromechanical	_00

Ask a qualified electrician to determine the type of cable and cable cross-sections: The cable cross sections basically depend on the fuses for the cable length and the wiring capacity of the electric motors on site .

Lay control lines separately from supply lines.
Use UNITRONIC® BUS LD 2x2x0.22 or similar as data cables.
Wire the unit in series: star cabling is not allowed.

11.2 24 V electromechanical model

Model for complete in situ control of the Katherm QK

Product features

The operating voltage must be provided by a central on-site 24 V DC voltage supply.

Kampmann offers a range of switching power units in different output classes as accessories for the voltage supply (24 V DC).

The fan automatically switches off in the event of a motor fault.

1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan

Ready-to-install convector-based trench convectors

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12. Declaration of Conformity

CERTIFICATE OF COMPLIANCE

Certificate Number 20150902-SA44344
Report Reference SA44344-20150831
Issue Date 2015-SEPTEMBER-02

Issued to: KAMPMANN GmbH
Friedrich-Ebert-Str. 128-130
49811 Lingen GERMANY

This is to certify that representative samples of HEATING AND COOLING EQUIPMENT
Trench Heating/Cooling Equipment Series Katherm QK,
Katherm QK Baseboard, Katherm HK and Katherm HK
Baseboard, followed by additional letter/numbers.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1995 and CSA C22.2 No. 236, HEATING AND
COOLING EQUIPMENT.

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



1.42 Katherm QK – Trench convector with energy-efficient EC tangential fan Ready-to-install convector-based trench convectors

Assembly and installation instructions

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