konveka

EN EURONORM 16430 TESTED

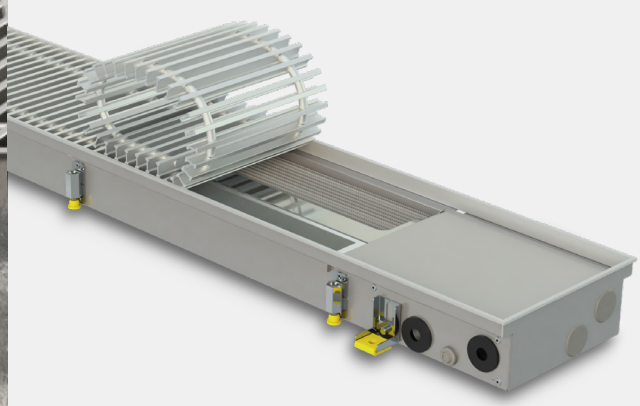
FH

TRENCH HEATERS FH

FOR HEATING

FAN ASSISTED

- 36 models
- Stainless steel casings
- Remarkably low noise level
- Tested according to EN 16430 in independent accredited laboratory
- 10 year warrany for casings and heat exchangers
- Fans with most economical and quiet EC-type motors
- Excelent compatibility with heat pumps and condensate boilers
- Max operating pressure 25 bar
- Possibility to control up to 30 units with 1 thermostat
- Highly efficient and economic copper–aluminium heat exchangers
- Safe voltage of fans – 24V (DC)
- Supply air filters are in standard set
- Reversible reinforced profile grilles
- All fixing brackets and bolts have sound proofing elements
- Possibility to change level of casing at any time during exploitation (when installed in raised floors)



2024

FH

TRENCH HEATERS **FH**

Small but full of energy, FH trench heaters **with fans** will fill your room with pleasant warmth even in the coldest winters.

Quiet and extremely economical EC fans increase convection efficiency more than 4 times, almost without any sound.

Due to **extremely low inertia**, can quickly increase and precisely maintain the set room temperature, **providing the room with exactly as much heat as you require just when it is required.**

Create an effective warm air curtain for large windows, without allowing cold to penetrate the premises. The **heat is perfectly distributed** throughout the room.

Operates very well with **low-temperature heat sources**, such as heat pumps or condensing boilers.

Fully integrated into the floor, and therefore **do not impede free passage**.

Perfect for any interior, as the only visible element is the grill, the material and colour of which matches floor covering.

May be walked on and can easily **withstand the weight of a number of adults**.

Supplied with a **stainless steel casings** and **copper-aluminium heat exchangers**, to ensure they remain extremely reliable over the long-term.

10-year warranty for the casings and heat exchangers

We are confident in the longevity of our housings and heat exchangers; therefore, we provide them with a 10-year guarantee.

Tested according to EN16430

The outputs of all products manufactured by Konveka have been tested by independent accredited laboratories according to the latest standards.
With us, 1 kW means 1 kW.

Fans with EC technology

All Konveka forced convection devices are equipped with fans that employ **EC technology**. This is far superior to AC technology, as the fans:

1. Are **7 times more economical**.
2. Brushless motors are more durable and are **maintenance-free**.
3. Speed is **adjustable stepless**, using only as much power as required.
4. Starting currents do not exceed the operating currents.
5. Minimum rotation speed is 10% (out of max.)

Work perfectly with low-temperature energy carriers

Due to their high efficiency, FH are very **suitable for** operating with low-temperature energy carriers, such as **heat pumps** and **condensing boilers**.

Sound insulation

All the supporting parts have sound-insulating elements, to prevent the spread of sound to the premises below.

Especially quiet operation

We have achieved exceptionally low noise levels using **extremely quiet EC fans** and by the **optimisation** of their **rotational speed** and **design** of the devices.

All body parts are made of stainless steel

Stainless steel provides **100% corrosion protection** for an indefinite time. It is also **54% stronger** and **45% harder** than carbon steel, so it can withstand loads during transportation, installation, and operation.

Reinforced casings

As a standard, the FH convector casings are equipped with:

1. **Stiffening elements** to maintain the pressure of the concrete – from 2 to 3 pcs, depending on the length of the casing.
2. M10 **support screws** to withstand the vertical load – from 4 to 12 pcs.
3. Mounting **brackets** for attaching the casing to the floor – 4 pcs.

These structural elements, together with the strong casing material, ensure their stable shape during installation, transportation and operation.

Maximum operating pressure – 25 bar

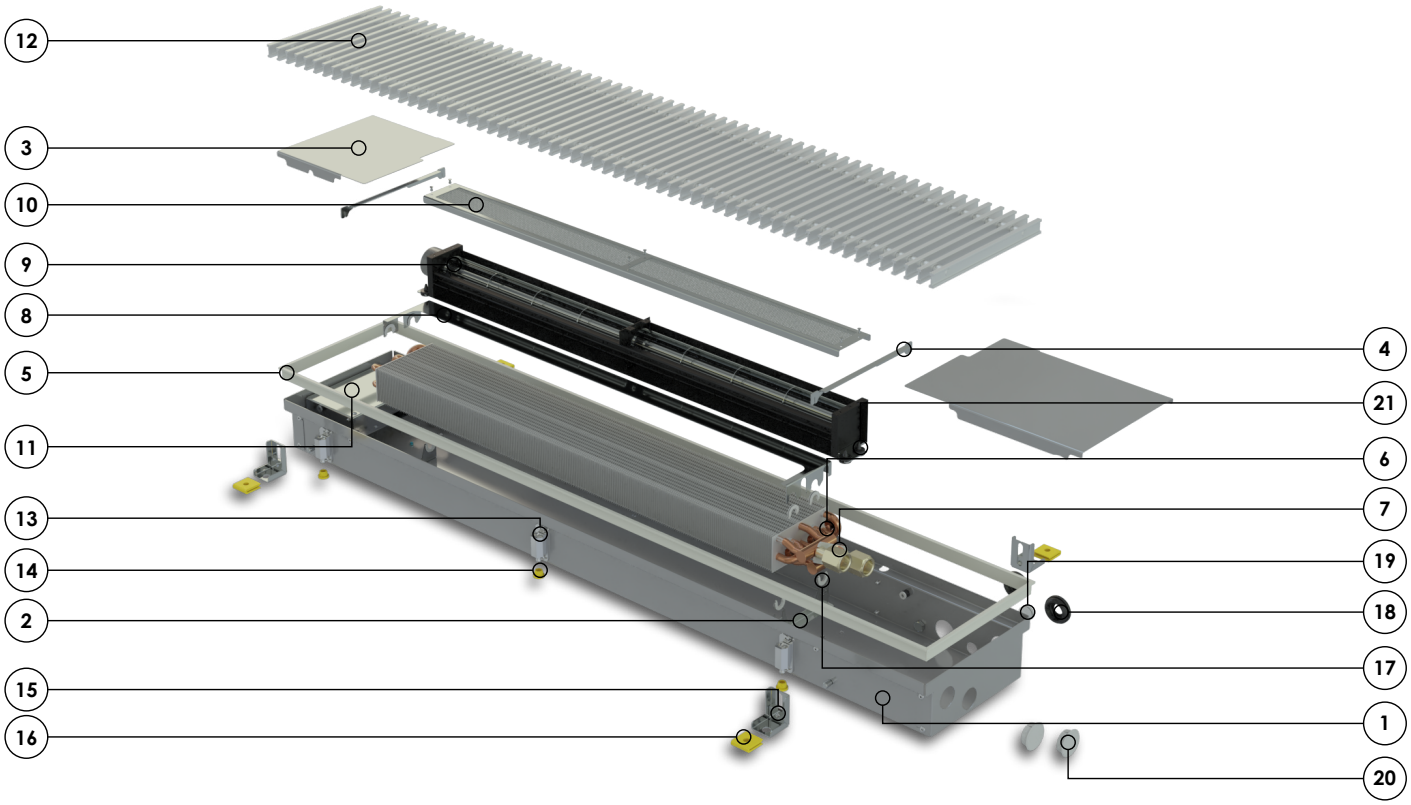
All the devices are **factory-tested** for leaks at a pressure of **30 bar.** The maximum maintained pressure (strength limit) is **110 bar.** Konveka devices easily withstand hydraulic tests, hydraulic shocks and can be installed in extremely tall buildings.

Safe operating voltage of fans

The operating voltage of all fans is 24V DC. This voltage is safe for humans.

STANDARD SET

FH



1. Stainless steel casing
2. Brackets for heat exchanger
3. Hydraulic connections cover
4. Casing's stiffening elements
5. Anodized aluminium frame; colour matches the colour of grille
6. Copper - aluminium heat exchanger
7. Air vent
8. Air guiding element
9. Fan with EC motor
10. Air filter
11. Control box (optional)
12. Protective - decorative grille (optional)
13. Height adjustment and vertical load supporting bolts
14. Noise isolating elements for adjusting screws
15. Casing fixing to the floor brackets
16. Noise isolation elements for floor brackets
17. Heat exchanger fixing - protecting elements
18. Pipe sealing and protection elements
19. Cable sealing and protection elements
20. Plugs for unused casing holes
21. Vibration dampers for fan

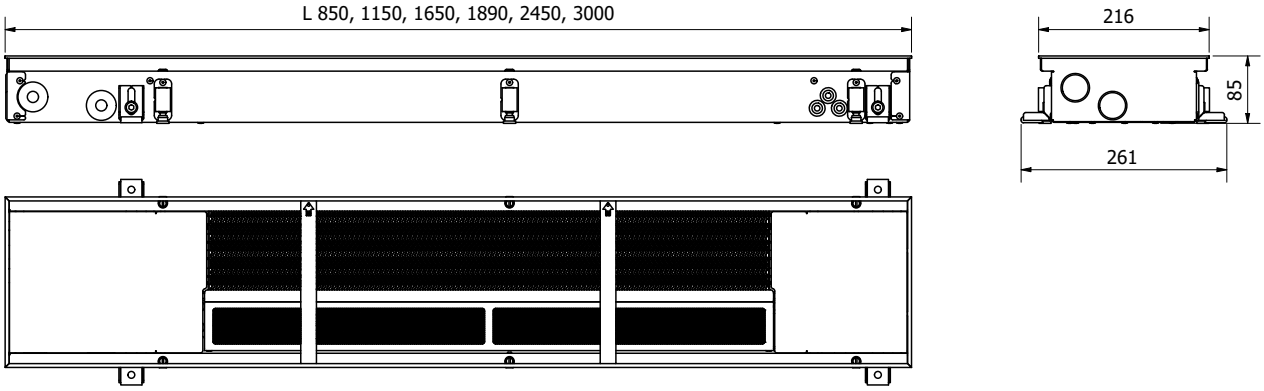
All fasteners required for installation

Installation manual

5-layer, 2 parts cardboard box, additionally used for device protecting during installation and construction works

OVERVIEW

FH4-H



TECHNICAL DATA

Length	850-3000 mm	Thread of hydr. connections	G 1/2“
Width	216 mm	Thread type of hydr. connections	inner
Height = installation height	85 mm	Side of the hyd. connections	left
Type of fan motors	EC	Operating pressure	25 bar
Fan operating voltage	24V DC	Operating temperature	2 - 120°C
Fan speed control voltage	0 - 10V		

EN16430 certified outputs

Fan speed	Heat output, W			Sound pressure level, dB(A)	Max. air flow, m^3/h	No. of fans, pcs.	Max el. current, A	Max power consumption, W	Water flow, l/h
	90/70/20°C Δt = 60°C	**75/65/20°C Δt = 50°C**	55/45/20°C Δt = 30°C						
FH4-H 85									
100%	1 372	**1 148**	698	35	162	1	0.16	3.8	101
80%	1 144	**957**	582	24	126		0.13	3.1	
60%	887	**742**	451	19	96		0.10	2.3	
40%	601	**503**	306	17	66		0.06	1.5	
20%	286	**240**	146	-	30		0.03	0.8	
FH4-H 115									
100%	2 375	**1 988**	1 208	36	276	1	0.25	6.0	175
80%	1 980	**1 658**	1 007	26	216		0.20	4.8	
60%	1 536	**1 285**	781	20	162		0.15	3.6	
40%	1 041	**871**	529	18	108		0.10	2.4	
20%	496	**415**	252	-	52		0.05	1.2	
FH4-H 165									
100%	4 095	**3 428**	2 083	37	474	1	0.38	9.1	301
80%	3 414	**2 858**	1 737	27	372		0.30	7.3	
60%	2 647	**2 216**	1 346	21	288		0.23	5.5	
40%	1 794	**1 502**	912	19	198		0.15	3.6	
20%	855	**715**	435	-	97		0.08	1.8	

Fan speed	Heat output, W			Sound pressure level, dB(A)	Max. air flow, m³/h	No. of fans, pcs.	Max el. current, A	Max power consumption, W	Water flow, l/h
	90/70/20°C Δt = 60°C	**75/65/20°C Δt = 50°C**	55/45/20°C Δt = 30°C						
FH4-H 189									
100%	4 958	**4 150**	2 522	38	552	2	0.50	12.0	365
80%	4 134	**3 460**	2 103	28	432		0.40	9.6	
60%	3 205	**2 683**	1 630	21	324		0.30	7.2	
40%	2 172	**1 818**	1 105	19	216		0.20	4.8	
20%	1 035	**866**	526	-	104		0.10	2.4	
FH4-H 245									
100%	6 678	**5 590**	3 397	40	750	2	0.63	15.1	491
80%	5 568	**4 661**	2 832	30	588		0.50	12.1	
60%	4 317	**3 614**	2 196	23	450		0.38	9.1	
40%	2 962	**2 449**	1 488	20	306		0.25	6.0	
20%	1 394	**1 167**	709	18	149		0.13	3.0	
FH4-H 300									
100%	8 417	**7 046**	4 281	41	948	2	0.76	18.2	619
80%	7 018	**5 875**	3 570	31	744		0.61	14.6	
60%	5 441	**4 555**	2 768	24	576		0.46	10.9	
40%	3 688	**3 087**	1 876	21	396		0.30	7.3	
20%	1 757	**1 471**	894	19	194		0.15	3.6	

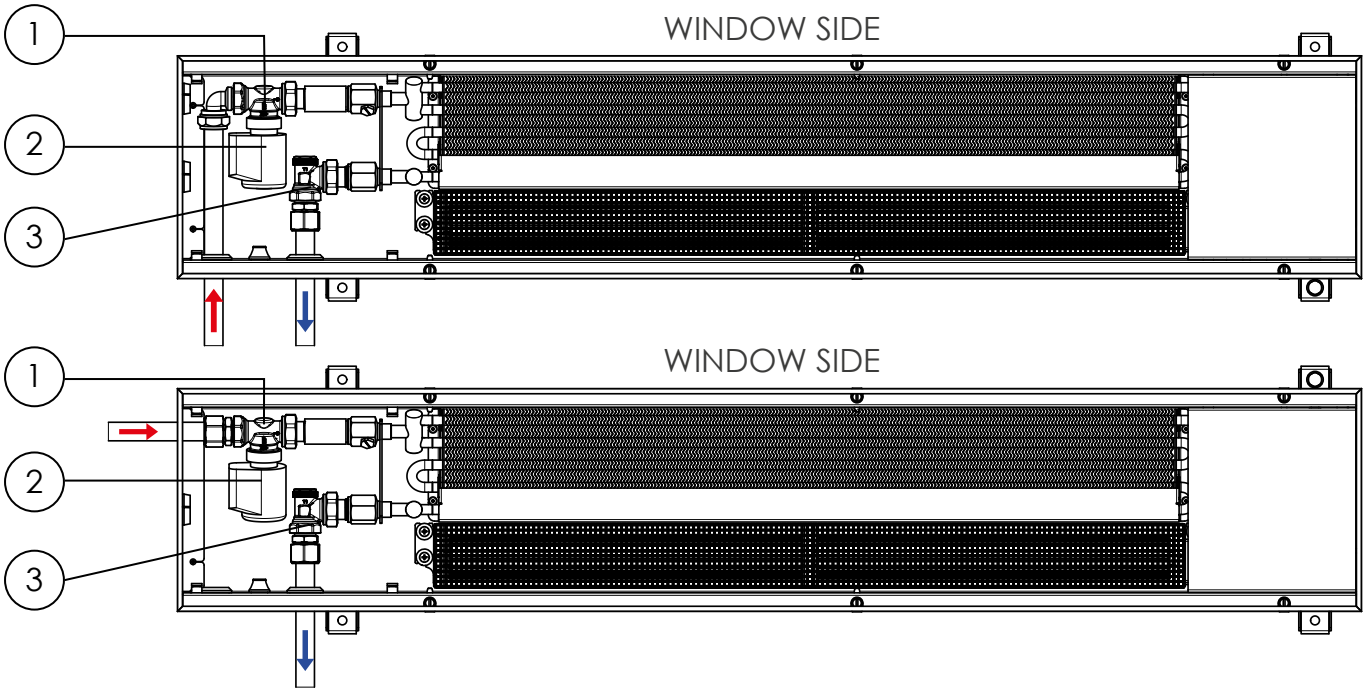
Heat outputs at specific temperatures are available in Selection tables at www.konveka.com

Pressure losses

Length, cm	MAX flow, l/h	MAX power, W	Formulas for pressure losses, Pa	MAX pressure losses, Pa
85	99	1 148	0,41 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	140
115	171	1 988	0,71 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	712
165	295	3 428	1,22 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	3 025
190	357	4 150	1,48 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	4 741
245	481	5 590	2,00 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	8 638
300	606	7 046	2,52 x (-0,00006 x q^3 + 0,04893 x q^2 - 0,69919 x q - 8,14817)	10 530

q – Flow of energy carrier (l/h)

EXAMPLE OF CONNECTIONS



(1) Thermostatic valve, straight (2) Thermostatic valve actuator (3) Angle lockshield valve

INSTALLATION FEATURES

- Side with heat exchanger is always mounted closer to the window (wall)
- Energy carrier supply pipes has to be connected to heat exchangers connectors which are further from the fans
- Energy carrier outlet pipes has to be connected to heat exchangers connectors which are closer to the fans
- Height of the device can be adjusted at any time of exploitation (when installed in raised floor)

ORDER CODE

Type	Length, cm	Example
FH4-H	115	FH4-H 115

ACCESSORIES

THERMOSTATIC VALVE **TVS15**

Controls flow of energy carrier. Controled by thermal actuator A24NC

- Controls flow with thermoelectric actuator
- Provides possibility to close flow and disconnect heat exchanger from heating system without draining
- DN15 Kvs = 2,00

LOCKSHIELD VALVE (STRAIGHT) **LS15**

Opens, closes or limits flow of energy carrier

- For energy carrier opening, closing and presetting of maximal flow
- Provides possibility to close flow and disconnect heat exchanger from heating system without draining
- DN15 Kvs = 1,74
  DN20 Kvs = 1,93

LOCKSHIELD VALVE (ANGLE) **LA15**

Opens, closes or limits flow of energy carrier

- For energy carrier opening, closing and presetting of maximal flow
- Provides possibility to close flow and disconnect heat exchanger from heating system without draining
- DN15 Kvs = 1,74
  DN20 Kvs = 1,93

THERMOSTATIC VALVE ACTUATOR **A24NC**

Opens / closes thermostatic valve. Controled by room thermostat TW24

- Opening/closing of thermostatic valves (ON/OFF)
- Thermoelectric
- Opened/Closed indicator
- Voltage 24V DC

ROOM THERMOSTAT **TW24**

Controls thermal actuator A24NC and fans according to preset room temperature

- For maintaining the set room temperature
- Day/night and weekly temperature programmes
- Accuracy of temperature control ± 0.5°C
- Power supply of 24V DC
- Stepless fan rotating speed control, 0–10 V
- Valve actuator control (ON/OFF)
- Backlit LED display

ELECTRIC CONTROL BOX **CB20**

For power supply of fans, actuators A24NC and room thermostat TW24

- Can be installed inside convector's casing
- Ensures easy and fast connection between convector and room thermostat
- 24V DC power supply included
- El. connectors for fast connection of the cables included

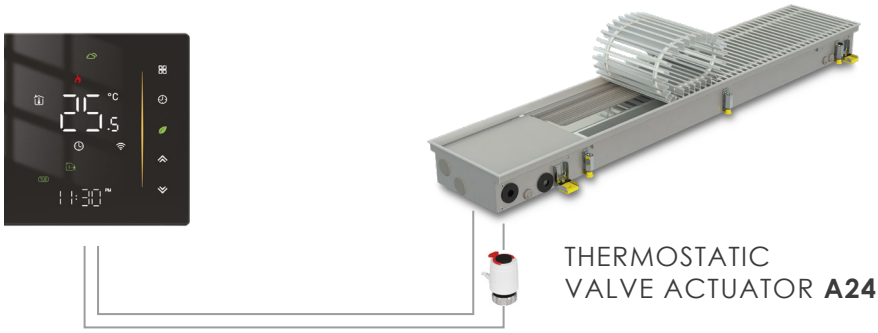
ORDER CODES

Accessory	Order code
Thermostatic valve	TVS15
Thermostatic valve actuator	A24NC
Lockshield valve (angle)	LA15
Lockshield valve (straight)	LS15
Room thermostat	TW24
Electric control box	CB20

CONNECTING ONE **FH** TO ROOM THERMOSTAT

ROOM THERMOSTAT **TW24**

TRENCH HEATER **FH**

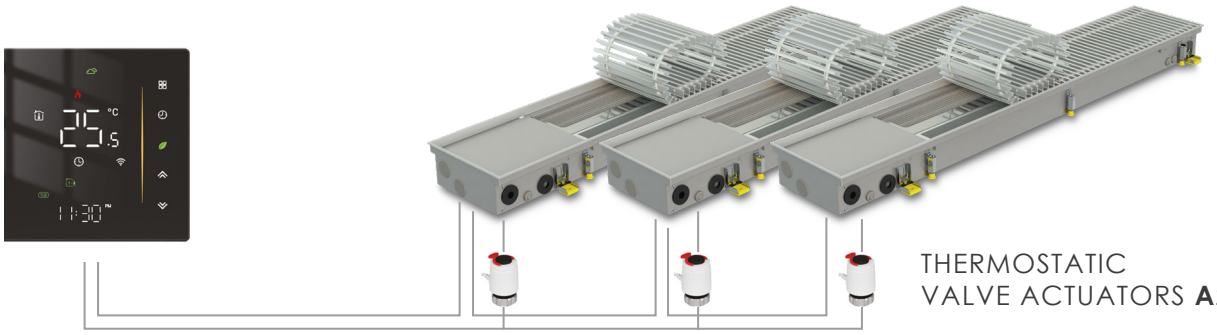


THERMOSTATIC
VALVE ACTUATOR **A24NC**

CONNECTING MULTIPLE **FH** TO ROOM THERMOSTAT

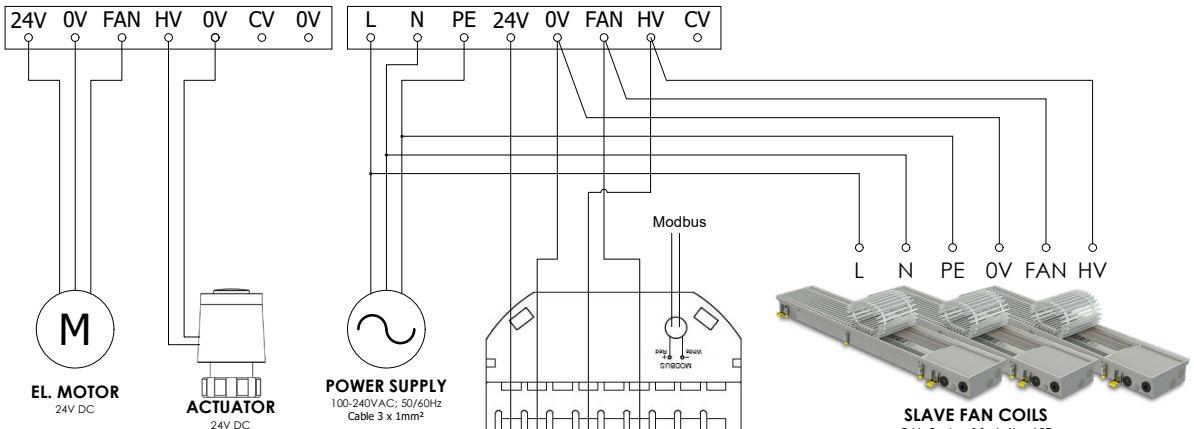
ROOM THERMOSTAT **TW24**

TRENCH HEATERS **FH** (UP TO 30 PCS)



THERMOSTATIC
VALVE ACTUATORS **A24NC**

WIRING DIAGRAM

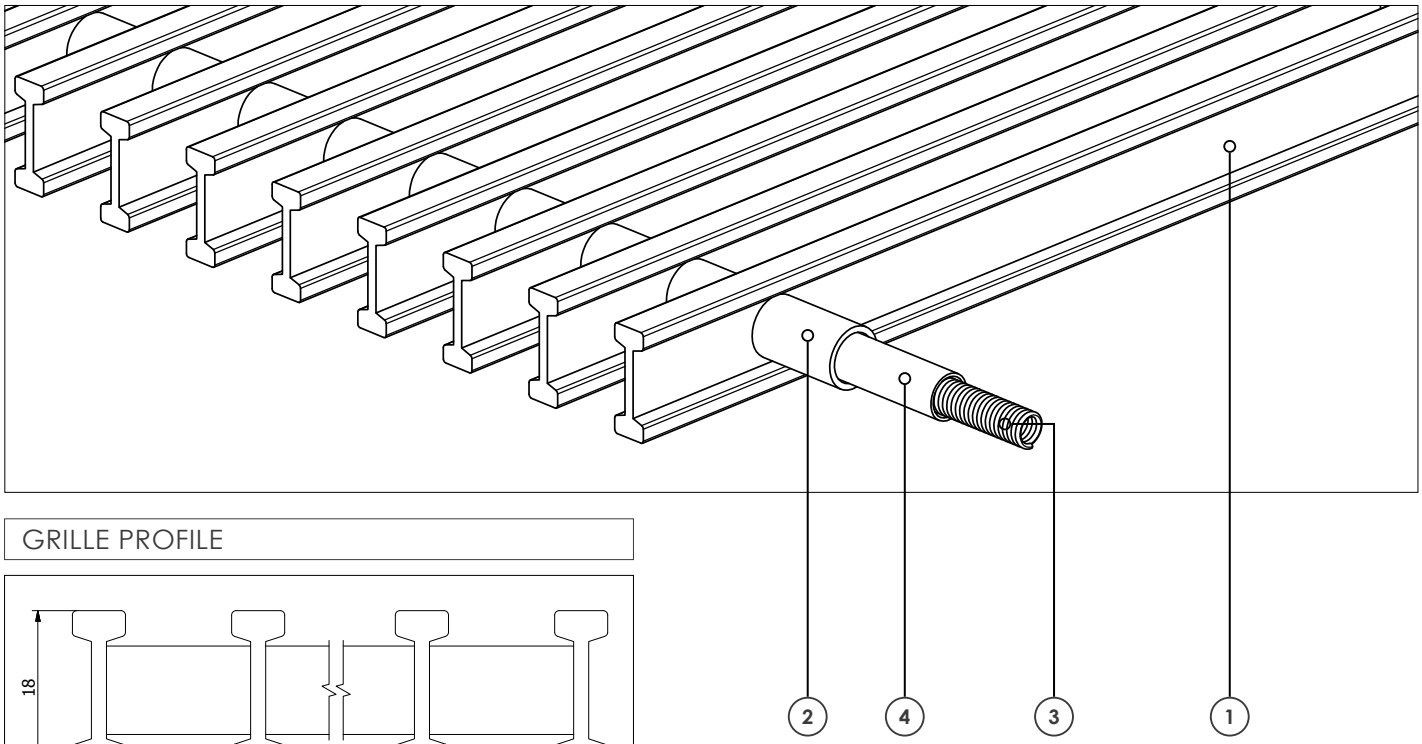


Legend
24V - 24VDC
0V - common
FAN - fan speed control signal 0 - 10V
HV - control signal for heating actuator 24VDC
CV - control signal for cooling actuator 24VDC
L - live line
N - neutral line
PE - grounding line

- Trench heaters installed in the same room are controlled based on Master–Slave principle
- Speed of fans are controlled 0–10 V by room thermostat. Voltage – 24VDC
- Valve actuators are controlled ON/OFF by room thermostat. Voltage – 24VDC
- Up to 30 trench heaters can be controlled with one room thermostat TW24

GRILLES

ALUMINIUM ROLL-UP GRILLES



GRILLE PROFILE

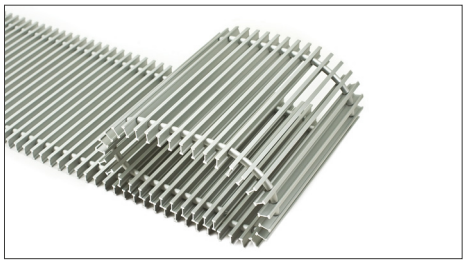
1 Aluminium profile
- made of anodized aluminium
- reinforced reversable double T profile

2 Spacers
- made of anodized aluminium
- does not shrink or crack when exposed on UV or heat
- the colour is exactly the same as colour of profiles

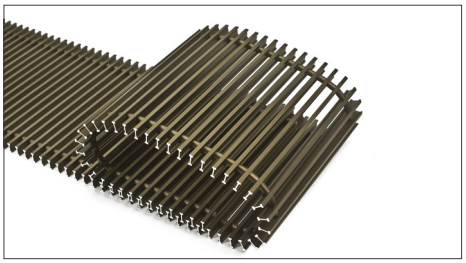
3 Spring

4 Flexible protective pipe

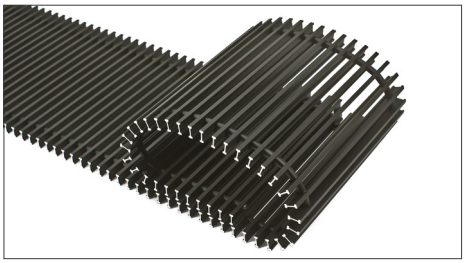
SILVER (ALS)



BROWN (AL 10)

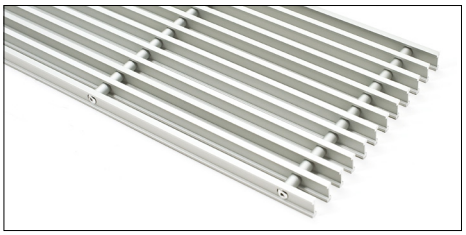


BLACK (AL 50)

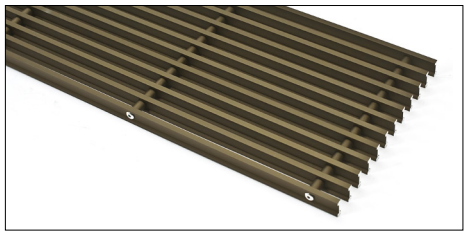


ALUMINIUM LINEAR GRILLES

SILVER (ALS)

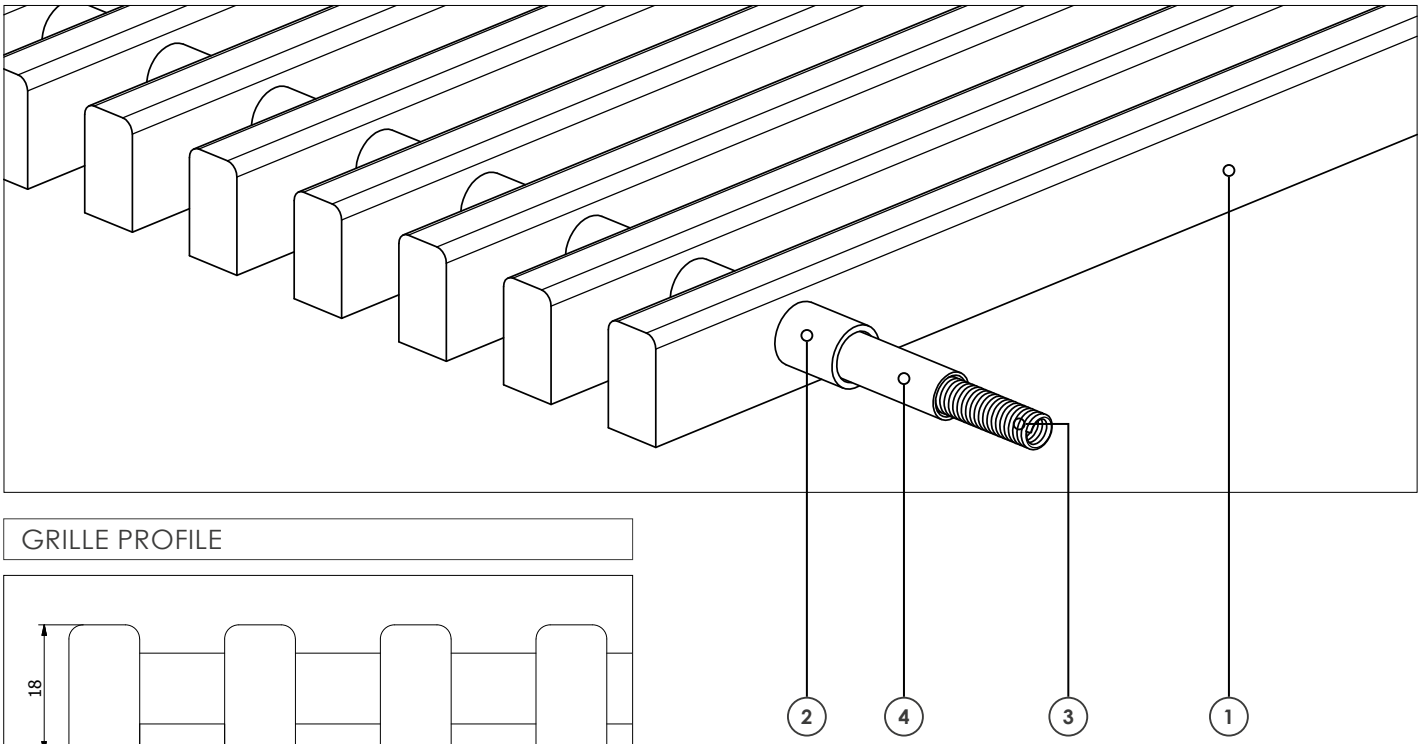


BROWN (AL 10)



BLACK (AL 50)

WOODEN ROLL-UP GRILLES



GRILLE PROFILE

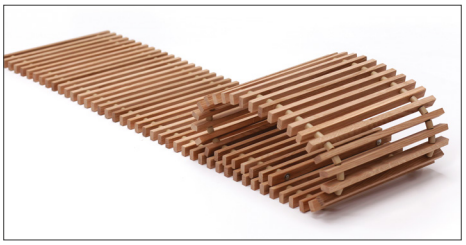
1 Wooden profile
- made of solid wood

2 Spacers
- made of anodized aluminium
- does not shrink or crack when exposed on UV or heat

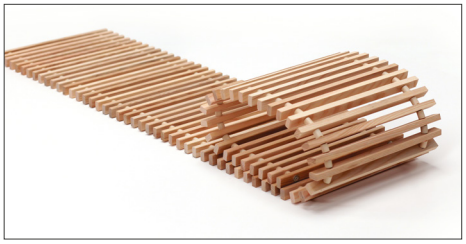
3 Spring

4 Flexible protective pipe

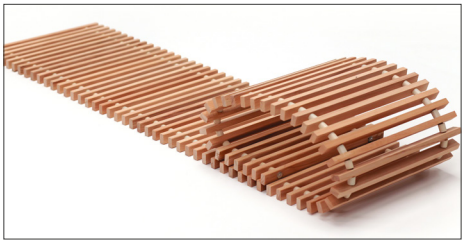
OAK



ASH



BEECH



ORDER CODE FOR GRILLES

Type	Length, cm	Width, cm	Material	Example
GR	115	21,6	ALS	GR 115-21,6 ALS

ABOUT KONVEKA

Konveka is a **full production cycle convector manufacturing company** engaged in this activity **since 2005**. The range of products we develop and manufacture is wide: from simple natural convection convectors to complex devices with fans for heating, cooling and ventilation.

Konveka is a manufacturer of high-quality and reliable convectors:

- We provide a **5 - 10 year warranty for all our products** (except their electrical part) without any additional warranty extension fees.
- **The capacities of all our products are determined by independent accredited laboratories** according to current standards. With us, 1kW means 1kW.
- We **do not use cheap, unapproved solutions or use unreliable materials** when designing and manufacturing our devices.

Although we operate in a highly competitive international market, **we are at the forefront where quality, durability and reliability are valued**.

We are well known in **Eastern and Western Europe, Scandinavia, North America and Central Asia**. Konveka products can be seen in many prestigious buildings around the world: administrative buildings, shopping malls, airports, restaurants, theaters, universities, hotels, apartment buildings and individual homes. Visit our website www.konveka.com for more information.

Konveka consistently wins **national awards** (see below) for **reliability, consistency and business growth**.

Our slogan - **"More than you expected"** reflects the quality of our products and technical solutions, which often exceed customer expectations. We value our customers and are happy to be a part of their successful business.

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