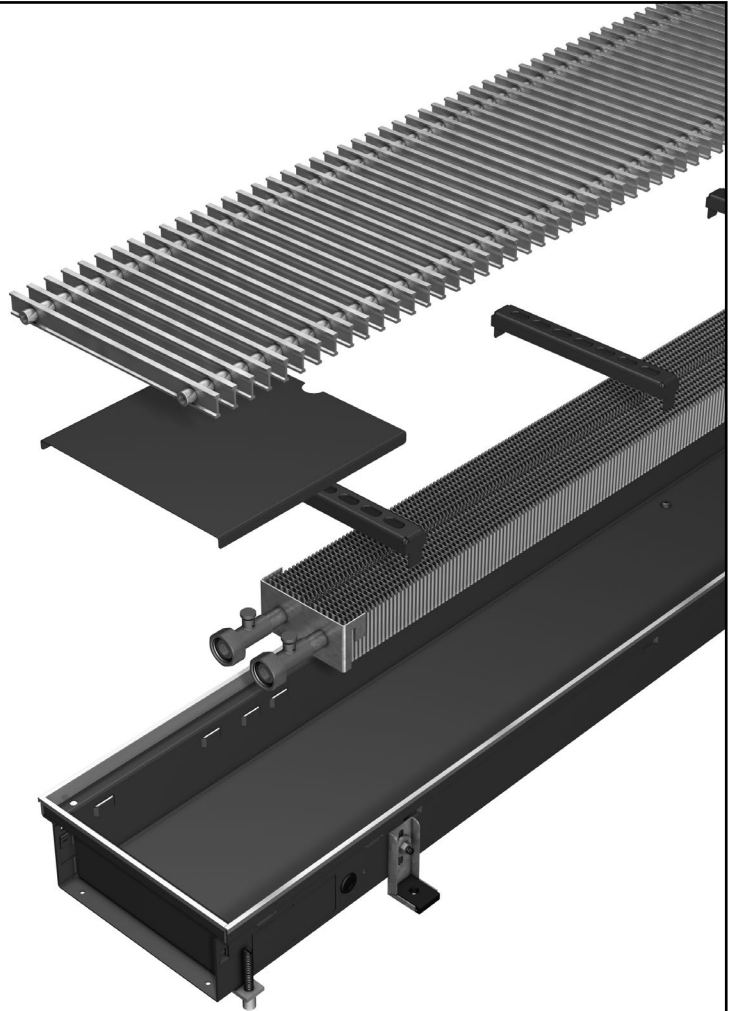


Trench Heating with natural convection



Installation instructions

Keep these instructions in a safe place for future use!

1.45 Katherm NK - Natural Convection

Table of Contents

Key to symbols:



Caution! Danger!

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



Danger of electric shock!

Non-compliance with this information may lead to serious personal injuries or damage to property from an electric current.

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

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

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

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1. Intended Use

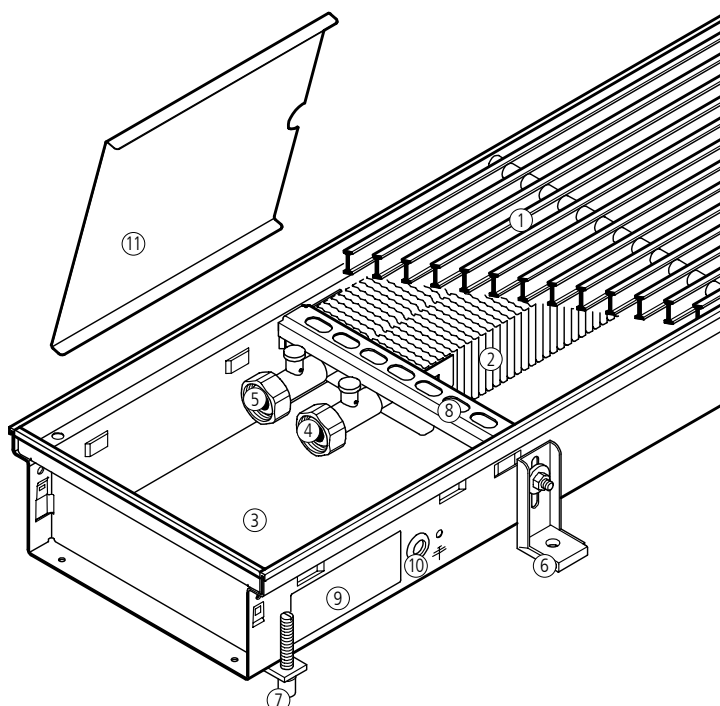
Kampmann **Katherm NK** are built in line with the state of the art and recognised safety regulations. Nevertheless their use may result in danger to people or damage to the unit or other material property if they are not properly installed or properly used.

Katherm NK should only be used indoors (e.g. living space, offices, showrooms etc.) They are not suitable for use in humid environments, such as swimming pools or outdoors. The products should be protected 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 resulting from such use. Correct and proper use is deemed to include observing the installation information 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 with the connection or modifications may lead to the unit being damaged! The manufacturer shall not be liable for any damage caused by an incorrect connection and/or improper handling.

Katherm NK

- ① Linear grille (alternative: roll-up grille)
- ② PowerKon heat exchanger
- ③ Floor duct
- ④ Flow with Eurokonus connection
- ⑤ Return with Eurokonus connection
- ⑥ Height-adjustment feet with sound insulation
- ⑦ Raised floor mounting feet with sound insulation
- ⑧ Struts
- ⑨ Pipe conduit for water connection
- ⑩ Cable conduit
- ⑪ Connection cover



Caution: Do not remove struts

Example shown: *Katherm NK 232*

1.45 Katherm NK - Natural Convection

Limits of operation and use

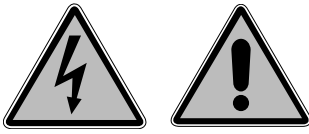
1.1 Limits of operation and use

Limits of operation		
Min./max. water temperature	°C	15-90
Min./max. air intake temperature	°C	15-40
Min./max. air humidity	%	15-75
Max. operating pressure	bar	10
Min./max. glycol percentage	%	25-50

We would refer to VDI-2035 Sheets 1 & 2, DIN EN 14336 and DIN EN 14868 with regard to the properties of the medium used to protect the equipment. The following values provide further guidance. The water used should be free of contamination, such as suspended substances and reactive substances.

Water quality		
pH value*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
Sulphate ions (SO ₄ ²⁻)	mg/l	< 50
Nitrite ions (NO ₂ ⁻)	mg/l	< 50
Nitrate ions (NO ₃ ⁻)	mg/l	< 50



2. Safety Information

Installation, assembly and maintenance work on electrical units should only be performed by a qualified electrician in compliance with the VDE guidelines. Wiring should comply with the applicable VDE regulations and provisions laid down by the regional electricity providers. Non-compliance with the regulations and operating instructions may result in the units malfunctioning with consequential damage and danger to people. The units may be incorrectly wired by the wires being swapped – danger of fatal injury! 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 these instructions in full to guarantee a correct 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!
- Caution! Pipes, casings and fittings may 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. VDE (Association of German Electricians) regulations
 - DIN and EN standards
 - Accident prevention regulations VBG, VBG4, VBG9a
 - DIN VDE 0100, DIN VDE 0105
 - EN 60730 (Part 1)
- Technical wiring regulations issued by the regional electricity providers

Modifications to the unit

Do not undertake any modifications, refurbishments or upgrades on the Katherm NK unit without discussing these with the manufacturer as these may impair the safety and operation of the unit. Do not carry out any action on the unit that is not described in these instructions. On-site systems and cabling must be suitable for connection to the intended system!



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

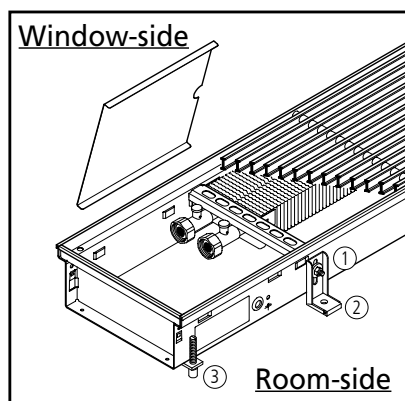
3. Models/Scope of Delivery

Floor ducts are delivered as standard with the following:

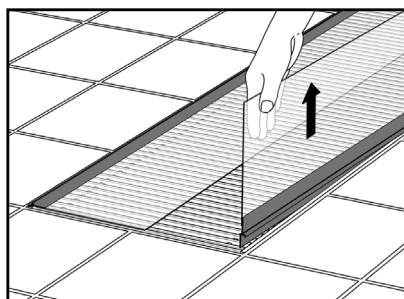
- 1 Height-adjustment feet, room-side, ① Rubber underlays for sound absorption ②; screws and rawlplugs, provided on-site;
- 1 raised floor mounting feet with sound absorption ③

1.45 Katherm NK - Natural Convection

Levelling/Water Connection



Example shown:
Katherm NK 225



Installation cover: (Remove the transparent installation cover before commissioning the equipment)

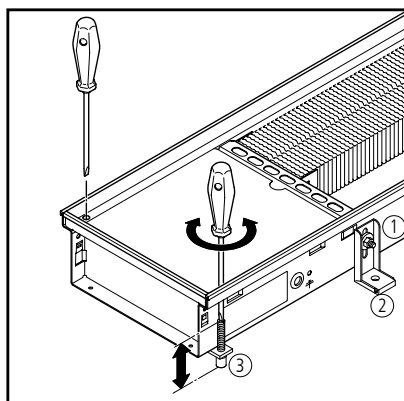
4. Levelling/Water Connection

- ▮ Remove the outer stretch wrapping and cardboard box.
Open the transparent protective cover.
- Caution:** Do not remove the struts during installation and operation.
- ▮ Arrange the Katherm NK with the PowerKon heat exchanger next to the window.
- ▮ Then set up the floor duct and adjust the height of the height-adjustment feet ① and adjusting screws on the raised floor mounting feet with sound absorption ③.
- ▮ Fix the height-adjustment feet, room-side ① with rubber underlays for sound absorption ②, with screws and rawlplugs provided on-site.
- ▮ Use the stamped room-side pipe openings for the water-side connection. Remove the stamped pipe openings. 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.
- ▮ Run a pressure test.
- ▮ Attach these installation instructions to the floor duct so that they are clearly visible to any trades people at a later date.
- ▮ Cover the grille and floor duct with a transparent protective cover to protect them from dirt or cement.

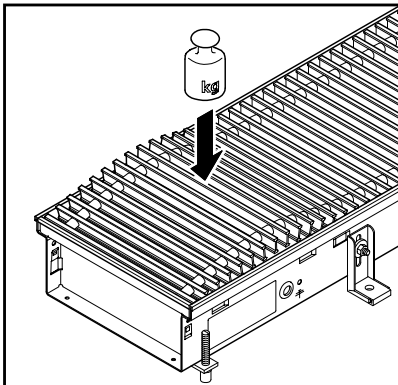
Caution: Grilles are suitable for foot traffic. Local bar loads (i.e. chair legs) must be avoided!

5. Thermoelectric Actuator

Lay an empty conduit Ø 23 mm for the connection cable from the thermoelectric actuator to the floor duct and flush-mounted box (provided on-site) to connect the thermoelectric actuator.



Height adjustment on the
raised floor mounting feet



Separately packaged roll-up grilles, e.g. when using installation covers to protect from dirt, are pre-rolled in the factory. If the steel spiral springs are stretched, this may result in the grille appearing over-long. Unroll and lay out the grille for a few hours to return it to its original length. The frame is easier to fit if the roll-up grille is inserted with an up and down movement as per the figure above.

6. Screed Work

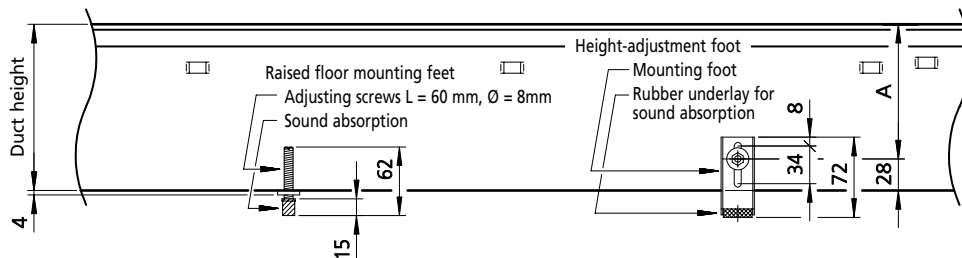
Check the following before starting the screed work:

- ┌ The water is connected properly,
- ┌ The electricity is connected properly,
- ┌ The floor duct is the correct height and distance from the window,
- ┌ The grille is covered (Caution! Cement destroys the surface of the grille!),
- ┌ The sound insulation (not with raised floors) is installed beneath the floor duct,
- ┌ There are no sound bridges to the bare concrete, particularly around the height-adjustment feet.
- ┌ All openings and cut-outs in the floor duct heating are sealed from the screed using appropriate material.
- ┌ The duct openings and cut-outs should be additionally sealed when using floating screed or other viscous floor coverings.

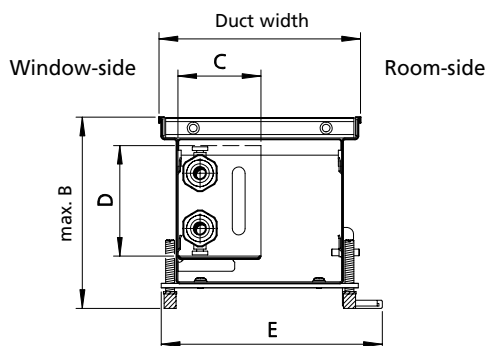
Caution: The floor duct must not be pressed together by the screed or floor. Provide expansion joints if needed.

7. Dimensions/Height Adjustment

Front view



Section



Duct width/height	A	max. B	C	D	E
137 / 92	64	126	50	50	155
137 / 120	92	154	50	50	155
182 / 92	64	126	70	50	200
182 / 120	92	154	70	50	200
182 / 150	122	184	70	100	200
182 / 200	172	234	70	100	200
232 / 92	64	126	100	50	250
232 / 120	92	154	100	50	250
232 / 150	122	184	100	100	250
232 / 200	172	234	100	100	250
300 / 92	64	126	150	50	320
300 / 120	92	154	150	50	318
300 / 150	122	184	150	100	318
300 / 200	172	234	150	100	318
380 / 92	64	126	200	50	398
380 / 120	92	154	200	50	398
380 / 150	122	184	200	100	398
380 / 200	172	234	200	100	398

All dimensions in mm

1.45 Katherm NK - Natural Convection

Water Connection • Pipe Conduits

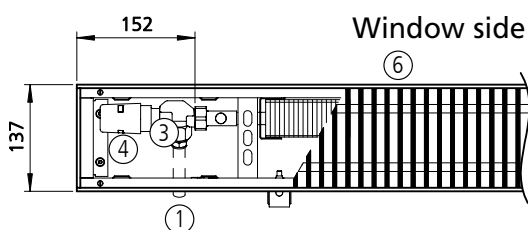
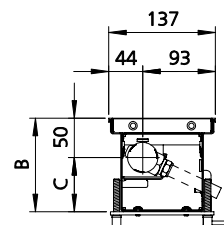
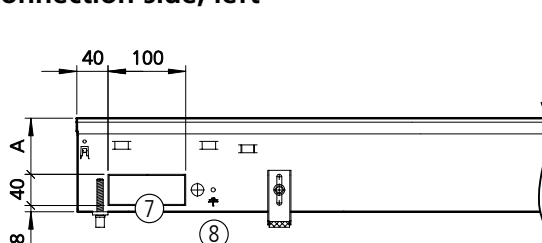
8. Water Connection • Pipe Conduits

Katherm NK 137 (only opposite-end connection)

Duct height 92/120 mm

Connection side, left

- ① Flow
- ② Return
- ③ Valve body, axial 1/2", type 194000246909 or type 194000346911 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits

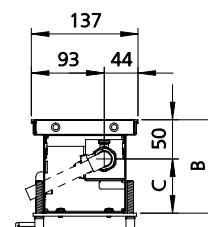
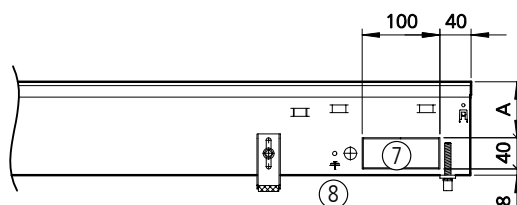


Room-side

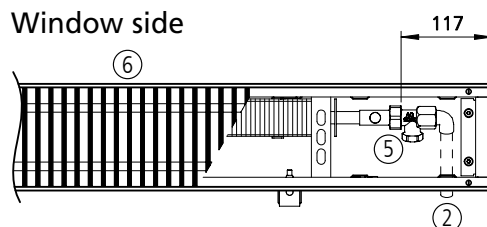
Opposite end connections, connections on left

Katherm NK 137	A	B	C
Duct height 92 mm	44	92	42
Duct height 120 mm	72	120	70

Connection side, right



Window side



Room-side

Opposite end connections, connections on right

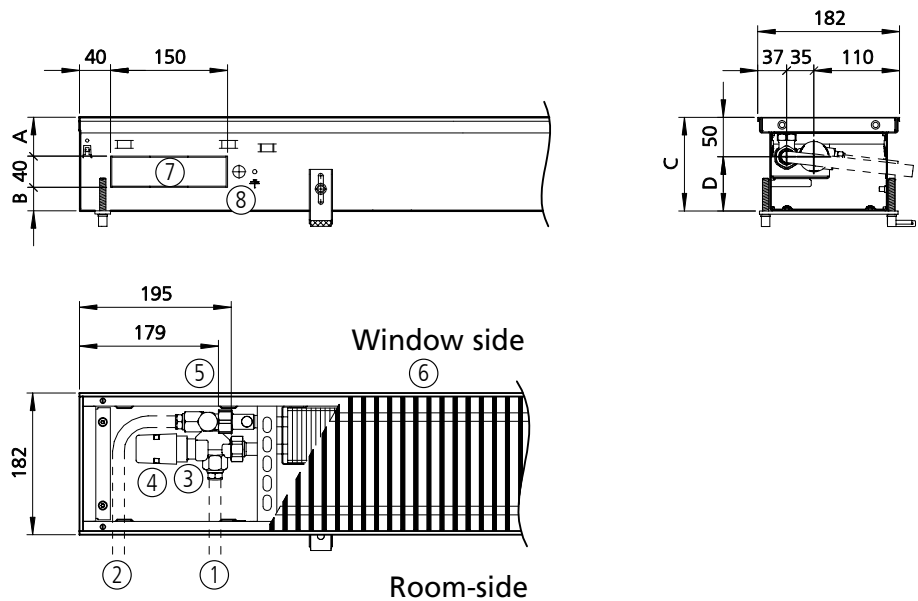
Katherm NK 137	A	B	C
Duct height 92 mm	44	92	42
Duct height 120 mm	72	120	70

All dimensions in mm

Katherm NK 182, single-end connection

Duct height 92/120 mm

- ① Flow
- ② Return
- ③ Valve body, axial 1/2", type 194000246909 or type 194000346911 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



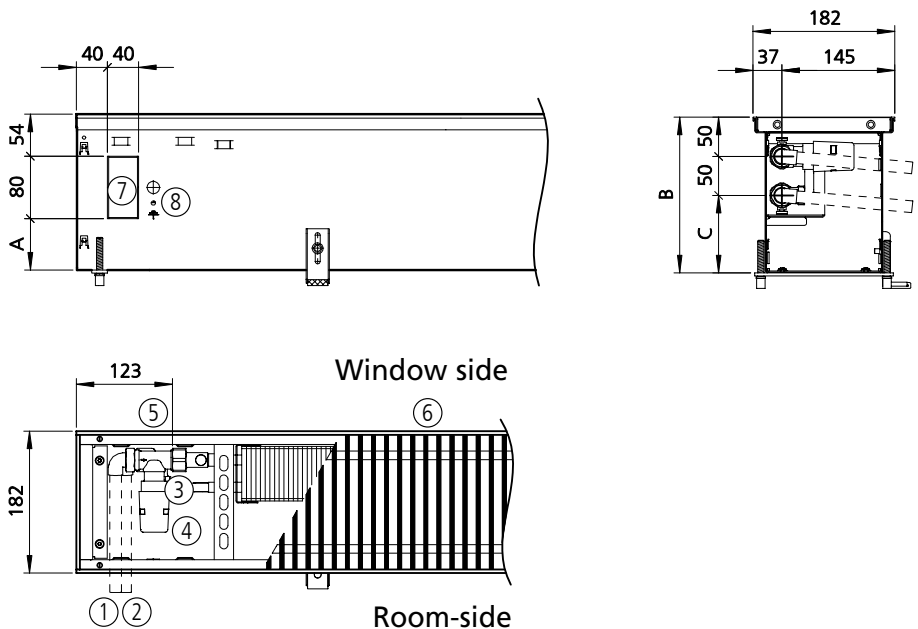
Same end connections, connections on left

Katherm NK 182	A	B	C	D
Duct height 92 mm	44	8	92	42
Duct height 120 mm	50	30	120	70

All dimensions in mm

Duct height 150/200 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



Same end connections, connections on left

Katherm NK 182	A	B	C
Duct height 150 mm	16	150	50
Duct height 200 mm	66	200	100

All dimensions in mm

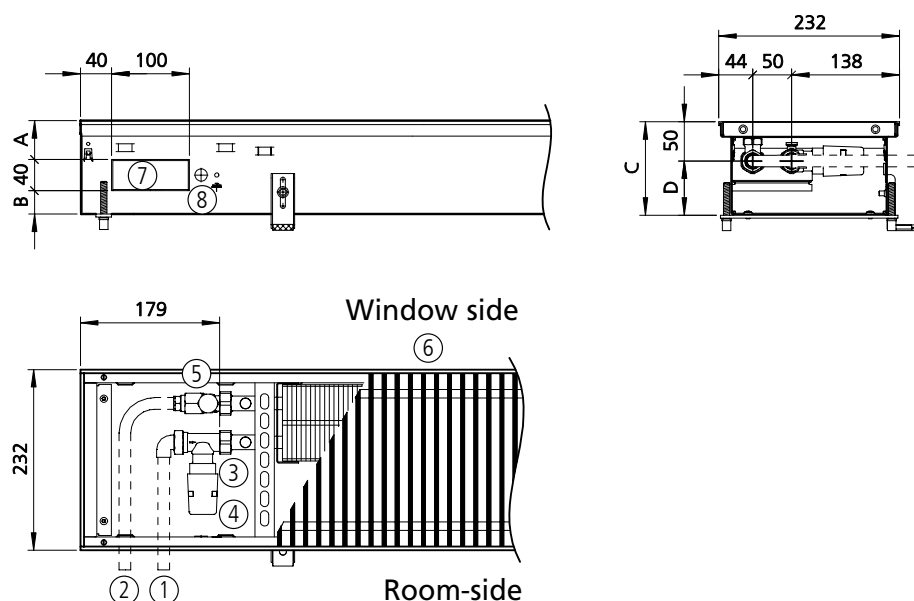
1.45 Katherm NK - Natural Convection

Water Connection • Pipe Conduits

Katherm NK 232, single-end connection

Duct height 92/120 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



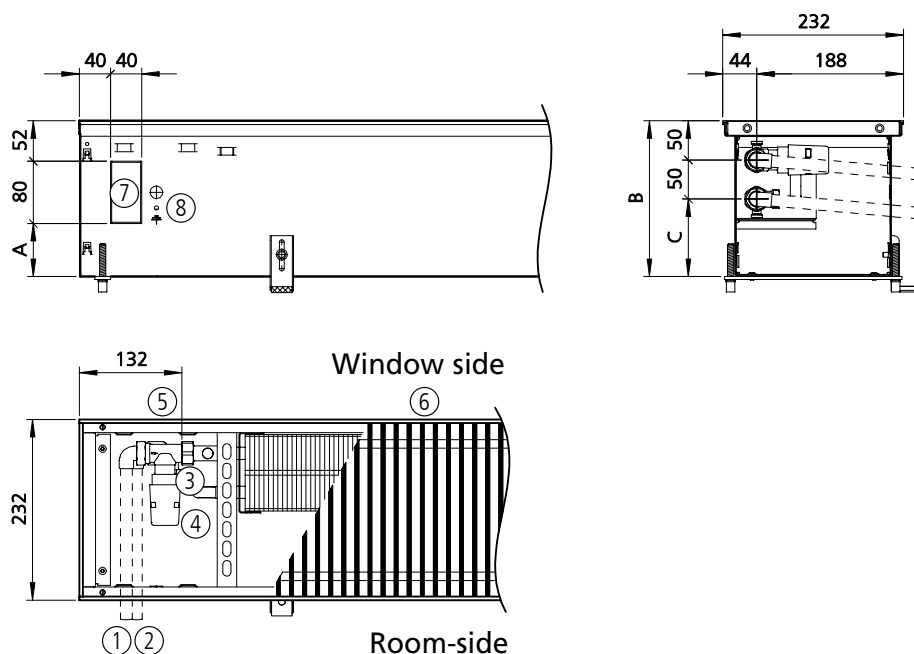
Same end connections, connections on left

Katherm NK 232	A	B	C	D
Duct height 92 mm	44	8	92	42
Duct height 120 mm	50	30	120	70

All dimensions in mm

Duct height 150/200 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



Same end connections, connections on left

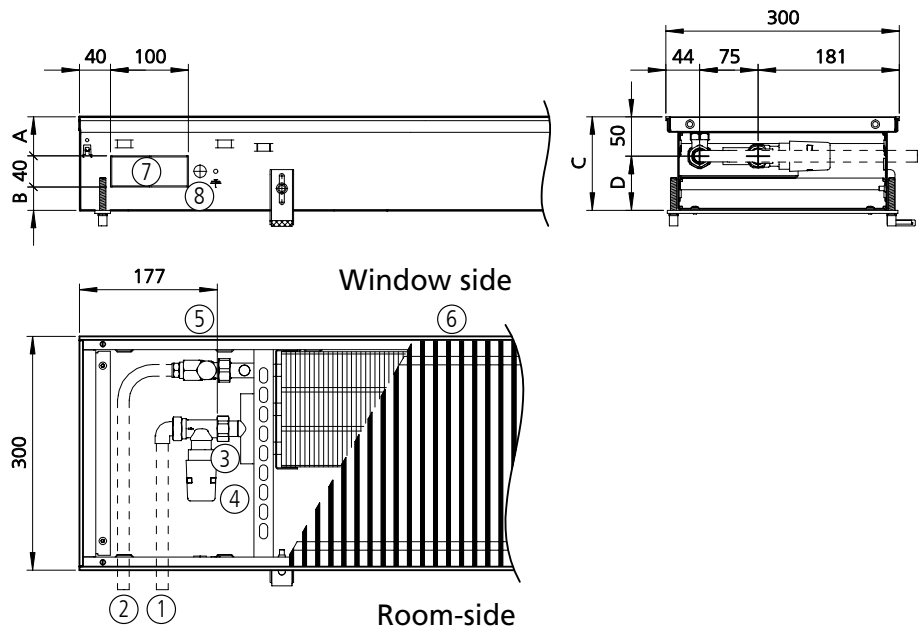
Katherm NK 232	A	B	C
Duct height 150 mm	18	150	50
Duct height 200 mm	68	200	100

All dimensions in mm

Katherm NK 300, single-end connection

Duct height 92/120 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



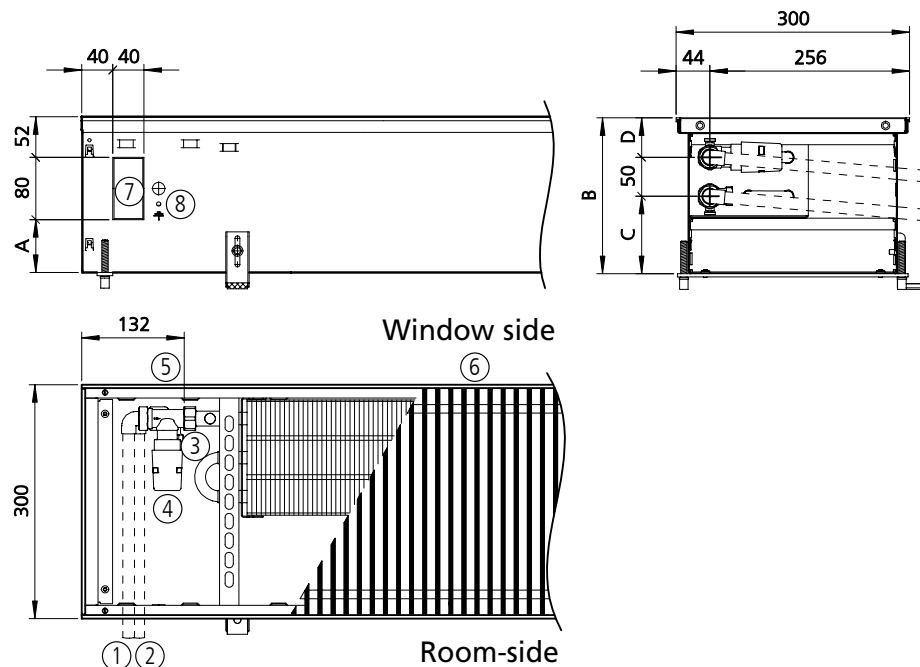
Same end connections, connections on left

Katherm NK 300	A	B	C	D
Duct height 92 mm	44	8	92	42
Duct height 120 mm	50	30	120	70

All dimensions in mm

Duct height 150/200 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



Same end connections, connections on left

Katherm NK 300	A	B	C	D
Duct height 150 mm	18	150	42	58
Duct height 200 mm	68	200	100	50

All dimensions in mm

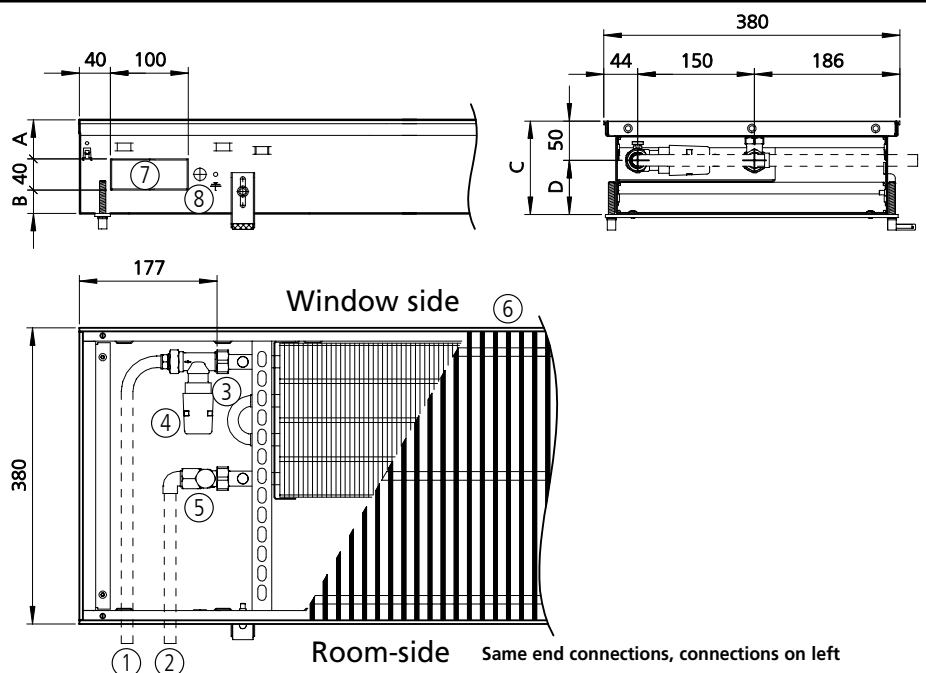
1.45 Katherm NK - Natural Convection

Water Connection • Pipe Conduits

Katherm NK 380, single-end connection

Duct height 92/120 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



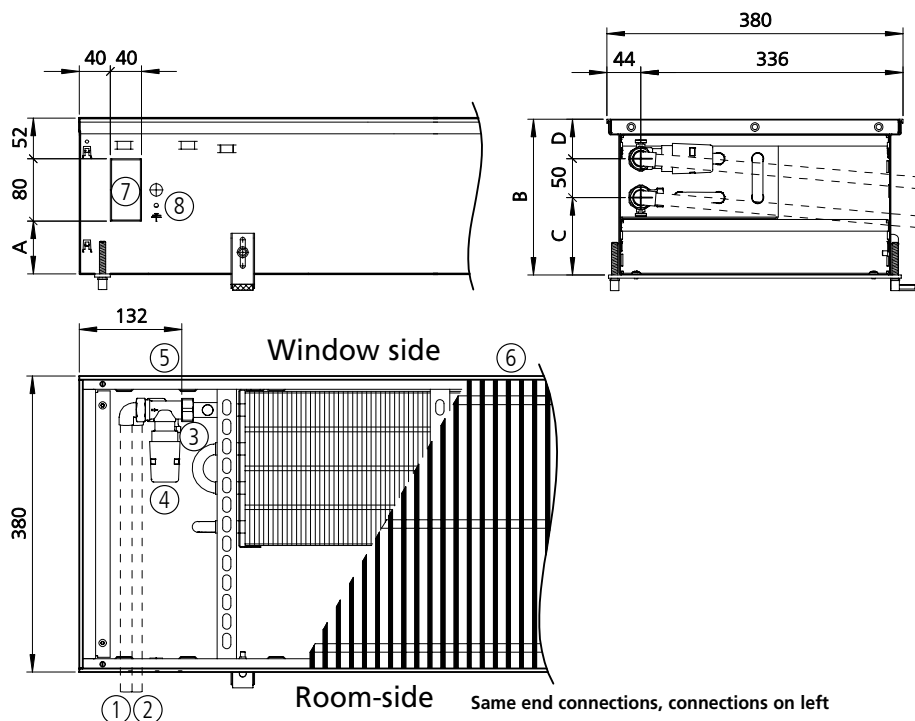
Same end connections, connections on left

Katherm NK 380	A	B	C	D
Duct height 92 mm	44	8	92	42
Duct height 120 mm	50	30	120	70

All dimensions in mm

Duct height 150/200 mm

- ① Flow
- ② Return
- ③ Valve body, straight, type 194000146909 or type 194000346909 (presettable)
- ④ Thermoelectric actuator, type 194000146905
- ⑤ Return shut-off valve, straight, type 194000145952
- ⑥ Unit shown with roll-up grille
- ⑦ Pipe conduits, cut-out
- ⑧ Cable conduits



Same end connections, connections on left

Katherm NK 380	A	B	C	D
Duct height 150 mm	18	150	42	58
Duct height 200 mm	68	200	100	50

All dimensions in mm

Number of height-adjustment feet and raised floor mounting feet

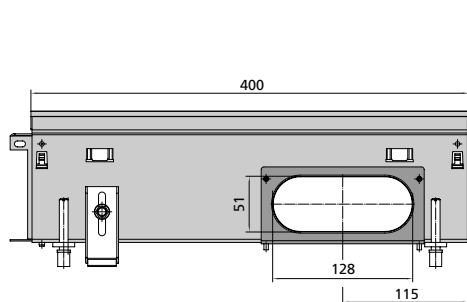
9. Number of height-adjustment feet and raised floor mounting feet

Duct length [mm]	Number of height-adjustment feet	Number of raised floor mounting feet
800	2	2
1000	2	3
1200	2	3
1400	2	3
1600	2	3
1800	2	3
2000	2	4
2200	2	4
2400	2	4
2600	2	5
2800	2	5
3000	2	5
3200	2	5
3400	4	6
3600	4	6
3800	4	6
4000	4	6
4200	4	7
4400	4	7
4600	4	7
4800	4	7
5000	4	8

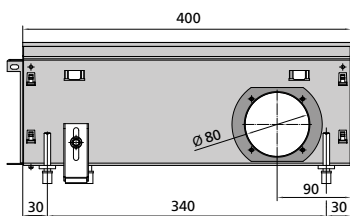
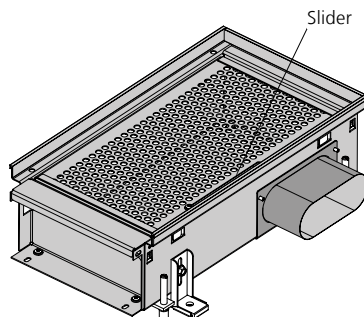
1.45 Katherm NK - Natural Convection

Katherm NK – supply air modules

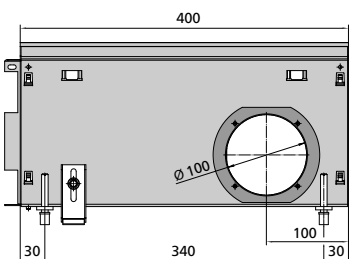
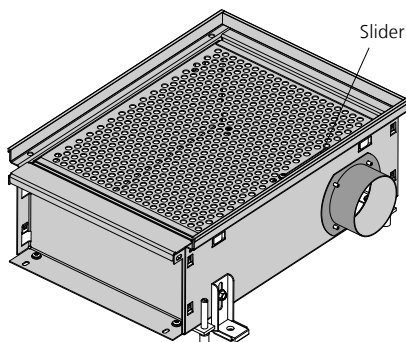
10. Katherm NK – supply air modules



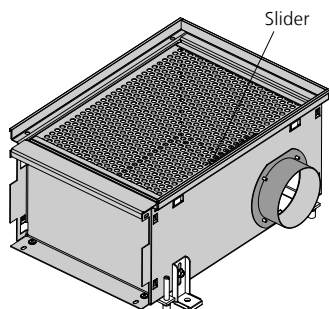
Example of 232/120



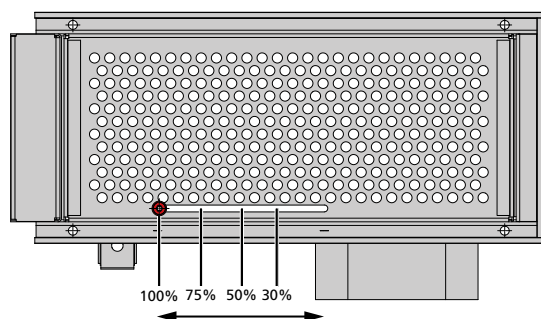
Example of 300/150



Example of 182/200

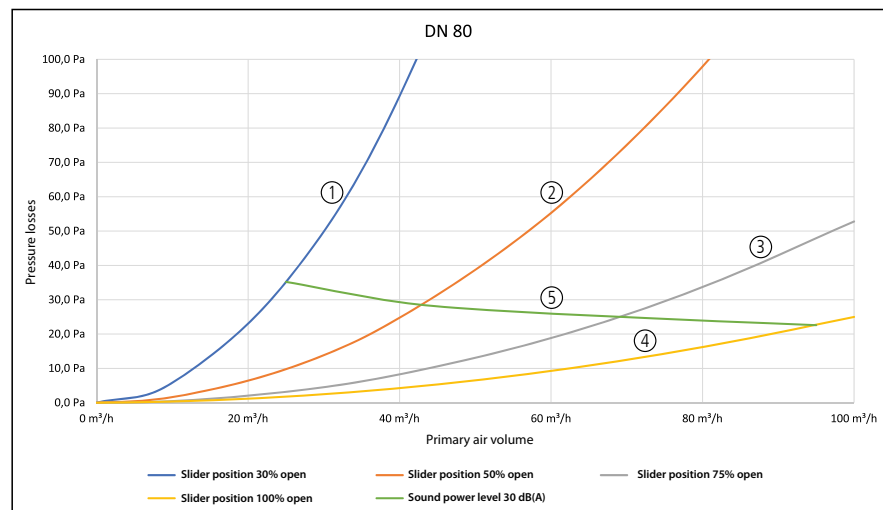


Adjusting the slider positions

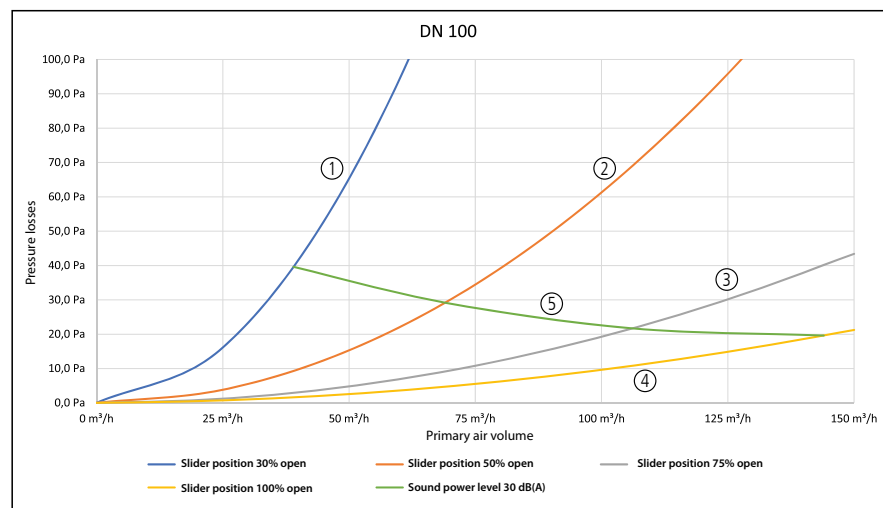


The supply air model, like all standard Katherm units, is adjusted in height via the adjustment screws and fixed to the floor via the adjustment feet. To set the desired flow rate at the supply air module, you can move the slider in various positions. The illustration on the left shows 4 different slider positions (100%, 75%, 50% and 30% open). They are also shown in the design diagrams below, where you can read off the desired pressure losses, sound levels and air flow rates. Intermediate values can be interpolated.

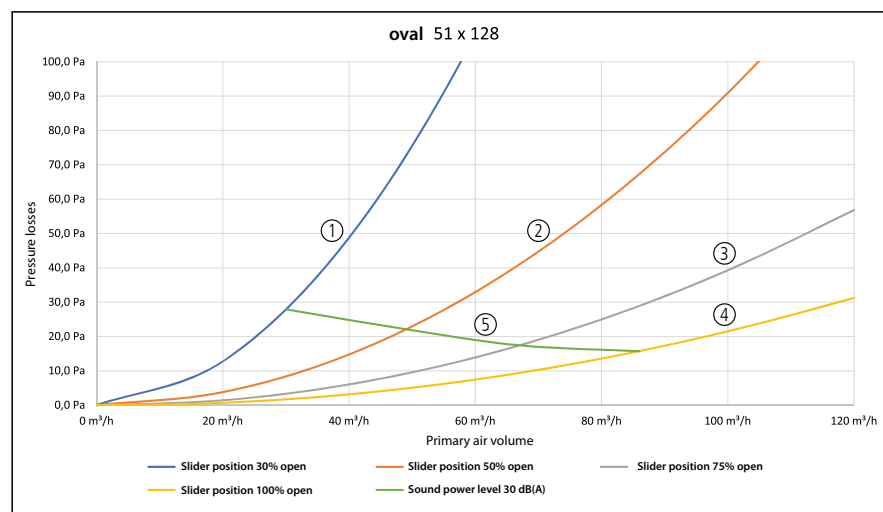
Design diagrams



- 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)



- 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)



- 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)

11. Maintenance

Information

Maintenance on **Katherm NK** floor ducts should only be carried out by qualified personnel trained in compliance with the installation and operating instructions as well as any regulations currently in force. Regular maintenance and inspections are required in order to permanently guarantee the function and performance of the **Katherm NK**.

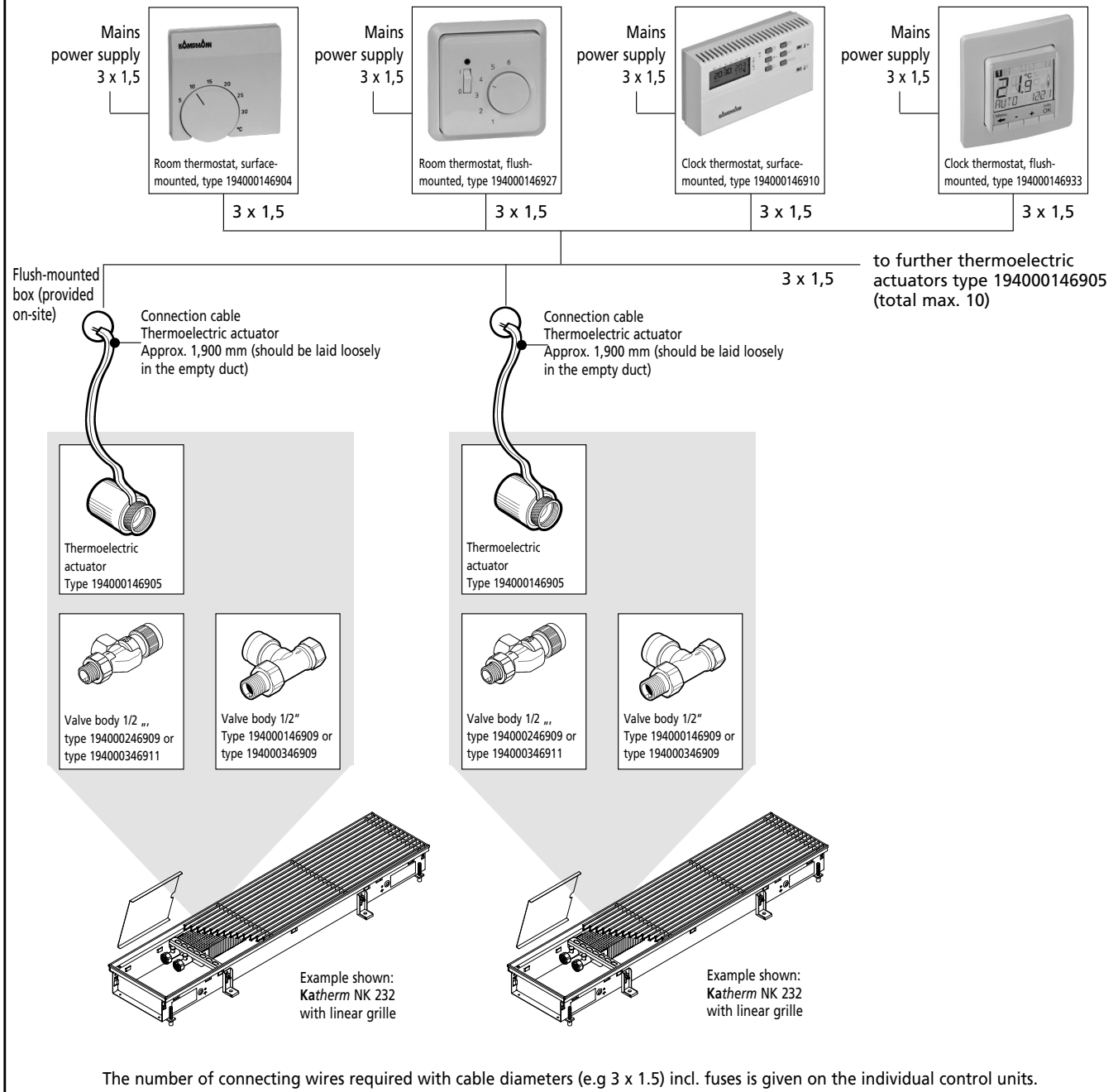
Heat exchanger

- | Inspect the integral heat exchanger every six months for dirt and possible damage. A visual inspection is sufficient here.
- | Carefully vacuum the heat exchanger if dirty.

Valves

- | Inspect the valves as well every 12 months and check the leak-tightness (visual inspection)!

12. Possible Control Options



Note: Always place 194000 in front of the respective type number. e.g. 146904 → 194000146904

Sample controls

An option for electric controls is the combination of a room thermostat and the corresponding number of actuators and valves. The required room temperature is set on the room thermostat. If the room temperature falls below this set value, the thermoelectric actuator opens the water-side valve.

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Model Overview - Valve Bodies/Return Shut-off Valves

13. Model Overview - Valve Bodies/Return Shut-off Valves

Model Overview - Valve Bodies/Return Shut-off Valves

Duct height [mm]	Katherm NK					
	NK 137		NK 182		NK 232, NK 300 and NK 380	
	Eurokonus flow connection	Eurokonus return connection	Eurokonus flow connection	Eurokonus return connection	Eurokonus flow connection	Eurokonus return connection
92	Axial, type 194000246909 or type 194000346911	Return shut-off valve, straight, type 194000145952	Axial, type 194000246909 or type 194000346911	Return shut-off valve, straight, type 194000145952	Valve, straight, type 194000146909 or type 194000346909	Return shut-off valve, straight, type 194000145952
120						
150	-	-	Valve, straight, type 194000146909 or type 194000346909			
200						

14. Declaration of Conformity



EU-Konformitätserklärung

EU Declaration of Conformity
Déclaration de Conformité CE
Deklaracja zgodności CE
EU prohlášení o konformite

Wir (Name des Anbieters, Anschrift):

We (Supplier's Name, Address):
Nous (Nom du Fournisseur, Adresse):
My (Nazwa Dostawcy, adres):
My (Jméno dodavatele, adresa):

KAMPMMANN GMBH & Co. KG
Friedrich-Ebert-Str. 128-130
49811 Lingen (Ems)

erklären in alleiniger Verantwortung, dass das Produkt:

declare under sole responsibility, that the product:
déclarons sous notre seule responsabilité, que le produit:
deklarujemy z pełną odpowiedzialnością, że produkt:
deklarujeme, vědomi si své odpovědnosti, že produkt:

Type, Modell, Artikel-Nr.:	Katherm QL	141***
Type, Model, Articles No.:	Katherm NK	145***
Type, Modèle, N° d'article:	Katherm ID	241***
Typ, Model, Nr artykułu:		
Typ, Model, Číslo výrobku:		

auf das sich diese Erklärung bezieht, mit der / den folgenden Norm(en) oder normativen Dokumenten übereinstimmt:

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s):
do którego odnosi się niniejsza deklaracja, jest zgodny z następującymi normami lub innymi dokumentami normatywnymi:
na který se tato deklarace vztahuje, souhlasí s následující(mi) normou/normami nebo s normativními dokumenty:

DIN EN 16430-1; -2; -3

DIN EN 442-1 ; -2

**Gebläseunterstützte Heizkörper, Konvektoren und
Unterflurkonvektoren
Radiatoren und Konvektoren**

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Sitz: Lingen (Ems)

Registergericht: Osnabrück, HRB 211684
Geschäftsführer: Hendrik Kampmann

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Declaration of Conformity



Gemäß den Bestimmungen der Richtlinien:

Following the provisions of Directive:
Conformément aux dispositions de Directive:
Zgodnie z postanowieniami Dyrektywy:
Odpovídající ustanovení směrnic:

305/2011/EU

Bauproduktenverordnung

Lingen (Ems), den 01.09.2020

Ort und Datum der Ausstellung

Place and Date of Issue
Lieu et date d'établissement
Miejsce i data wystawienia
Místo a datum vystavení

Hendrik Kampmann

Name und Unterschrift des Befugten

Name and Signature of authorized person
Nom et signature de la personne autorisée
Nazwisko i podpis osoby upoważnionej
Jméno a podpis oprávněné osoby

2/2

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KAMPMANN
Genau mein Klima.

1.45 *Katherm* NK - Natural Convection

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