

## VONARIS solitary finished radiator



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## VONARIS Centrally connected radiator



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### Basics

## INTRATHERM Trench convectors

from page 315



FMK



F1T



F1P



ULOW-E2

Profile panel radiators

Plan panel radiators

Vertical radiators



General information

Preformed plate system

Stapler system

Special systems



Bathroom radiators

Design radiators



Standard Column radiators




Centrally connected Column radiators


Architecture Column radiators





## VONARIS SOLITARY FINISHED RADIATORS.






**Connections:**  
 horizontal design:  
 2 x external thread G 3/4",  
 bottom right (by special order,  
 bottom left).  
 vertical design:  
 2 x external thread G 3/4",  
 bottom right (by special order,  
 bottom left).


**Maximum positive operating pressure**  
 Standard design: 5 bar


**Maximum positive operating pressure:**  
 High-pressure design 8 bar


**Maximum operating temperature: 110 °C**



**VONARIS:** the solitary finished radiator in a fully welded horizontal design, with 1 to 4 layers of steel rectangular water-flow pipes arranged one-behind-the-other, each layer consisting of from 2 to 11 pipes arranged one-above-the-other.

**Vertical design:** with 1 or 2 layers of steel rectangular water-flow pipes, arranged one-behind-the-other, each layer consisting of from 3 to 12 steel pipes, arranged side-by-side. A 2 mm space between the heating pipes guarantees additional resistance to corrosion. VONARIS solitary finished radiators are equipped with a built-in valve set, suitable for either double-pipe or single-pipe operation, using a one-pipe manifold, with a factory-fitted valve (already installed) and protective cap.

**VONARIS** solitary finished radiators will normally be delivered with side panels. The horizontal design is also equipped with a top cover. VONARIS solitary finished radiators, are not delivered with brackets as standard (exception: VHV 11, overall height 358 to 790 mm, does include brackets). For the vertical de-

sign, brackets are included. The VONARIS solitary finished radiator comes with a drain plug and a pivoting vent plug (with the vertical design, a dummy plug too), all of them factory-sealed. VONARIS solitary finished radiators are Design radiators that are just waiting to be connected.

**Standard design:** rectangular steel pipes, 70 x 11 x 1.5 mm  
 High-pressure design: rectangular steel pipes, 70 x 11 x 2.0 mm

**WVO design:** models 22, 34 and 47 (in the horizontal design and up to an overall height of 286 mm) are also available with a rear-welded heat reflector (no water-flow). The VHV 20 model (at overall heights of 358 to 574 mm), and the VHV 22 model (overall heights 358 to 646 mm) may have a heat reflector fitted subsequently.

**Dimensions:**  
 Horizontal design: overall lengths between 500 mm and 1400 mm are available (at increments of 100 mm), and between 1600 and 4000 mm (at

increments of 200 mm).  
 Horizontal design: the available overall heights are 142, 214, 286, 358, 430, 502, 574, 646, and 790 mm.  
 Vertical design: overall lengths between 214 and 862 mm are available (at increments of 72 mm)  
 Vertical design: overall heights of 1600, 1800, and 2000 mm are available.

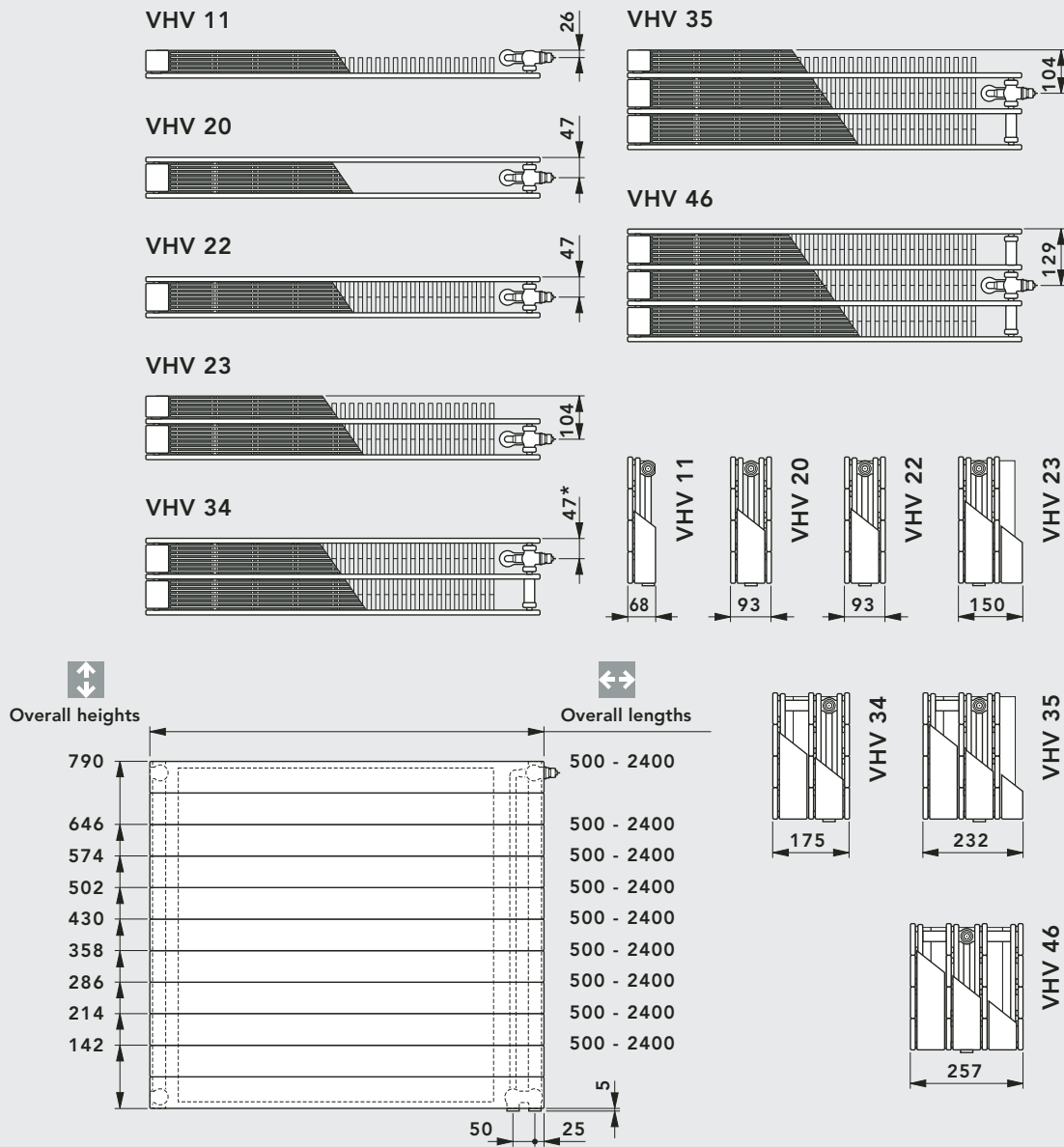
### Coatings:

1. Undercoat: electrophoretic, using water-soluble paints, conforming to DIN 55900 part 1, stoved at 165° C;
2. Finish: electrostatic powder coating, conforming to DIN 55900 part 2, in a state-of-the-art facility. (On request, and at a supplementary charge, a range of RAL and sanitary ware colours can be offered.) This particularly robust coating is stoved at an object temperature of 180° C.

### Packaging:

1. Cardboard packaging
2. Edge protection
3. Shrink foil

## Horizontal design, VHV models



Schematic diagram

\* **Please note:** If the VHV 34 model is turned and used as a left-hand design, the distance between the VONARIS rear panel and the connection point is 129 mm.

Model	VHV 11				VHV 20				VHV 22				VHV 23	VHV 34		VHV 35		VHV 46		
<b>Overall height</b>	214	286	358	430	142	214	286	358	430	142	214	286	358	430	142	214	142	214	142	214
<b>Overall height [mm]</b>	502	574	646	790	502	574	646	790		502	574	646	790	286		286		286		286
<b>Overall length [mm]</b>	500 - 2400 mm (for special overall lengths see output tables)																			
<b>Increments</b>	100 mm (for overall lengths of 1400 mm and above: 200 mm)																			

- 1 ULOW-E2  
Profile panel radiators  
Plan panel radiators  
Vertical radiators
- 2 General information  
Preformed plate system  
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Special systems
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Design radiators
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- 5 Architecture Column radiators

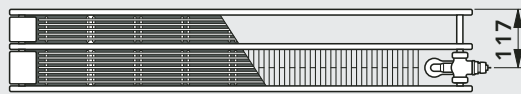
The VHV-S models

With their factory-welded heat reflector (no water-flow), the WVO designs return a major part of the otherwise lost heat to the room. They do so by

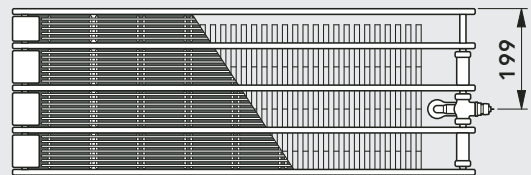
means of convection between radiator and heat reflector.

Model overview / connection dimensions: horizontal design, VHV-S models

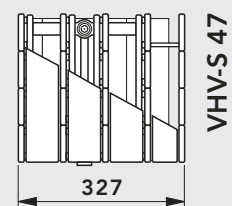
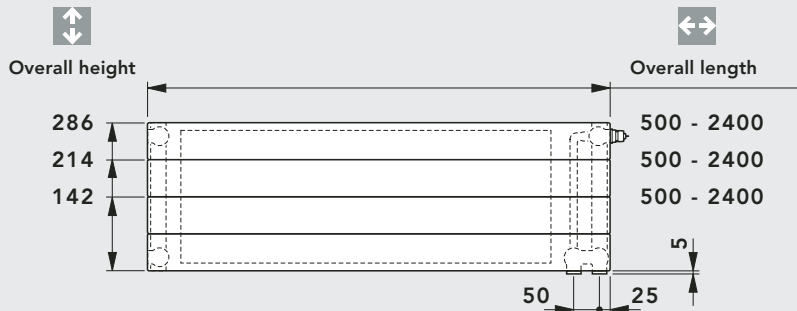
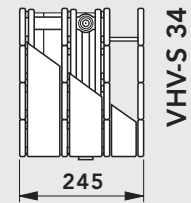
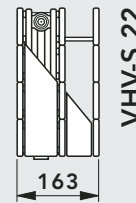
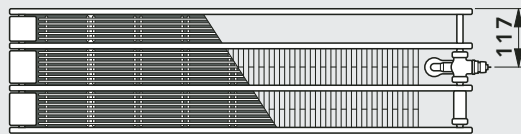
VHV-S 22



VHV-S 47



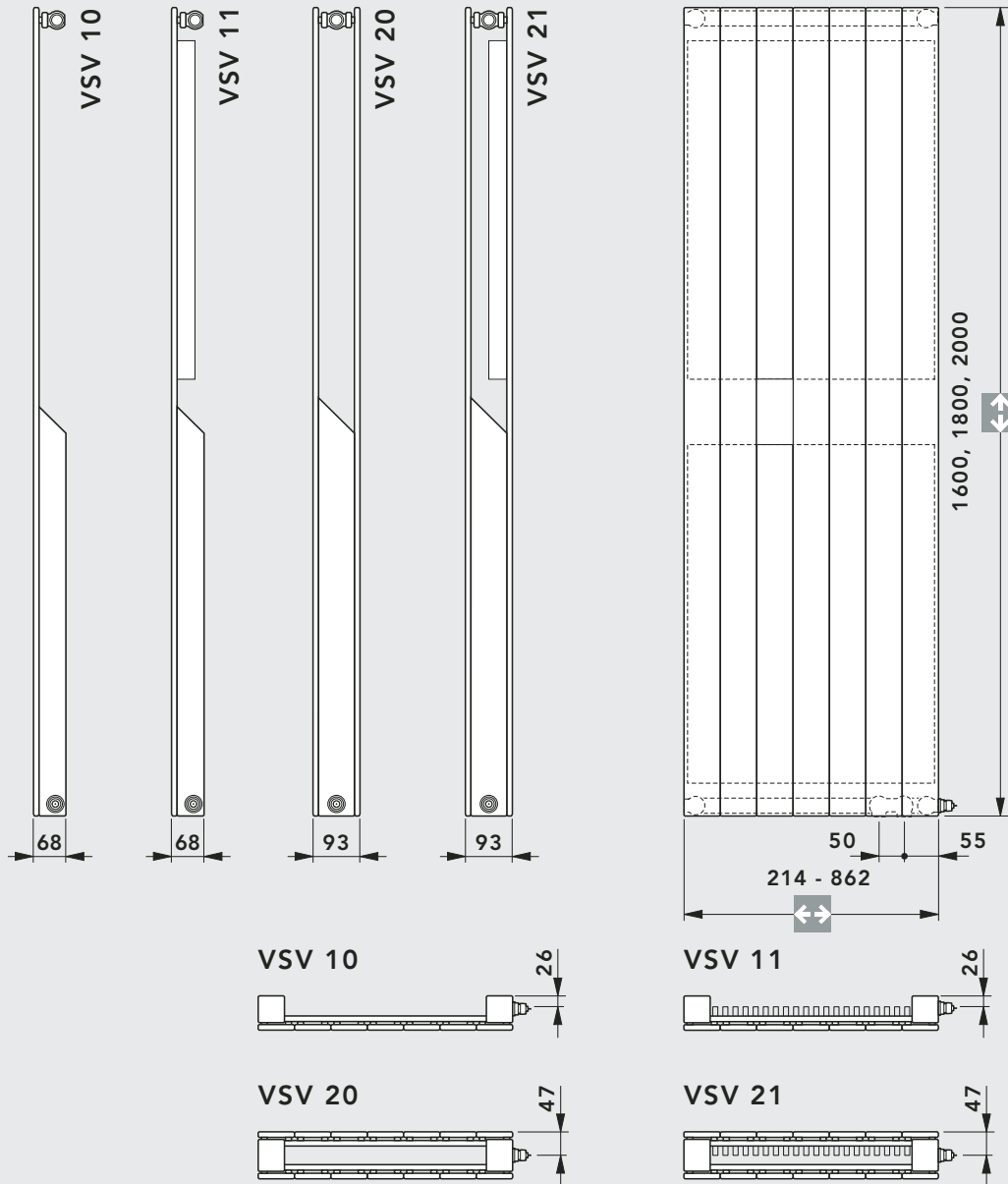
VHV-S 34



Schematic diagram

Model	VHV-S 22			VHV-S 34			VHV-S 47		
Overall height ↑ ↓ [mm]	142	214	286	142	214	286	142	214	286
Overall length ← → [mm]	500 - 2400 mm (for special overall lengths see output tables)								
Increments	100 mm (for overall lengths of 1400 mm and above: 200 mm)								

Vertical design, VSV models

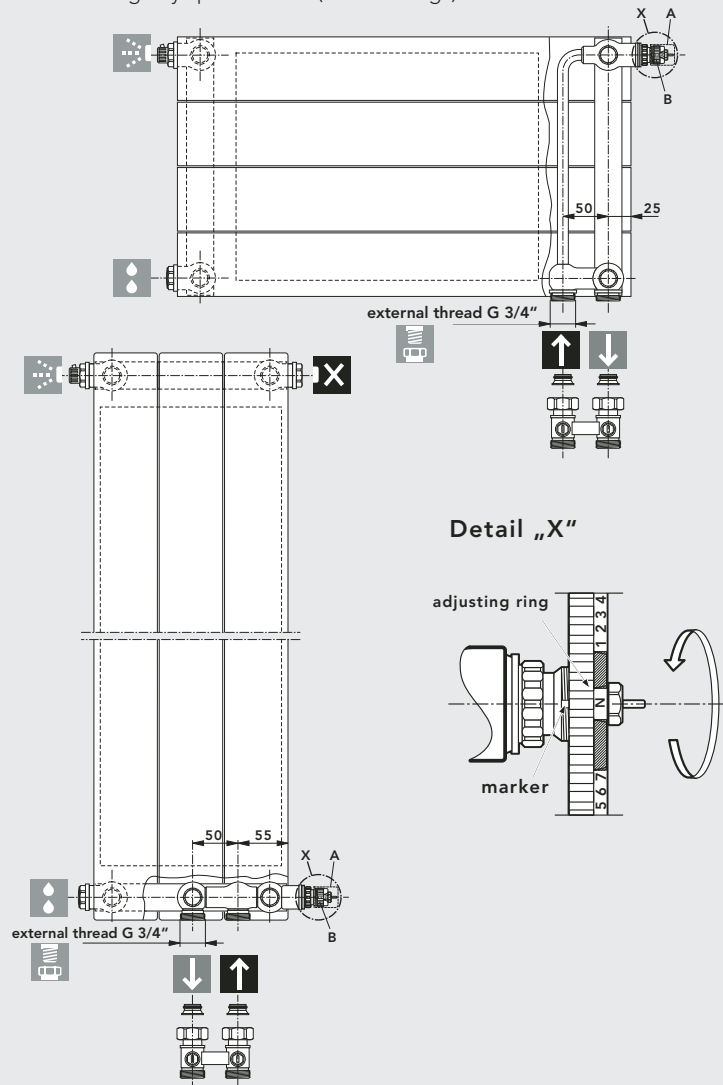


Schematic diagram

Model	VSV 10			VSV 11			VSV 20			VSV 21		
Overall height ↑ ↓ [mm]	1600	1800	2000	1600	1800	2000	1600	1800	2000	1600	1800	2000
Overall length ← → [mm]	214 - 862 mm											
Increments	72 mm											

Horizontal and vertical designs

It is easy to set the precise values required without using any special tools (see drawings).



Schematic diagram

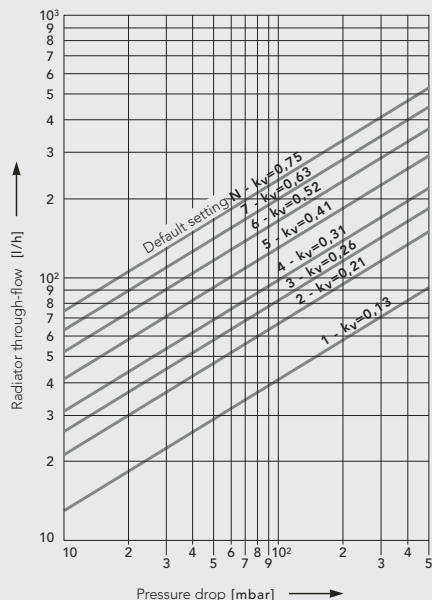


Chart 1:

Pressure drop [mbar] – double-pipe operation at 2K proportional offset.

It is of course possible to adjust the valve default setting, whilst there is pressure in the heating system.

The radiator will be delivered with a fitted protective cap. After removing the protective cap (item A), the following thermostat heads can be installed directly onto the built-in valve (item B): „RA 2000“, or „RAW“ from Danfoss, „VK“ from Heimeier, „D“ from Herz, „thera DA“ from MNG, and „UNI XD“ from Oventrop.

Adjustment tips:

- Remove protective cap and sensor
- Lift the adjusting ring and turn it anti-clockwise, to the setting required – the set value (1, 2, ...7, N) needs to be directly in line with the marker.
- Presetting is possible in steps of 0.5 between 1 and 7. The „N“ setting, cancels all presetting.

**Note:** Settings in the hatched areas must be avoided.

Guideline values for default settings

Basis:	
Supply temperature	<b>70 °C</b>
Return temperature	<b>55 °C</b>
Room temperature	<b>20 °C</b>

Default setting **1**  $k_v = 0.13$   
For radiators up to about 500 W

Default setting **2**  $k_v = 0.21$   
For radiators up to about 800 W

Default setting **3**  $k_v = 0.26$   
For radiators up to about 1000 W

Default setting **4**  $k_v = 0.31$   
For radiators up to about 1200 W

Default setting **5**  $k_v = 0.41$   
For radiators up to about 1600 W

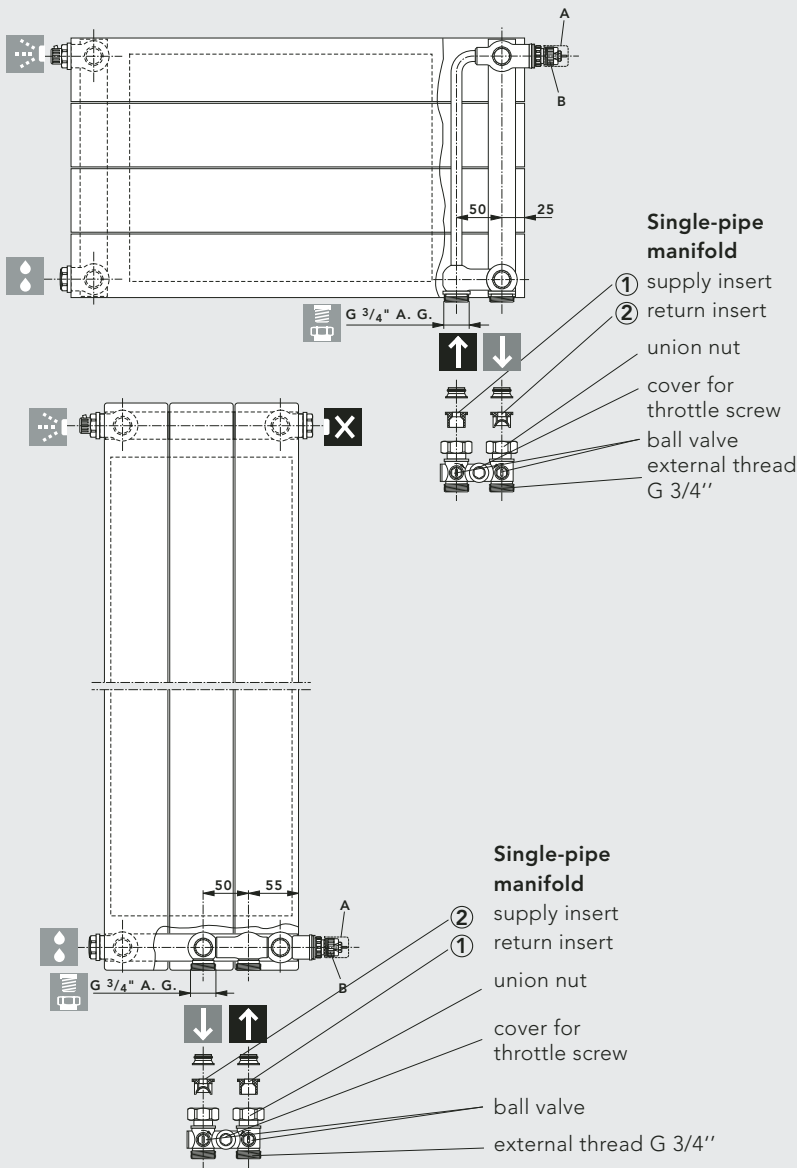
Default setting **6**  $k_v = 0.52$   
For radiators up to about. 2000 W

Default setting **7**  $k_v = 0.63$   
For radiators up to about 2400 W

Default setting **N**  $k_v = 0.75$   
For radiators of more than 2400 W

Horizontal and vertical designs

A valve default setting is not necessary as the valve will be delivered factory-adjusted (default setting N).



Schematic diagram

The radiator will be delivered with a fitted protective cap. After removing the protective cap (item A), the following thermostat heads can be installed directly onto the built-in valve (item B): „RA 2000“, or „RAW“ from Danfoss, „VK“ from Heimeier, „D“ from Herz, „thera DA“ from MNG, and „UNI XD“ from Oventrop.

Please note!

Horizontal design:

During the installation of the single-pipe manifold ensure that the return insert 2 is installed in the water return, and the supply insert 1 in the water supply.

Vertical design:

Prior to the installation of the one-pipe manifold it is essential to swap over the supply insert and the return insert so that the supply insert 1 is installed in the water supply, and the return insert 2 in the water return.

Default setting when using a single-pipe manifold:

radiator proportion 30% --- 3.50 revolutions \*

radiator proportion 35% --- 3.00 revolutions \*

radiator proportion 40% --- 2.50 revolutions \*

radiator proportion 45% --- 2.00 revolutions \*

radiator proportion 50% --- 1.75 revolutions \*

\*... before starting, turn the bypass spindle of the single-pipe manifold to the right as far as it will go.

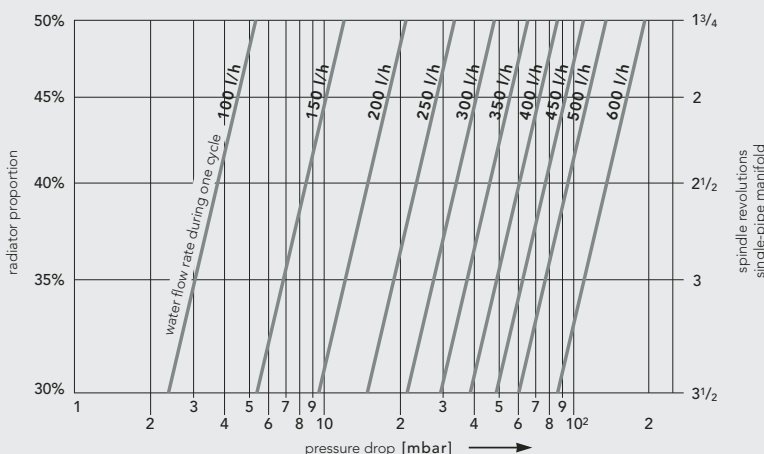
Chart 2:

Pressure drop [mbar] – single-pipe operation with a proportional deviation of 2K.

It is of course possible to change the radiator proportion, whilst there is pressure in the heating system.

Please take account of the maximum power per cycle (for single-pipe installations) of about 10 kW:

$$\Delta T = T_1 - T_2 = 20 \text{ K (at } T_1 = 90 \text{ °C).}$$



**VHV 20 and VHV 22 models, in horizontal design****The new heat reflector**

- is available for the VHV 20 model (OH 358 - 573 mm) and the VHV 22 model (OH 358–646 mm), in horizontal design
- returns a major part of the otherwise lost heat to the room, by means of convection between the VONARIS solitary finished radiator and the heat reflector.

**Design:**

Electrophoretically coated and finish in RAL 9016 (on request and at an extra charge, available in a range of RAL and Sanitary Ware colours); delivered with 8 push-in brackets, 8 stabilising brackets, 4 Z-brackets, an installation sheet, and packaging

**Note:**

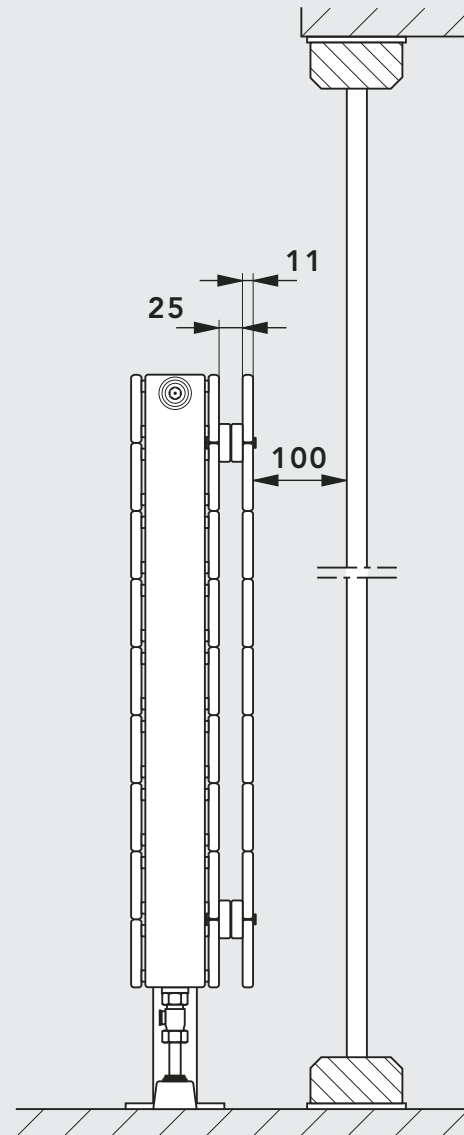
When ordering a horizontal design with heat reflector, it is essential to use the SK 22(VHV 20) or SK 23 (VHV 22) stand consoles.

**VONARIS solitary finished radiators with a fitted heat reflector (see diagram right)**

Depth: 11 mm heat reflector

Internal depth: 25 mm between heating pipe and heat reflector


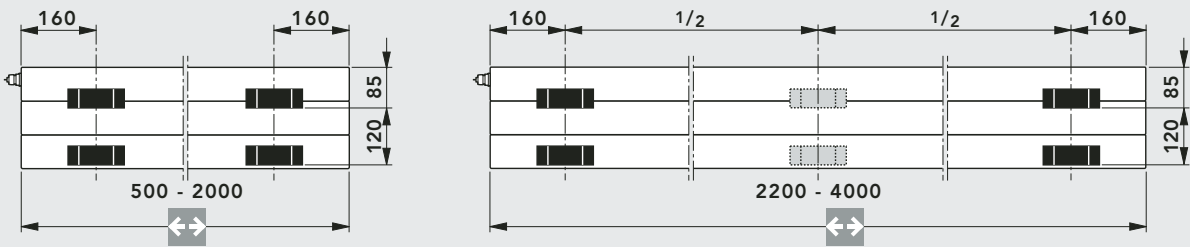

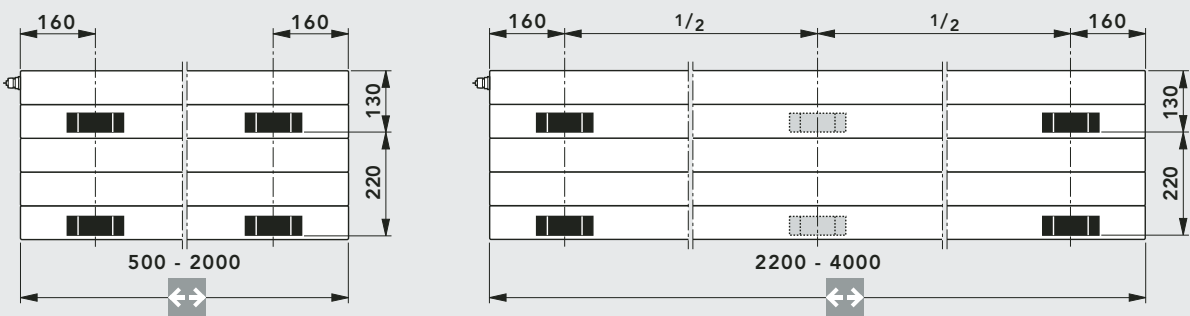

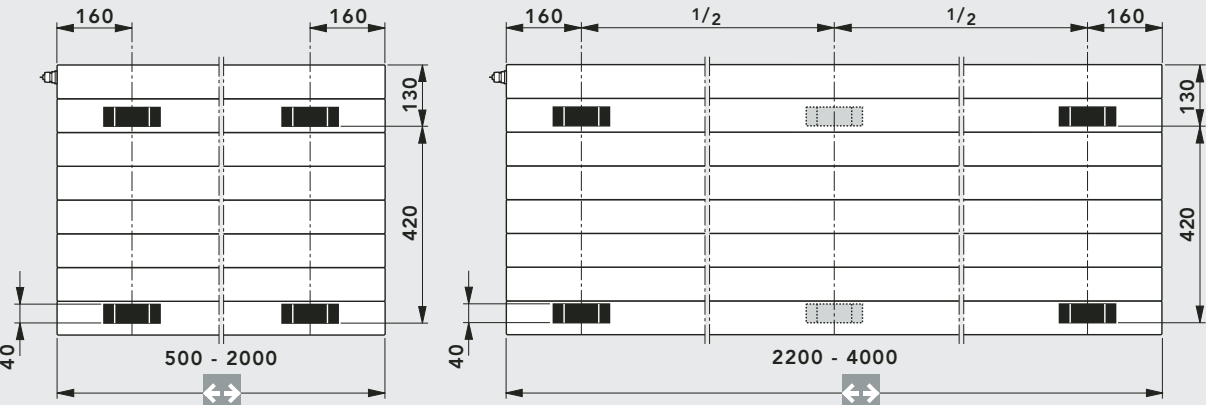
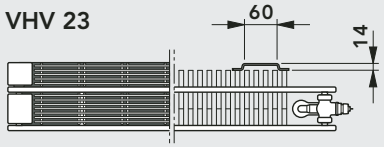

**Minimum clearance\*: 100 mm** between window surface and heat reflector



Schematic diagram



welded bracket positions

Wall mounting WA 11 for models VHV 11 and VHV 23	
Model	Wall mounting WA 11 for VHV 11 or VHV 23
<p>Overall height</p>  <p>from 214 mm to 286 mm</p>	 <p>Note: special order</p>
	VHV 11 for Wall mounting WA 11
<p>Overall height</p>  <p>from 214 mm to 286 mm</p>	
	VHV 11 for Wall mounting WA 11
<p>Overall height</p>  <p>from 214 mm to 286 mm</p>	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>VHV 23</p>  </div> <div style="text-align: center;"> <p>VHV 11</p>  </div> </div>
	Schematic diagram

VONARIS

**Attention!** With the horizontal design only the models VHV-M 10/11 (OH 358 - 790 mm) are by default supplied with brackets. If the models VHV-M 20 (OH 358 - 790 mm), VHV-M 22 (OH 214 - 790) and VHV-M 34 (142 - 286 mm) are wall-mounted using wall mounting WA 11, you are required to order these models as a special version, equipped with brackets.

## 256 VONARIS Wall mounting WA 11

drilling measurements and wall clearance


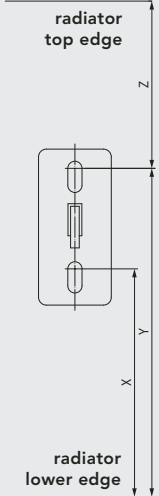
### Wall mounting WA 11 for models VHV 11 and VHV 23

**Wall mounting WA 11** is suitable for the horizontal versions of the following models: VHV-M 11 (OH 214 - 790 mm) and VHV 23 (OH 214 und 286 mm) equipped with brackets. It ensures easy, rapid and robust mounting of the **VONARIS** central-connection radiators still in the packaging.

### Wall mounting WA 11 for BH 214 – 790 mm

#### Drilling dimensions for wall mounting

Ab einer Overall length von 2200 mm 3 Konsolen

Overall radiator height [mm]		Value X [mm]	Value Y [mm]	Value Z [mm]	Wall mounting WA 11 for BH 214 – 790 mm
214		<b>104</b>	<b>162</b>	<b>52</b>	
286		<b>176</b>	<b>234</b>	<b>52</b>	
358		<b>203</b>	<b>261</b>	<b>97</b>	
430		<b>275</b>	<b>333</b>	<b>97</b>	
502		<b>347</b>	<b>405</b>	<b>97</b>	
574		<b>419</b>	<b>477</b>	<b>97</b>	
646		<b>491</b>	<b>549</b>	<b>97</b>	
790		<b>635</b>	<b>693</b>	<b>97</b>	

Schematic diagram

### Connection – wall clearance

	Horizontal design model	Overall height [mm]		Measurement W [mm]
	VHV 11	214 - 790		
VHV 23	214 - 286			<b>123,5</b>

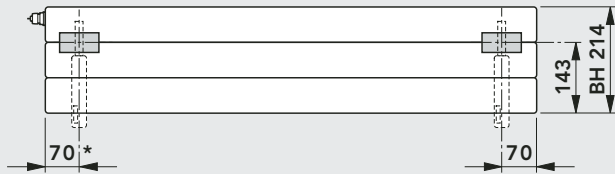
Schematic diagram

positions of the insertion (push-in) brackets

## VONOFIX rapid-installation console for the VHV models

VHV 20 and 22 models: OH 214 – 790 mm, VHV 34 model: OH 214 and 286 mm

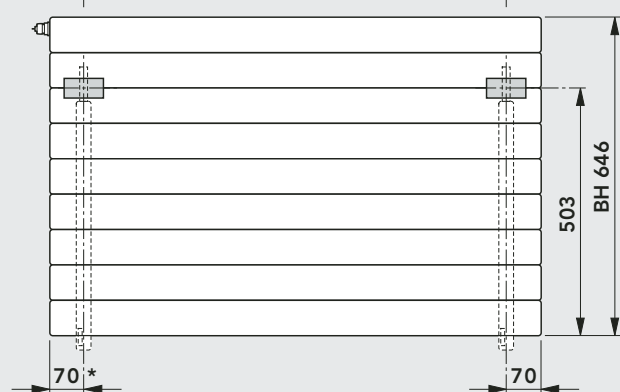
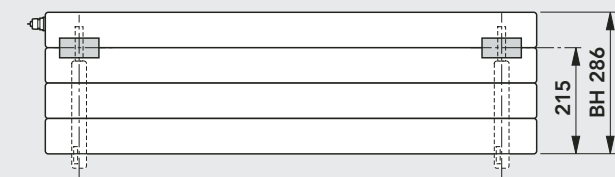
OH 214: for the **VONOFIX 1**



OH 574 and 646: for the **VONOFIX 4**



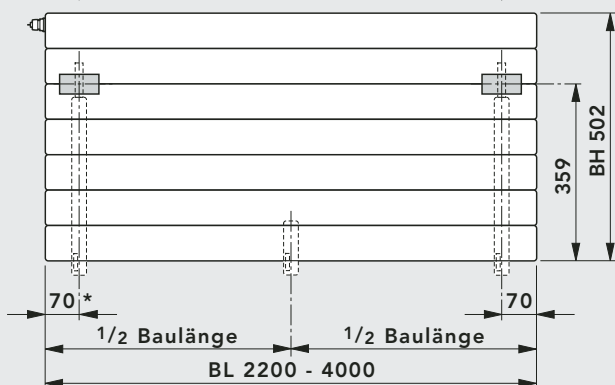
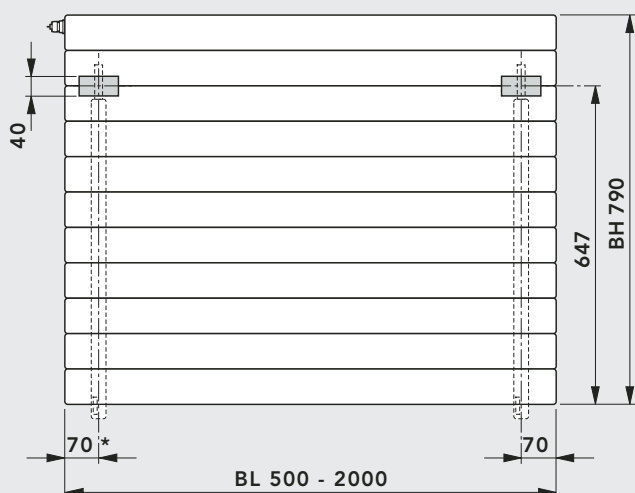
OH 286 and 358: for the **VONOFIX 2**



OH 430 and 502: for the **VONOFIX 3**



OH 790: for the **VONOFIX 5**



**Note:** for an overall length of 2200 mm and greater an additional piece of foot console must be used!

Schematic diagram

VONARIS

**Important:** the installation of VHV models with insertion (push-in) brackets is only feasible when using the **VONOFIX** rapid-installation console!

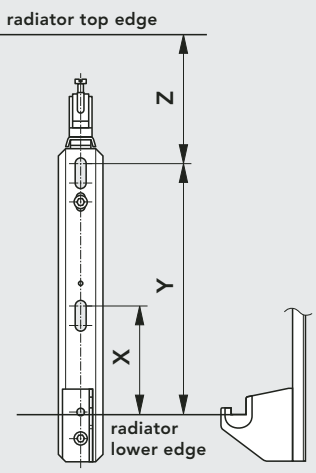
\*If you are using a right-angled valve block to connect your VHV models, please leave clearance of **110 mm**, instead of **70 mm**, from the radiator's outside edge for the installation of **VONOFIX**.

**VONOFIX rapid-installation console for the VHV models**

The **VONARIS** solitary finished radiator can be installed easily, quickly and securely. This is made possible by the **VONOFIX** rapid-installation console for the horizontal designs of the VHV 20, VHV 22 (OH 214 – 790 mm) and VHV 34 (OH 214 and 286 mm) models.

**Wall rails for OH 214 – 790 mm**

**Drilling measurements for the VONOFIX 1 - 5**

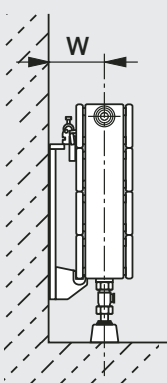
	Overall radiator height [mm]	Value X [mm]	Value Y [mm]	Value Z [mm]
	214	–	125	89
286	100	197	89	
358	100	197	161	
430	100	341	161	
502	100	341	161	
574	100	485	89	
646	100	485	89	
790	100	629	161	

Schematic diagram

The **VONOFIX** rapid-installation console consists of:

- 2 wall consoles (zinc-plated), with sound-proofing filters, screws and dowels
- 2 stabilising brackets
- 2 insertion (push-in) brackets
- (For an overall length of 2200 mm and greater, 1 additional piece of foot console)

**Connection – wall clearance**

	Horizontal design model	Overall height [mm]	Measurement <b>W</b> [mm]
	VHV 20	358 – 790	91
VHV 22	214 – 790	91	
VHV 34	214 – 286	91*	

**\*Note:** if the **VHV 34** is turned round and used as a left-hand design model, the measurement **W** is **172 mm**.

Schematic diagram

## VSV models

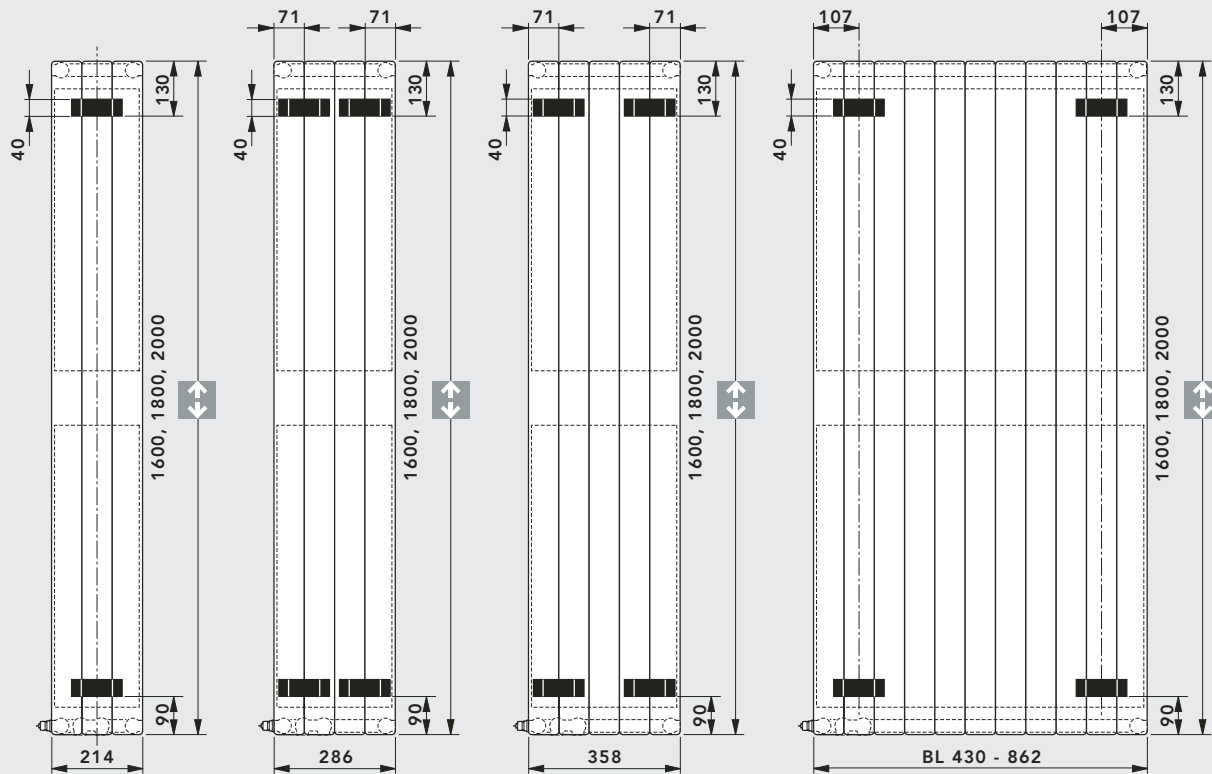
Overall length  
  
 [mm]

214

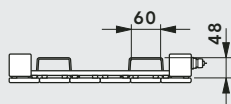
286

358

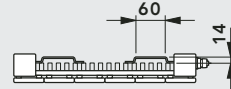
430 - 862



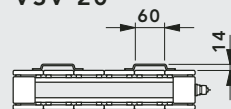
VSV 10



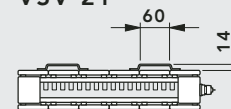
VSV 11



VSV 20



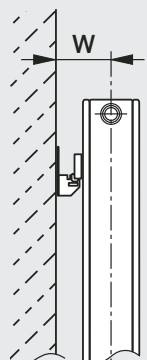
VSV 21



Schematic diagram

## Wall clearance measurements: WA 10 and WA 11 wall mounting brackets for the VSV models

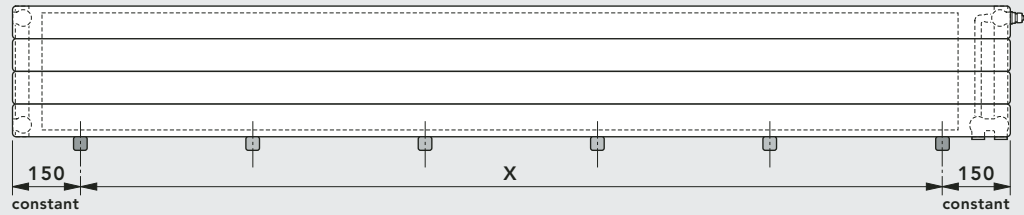
### Connection – wall clearance

	Wall mounting brackets model	Vertical design model	Measurement W [mm]
	WA 10	VSV 10/11*	35
WA 10	VSV 20/21	79,5	
WA 11	VSV 10/11*	45	
WA 11	VSV 20/21	89,5	

**\*Note:** if you are installing the VSV 10 or VSV 11 models with a right-angled-design connection, please use the appropriate drilling consoles or angle-fishplate mounting brackets, to achieve the required wall clearance.

Schematic diagram

Wall consoles WK 10 – 12: positioning for VHV models (up to an overall height of 286 mm)



**Note:** when using more than 2 wall consoles the additional wall consoles must be placed at regular intervals along the line X.

WK 10 wall console

VHV 11	VHV 20	VHV 22	

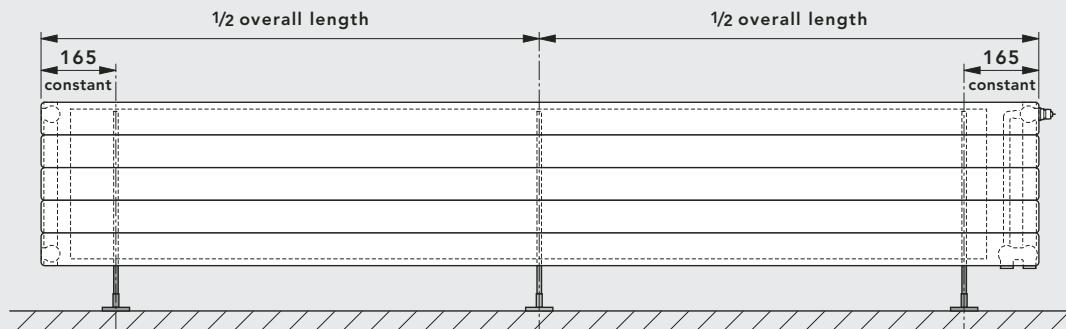
WK 11 wall console

WK 12 wall console

VHV 23	VHV 34	VHV 35	VHV 46

Schematic diagram

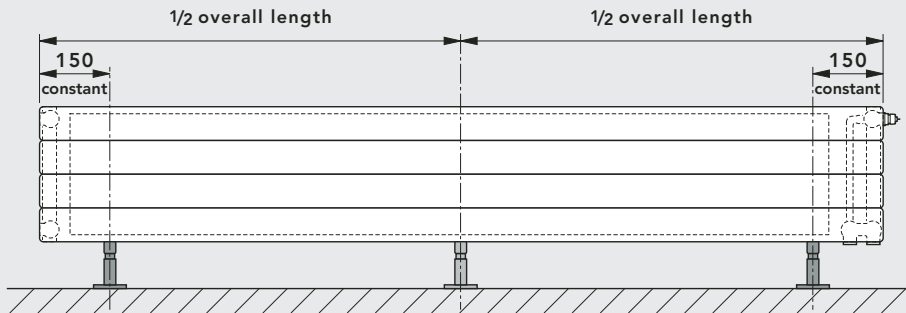
Stand consoles SK 22 and SK 23: positioning for VHV models (for an overall height of 358 mm and greater)



**Note:** for an overall length of 2200 mm and greater, a 3rd stand console must be used!

Schematic diagram

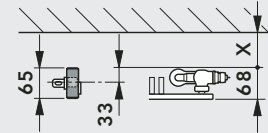
Stand consoles SK 10 – 19: positioning for the VHV/VHV-S models (up to an overall height of 286 mm)



**Note:** for an overall length of **2200 mm** and greater, a **3rd** stand console must be used!

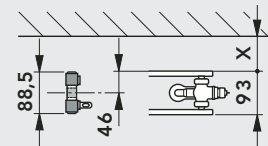
SK 10 / SK 11

VHV 11



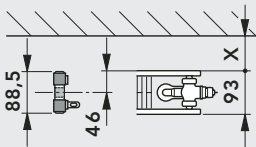
SK 12 / SK 13

VHV 20

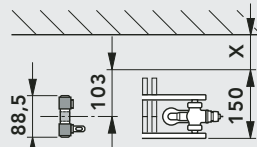


SK 12 / SK 13

VHV 22

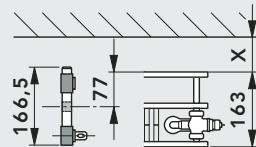


VHV 23

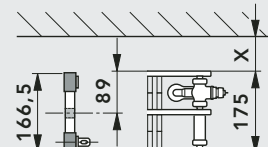


SK 14 / SK 15

VHV-S 22

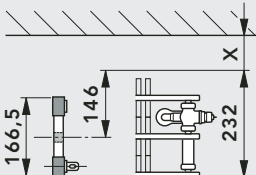


VHV 34

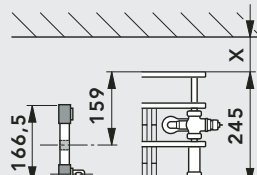


SK 14 / SK 15

VHV 35

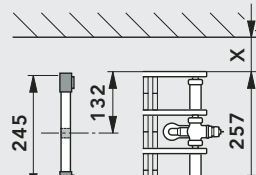


VHV-S 34



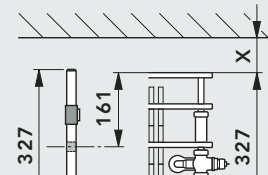
SK 16 / SK 17

VHV 46



SK 18 / SK 19

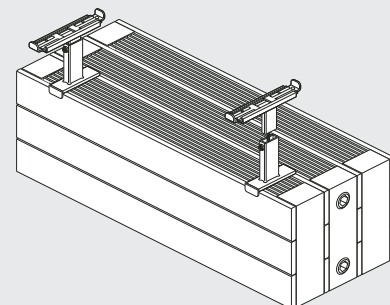
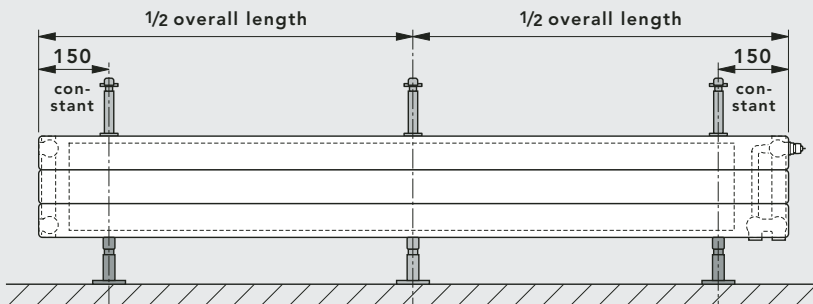
VHV-S 47



Schematic diagram

Window sill support FBT 20: positioning for the VHV/VHV-S models (up to an overall height of 286 mm)

Window sill support for subsequent installation with the **VHV/VHV-S 22-47** models of the **VONARIS** solitary finished radiator (up to an overall height of 286 mm)



**Note:** for an overall length of **2200 mm** and greater, a **3rd** stand console must be used!

Schematic diagram

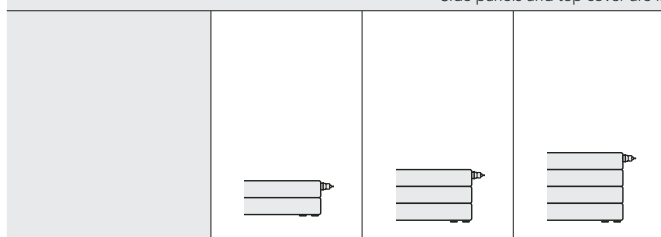
Heating output in compliance with <b>DIN EN 442</b> , and <b>ÖNORM EN 442</b> , at <b>75/65/20° C</b>									
Side panels and top cover are included in the heat output specifications									
Overall height [mm]	142	214	286	358	430	502	574	646	790
Increments	alle Overall lengthn von 500 bis 1400 mm in Incrementsen zu 100 mm, alle Overall lengthn von 1600 bis 4000 mm in Incrementsen zu 200 mm								
Model		VHV 11*	VHV 11*	VHV 11*	VHV 11*	VHV 11*	VHV 11*	VHV 11*	VHV 11*
Overall depth [mm]		68	68	68	68	68	68	68	68
Watts / m 75/65/20		464	577	667	760	845	921	989	1105
Watts / m 70/55/20		374	464	540	615	683	743	797	889
Watts / m 55/45/20		236	291	344	391	433	470	503	558
Water content l / m		1,67	2,22	2,78	3,33	3,87	4,44	4,99	6,12
Weight kg / m		11,14	14,51	16,71	19,85	22,99	26,15	29,29	33,55
Radiator exponent n		1,32	1,34	1,30	1,30	1,31	1,32	1,32	1,34
Model	VHV 20	VHV 20	VHV 20	VHV 20	VHV 20	VHV 20	VHV 20	VHV 20	VHV 20
Overall depth [mm]	93	93	93	93	93	93	93	93	93
Watts / m 75/65/20	304	440	561	654	757	859	960	1063	1271
Watts / m 70/55/20	249	359	458	533	617	699	781	863	1032
Watts / m 55/45/20	161	232	296	344	398	449	502	553	661
Water content l / m	2,18	3,34	4,44	5,55	6,66	7,77	8,88	9,99	12,22
Weight kg / m	9,26	13,27	17,28	21,29	25,30	29,31	33,31	37,32	45,33
Radiator exponent n	1,24	1,25	1,25	1,26	1,26	1,27	1,27	1,28	1,28
Model	VHV 22	VHV 22	VHV 22	VHV 22	VHV 22	VHV 22	VHV 22	VHV 22	VHV 22
Overall depth [mm]	93	93	93	93	93	93	93	93	93
Watts / m 75/65/20	641	838	1032	1197	1343	1474	1592	1699	1886
Watts / m 70/55/20	519	674	825	963	1079	1182	1274	1357	1500
Watts / m 55/45/20	330	423	510	605	675	736	790	838	919
Water content l / m	2,18	3,34	4,44	5,55	6,66	7,77	8,88	9,99	12,22
Weight kg / m	13,97	20,59	27,23	30,89	36,93	42,96	49,01	55,05	63,06
Radiator exponent n	1,30	1,34	1,38	1,34	1,35	1,36	1,37	1,38	1,41

\* For aesthetic reasons these models should not be fitted in front of a window.



Heating output in compliance with **DIN EN 442**, and **ÖNORM EN 442**, at **75/65/20° C**

Side panels and top cover are included in the heat output specifications



Overall height [mm]	142	214	286
Increments	alle Overall lengthn von 500 bis 1400 mm in Incrementsen zu 100 mm, alle Overall lengthn von 1600 bis 4000 mm in Incrementsen zu 200 mm		

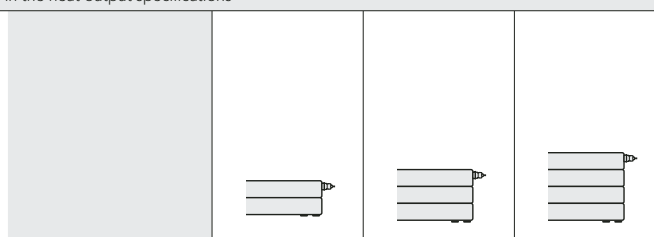
Model	VHV-S 22	VHV-S 22	VHV-S 22
Overall depth [mm]	163	163	163
Watts / m 75/65/20	641	838	1032
Watts / m 70/55/20	519	674	825
Watts / m 55/45/20	330	423	510
Water content l / m	2,18	3,34	4,44
Weight kg / m	19,43	28,34	37,24
Radiator exponent n	1,30	1,34	1,38

Model	VHV 23*	VHV 23*	VHV 23*
Overall depth [mm]	150	150	150
Watts / m 75/65/20	797	1035	1261
Watts / m 70/55/20	645	832	1008
Watts / m 55/45/20	410	522	623
Water content l / m	2,18	3,34	4,44
Weight kg / m	17,02	24,84	32,66
Radiator exponent n	1,30	1,34	1,38

Model	VHV 34	VHV 34	VHV 34
Overall depth [mm]	175	175	175
Watts / m 75/65/20	1050	1394	1723
Watts / m 70/55/20	856	1123	1377
Watts / m 55/45/20	552	707	851
Water content l / m	3,33	4,99	6,66
Weight kg / m	23,93	35,18	46,42
Radiator exponent n	1,26	1,33	1,38

Model	VHV-S 34	VHV-S 34	VHV-S 34
Overall depth [mm]	245	245	245
Watts / m 75/65/20	1050	1394	1723
Watts / m 70/55/20	856	1123	1377
Watts / m 55/45/20	552	707	851
Water content l / m	3,33	4,99	6,66
Weight kg / m	29,39	42,92	56,44
Radiator exponent n	1,26	1,33	1,38

\* For aesthetic reasons these models should not be fitted in front of a window.



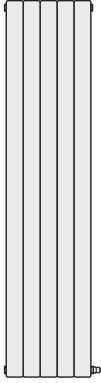
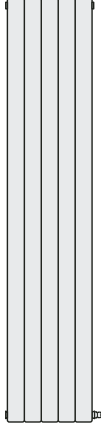
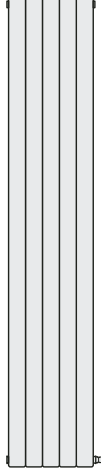




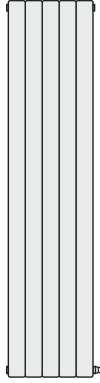
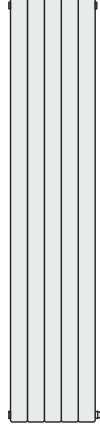
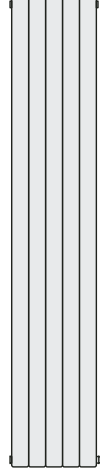




Overall height [mm]	142	214	286
Increments	alle Overall lengthn von 500 bis 1400 mm in Incrementsen zu 100 mm, alle Overall lengthn von 1600 bis 4000 mm in Incrementsen zu 200 mm		

Model	VHV 35*	VHV 35*	VHV 35*
Overall depth [mm]	232	232	232
Watts / m 75/65/20	1197	1651	1971
Watts / m 70/55/20	971	1326	1570
Watts / m 55/45/20	619	828	964
Water content l / m	3,33	4,99	6,66
Weight kg / m	26,98	39,42	51,86
Radiator exponent n	1,29	1,35	1,40

Model	VHV 46	VHV 46	VHV 46
Overall depth [mm]	257	257	257
Watts / m 75/65/20	1454	2072	2447
Watts / m 70/55/20	1179	1664	1949
Watts / m 55/45/20	752	1040	1197
Water content l / m	4,53	6,79	9,06
Weight kg / m	33,89	49,76	65,62
Radiator exponent n	1,29	1,35	1,40

Model	VHV-S 47	VHV-S 47	VHV-S 47
Overall depth [mm]	327	327	327
Watts / m 75/65/20	1522	2302	2667
Watts / m 70/55/20	1240	1846	2128
Watts / m 55/45/20	800	1149	1311
Water content l / m	4,53	6,79	9,06
Weight kg / m	41,27	60,50	79,74
Radiator exponent n	1,26	1,36	1,39

\* For aesthetic reasons these models should not be fitted in front of a window.

Heating output in compliance with <b>DIN EN 442</b> , and <b>ÖNORM EN 442</b> , at <b>75/65/20° C</b>			
Side panels and top cover are included in the heat output specifications			
			
 Overall height [mm]	1600	1800	2000
 Overall length [mm]	214, 286, 358, 430, 502, 574, 646, 718, 790, 862		
<b>Model</b>	<b>VSV 10</b>	<b>VSV 10</b>	<b>VSV 10</b>
 Overall depth	68 mm	68 mm	68 mm
Watts / m 75/65/20	1738	1979	2232
Watts / m 70/55/20	1384	1577	1781
Watts / m 55/45/20	850	968	1097
Water content l / m	11,37	12,47	13,85
Weight kg / m	44,45	49,60	54,75
Radiator exponent n	1,40	1,40	1,39
<b>Model</b>	<b>VSV 11</b>	<b>VSV 11</b>	<b>VSV 11</b>
 Overall depth	68 mm	68 mm	68 mm
Watts / m 75/65/20	1979	2209	2450
Watts / m 70/55/20	1584	1768	1964
Watts / m 55/45/20	983	1097	1223
Water content l / m	11,37	12,47	13,85
Weight kg / m	63,39	68,53	73,69
Radiator exponent n	1,37	1,37	1,36
			
 Overall height [mm]	1600	1800	2000
 Overall length [mm]	214, 286, 358, 430, 502, 574, 646, 718, 790, 862		
<b>Model</b>	<b>VSV 20</b>	<b>VSV 20</b>	<b>VSV 20</b>
 Overall depth	93 mm	93 mm	93 mm
Watts / m 75/65/20	2932	3301	3672
Watts / m 70/55/20	2332	2629	2929
Watts / m 55/45/20	1427	1615	1805
Water content l / m	22,74	24,34	27,71
Weight kg / m	85,44	95,46	105,48
Radiator exponent n	1,41	1,40	1,39
<b>Model</b>	<b>VSV 21</b>	<b>VSV 21</b>	<b>VSV 21</b>
 Overall depth	68 mm	68 mm	68 mm
Watts / m 75/65/20	3184	3588	4012
Watts / m 70/55/20	2536	2857	3206
Watts / m 55/45/20	1557	1755	1983
Water content l / m	22,74	24,34	27,71
Weight kg / m	104,37	114,39	124,42
Radiator exponent n	1,40	1,40	1,38

# VONARIS-M CENTRAL-CONNECTION RADIATOR











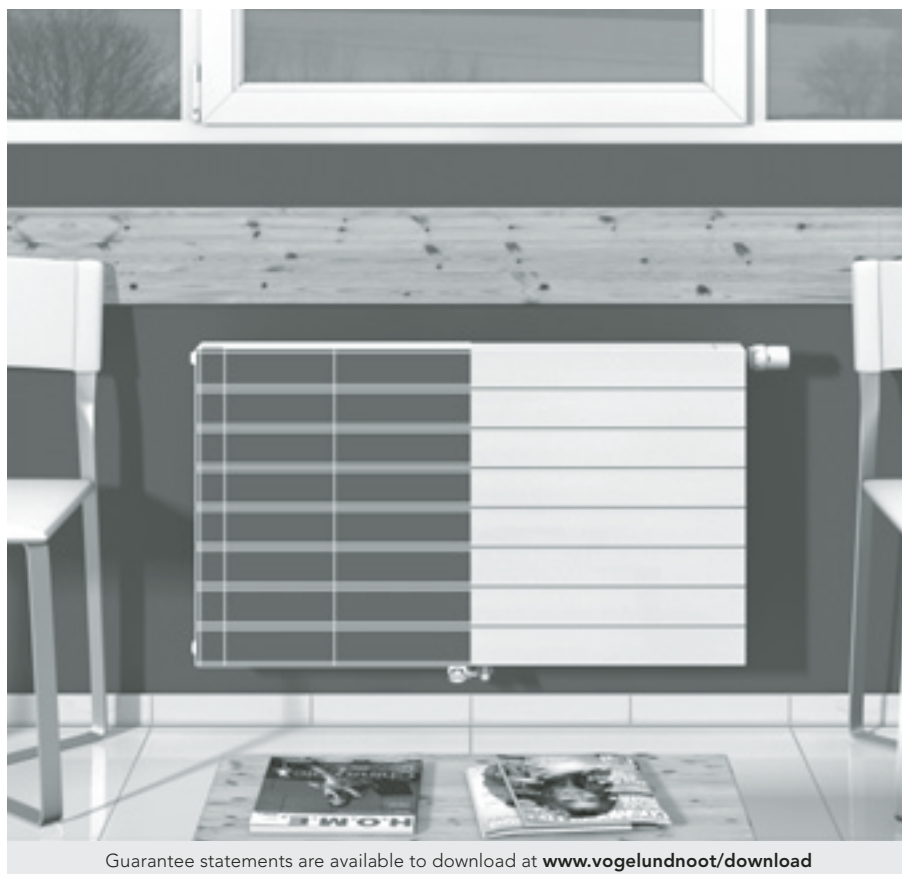


**Connections:**  
 Horizontal design: 2 x external thread G 3/4", bottom centre  
  
 Vertical design: 2 x external thread G 3/4", bottom centre


**Maximum positive operating pressure**  
 Standard design: 5 bar


**Maximum positive operating pressure:**  
 High-pressure design: 8 bar


**Maximum operating temperature: 110° C**



**VONARIS:** the central-connection radiator in a fully welded horizontal design, with from 1 to 4 layers of steel rectangular water-flow pipes, arranged one-behind-the-other, each layer consisting of from 2 to 11 pipes arranged one-above-the-other. Vertical design with 1 or 2 layers of steel rectangular water-flow pipes, arranged one-behind-the-other, each layer consisting of from 3 to 12 steel pipes, arranged side-by-side.

A 2 mm space between the heating pipes guarantees additional resistance to corrosion. **VONARIS** central-connection radiators are equipped with a built-in valve set, suitable for either double-pipe or single-pipe operation, using a one-pipe manifold, with a factory-fitted valve (already installed) and protective cap.

Vertical central-connection radiators are delivered with a connection set, including a factory-fitted valve, a protective cap and a cover. Depending on the customer's preferences they will also be ready for double-pipe or

single-pipe operation and for angled or through-flow connection. **VONARIS** central-connection radiators are usually delivered with side panels. The horizontal design also comes equipped with a top cover. With the **VONARIS** central-connection radiators, brackets are not included as a matter of course (exception: VHV-M 11, where brackets are included).

The **VONARIS** central-connection radiator comes with a drain plug and a pivoting vent plug (with the vertical design, also two dummy plugs), all of them factory-sealed. **VONARIS** central-connection radiators are Design radiators that are ready to connect.

**Standard design:** rectangular steel pipes, 70 x 11 x 1.5 mm

**High-pressure design:** rectangular steel pipes, 70 x 11 x 2.0 mm

**Dimensions:**

Horizontal design: overall lengths between 500 mm and 1400 mm are available (at increments of 100 mm), and between 1600 mm and 2400 mm

(at increments of 200 mm)

Horizontal design: the available overall heights are 142, 214, 286, 358, 430, 502, 574, 646 and 790 mm

Vertical design: overall lengths between 214 mm and 862 mm are available






(at increments of 72 mm)

Vertical design: overall heights of 1600, 1800 and 2000 mm are available.

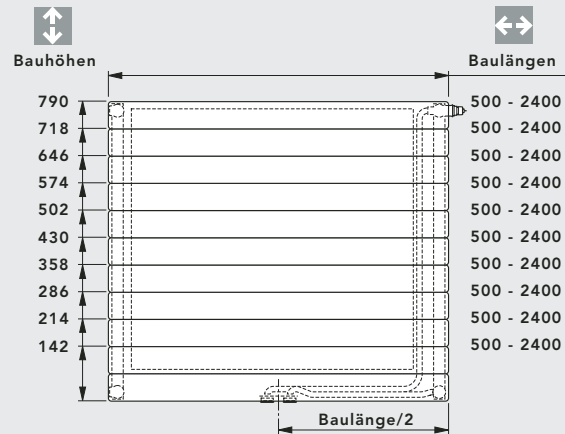
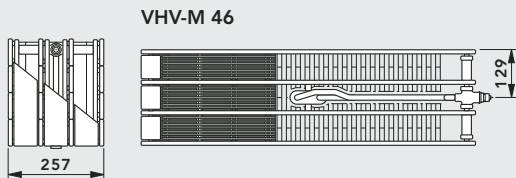
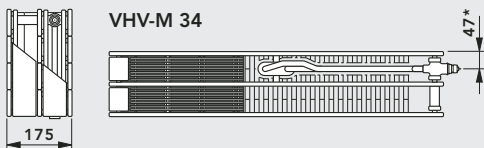
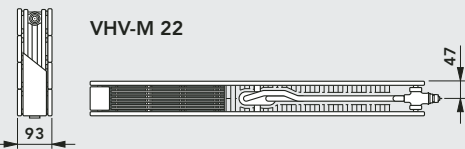
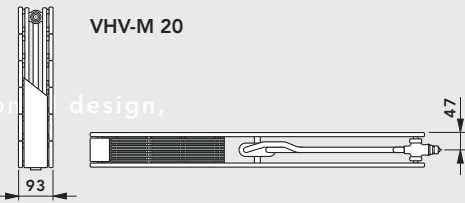
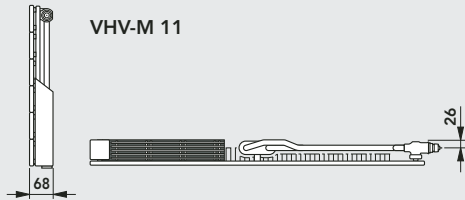
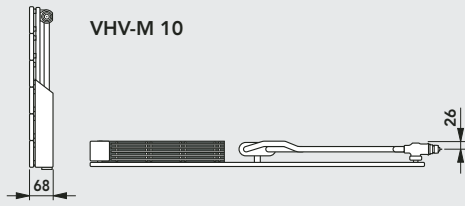
**Coatings:**

1. Undercoat: electrophoretic, using water-soluble paints, conforming to DIN 55900 part 1, stoved at 165° C;
2. Finish: electrostatic powder coating, conforming to DIN 55900 part 2, in a state-of-the-art facility. (On request, and at a supplementary charge, a range of RAL and sanitary ware colours can be offered.) This particularly robust coating is stoved at an object temperature of 180° C.

- Packaging:**
1. Cardboard packaging
  2. Edge protection
  3. Shrink foil

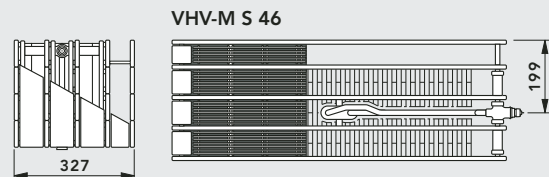
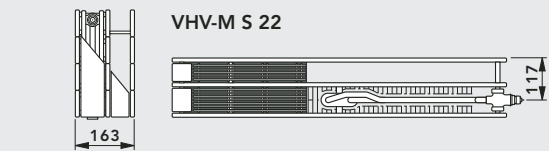
- 1  ULOW-E2
- Profile panel radiators
- Plan panel radiators
- Vertical radiators
- 2  General information
- Preformed plate system
- Stapler system
- Special systems
- 3  Bathroom radiators
- Design radiators
- 4  Standard Column radiators
- Centrally connected Column radiators
- Architecture Column radiators
- 5  VONARIS
- VONARIS-M

Horizontal design, VHV-M models



Horizontal design,

Horizontal design, VHV-M S models



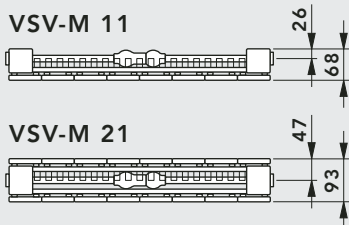
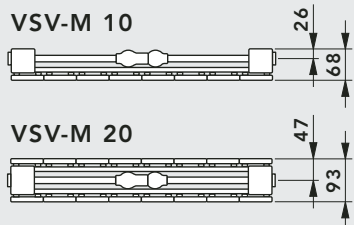
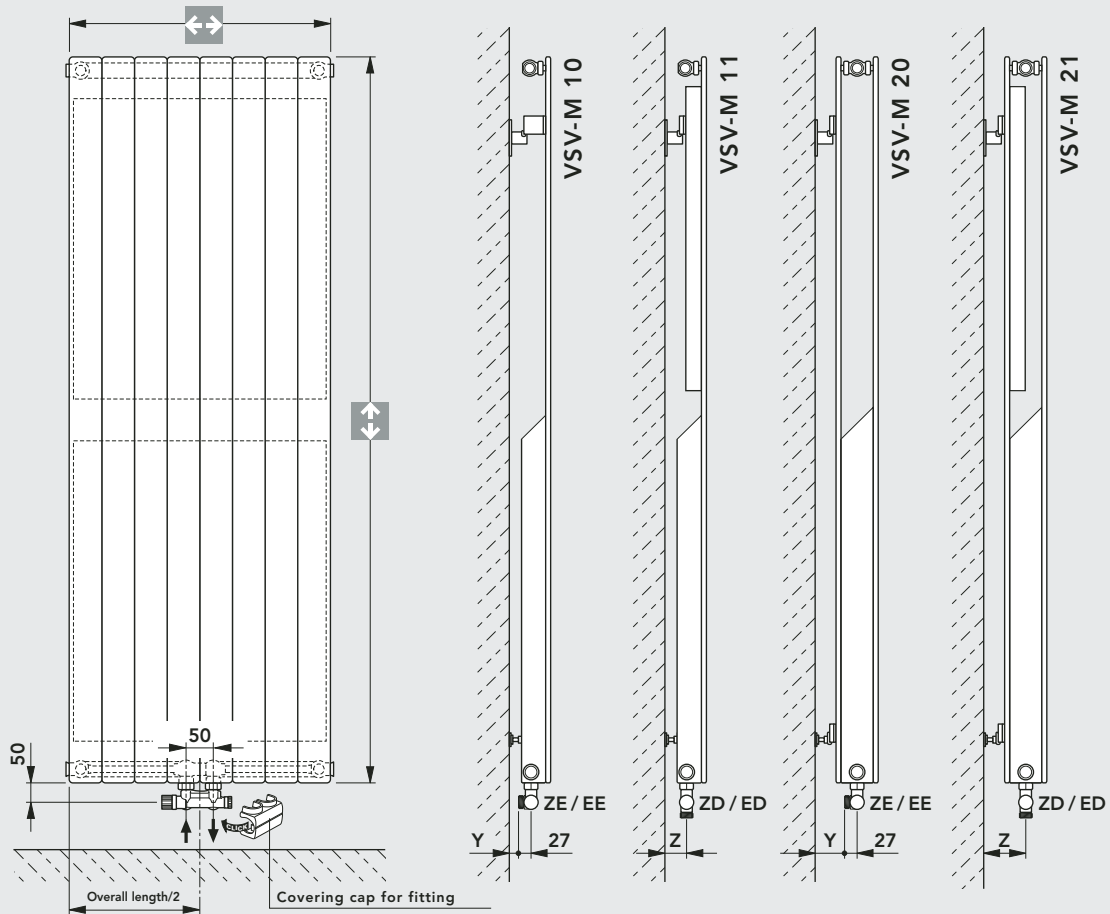
Die WVO-Ausführung mit werkseitig angeschweißtem, nicht wasserführendem Strahlungsschirm führt durch Konvektion zwischen Heizkörper und Strahlungsschirm den überwiegenden Teil der sonst verlorenen Wärme in den Raum zurück.

Schematic diagram

\* Note: if the VHV-M 34 model is turned around so that the valve is located to the left, the distance between the VONARIS rear panel and the connection point is 129 mm.

Model	VHV-M 10			VHV-M 11			VHV-M 20			VHV-M 22			VHV-M S 22		VHV-M 34		VHV-M 46		VHV-M S 46		
Overall height ↑ ↓ [mm]	358	430	502	358	430	502	358	430	502	214	286	358	214	286	142	214	142	214	142	214	
	574	646	718	574	646	718	574	646	718	430	502	574			286		286		286		
	790			790			790			646	718	790									
Overall length ← → [mm]	500 - 2400 mm																				
Increments	100 mm (ab Baulänge 1400 mm: 200 mm)																				

Model overview / connection dimensions: vertical design, VSV-M models



- Connection set**  
**ZE** Double-pipe operation angled design  
**ZD** Double-pipe operation through-flow design  
**EE** Single-pipe operation angled design  
**ED** Single-pipe operation through-flow design

Angled design connection set

Connection set in through-flow design

Fastening set	Model	Measurement Y [mm]
*	VSV-M 10	*
WA 10	VSV-M 20/21	53
*	VSV-M 11	*
WA 11	VSV-M 20/21	63

Fastening set	Model	Measurement Z [mm]
WA 10	VSV-M 10/11	35
WA 10	VSV-M 20/21	79,5
WA 11	VSV-M 10/11	45
WA 11	VSV-M 20/21	89,5

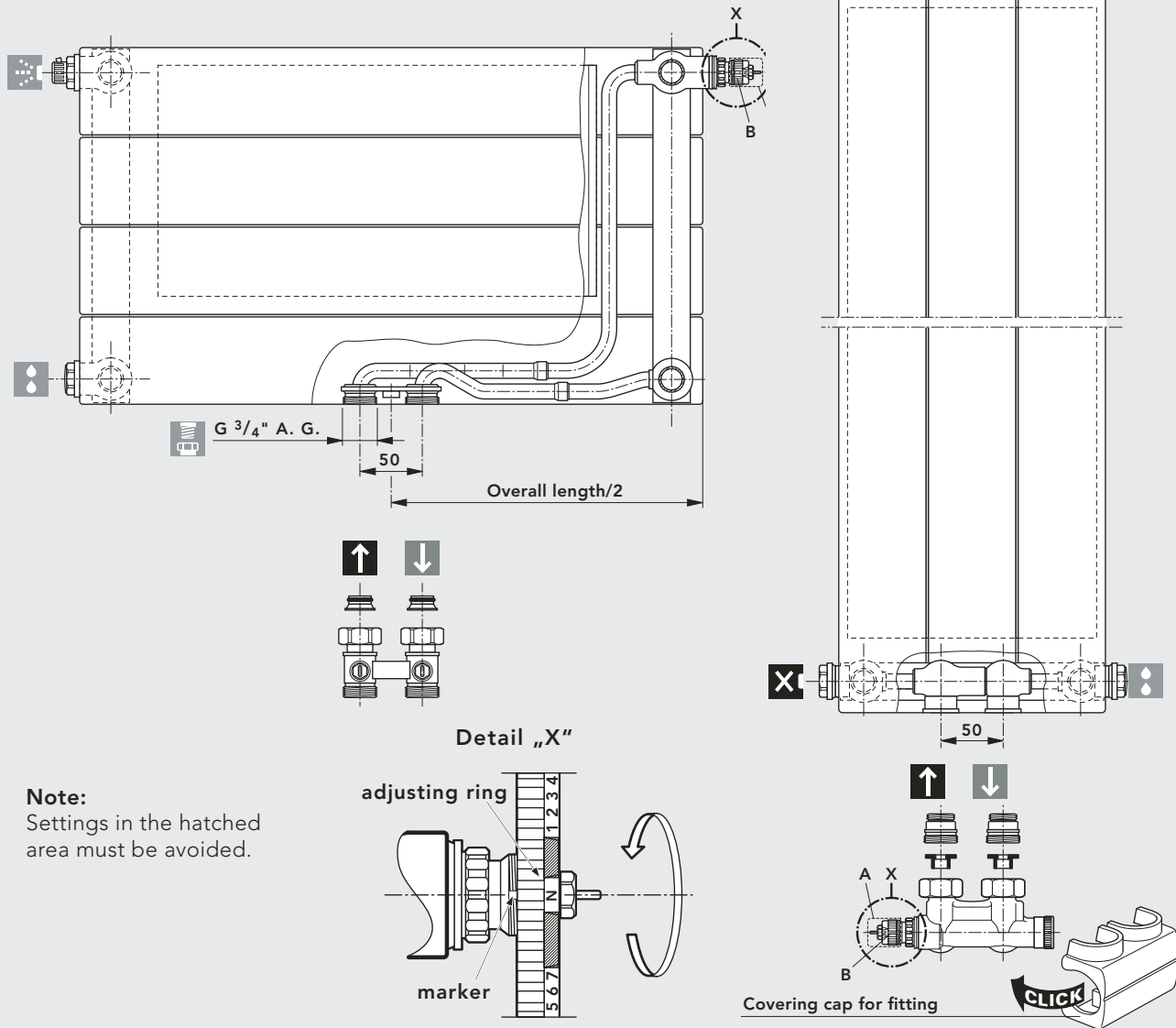
Schematic diagram

\* **Note:** when installing the VSV-M 10 and VSV-M 11 models with an angled connection set (ZE, EE), please use the appropriate drill consoles and angled fishplates to ensure that the required distance from the wall is maintained.

Model	VSV-M 10			VSV-M 11			VSV-M 20			VSV-M 21		
Overall height	600	800	1000	800	1000	1200	600	800	1000	800	1000	1200
 [mm]	1200	1400	1600	1400	1600	1800	1200	1400	1600	1400	1600	1800
	1800	2000	2200	2000	2200		1800	2000	2200	2000	2200	
	2400	2600					2400	2600				
Overall length	214 - 862 mm											
 [mm]												
Increments	72 mm											

## Horizontal and vertical designs

It is easy to set the precise values required **without** using any special tools (see drawings).



Schematic diagram

The radiator will be delivered with a fitted protective cap. After removing the protective cap (item A), the following thermostat heads can be installed directly onto the built-in valve (item B): „RA 2000“, or „RAW“ from Danfoss, „VK“ from Heimeier, „D“ from Herz, „thera DA“ from MNG, and „UNI XD“ from Oventrop.

**Adjustment tips:**

- Remove protective cap and sensor
- Lift the adjusting ring and turn it anti-clockwise, to the setting required – the set value (1, 2, ...7, N) needs to be directly in line with the marker.
- Presetting is possible in steps of 0.5 between 1 and 7. The „N“ setting, cancels all presetting.

## Horizontal design

Guideline values for default settings

Basis:

Supply temperature **70 °C**

Return temperature **55 °C**

Room temperature **20 °C**

Default setting 1  $k_v = 0.13$   
For radiators up to about 500 W

Default setting 2  $k_v = 0.21$   
For radiators up to about 800 W

Default setting 3  $k_v = 0.26$   
For radiators up to about 1000 W

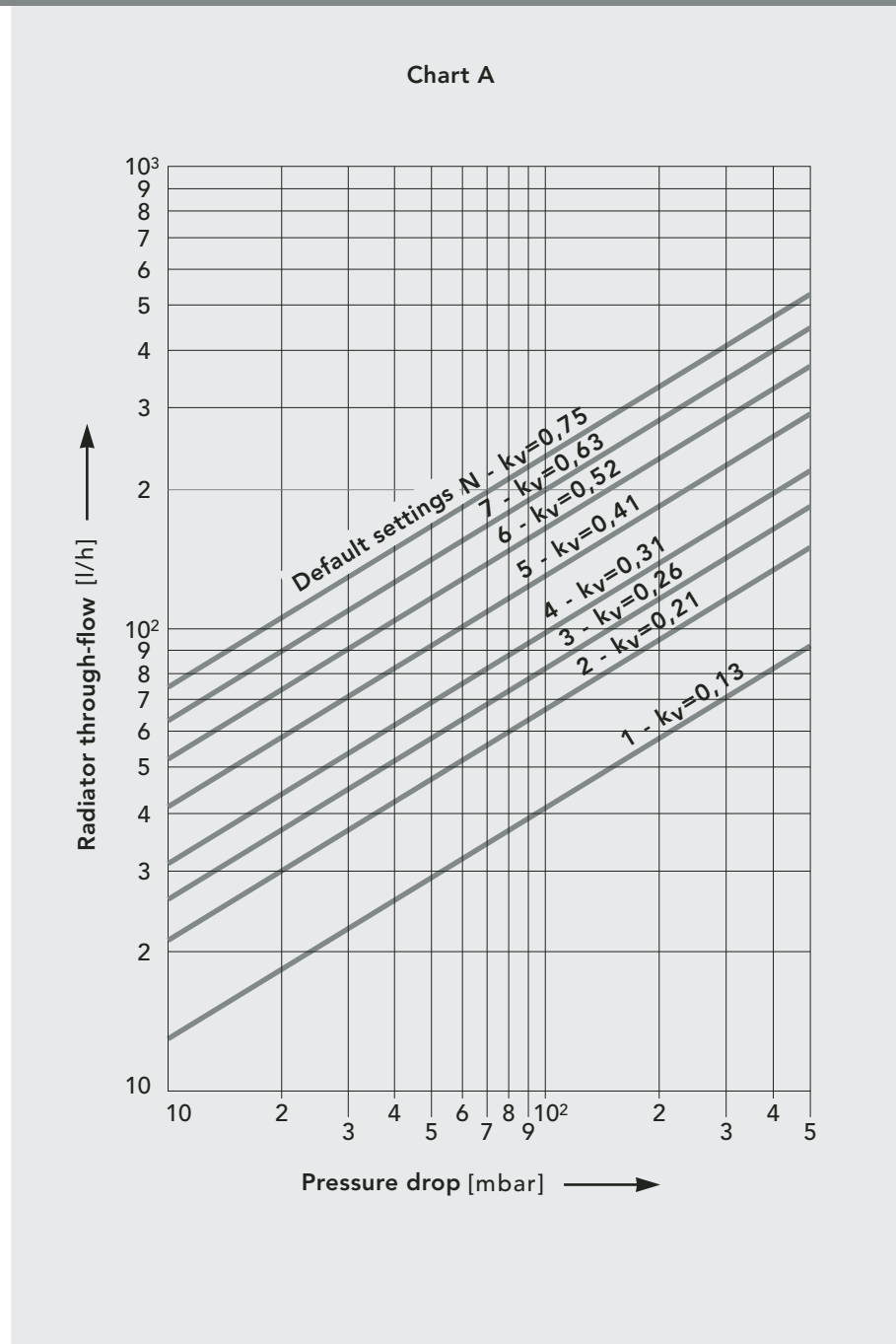
Default setting 4  $k_v = 0.31$   
For radiators up to about 1200 W

Default setting 5  $k_v = 0.41$   
For radiators up to about 1600 W

Default setting 6  $k_v = 0.52$   
For radiators up to about 2000 W

Default setting 7  $k_v = 0.63$   
For radiators up to about 2400 W

Default setting N  $k_v = 0.75$   
For radiators of more than 2400 W



### Chart A:

Pressure drop [mbar] – double-pipe operation at 2K proportional offset.

It is of course possible to adjust the valve default setting, whilst there is pressure in the heating system.

**Vertical design**

Guideline values for default settings

Basis:

Supply temperature **70 °C**

Return temperature **55 °C**

Room temperature **20 °C**

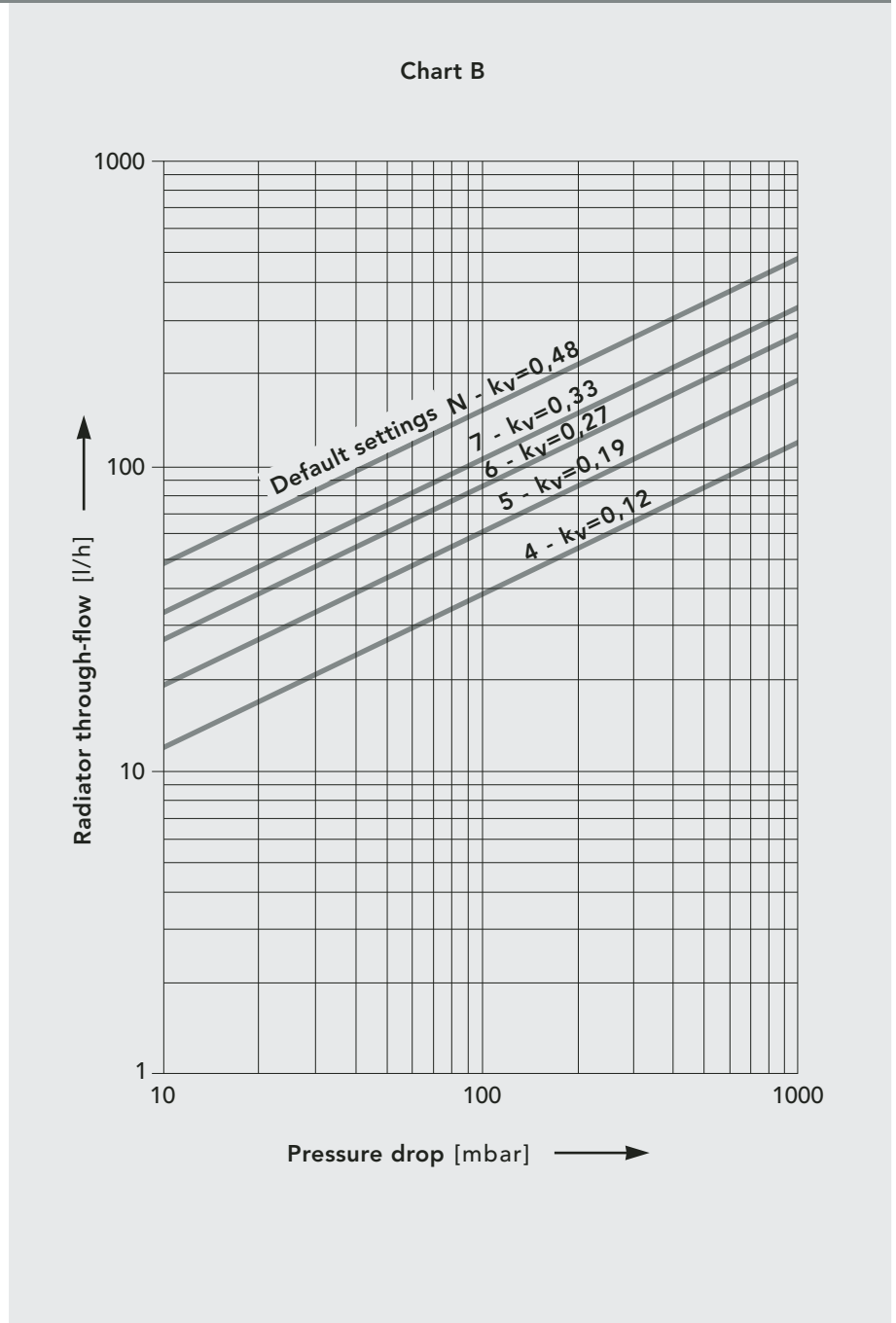
Default setting **4**  $k_v = 0.12$   
For radiators up to about 450 W

Default setting **5**  $k_v = 0.19$   
For radiators up to about 700 W

Default setting **6**  $k_v = 0.27$   
For radiators up to about 1000 W

Default setting **7**  $k_v = 0.33$   
For radiators up to about 1200 W

Default setting **N**  $k_v = 0.48$   
For radiators of more than 1200 W



**Chart B:**

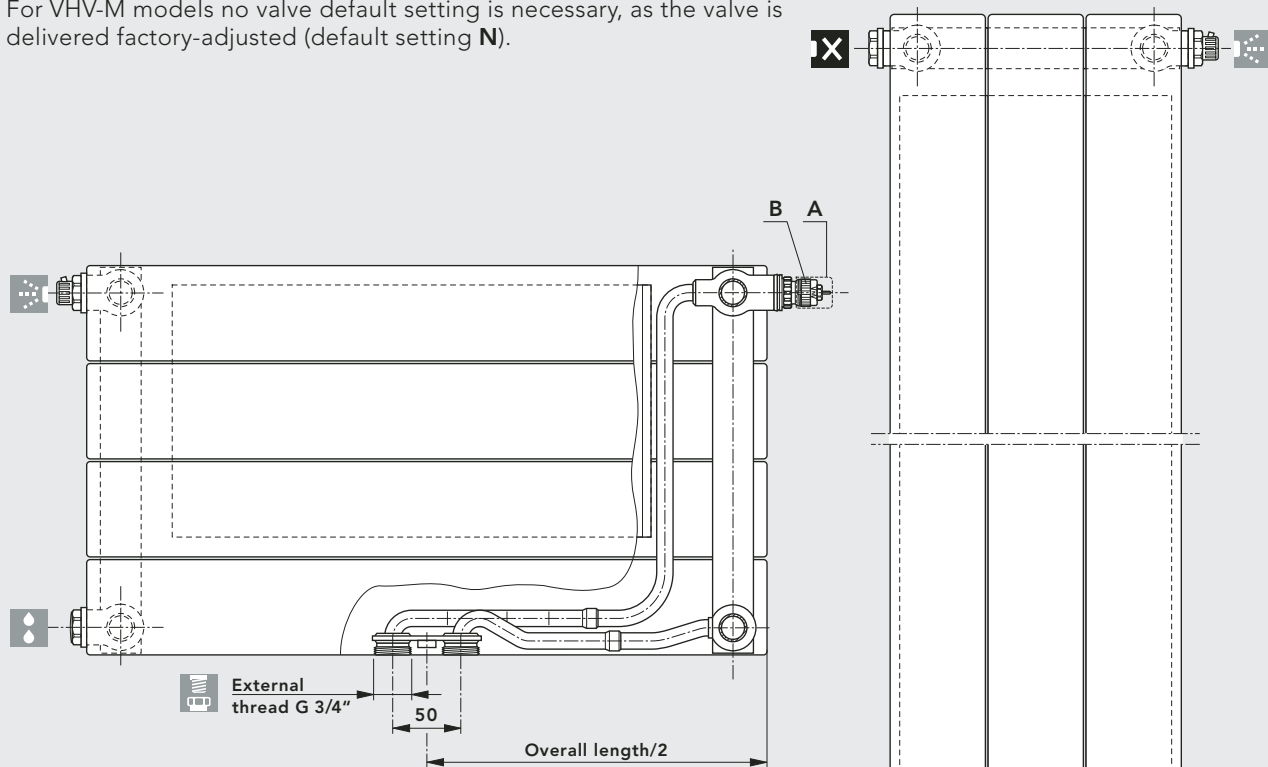
Pressure drop [mbar] – double-pipe operation at 2K proportional offset.

It is of course possible to adjust the valve default setting, whilst there is pressure in the heating system.



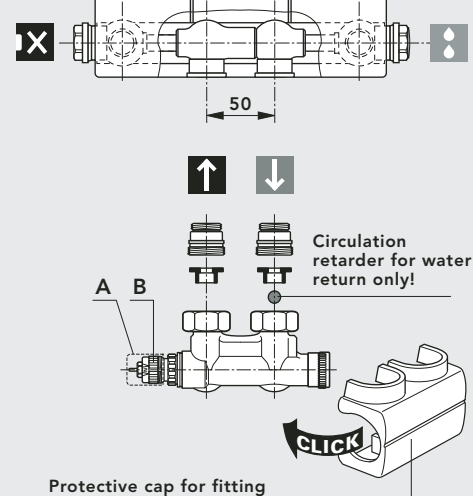
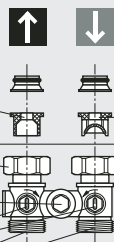
## Horizontal and vertical design

For VHV-M models no valve default setting is necessary, as the valve is delivered factory-adjusted (default setting **N**).



### Single-pipe manifold

- ① Supply insert
- ② Return insert
- Union nut
- Cover for throttle screw
- Ball valve
- External thread 3/4"



Schematic diagram

The radiator valve (VHV-M models) and the connection set (VSV-M models) will both be delivered with a fitted protective cap. After removing the protective cap (item A), the following thermostat heads can be installed directly onto the built-in valve (item B): „RA 2000“, or „RAW“ from Danfoss, „VK“ from Heimeier, „D“ from Herz, „thera DA“ from MNG, and „UNI XD“ from Oventrop.

### Please note!

#### Horizontal design:

During the installation of the single-pipe manifold ensure that the return insert ② is installed in the water return, and the supply insert ① in the water supply.

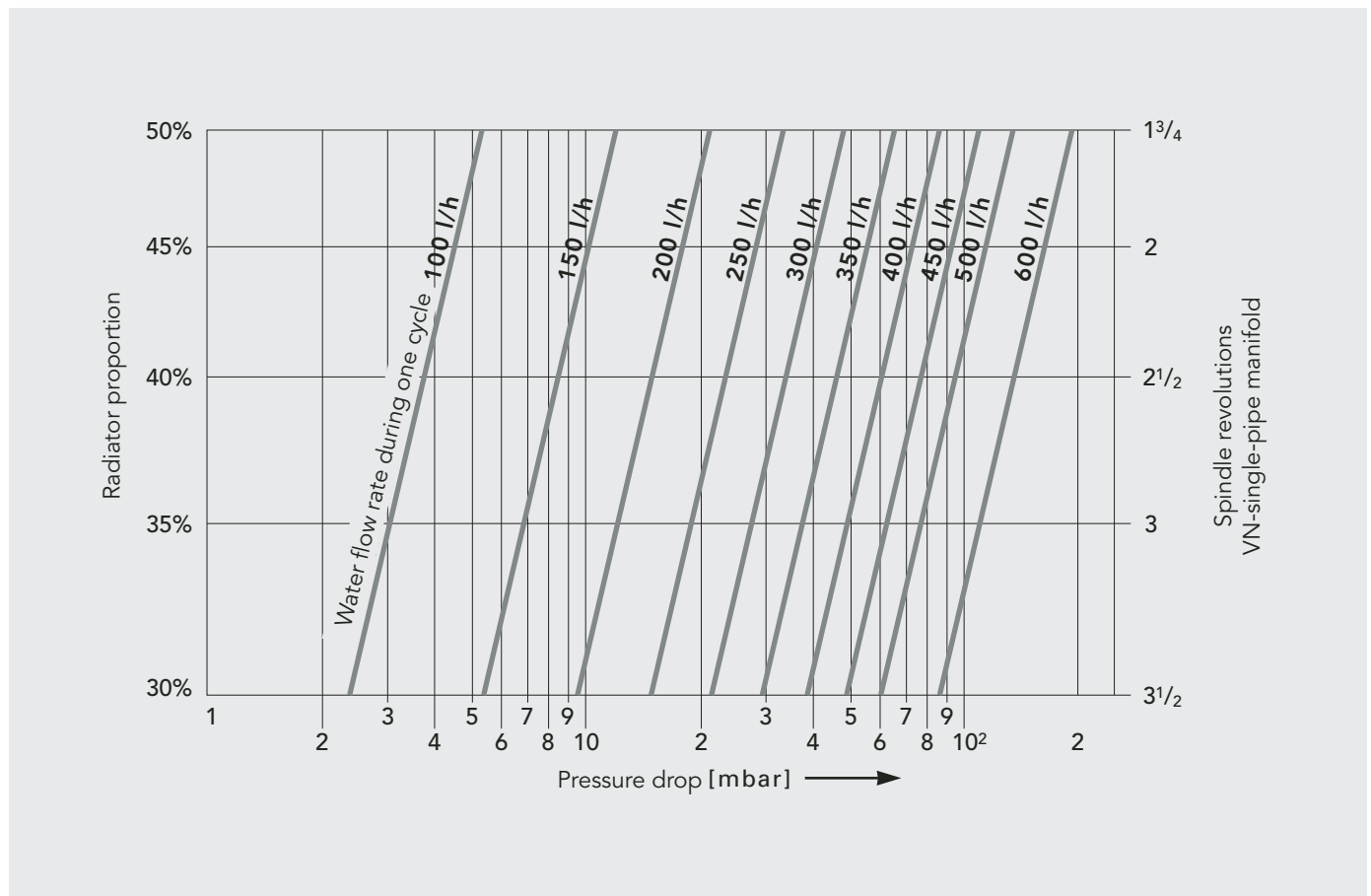
#### Vertical design:

When fitting the single-pipe operation connection set, ensure that the **circulation retarder** is installed in the water return.

**Horizontal design**

Default setting when using a single-pipe manifold: radiator proportion 40 % --- 2.50 revolutions\*  
 radiator proportion 30 % --- 3.50 revolutions\*  
 radiator proportion 35 % --- 3 revolutions\*  
 radiator proportion 45 % --- 2 revolutions\*  
 radiator proportion 50 % --- 1.75 revolutions\*

\*... before starting, turn the bypass spindle of the single-pipe manifold to the **right as far as it will go**.



**Diagram:**

Pressure drop [mbar] – single-pipe operation with a proportional deviation of 2K.

It is of course possible to change the radiator proportion, whilst there is pressure in the heating system.

Please take account of the maximum power per cycle (for single-pipe installations) of about 10 kW:  
 $\Delta T = T_1 - T_2 = 20 \text{ K}$  (at  $T_1 = 90 \text{ }^\circ\text{C}$ ).

**Vertical design**

The connection set radiator proportion comes preset at 40 %.

Please take account of the maximum power per cycle (for single-pipe installations) of about 10 kW:  
 $\Delta T = T_1 - T_2 = 20 \text{ K}$  (at  $T_1 = 90 \text{ }^\circ\text{C}$ ).

welded bracket positions

Wall mounting WA 11 for models VHV-M 10, VHV-M 11, VHV-M 20, VHV-M 22 und VHV-M 34	
<b>Model</b>	<b>VHV-M 10 / 11 für Wandaufhängung WA 11</b>
Overall height ↕ 358 mm	
	<b>VHV-M 22 bzw. VHV-M 34 für Wandaufhängung WA 11</b>
Overall height ↕ 214 mm und 286 mm	
	<b>VHV-M 10 / 11, VHV-M 20/22 für Wandaufhängung WA 11</b>
Overall height ↕ 430 mm bis 574 mm VHV-M 10/11, 358 mm bis 502 mm VHV-M 20/22	
	<b>VHV-M 10 / 11, VHV-M 20/22 für Wandaufhängung WA 11</b>
Overall height ↕ 646 mm bis 790 mm VHV-M 10/11, 574 mm bis 790 mm VHV-M 20/22	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>VHV-M 22</b></p> </div> <div style="text-align: center;"> <p><b>VHV-M 11</b></p> </div> </div>
	Schematic diagram

**Attention!** With the horizontal design only the models VHV-M 10/11 (OH 358 - 790 mm) are by default supplied with brackets. If the models VHV-M 20 (OH 358 - 790 mm), VHV-M 22 (OH 214 - 790) and VHV-M 34 (142 - 286 mm) are wall-mounted using wall mounting WA 11, you are required to order these models as a special version, equipped with brackets.

## 274 VONARIS-M Wall mounting WA 11

drilling measurements and wall-clearance


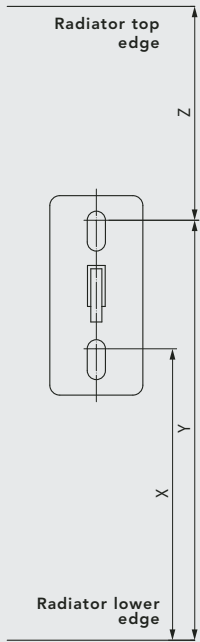
### Wall mounting WA 11 for models VHV-M 10, VHV-M 11, VHV-M 20, VHV-M 22 und VHV-M 34

**Wall mounting WA 11** is suitable for the horizontal versions of the following models: VHV-M 10 (OH 358 - 790 mm), VHV-M 11 (OH 358 - 790 mm), VHV-M 20 (BH 358 - 790 mm), VHV-M 22 (OH 214 - 790 mm) and VHV-M 34 (OH 214 and 286 mm) equipped with brackets. It ensures easy, rapid and robust mounting of the VONARIS central-connection radiators still in the packaging.

### Wall mounting WA 11 for OH 214 - 790

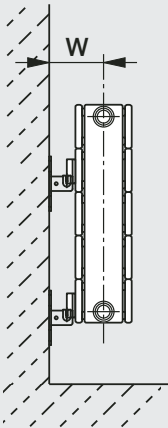

#### Drilling measurements for the Wandaufhängung WA 11

From an overall length of 2200 mm: 3 consoles

Model	 VHV-M Overall height [mm]	Value X [mm]	Value Y [mm]	Value Z [mm]	Wall mounting WA 11
VHV-M 22, 34	214	<b>104</b>	<b>162</b>	<b>52</b>	
VHV-M 22, 34	286	<b>176</b>	<b>234</b>	<b>52</b>	
VHV-M 10, 11	358	<b>203</b>	<b>261</b>	<b>97</b>	
VHV-M 20, 22	358	<b>203</b>	<b>261</b>	<b>97</b>	
VHV-M 10, 11, 20, 22	430	<b>275</b>	<b>333</b>	<b>97</b>	
VHV-M 10, 11, 20, 22	502	<b>347</b>	<b>405</b>	<b>97</b>	
VHV-M 10, 11	574	<b>419</b>	<b>477</b>	<b>97</b>	
VHV-M 20, 22	574	<b>419</b>	<b>477</b>	<b>97</b>	
VHV-M 10, 11, 20, 22	646	<b>491</b>	<b>549</b>	<b>97</b>	
VHV-M 10, 11, 20, 22	718	<b>563</b>	<b>621</b>	<b>97</b>	
VHV-M 10, 11, 20, 22	790	<b>635</b>	<b>693</b>	<b>97</b>	

Schematic diagram

### Connection – wall clearance

	Horizontal design model	Overall height [mm] 	Value <b>W</b> [mm]
	VHV-M 10	358 - 790	<b>45</b>
VHV-M 11	358 - 790	<b>45</b>	
VHV-M 20	358 - 790	<b>89</b>	
VHV-M 22	214 - 790	<b>89</b>	
VHV-M 34	214 / 286	<b>89</b>	

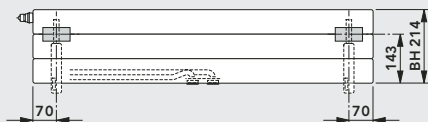
Schematic diagram

bracket positioning for insertion (push-in) brackets

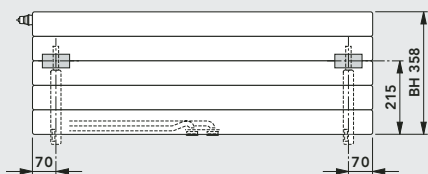
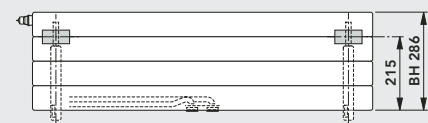
## VONOFIX rapid-installation console for the VHV-M models

VHV-M 10 models: OH 358 - 790 mm, VHV-M 20 models: OH 358 - 790 mm,  
 VHV-M 22 models: OH 214 - 790 mm and VHV-M 34 models: OH 214 and 286 mm

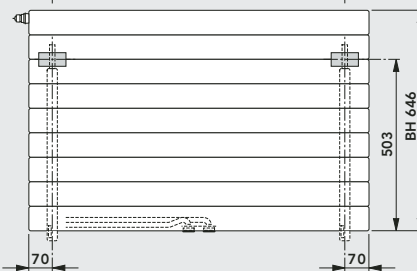
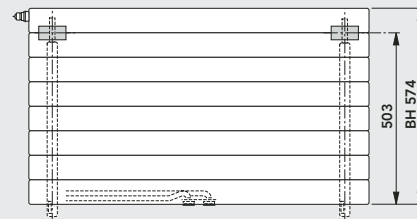
OH 214: for **VONOFIX 1**



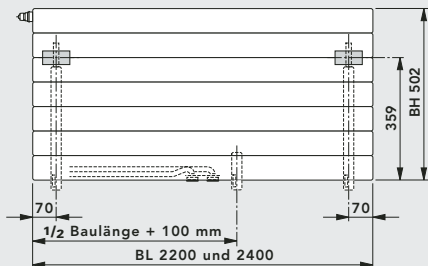
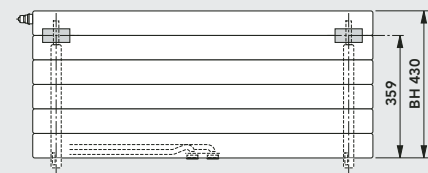
OH 286 and 358: for **VONOFIX 2**



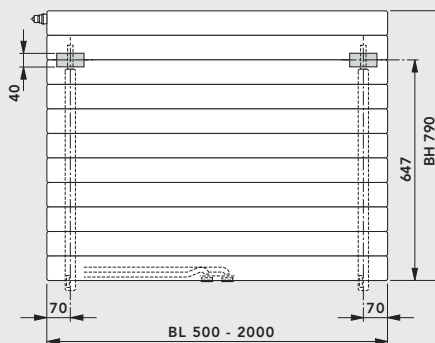
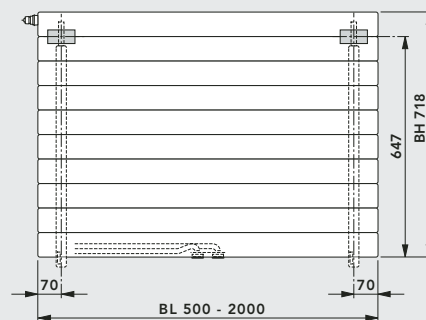
OH 574 and 646: for **VONOFIX 4**



OH 430 and 502: for **VONOFIX 3**



OH 718 and OH 790: for **VONOFIX 5**



**Note!** for an overall length of 2200 mm and greater an additional piece of foot console must be used!

Schematic diagram

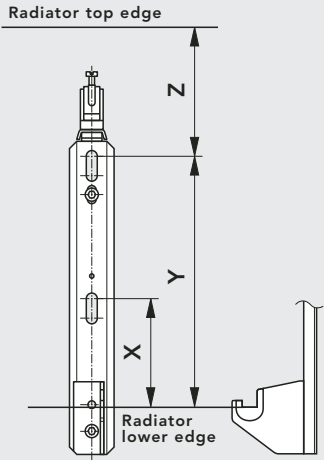

**Important:** the installation of VHV-M models with insertion (push-in) brackets is only feasible when using the **VONOFIX** rapid-installation console!

**VONOFIX rapid-installation console for the VHV-M models**

The **VONARIS** central connection radiator can be installed easily, quickly and securely. This is made possible by the **VONOFIX** rapid-installation console for the horizontal designs of the VHV-M 20 (OH 358 - 790 mm), VHV-M 22 (OH 214 - 790 mm) and the VHV-M 34 (OH 214 and 286 mm) models.

**Wall rails for OH 214 – 790 mm**

**Drilling measurements for the VONOFIX 1 - 5**

	Overall radiator height [mm] 	Value X [mm]	Value Y [mm]	Value Z [mm]
	214	-	125	89
286	100	197	89	
358	100	197	161	
430	100	341	89	
502	100	341	161	
574	100	485	89	
646	100	485	161	
718	100	629	89	
790	100	629	161	

Schematic diagram

The **VONOFIX** rapid-installation console consists of:

- 2 wall consoles (zinc-plated), with sound-proofing filters, screws and dowels
- 2 stabilising brackets
- 2 insertion (push-in) brackets
- (For an overall length of 2200 mm and greater, 1 additional piece of foot console)

**Connection – wall clearance**

	Horizontal design model	Overall height [mm] 	Value W [mm]
	VHV-M 20	358 – 790	91
VHV-M 22	214 – 790	91	
VHV-M 34	214 – 286	91*	

\* **Note:** if the **VHV-M 34** is turned round and used as a left-hand design model, the measurement **W** is **172 mm**.

Schematic diagram

VSV-M models

Overall length



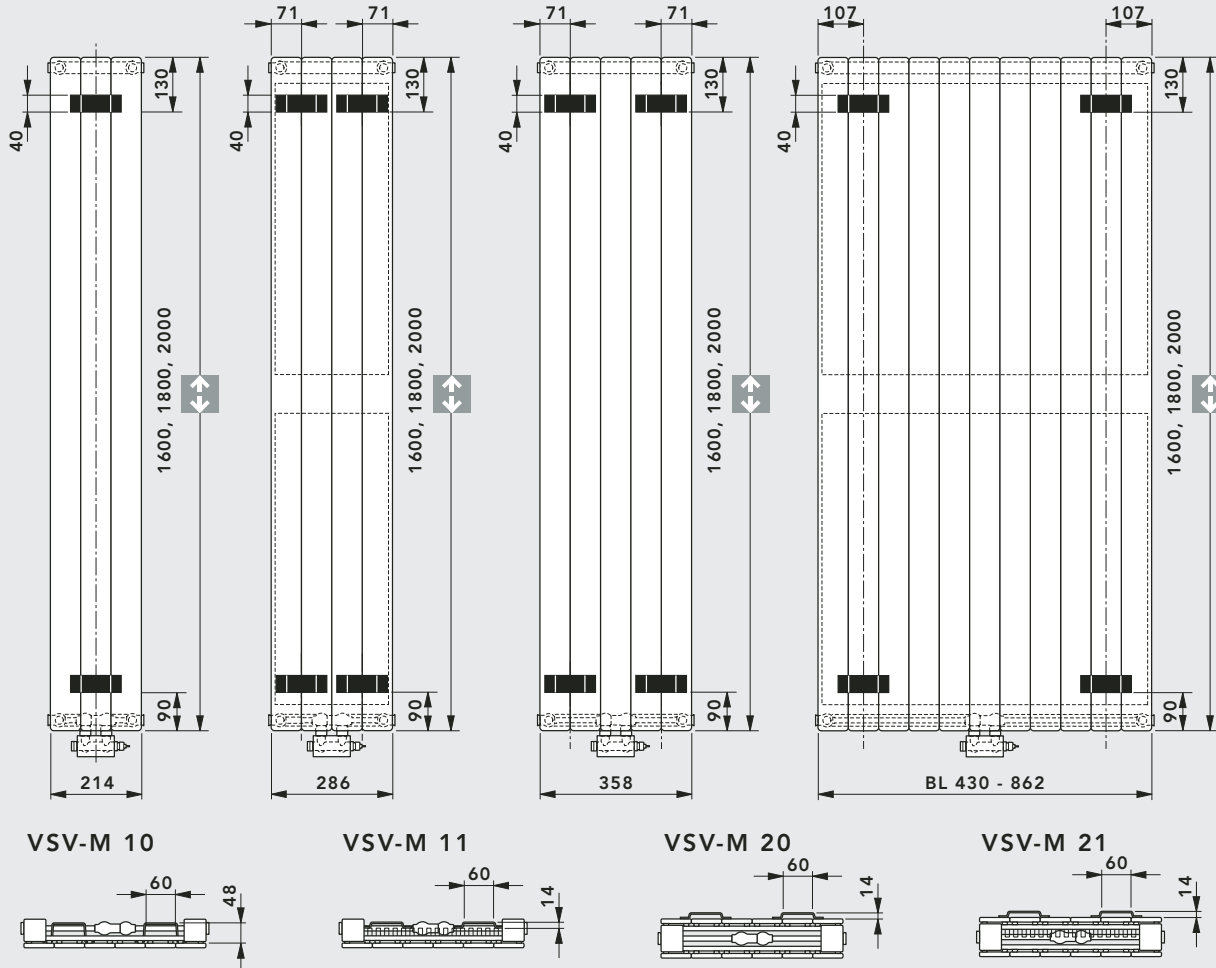
[mm]

214

286

358

430 - 862



Schematic diagram

Wall clearance measurements: WA 10 and WA 11 wall mounting brackets for the VSV-M models

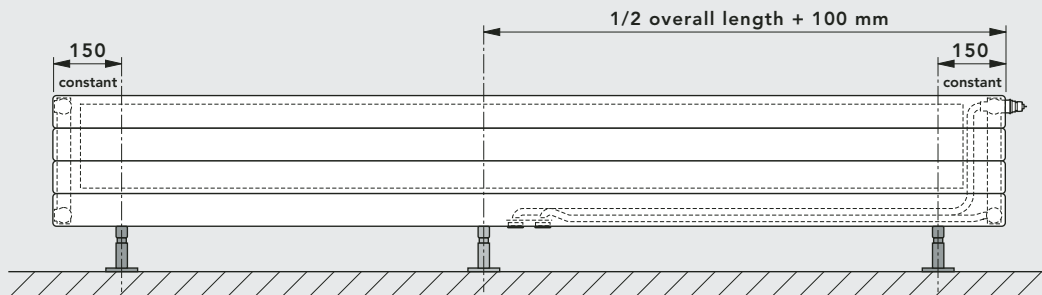
Connection – wall clearance

	Wall mounting brackets model	Vertical design model	Value W [mm]
	WA 10	VSV-M 10/11*	35
WA 10	VSV-M 20/21	79,5	
WA 11	VSV-M 10/11*	45	
WA 11	VSV-M 20/21	89,5	

**\*Note!** if you are using **WA 10** or **WA 11** wall mounting brackets for the installation of the **VSV-M 10** or **VSV-M 11** model with a right-angled-design connection, please follow the instructions in the diagram on page 267.

Schematic diagram

**SK 12 – 17 stand consoles: positioning with the VHV-M models (up to an overall height of 286 mm)**

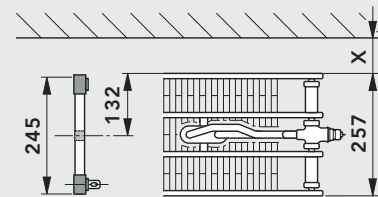
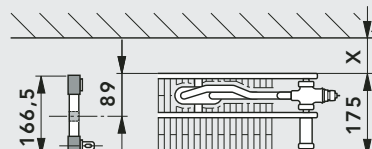
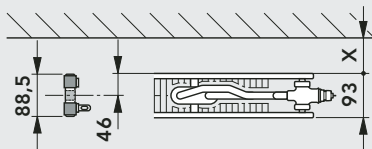


**Note:** for an overall length of **2200 mm** and greater, a 3rd stand console must be used!

**SK 12 / SK 13**  
**VHV-M 22**

**SK 14 / SK 15**  
**VHV-M 34**

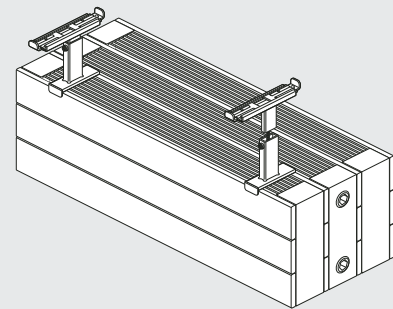
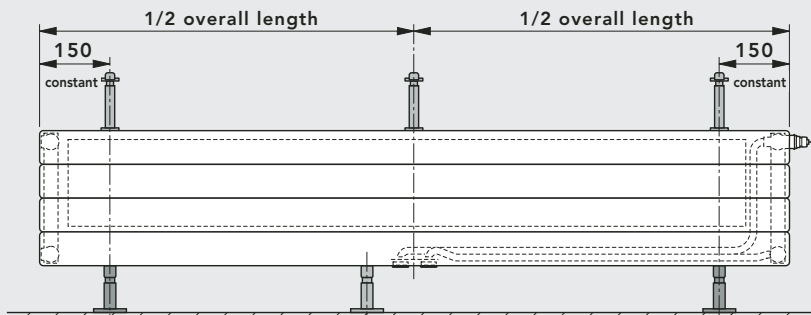
**SK 16 / SK 17**  
**VHV-M 46**



Schematic diagram

**FBT 20 window sill support: positioning for the VHV-M models (up to an overall height of 286 mm)**

Window sill support for subsequent installation with the **VHV-M 22 – 46 models** of the **VONARIS-M** central connection radiator (up to an overall height of 286 mm)

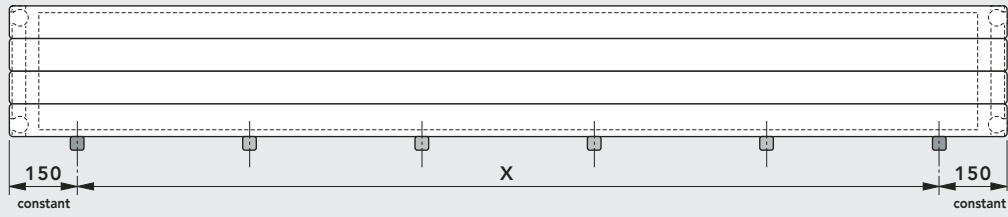


**Note:** for an overall length of more than **2200 mm**, a 3rd window sill support must be used!

Schematic diagram



## Wall mounting positions VONARIS-M

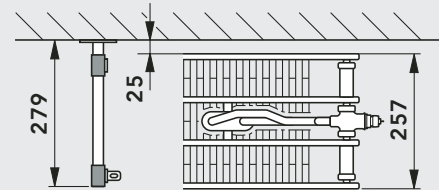
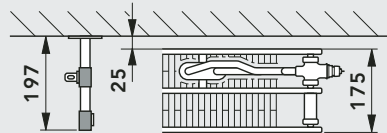
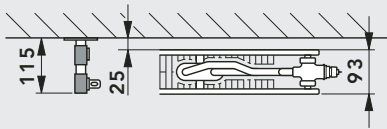


**Attention:** if more than 2 wall consoles are used, any additional wall consoles are to be used at regular distances from each other along a length of X.

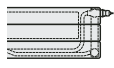
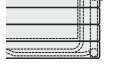

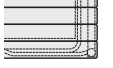

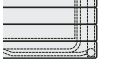
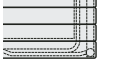







**WK 10-M**  
**VHV-M 22**

**WK 11-M**  
**VHV-M 34**

**WK 12**  
**VHV-M 46**



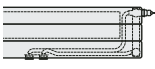



Schematic diagram

Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C									
Side panels and top cover are included in the heat output specifications									
									
 Overall height [mm]	214	286	358	430	502	574	646	718	790
Increments	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.								
Model			VHV-M 10*	VHV-M 10*	VHV-M 10*	VHV-M 10*	VHV-M 10*	VHV-M 10*	VHV-M 10*
 Overall depth [mm]			68	68	68	68	68	68	68
Watts / m 75/65/20			394	458	523	588	655	720	795
Watts / m 70/55/20			322	374	427	480	534	590	647
Watts / m 55/45/20			209	243	276	311	344	380	416
Water content l / m			2,76	3,33	3,87	4,44	4,99	5,55	6,12
Weight kg / m			11,91	14,04	16,17	18,29	20,43	22,60	24,68
Radiator exponent n			1,24	1,24	1,25	1,25	1,26	1,26	1,27
Model			VHV-M 11*	VHV-M 11*	VHV-M 11*	VHV-M 11*	VHV-M 11*	VHV-M 11*	VHV-M 11*
 Overall depth [mm]			68	68	68	68	68	68	68
Watts / m 75/65/20			625	718	804	886	965	1043	1105
Watts / m 70/55/20			505	583	652	717	781	844	889
Watts / m 55/45/20			320	372	415	456	497	537	558
Water content l / m			2,78	3,33	3,87	4,44	4,99	5,55	6,12
Weight kg / m			16,71	19,85	22,99	26,15	29,29	31,42	33,55
Radiator exponent n			1,31	1,29	1,29	1,30	1,30	1,30	1,34
Model			VHV-M 20	VHV-M 20	VHV-M 20	VHV-M 20	VHV-M 20	VHV-M 20	VHV-M 20
 Overall depth [mm]			93	93	93	93	93	93	93
Watts / m 75/65/20			654	757	859	960	1063	1166	1271
Watts / m 70/55/20			533	617	699	781	864	947	1032
Watts / m 55/45/20			344	397	450	501	554	607	660
Water content l / m			5,55	6,66	7,77	8,88	9,99	11,10	12,22
Weight kg / m			21,29	25,30	29,31	33,31	37,32	41,32	45,33
Radiator exponent n			1,26	1,26	1,27	1,27	1,28	1,28	1,28
Model	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22	VHV-M 22
 Overall depth [mm]	93	93	93	93	93	93	93	93	93
Watts / m 75/65/20	769	938	1100	1268	1405	1534	1654	1767	1886
Watts / m 70/55/20	621	756	885	1021	1130	1232	1326	1414	1500
Watts / m 55/45/20	393	477	555	642	708	769	825	877	919
Water content l / m	3,34	4,44	5,55	6,66	7,77	8,88	9,99	11,11	12,22
Weight kg / m	20,59	27,23	30,89	36,93	42,96	49,01	55,05	59,05	63,06
Radiator exponent n	1,31	1,32	1,34	1,33	1,34	1,35	1,36	1,37	1,41

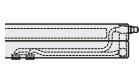
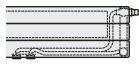
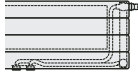


\* For aesthetic reasons these models should not be fitted in front of a window.


Heating output in compliance with **DIN EN 442**, and **ÖNORM EN 442**, at **75/65/20° C**


Side panels and top cover are included in the heat output specifications

		
 Overall height [mm]	<b>214</b>	<b>286</b>
<b>Increments</b>	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.	
<b>Model</b>	<b>VHV-M S 22</b>	<b>VHV-M S 22</b>
 Overall depth [mm]	<b>163</b>	<b>163</b>
<b>Watts / m 75/65/20</b>	769	938
<b>Watts / m 70/55/20</b>	621	756
<b>Watts / m 55/45/20</b>	393	477
<b>Water content l / m</b>	3,34	4,44
<b>Weight kg / m</b>	28,34	37,24
<b>Radiator exponent n</b>	1,31	1,32

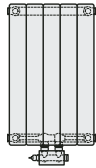
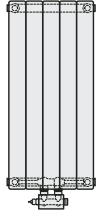
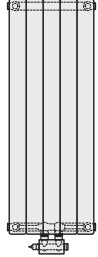
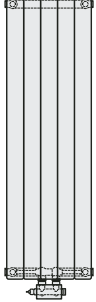
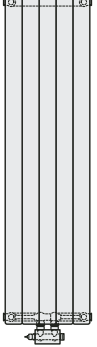
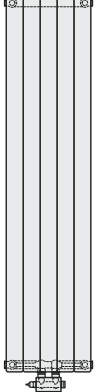
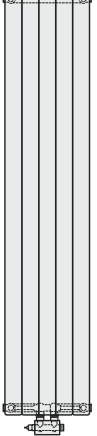
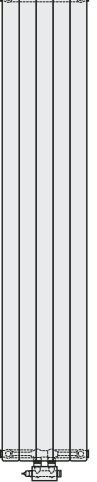
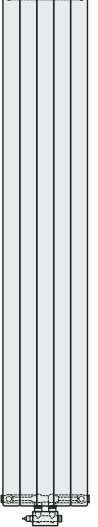
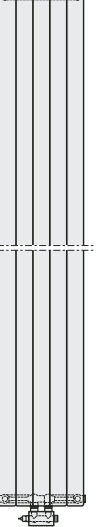





\* For aesthetic reasons these models should not be fitted in front of a window.

			
 Overall height [mm]	<b>142</b>	<b>214</b>	<b>286</b>
<b>Increments</b>	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.		
<b>Model</b>	<b>VHV-M 34</b>	<b>VHV-M 34</b>	<b>VHV-M 34</b>
 Overall depth [mm]	<b>175</b>	<b>175</b>	<b>175</b>
<b>Watts / m 75/65/20</b>	953	1357	1616
<b>Watts / m 70/55/20</b>	773	1094	1296
<b>Watts / m 55/45/20</b>	493	690	808
<b>Water content l / m</b>	3,33	4,99	6,66
<b>Weight kg / m</b>	23,93	35,18	46,42
<b>Radiator exponent n</b>	1,29	1,32	1,36

<b>Model</b>	<b>VHV-M 46</b>	<b>VHV-M 46</b>	<b>VHV-M 46</b>
 Overall depth [mm]	<b>257</b>	<b>257</b>	<b>257</b>
<b>Watts / m 75/65/20</b>	1433	1895	2357
<b>Watts / m 70/55/20</b>	1160	1525	1885
<b>Watts / m 55/45/20</b>	738	957	1168
<b>Water content l / m</b>	4,53	6,79	9,06
<b>Weight kg / m</b>	33,89	49,76	65,62
<b>Radiator exponent n</b>	1,30	1,34	1,37

<b>Model</b>	<b>VHV-M S 46</b>	<b>VHV-M S 46</b>	<b>VHV-M S 46</b>
 Overall depth [mm]	<b>327</b>	<b>327</b>	<b>327</b>
<b>Watts / m 75/65/20</b>	1433	1895	2357
<b>Watts / m 70/55/20</b>	1160	1525	1885
<b>Watts / m 55/45/20</b>	738	957	1168
<b>Water content l / m</b>	4,53	6,79	9,06
<b>Weight kg / m</b>	39,35	57,50	75,64
<b>Radiator exponent n</b>	1,30	1,34	1,37

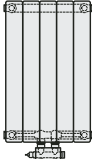
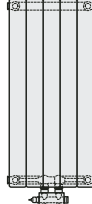
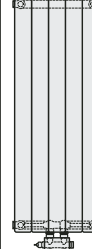

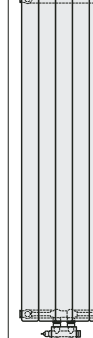
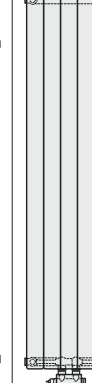
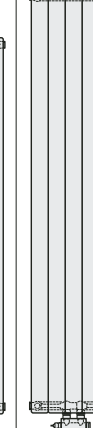
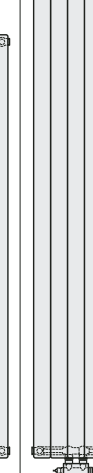







\* For aesthetic reasons these models should not be fitted in front of a window.

Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C											
Side panels and top cover are included in the heat output specifications											
											
 Overall height [mm]	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
 Overall length [mm]	214, 286, 358, 430, 502, 574, 646, 718, 790, 862										
<b>Model</b>	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10	VSV-M 10
 Overall depth [mm]	68	68	68	68	68	68	68	68	68	68	68
<b>Watts/m 75/65/20</b>	657	861	1069	1284	1506	1738	1979	2232	2495	2771	3060
<b>Watts/m 70/55/20</b>	533	694	857	1023	1200	1384	1577	1781	1994	2219	2455
<b>Watts/m 55/45/20</b>	340	438	534	629	737	850	968	1097	1234	1378	1530
<b>Water content l / m</b>	5,17	6,41	7,65	8,89	10,13	11,37	12,47	13,85	15,24	16,48	17,72
<b>Weight kg / m</b>	18,70	23,85	29,--	34,15	39,30	44,45	49,60	54,75	59,70	64,85	70,--
Heizkörper-exponent <b>n</b>	1,29	1,32	1,36	1,40	1,40	1,40	1,40	1,39	1,38	1,37	1,36
<b>Model</b>		VSV-M 11	VSV-M 11	VSV-M 11	VSV-M 11	VSV-M 11	VSV-M 11	VSV-M 11	VSV-M 11		
 Overall depth [mm]		68	68	68	68	68	68	68	68		
<b>Watts/m 75/65/20</b>		1123	1331	1541	1757	1979	2209	2450	2701		
<b>Watts/m 70/55/20</b>		897	1065	1234	1407	1584	1768	1964	2172		
<b>Watts/m 55/45/20</b>		554	660	768	874	983	1097	1223	1361		
<b>Water content l / m</b>		6,41	7,65	8,89	10,13	11,37	12,47	13,85	15,24		
<b>Weight kg / m</b>		42,79	47,94	53,09	58,24	63,39	68,53	73,69	78,84		
Radiator exponent <b>n</b>		1,38	1,37	1,36	1,37	1,37	1,37	1,36	1,34		

heating outputs

Heating output in compliance with **DIN EN 442**, and **ÖNORM EN 442**, at **75/65/20° C**

Side panels and top cover are included in the heat output specifications

											
 Overall height [mm]	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
 Overall length [mm]	214, 286, 358, 430, 502, 574, 646, 718, 790, 862										
<b>Model</b>	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20	VSV-M 20
 Overall depth [mm]	93	93	93	93	93	93	93	93	93	93	93
Watts/m 75/65/20	1118	1479	1840	2202	2566	2932	3301	3672	4046	4423	4803
Watts/m 70/55/20	899	1185	1468	1750	2041	2332	2629	2929	3232	3539	3849
Watts/m 55/45/20	564	737	905	1070	1249	1427	1615	1805	1997	2194	2395
Water content l / m	10,34	12,82	15,30	17,78	20,26	22,74	24,34	27,71	30,48	32,96	35,44
Weight kg / m	35,34	45,36	55,38	65,40	75,42	85,44	95,46	105,48	115,50	125,52	135,54
Heizkörper-exponent n	1,34	1,36	1,36	1,41	1,41	1,41	1,40	1,39	1,38	1,37	1,36
<b>Model</b>		VSV-M 21	VSV-M 21	VSV-M 21	VSV-M 21	VSV-M 21	VSV-M 21	VSV-M 21	VSV-M 21		
 Overall depth [mm]		93	93	93	93	93	93	93	93		
Watts/m 75/65/20		1704	2059	2421	2795	3184	3588	4012	4455		
Watts/m 70/55/20		1355	1636	1922	2222	2536	2857	3206	3569		
Watts/m 55/45/20		829	999	1173	1359	1557	1755	1983	2219		
Water content l / m		12,82	15,30	17,78	20,26	22,74	24,34	27,71	30,48		
Weight kg / m		64,29	74,31	84,33	94,35	104,37	114,39	124,42	134,64		
Radiator exponent n		1,41	1,42	1,42	1,41	1,40	1,40	1,38	1,36		

## CONVECTORS & HEATING PANELS



**EN 442**  
 GEPRÜFT

**CE**

**55**  
**45**  
 DIE neue WÄRME

**EN ISO 9001**

**DIN EN 442**


**Connections:**  
 2 x internal thread G 1/2", welded-in for supply and return. Vent and drain plugs (or dummy plug) are factory sealed and are fitted according to the customer's specifications.


**Maximum positive operating pressure**  
 Standard design: **5 bar**


**Maximum positive operating pressure:**  
 High-pressure design **8 bar**


**Maximum operating temperature:** **110 °C**



Guarantee statements are available to download at [www.vogelundnoot.com/download](http://www.vogelundnoot.com/download)

**KONTEC** convectors and horizontal heating panels are radiators in fully welded designs, with either 1 to 5 layers of steel rectangular water-flow pipes arranged one-behind-the-other (for convectors), or 1 or 2 such layers (for horizontal heating panels). In each layer, the convectors have between one and four pipes arranged one-above-the-other; the horizontal heating panels have from 5 to 11 pipes.

**KONTEC** vertical heating panels consist of 1 or 2 layers of steel rectangular water-flow pipes, arranged one-behind-the-other, with 2 to 12 steel pipes, arranged side-by-side.

A 2 mm space between the heating pipes guarantees additional resistance to corrosion. **KONTEC** convectors and horizontal heating panels come with side panels and top covers; **KONTEC** vertical heating panels come with side panels. **KONTEC** heating panels are delivered with welded mounting brackets.

All **KONTEC** convectors and heating

panels are also delivered with factory-sealed drain plugs and pivotable vent plugs. (Exception: bottom-opposite-end connection models come with a dummy plug instead of the drain plug.)

**Standard design:** rectangular steel pipes, 70 x 11 x 1.5 mm

**High-pressure design:** rectangular steel pipes, 70 x 11 x 2.0 mm

**WVO-design:** **KONTEC** convectors are also available with a welded heat reflector (no water-flow).

#### Convector dimensions:

Overall lengths: between 500 mm and 1400 mm (at increments of 100 mm), and between 1600 mm and 4000 mm (at increments of 200 mm)  
 Overall heights: 70 mm, 142 mm, 214 mm and 286 mm

#### Horizontal heating panel dimensions:

Overall lengths: between 500 mm and 1400 mm (at increments of 100 mm), and between 1600 mm and 4000 mm

(at increments of 200 mm)

Overall heights: 358 mm, 430 mm, 502 mm, 574 mm, 646 mm and 790 mm

#### Vertical heating panel dimensions:

Overall lengths: between 142 mm and 862 mm (at increments of 72 mm)

Overall heights: between 1600 mm and 2200 mm (at increments of 200 mm)

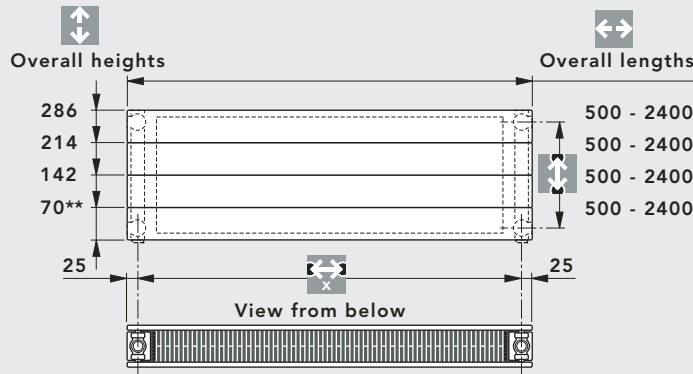
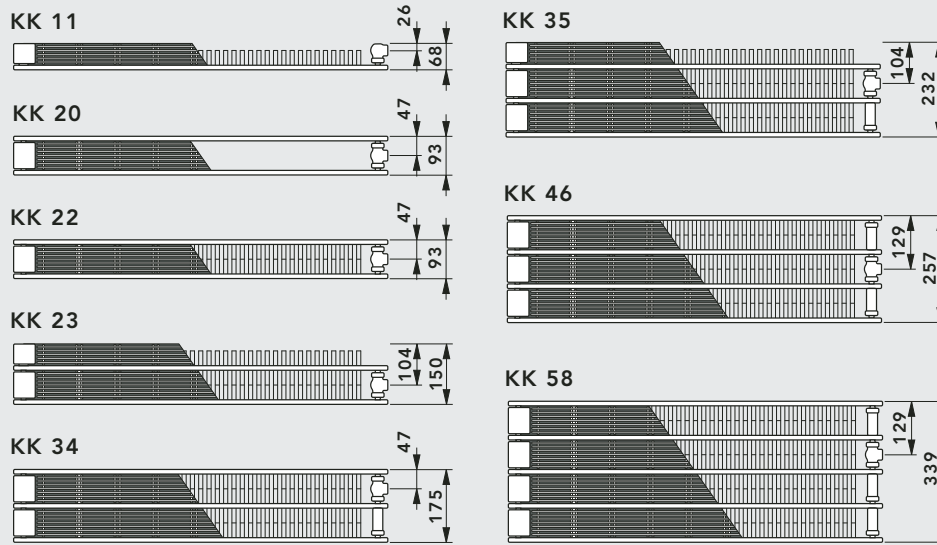
#### Coatings:

1. Undercoat: electrophoretic, using water-soluble paints, conforming to DIN 55900 part 1, stoved at 165° C;  
 2. Finish: electrostatic powder coating, conforming to DIN 55900 part 2, in a state-of-the-art facility. (On request, and at a supplementary charge, a range of RAL and sanitary ware colours can be offered.) This particularly robust coating is stoved at an object temperature of 180° C.

**Packaging:**

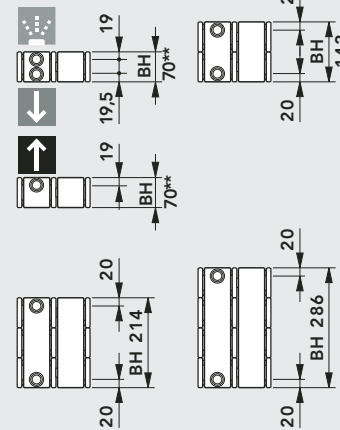
1. Cardboard packaging
2. Edge protection
3. Shrink foil

## Horizontal design, KK models



Overall height [mm]	70**	142	214	286
Boss spacing NA [mm]	32	102	174	246
Boss spacing NAS* [mm]	Overall length - 50 mm			

### Side connections:

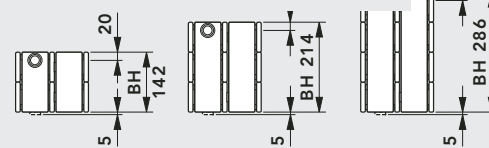


**Note:** with an OH of 70 mm, vertical connection from below is not available!

\* Models with an overall height of 142, 214 or 286 mm can also be delivered with supply and return connections vertically from below (as special designs and with a supplementary charge).

\*\* Only available with top-bottom, opposite-ends, side-connection.

### \*Connection vertically from below:



Schematic diagram

Model	KK 11	KK 20	KK 22	KK 23	KK 34	KK 35	KK 46	KK 58	
Overall height [mm]	-	-	142	70	142	70	142	70	142
	214	286	214	286	214	286	214	286	214
Overall length [mm]	500 - 2400 mm (for special overall lengths see output charts), model 58 up to 2200 mm								
Increments	100 mm (for an overall length of 1400 mm and greater: 200 mm)								



LOW-E2

Profile panel radiators

Plan panel radiators

Vertical radiators



General information

Preformed plate system

Stapler system

Special systems



Bathroom radiators

Design radiators



Standard Column radiators

Centrally connected Column radiators

Architecture Column radiators



VONARIS

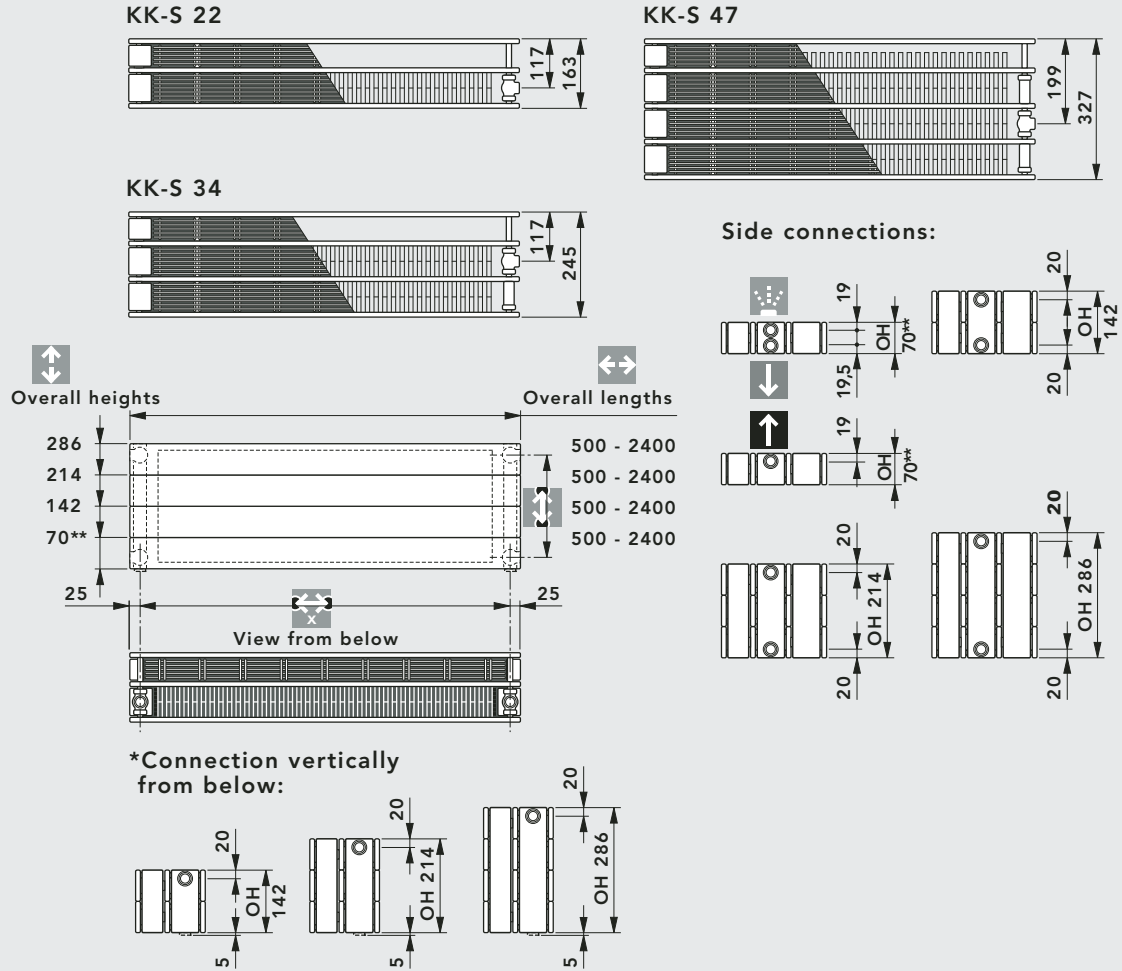
VONARIS-M

KONTEC

The KK-S models

With their factory-welded heat reflector (no water-flow), the WVO designs return a major part of the otherwise lost heat to the room. They do so by means of convection between radiator and heat reflector.

Model overview / connection dimensions: KK-S models, horizontal design



Overall height [mm]	70**	142	214	286
Boss spacing NA [mm]	32	102	174	246
Boss spacing NAS* [mm]	Overall length - 50 mm			

**Note:** with an OH of 70 mm, vertical connection from below is not available!

\* Models with an overall height of 142, 214 or 286 mm can also be delivered with supply and return connections vertically from below (as special designs and with a supplementary charge).

\*\* Only available with top-bottom, opposite-ends, side-connection.

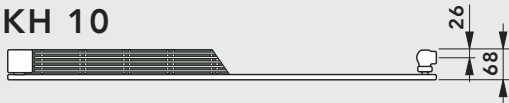
Schematic diagram

Model	KK-S 22				KK-S 34				KK-S 47			
Overall height [mm]	70	142	214	286	70	142	214	286	70	142	214	286
Overall length [mm]	500 – 2400 mm (for special overall lengths see output charts)											
Increments	100 mm (for an overall length of 1400 mm and greater: 200 mm)											

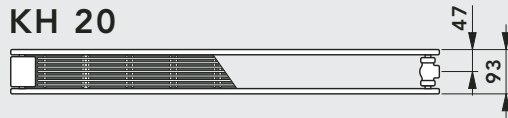


KH models horizontal design

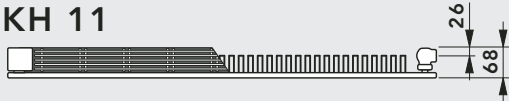
KH 10



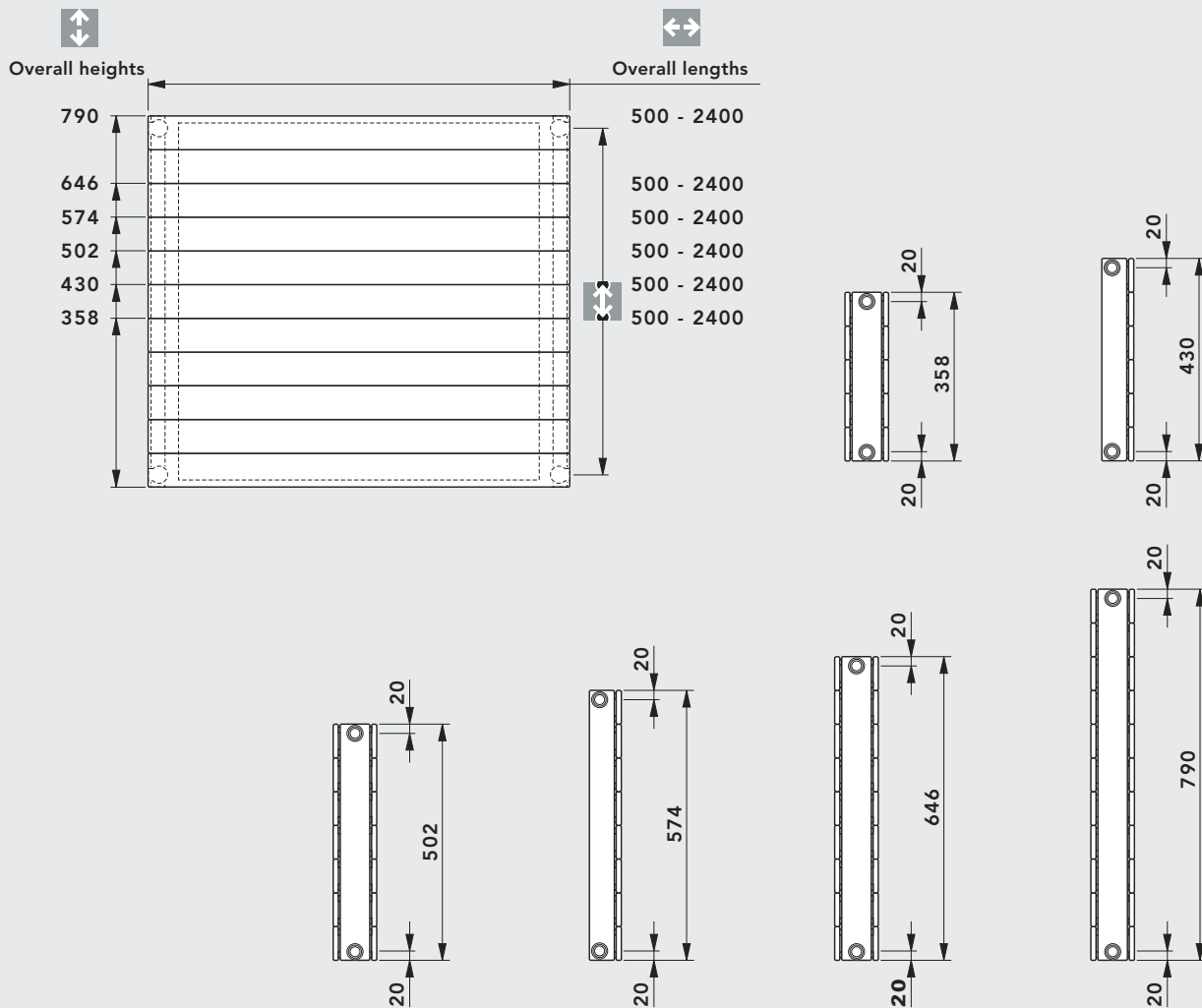
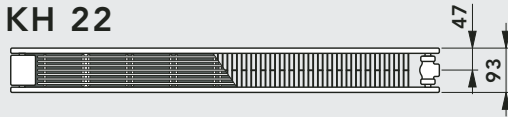
KH 20



KH 11



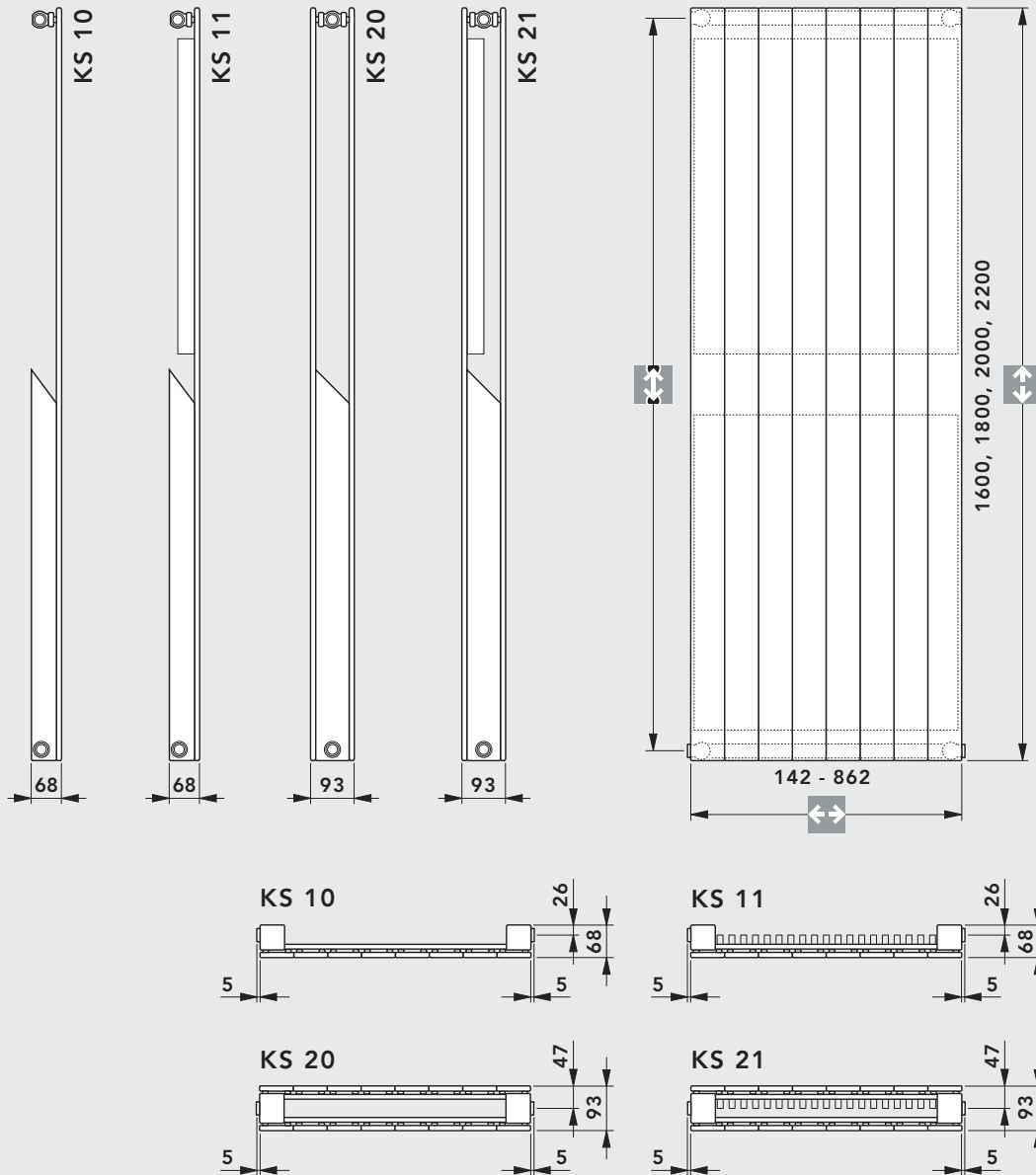
KH 22



Overall height [mm]	358	430	502	574	646	790	Schematic diagram
Boss spacing NA [mm]	318	390	462	534	606	750	

Model	KH 10			KH 11			KH 20			KH 22		
Overall height [mm]	358	430	502	358	430	502	358	430	502	358	430	502
Overall length [mm]	574	646	790	574	646	790	574	646	790	574	646	790
Increments	100 mm (for an overall length of 1400 mm and greater: 200 mm)											

KS models vertical design



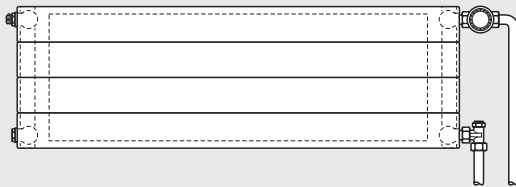
Overall height [mm]	1600	1800	2000	2200	Schematic diagram
Boss spacing NA [mm]	1550	1750	1950	2150	

Model	KS 10		KS 11		KS 20		KS 21	
Overall height [mm]	1600	1800	1600	1800	1600	1800	1600	1800
	2000	2200	2000	2200	2000	2200	2000	2200
Overall length [mm]	142 - 862 mm							
Increments	72 mm							

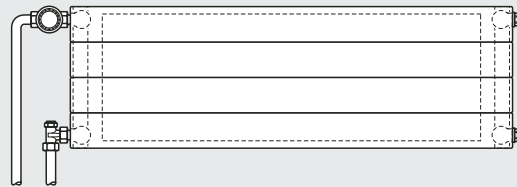
KK and KK-S models

Double-pipe system

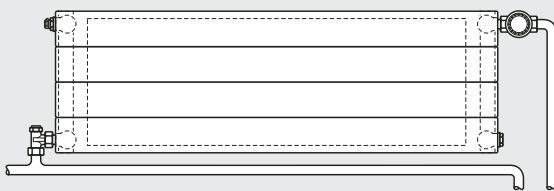
Single-sided connection, right



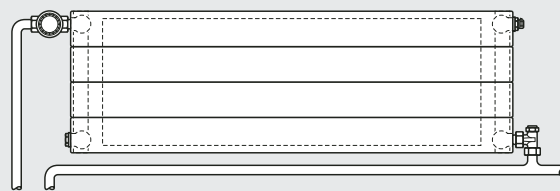
Single-sided connection, left



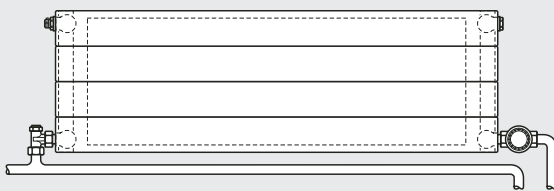
Top-bottom, opposite-end, side-connection, right-side supply



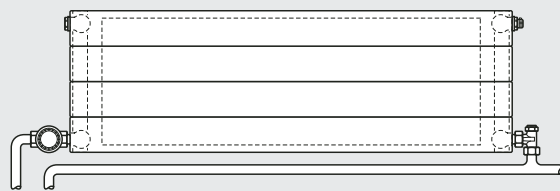
Top-bottom, opposite-end, side-connection, left-side supply



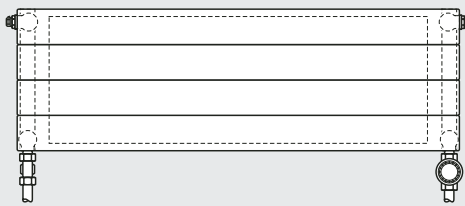
Bottom-only, opposite-end, side-connection, right-side supply  
Note: reduced heat output



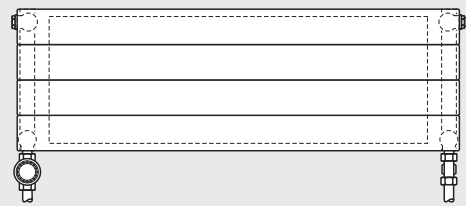
Bottom-only, opposite-end, side-connection, left-side supply  
Note: reduced heat output



Vertical connection from below, bottom-only, opposite-end, right-side supply  
Note: reduced heat output



Vertical connection from below, bottom-only, opposite-end, left-side supply  
Note: reduced heat output

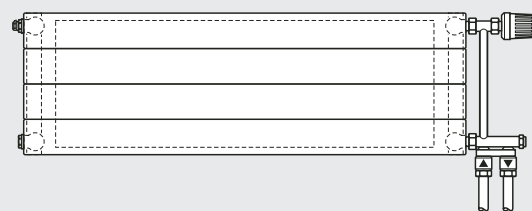


Single-pipe system

KONTEC convectors can easily be converted for use with a single-pipe system. In this case, however, 4-way valves with a by-pass pipe need to be used.

**Recommendation:**

For reasons of appearance the VONARIS valve design is the preferred option for this connection mode.



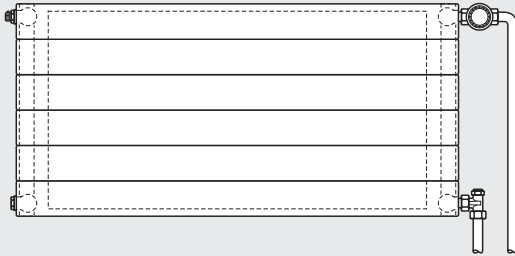
Schematic diagram

**Note:** when ordering your KONTEC convector (see page 343 "Description of the Ordering Process") the 4 connections must be accurately specified and assigned. This is for technical production reasons. No subsequent changes to the connections on your KONTEC convector are possible!

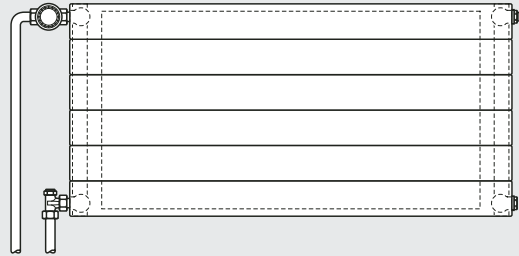
**Typen KH**

**Double-pipe system**

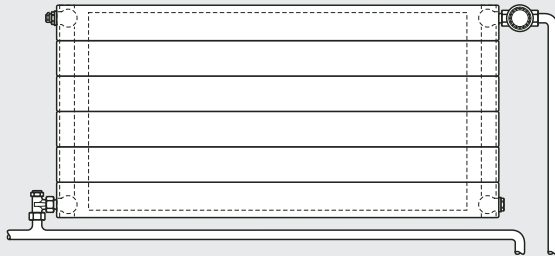
**Single-sided connection, right**



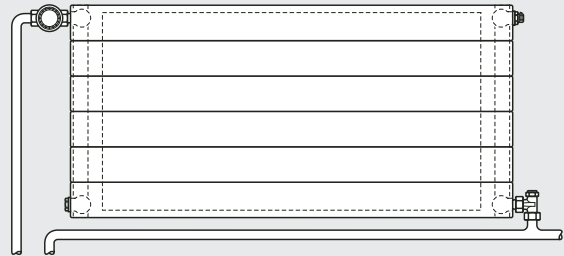
**Single-sided connection, left**



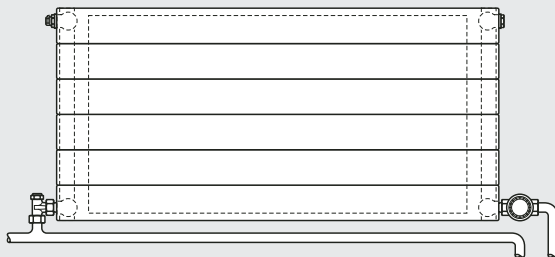
**Top-bottom, opposite-end, side-connection, right-side supply**



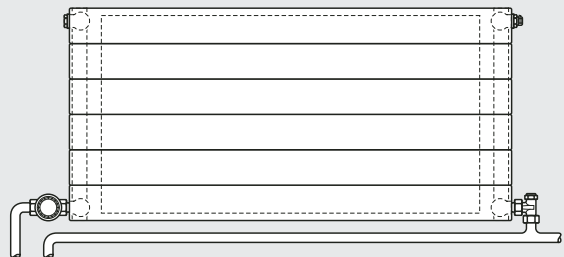
**Top-bottom, opposite-end, side-connection, left-side supply**



**Bottom-only, opposite-end, side-connection, right-side supply**  
**Note: reduced heat output**



**Bottom-only, opposite-end, side-connection, left-side supply**  
**Note: reduced heat output**

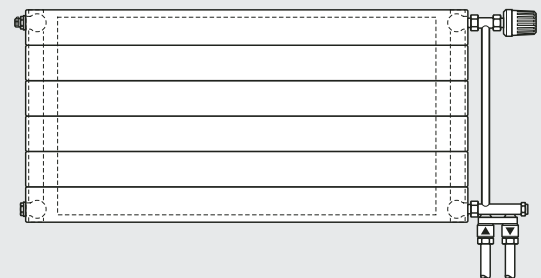


**Single-pipe system**

**KONTEC** convectors can easily be converted for use with a single-pipe system. In this case, however, 4-way valves with a by-pass pipe need to be used.

**Recommendation:**

For reasons of appearance the **VONARIS** valve design is the preferred option for this connection mode.



Schematic diagram

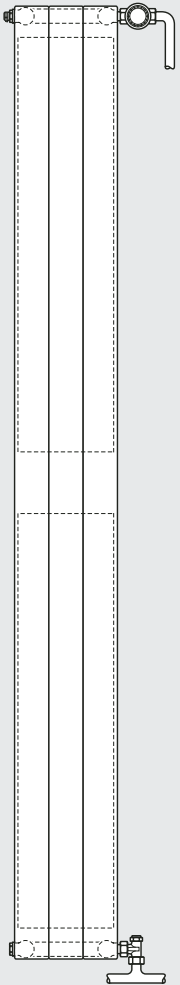
**Note:** when ordering your **KONTEC** KH model heating panels, (see page 344, "Description of the Ordering Process") the 4 connections must be accurately specified and assigned. This is for technical production reasons. No subsequent changes to the connections on your **KONTEC** KH model heating panels are possible!

Typen KS

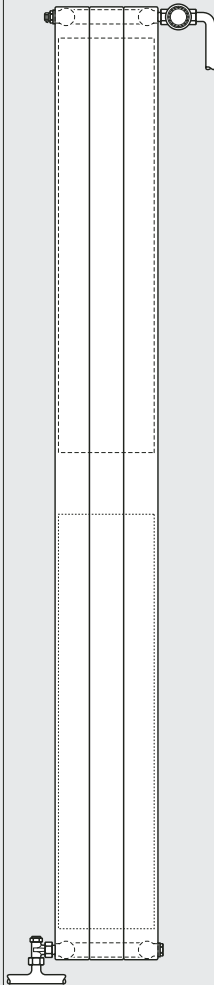
Double-pipe system

**Note:** with KONTEC KS model heating panels, single-pipe connection is not possible!

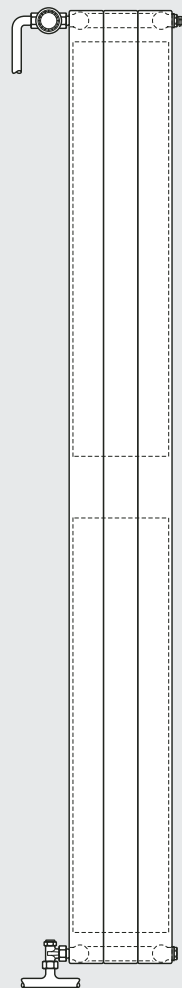
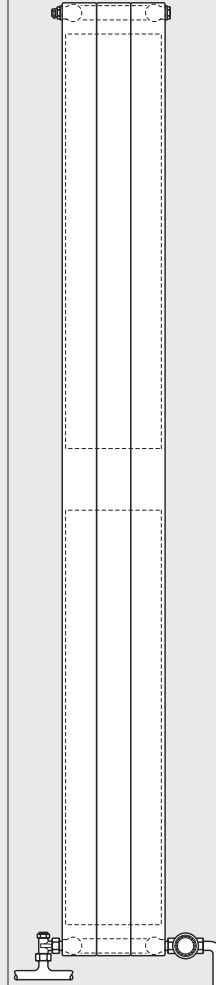
Single-sided connection, right



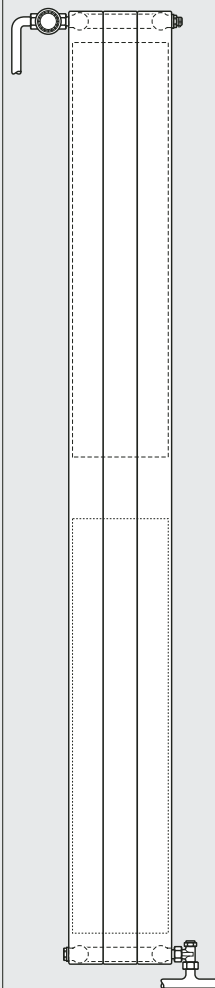
Top-bottom, opposite-end, side-connection, right-side supply



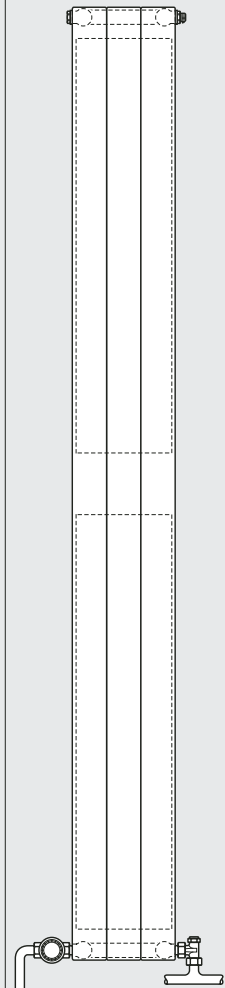
Bottom-only, opposite-end, side-connection, right-side supply



Single-sided connection, left



Top-bottom, opposite-end, side-connection, left-side supply



Bottom-only, opposite-end, side-connection, right-side supply

Schematic diagram

**Note:** when ordering your KONTEC KS model heating panel (see page 345 "Description of the Ordering Process") the 4 connections must be accurately specified and assigned. This is for technical production reasons. No subsequent changes to the connections on your KONTEC KS model heating panel are possible!

## KH 20 and KH 22 models, horizontal designs

**The new heat reflector**

- is available for the KH 20 (OH 358 – 574 mm) and the KH 22 (OH 358 - 646 mm) models in horizontal design
- returns a major part of the otherwise lost heat to the room, by means of convection between the KONTEC heating panel and the heat reflector.

**Design:**

Electrophoretic coating and finish in RAL 9016 (on request and at an extra charge, in a range of RAL and Sanitary Ware colours); delivered with 8 push-in brackets, 8 stabilising brackets, 4 Z-brackets, an installation sheet, and packaging

**Note:** when ordering one of the horizontal designs with a heat reflector, it is also essential to use either an **SK 22 (KH 20)** or an **SK 23 (KH 22) stand console**.

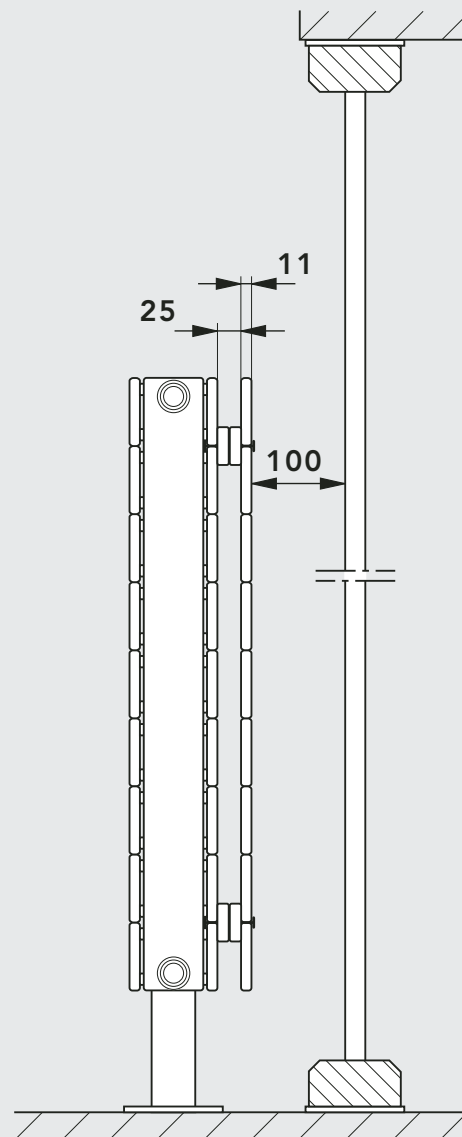
**KONTEC heating panel with fitted heat reflector**

(see image to the right)

Width: 11 mm heat reflector

Internal depth: 25 mm between heating pipe and heat reflector


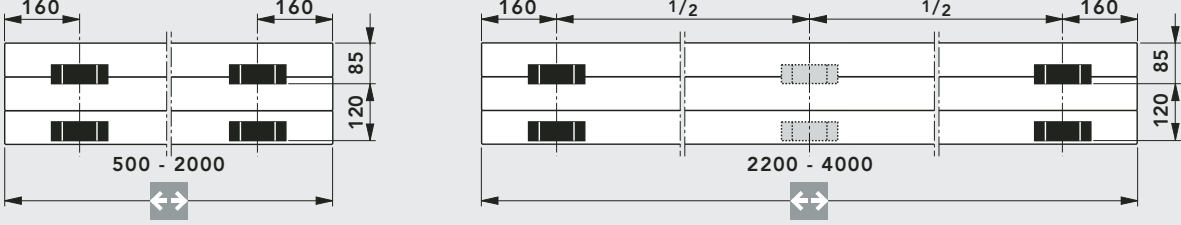

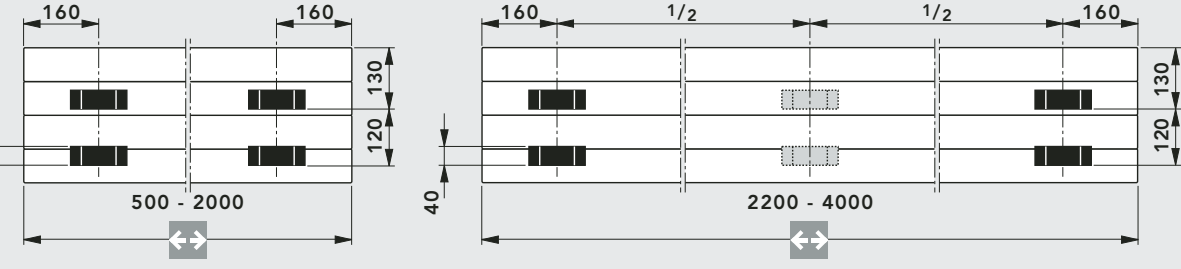
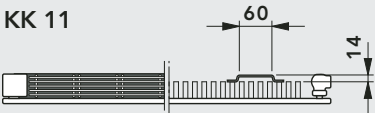

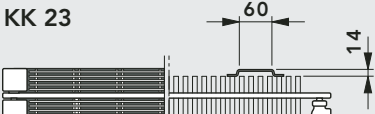
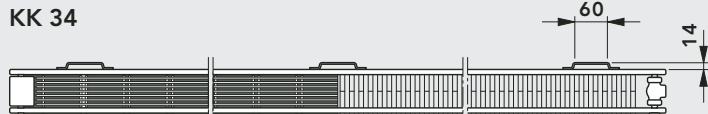
**Minimum clearance\*: 100 mm**  
between window surface and heat reflector




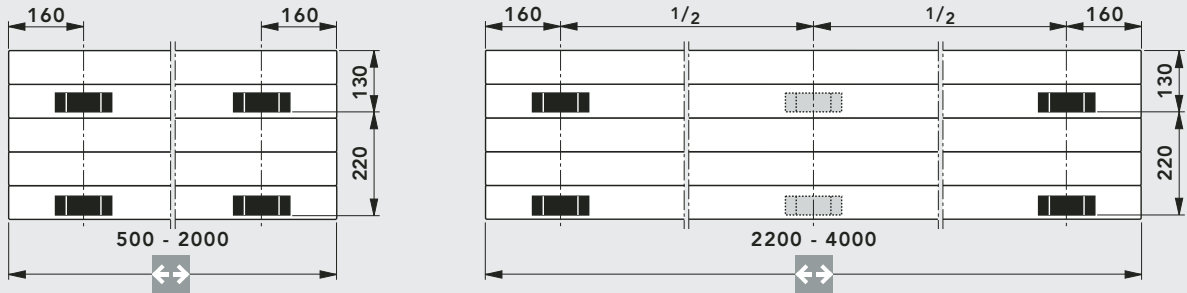

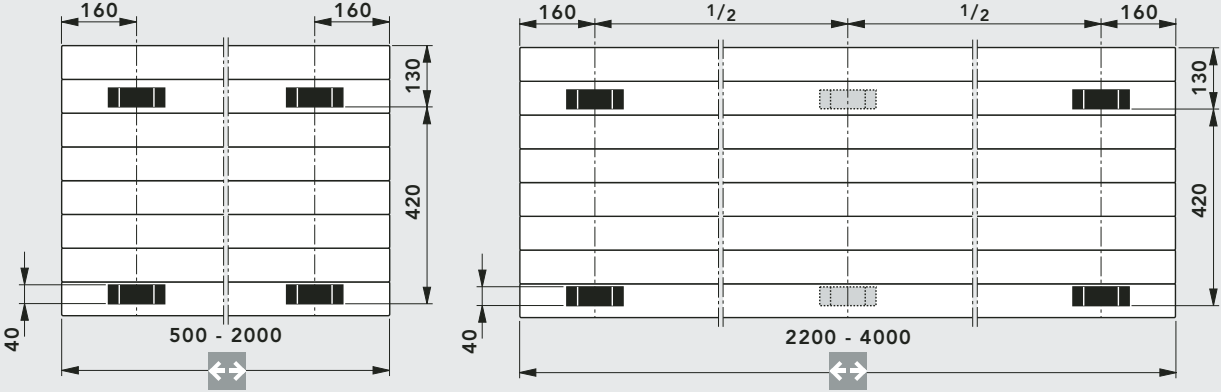
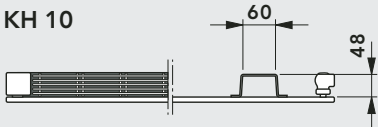
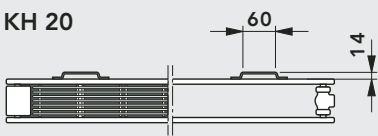
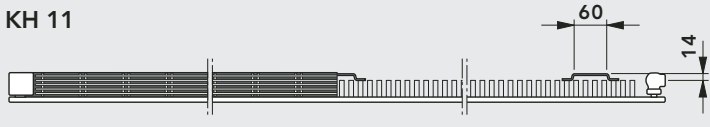
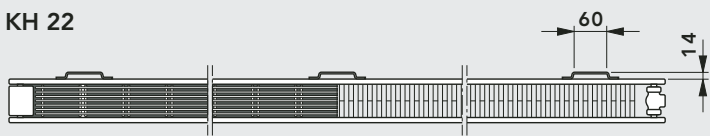
Schematic diagram

\* The minimum clearance between window surface and heat reflector (100 mm) complies with the recommendations of leading window surface manufacturers.

welded bracket position

Wall mounting WA 11 for all KK (Convectors) models	
Type	Wall mounting WA 11 for KK 11 to KK 34
Overall height  214 mm	
	Wall mounting WA 11 for KK 11 to KK 34
Overall height  286 mm	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>KK 11</p>  </div> <div style="text-align: center;"> <p>KK 20 / 22</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>KK 23</p>  </div> <div style="text-align: center;"> <p>KK 34</p>  </div> </div>
	Schematic diagram

**Attention!** Convectors are by default supplied without brackets. If wall mounting WA 11 is used, you are required to order the convector as a special version, equipped with brackets. Convectors with an OH of 70 or 142 mm cannot be supplied with mounting brackets.

Wall mounting WA 11 for all KH (heating wall models horizontal design) models	
Type	Wall mounting WA 11 for KH 10 to KH 24
<p>Overall height</p>  <p>from 358 mm to 502 mm</p>	
	<p>Wall mounting WA 11 for KH 10 to KH 24</p>
<p>Overall height</p>  <p>from 574 mm to 790 mm</p>	
<p>KH 10</p>  <p>KH 20</p> 	<p>KH 11</p>  <p>KH 22</p> 
Schematic diagram	




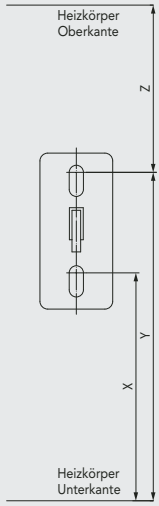
## Wall mounting WA 11 for types KK (convectors) and KH (Vertical heating panels)

**Wall mounting WA 11** is suitable for convector models **KK** (OH 214 and 286 mm, with brackets) and heating wall models **KH** (OH 358 - 790 mm). It ensures easy, rapid and robust mounting of **KONTEC** convectors or **KONTEC** heating panels still in the packaging.

## Wall mounting WA 11 for OH 214 - 790

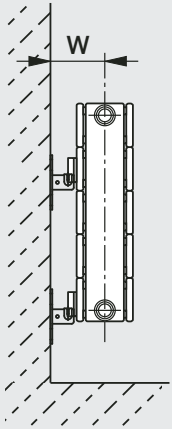

### Wall mounting WA 11 drilling dimensions

From an overall length of 2200 mm: 3 consoles

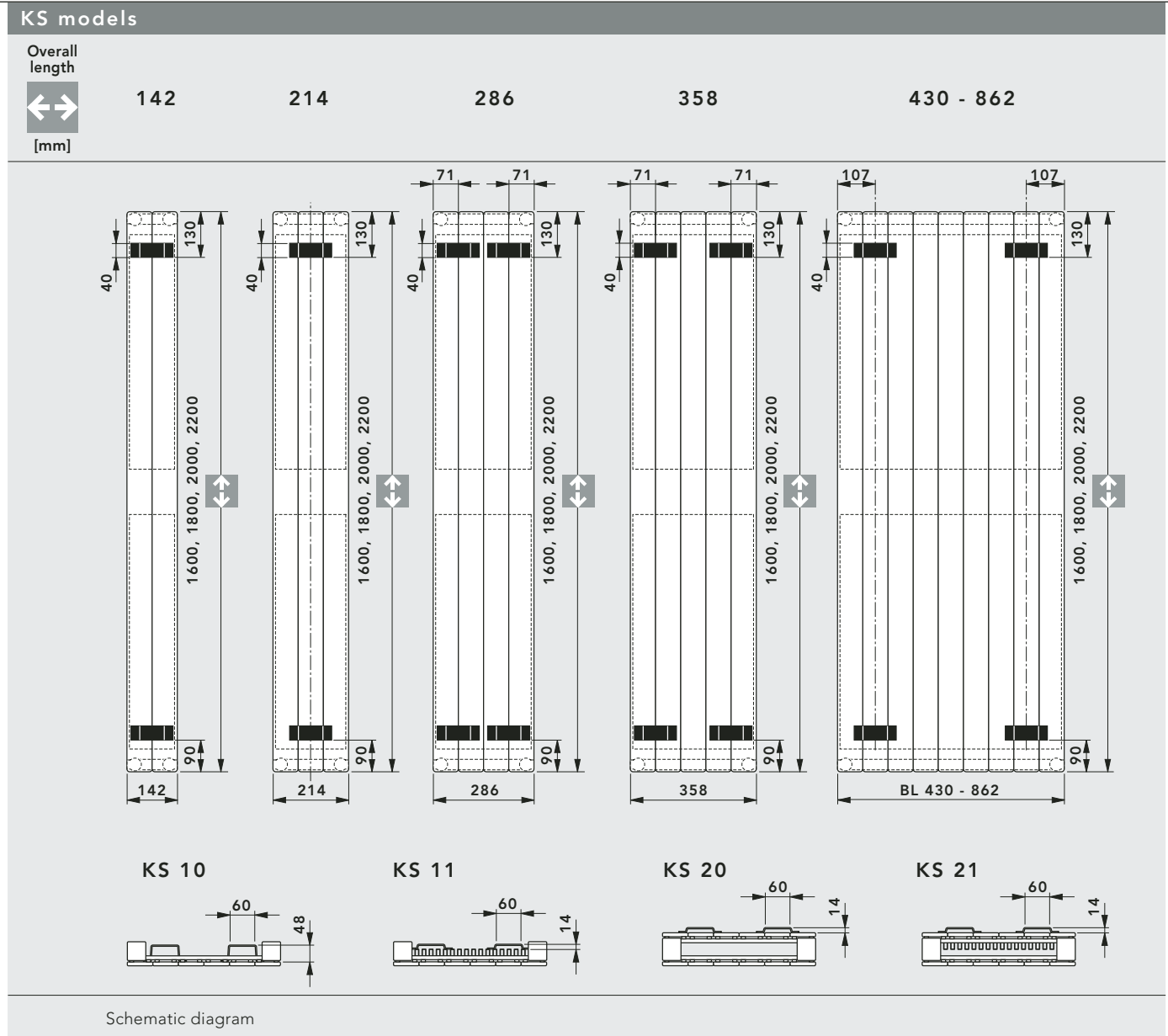
Overall height [mm] 	Value X [mm]	Value Y [mm]	Value Z [mm]	Wall mounting WA 11 for OH 214 - 790 mm
214	<b>104</b>	<b>162</b>	<b>52</b>	
286	<b>131</b>	<b>189</b>	<b>97</b>	
358	<b>203</b>	<b>261</b>	<b>97</b>	
430	<b>275</b>	<b>333</b>	<b>97</b>	
502	<b>347</b>	<b>405</b>	<b>97</b>	
574	<b>419</b>	<b>477</b>	<b>97</b>	
646	<b>491</b>	<b>549</b>	<b>97</b>	
790	<b>635</b>	<b>693</b>	<b>97</b>	

Schematic diagram

## Connection - wall clearance

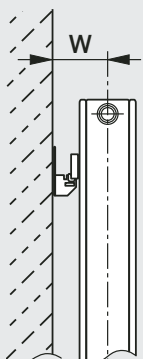
	Convector and heating panel models	Overall height [mm] 	Measurement <b>W</b> [mm]
	KK 11	214, 286	<b>45</b>
	KK 20, KK 22, KK 34	214, 286	<b>89</b>
	KK 23	214, 286	<b>123,5</b>
	KH 10, KH 11	358 - 790	<b>45</b>
	KH 20, KH 22	358 - 790	<b>89</b>

Schematic diagram



**Wall clearance: WA 10 and WA 11 wall mounting brackets for the KS models**

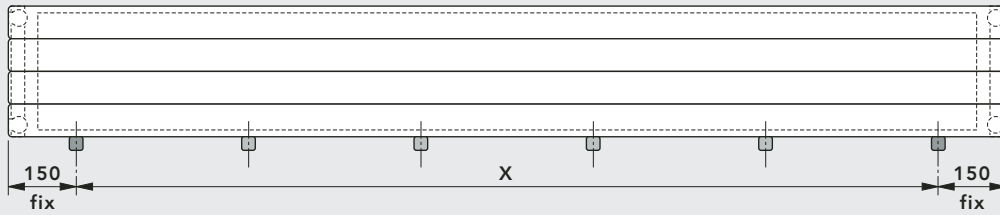
**Connection – wall clearance**

	Wall mounting type	vertical design	Measure <b>W</b> [mm]
	WA 10	KS 10/11*	<b>35</b>
WA 10	KS 20/21	<b>79,5</b>	
WA 11	KS 10/11*	<b>45</b>	
WA 11	KS 20/21	<b>89,5</b>	

**\*Note:** if you are installing the KS 10 and KS 11 models with a right-angled design connection, please use the appropriate drilling consoles or angle-fishplate mounting brackets, to achieve the required wall clearance.

Schematic diagram

Wall consoles WK 10 – 13: positioning for KK models (convectors)

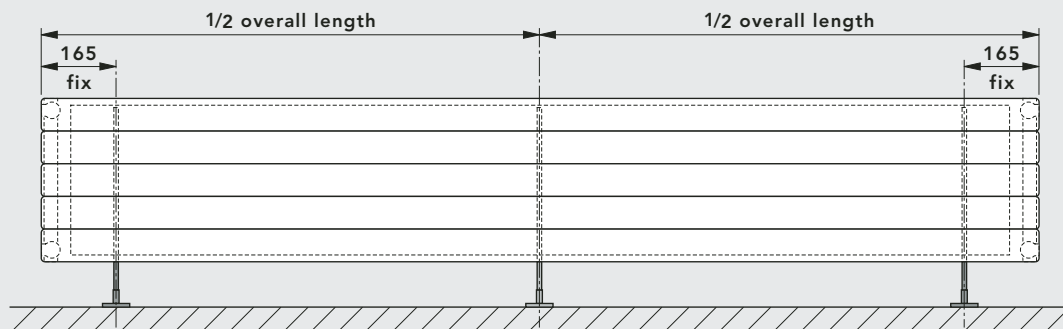


**Note:** when using more than 2 wall consoles the additional wall consoles must be placed at regular intervals along the line X.

WK 10 wall console		WK 11 wall console	
<p><b>KK 11</b></p>	<p><b>KK 20</b></p>	<p><b>KK 22</b></p>	<p><b>KK 23</b></p>
WK 11 wall console		WK 12 wall console	
<p><b>KK 34</b></p>	<p><b>KK 35</b></p>	<p><b>KK 46</b></p>	<p><b>KK 58</b></p>

Schematic diagram

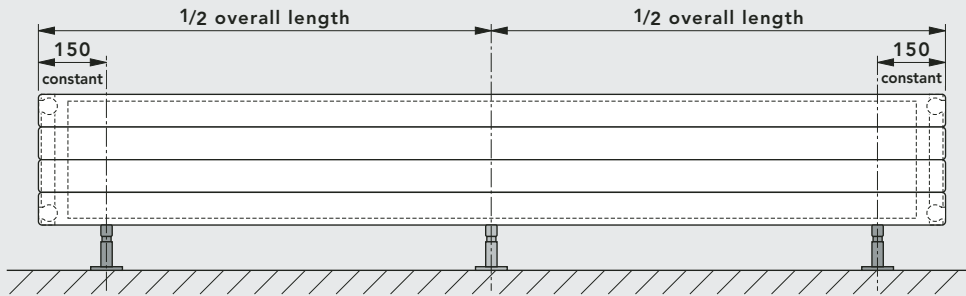
Stand consoles SK 22 and SK 23: positioning for KH models (horizontal design heating panels)



**Note:** for an overall length of **2200 mm** and greater, a 3rd stand console must be used!

Schematic diagram

Stand consoles SK 10 - 19: positioning for KK / KK-S models



**Note:** for an overall length of 2200 mm and greater, a 3rd stand console must be used!

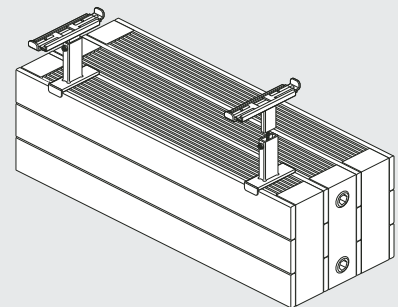
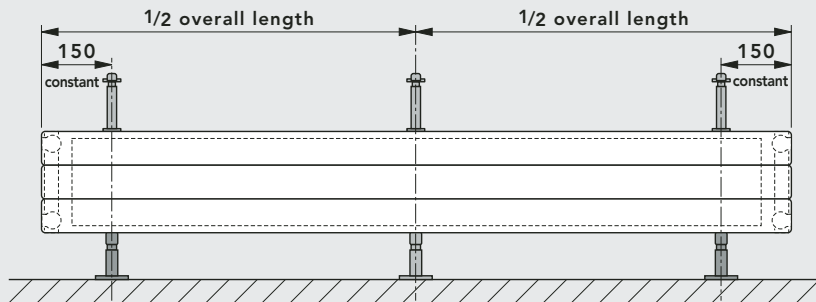
SK 10 / SK 11
KK 11
SK 12 / SK 13
KK 20

SK 12 / SK 13		SK 14 / SK 15		
KK 22	KK 23	KK-S 22	KK 34	KK 35
SK 14 / SK 15	SK 16 / SK 17	SK 18 / SK 19		
KK-S 34	KK 46	KK-S 47	KK 58	
				<p><b>Measurement X:</b> chosen distance between the wall or window surface and the back of the convector.</p>

Schematic diagram

Window sill support FBT 20: positioning for KK / KK-S models

Window sill support for subsequent installation with the KK / KK-S 22 – 58 models of KONTEC convectors

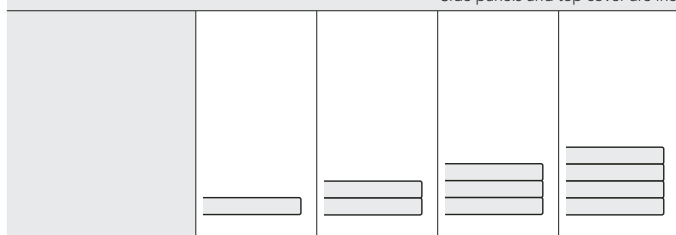


**Note:** for an overall length of more than 2200 mm, a 3rd window sill support must be used!

Schematic diagram

Heating output in compliance with **DIN EN 442**, and **ÖNORM EN 442**, at **75/65/20° C**

Side panels and top cover are included in the heat output specifications



Overall height [mm]	70	142	214	286
<b>Increments</b>	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.			

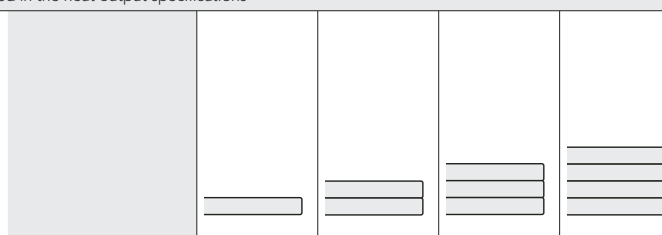
Model			KK 11*	KK 11*
Overall depth [mm]			68	68
Watts / m 75/65/20			464	577
Watts / m 70/55/20			374	464
Watts / m 55/45/20			236	291
Water content l / m			1,67	2,22
Weight kg / m			11,14	14,51
Radiator exponent n			1,32	1,34

Model		KK 20	KK 20	KK 20
Overall depth [mm]		93	93	93
Watts / m 75/65/20		304	440	561
Watts / m 70/55/20		249	359	458
Watts / m 55/45/20		161	232	296
Water content l / m		2,18	3,34	4,44
Weight kg / m		9,26	13,27	17,28
Radiator exponent n		1,24	1,25	1,25

Model	KK 22	KK 22	KK 22	KK 22
Overall depth [mm]	93	93	93	93
Watts / m 75/65/20	424	641	838	1032
Watts / m 70/55/20	345	519	674	825
Watts / m 55/45/20	222	330	423	510
Water content l / m	1,10	2,18	3,34	4,44
Weight kg / m	7,34	13,97	20,59	27,23
Radiator exponent n	1,27	1,30	1,34	1,38

Model	KK-S 22	KK-S 22	KK-S 22	KK-S 22
Overall depth [mm]	163	163	163	163
Watts / m 75/65/20	424	641	838	1032
Watts / m 70/55/20	345	519	674	825
Watts / m 55/45/20	222	330	423	510
Water content l / m	1,10	2,18	3,34	4,44
Weight kg / m	10,53	19,43	28,34	37,24
Radiator exponent n	1,27	1,30	1,34	1,38

\* For aesthetic reasons these models should not be fitted in front of a window.





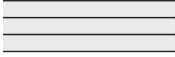
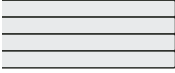





Overall height [mm]	70	142	214	286
<b>Increments</b>	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.			

Model	KK 23*	KK 23*	KK 23*	KK 23*
Overall depth [mm]	150	150	150	150
Watts / m 75/65/20	524	797	1035	1261
Watts / m 70/55/20	427	645	832	1008
Watts / m 55/45/20	275	410	522	623
Water content l / m	1,10	2,18	3,34	4,44
Weight kg / m	9,20	17,02	24,84	32,66
Radiator exponent n	1,26	1,30	1,34	1,38

Model	KK 34	KK 34	KK 34	KK 34
Overall depth [mm]	175	175	175	175
Watts / m 75/65/20	661	1050	1394	1723
Watts / m 70/55/20	545	856	1123	1377
Watts / m 55/45/20	360	552	707	851
Water content l / m	1,68	3,33	4,99	6,66
Weight kg / m	12,68	23,93	35,18	46,42
Radiator exponent n	1,19	1,26	1,33	1,38

Model	KK-S 34	KK-S 34	KK-S 34	KK-S 34
Overall depth [mm]	245	245	245	245
Watts / m 75/65/20	661	1050	1394	1723
Watts / m 70/55/20	545	856	1123	1377
Watts / m 55/45/20	360	552	707	851
Water content l / m	1,68	3,33	4,99	6,66
Weight kg / m	15,87	29,39	42,92	56,44
Radiator exponent n	1,19	1,26	1,33	1,38

\* For aesthetic reasons these models should not be fitted in front of a window.

Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C				
Side panels and top cover are included in the heat output specifications				
				
 Overall height [mm]	70	142	214	286
Increments	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.			
Model	KK 35*	KK 35*	KK 35*	KK 35*
 Overall depth [mm]	232	232	232	232
Watts / m 75/65/20	809	1197	1651	1971
Watts / m 70/55/20	661	971	1326	1570
Watts / m 55/45/20	429	619	828	964
Water content l / m	1,69	3,33	4,99	6,66
Weight kg / m	14,54	26,98	39,42	51,86
Radiator exponent n	1,24	1,29	1,35	1,40
Model	KK 46	KK 46	KK 46	KK 46
 Overall depth [mm]	257	257	257	257
Watts / m 75/65/20	950	1454	2072	2447
Watts / m 70/55/20	778	1117	1661	1949
Watts / m 55/45/20	507	748	1034	1197
Water content l / m	2,26	4,53	6,79	9,06
Weight kg / m	18,02	33,89	49,76	65,62
Radiator exponent n	1,23	1,30	1,36	1,40
Model	KK-S 47	KK-S 47	KK-S 47	KK-S 47
 Overall depth [mm]	327	327	327	327
Watts / m 75/65/20	986	1522	2302	2667
Watts / m 70/55/20	817	1240	1846	2128
Watts / m 55/45/20	545	800	1149	1311
Water content l / m	2,26	4,53	6,79	9,06
Weight kg / m	22,04	41,27	60,50	79,74
Radiator exponent n	1,16	1,26	1,36	1,39
Model	KK 58	KK 58	KK 58	KK 58
 Overall depth [mm]	339	339	339	339
Watts / m 75/65/20	1023	1659	2592	3022
Watts / m 70/55/20	849	1354	2081	2411
Watts / m 55/45/20	569	876	1301	1486
Water content l / m	2,83	5,68	8,52	11,36
Weight kg / m	23,36	43,85	64,34	85,82
Radiator exponent n	1,15	1,25	1,35	1,39

\* For aesthetic reasons these models should not be fitted in front of a window.

Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C

Side panels and top cover are included in the heat output specifications

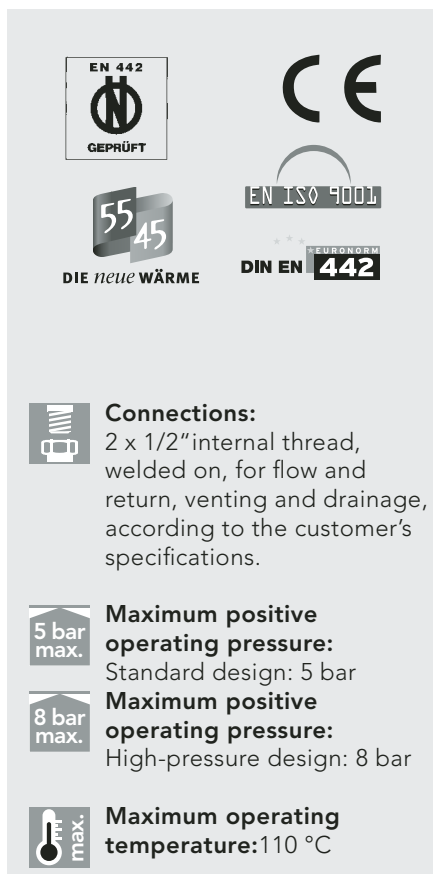
Overall height [mm]	358	430	502	574	646	790
Increments	As regards all overall lengths between 500 and 1400 mm, use increments of 100 mm, and overall lengths between 1600 and 2400 mm, use increments of 200 mm.					
Model	KH 10	KH 10	KH 10	KH 10	KH 10	KH 10
Overall depth [mm]	68	68	68	68	68	68
Watts / m 75/65/20	394	458	523	588	655	795
Watts / m 70/55/20	322	374	427	480	534	647
Watts / m 55/45/20	209	243	276	311	344	416
Water content l / m	2,76	3,33	3,87	4,44	4,99	6,12
Weight kg / m	11,91	14,04	16,17	18,29	20,43	24,68
Radiator exponent n	1,24	1,24	1,25	1,25	1,26	1,27
Model	KH 11*	KH 11*	KH 11*	KH 11*	KH 11*	KH 11*
Overall depth [mm]	68	68	68	68	68	68
Watts / m 75/65/20	667	760	845	921	989	1105
Watts / m 70/55/20	540	615	683	743	797	889
Watts / m 55/45/20	344	391	433	470	503	558
Water content l / m	2,78	3,33	3,87	4,44	4,99	6,12
Weight kg / m	16,71	19,85	22,99	26,15	29,29	33,55
Radiator exponent n	1,30	1,30	1,31	1,32	1,32	1,34
Model	KH 20	KH 20	KH 20	KH 20	KH 20	KH 20
Overall depth [mm]	93	93	93	93	93	93
Watts / m 75/65/20	654	757	859	960	1063	1271
Watts / m 70/55/20	533	617	699	781	863	1032
Watts / m 55/45/20	344	398	449	502	553	661
Water content l / m	5,55	6,66	7,77	8,88	9,99	12,22
Weight kg / m	21,29	25,30	29,31	33,31	37,32	45,33
Radiator exponent n	1,26	1,26	1,27	1,27	1,28	1,28
Model	KH 22	KH 22	KH 22	KH 22	KH 22	KH 22
Overall depth [mm]	93	93	93	93	93	93
Watts / m 75/65/20	1197	1343	1474	1592	1699	1886
Watts / m 70/55/20	963	1079	1182	1274	1357	1500
Watts / m 55/45/20	605	675	736	790	838	919
Water content l / m	5,55	6,66	7,77	8,88	9,99	12,22
Weight kg / m	30,89	36,93	42,96	49,01	55,05	63,06
Radiator exponent n	1,34	1,35	1,36	1,37	1,38	1,41



\* For aesthetic reasons these models should not be fitted in front of a window.



Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C					Side panels and top cover are included in the heat output specifications				
Overall height [mm]	1600	1800	2000	2200	Overall height [mm]	1600	1800	2000	2200
Overall length [mm]	142, 214, 286, 358, 430, 502, 574, 646, 718, 790, 862				Overall length [mm]	142, 214, 286, 358, 430, 502, 574, 646, 718, 790, 862			
Type	KS 10	KS 10	KS 10	KS 10	Type	KS 20	KS 20	KS 20	KS 20
Overall depth	68	68	68	68	Overall depth	93	93	93	93
Watts / m 75/65/20	1738	1979	2232	2495	Watts / m 75/65/20	2932	3301	3672	4046
Watts / m 70/55/20	1384	1577	1781	1994	Watts / m 70/55/20	2332	2629	2929	3233
Watts / m 55/45/20	850	968	1097	1233	Watts / m 55/45/20	1427	1615	1805	1999
Water content l / m	11,37	12,47	13,85	15,24	Water content l / m	22,74	24,34	27,71	30,48
Weight kg / m	44,45	49,60	54,75	59,70	Weight kg / m	85,44	95,46	105,48	115,50
Radiator exponent n	1,40	1,40	1,39	1,38	Radiator exponent n	1,41	1,40	1,39	1,38
Type	KS 11	KS 11	KS 11	KS 11	Type	KS 21	KS 21	KS 21	KS 21
Overall depth	68	68	68	68	Overall depth	93	93	93	93
Watts / m 75/65/20	1979	2209	2450	2701	Watts / m 75/65/20	3184	3588	4012	4455
Watts / m 70/55/20	1584	1768	1964	2173	Watts / m 70/55/20	2536	2857	3206	3572
Watts / m 55/45/20	983	1097	1223	1362	Watts / m 55/45/20	1557	1755	1983	2224
Water content l / m	11,37	12,47	13,85	15,24	Water content l / m	22,74	24,34	27,71	30,48
Weight kg / m	63,39	68,53	73,69	78,83	Weight kg / m	104,37	114,39	124,42	134,44
Radiator exponent n	1,37	1,37	1,36	1,34	Radiator exponent n	1,40	1,40	1,38	1,36
* For aesthetic reasons these models should not be fitted in front of a window.					* For aesthetic reasons these models should not be fitted in front of a window.				





# REPLACEMENT USING CONVECTORS & HEATING PANELS















**Connections:**  
 2 x 1/2" internal thread, welded on, for flow and return, venting and drainage, according to the customer's specifications.


**Maximum positive operating pressure:**  
 Standard design: 5 bar


**Maximum positive operating pressure:**  
 High-pressure design: 8 bar


**Maximum operating temperature:** 110 °C



**Convectors & heating panels** are radiators in a completely welded design, with 2 or 3 water-bearing rectangular steel pipes arranged behind each other and 4 or 8 on top of each other. Between the heating pipes there is a gap of 2 mm in order to ensure high resistance to corrosion. Each convector or heating wall is equipped with side panels and a top cover. They are also supplied with a drain plug and a pivotable vent plug, all of the factory sealed.

**Painting:**

1. Primer coat with electro-dip coating using water-soluble paint, in acc. with DIN 55900, part 1, stoved at 165 °C.
2. Electrostatic finish in acc. with DIN 55900, part 2, in RAL 9016 (on request in many RAL and Sanitary Ware colours), in a state-of-the-art powder coating plant. The especially robust coating is stoved at an object temperature of 180 °C.

**Standard design:**

Rectangular steel pipes: 70 x 11 x 1.5 mm

**High-pressure version:**

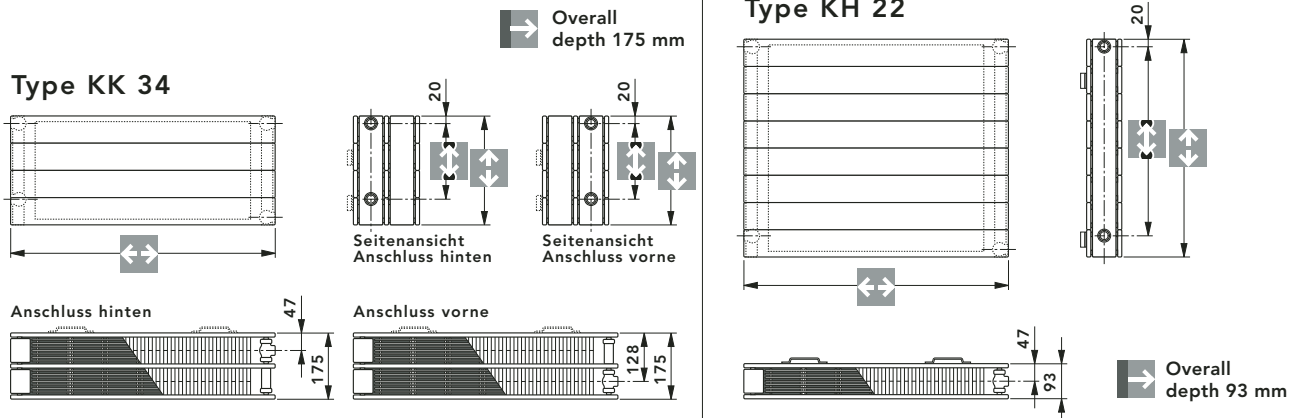
Rectangular steel pipes: 70 x 11 x 2 mm  
 Please note: surcharge of 10%

**Packaging:**

1. Cardboard
2. Edge protection
3. Shrink foil

Heating output in compliance with DIN EN 442, and ÖNORM EN 442, at 75/65/20° C

Side panels and top cover are included in the heat output specifications



Overall height [mm]	<b>286</b>			<b>574</b>		
Boss spacing NA [mm]	<b>200</b>			<b>500</b>		
<b>Model</b>	<b>KK 34</b>			<b>KH 22</b>		
Overall length [mm]	heating outputs [Watts]	Water content [Liter]	Weight [Kg]	heating outputs [Watts]	Water content [Liter]	Weight [Kg]
<b>500</b>	862	3,33	23,21	796	4,44	24,51
<b>600</b>	1034	4,00	27,85	955	5,33	29,41
<b>700</b>	1206	4,66	32,49	1114	6,22	34,31
<b>800</b>	1378	5,33	37,14	1274	7,10	39,21
<b>900</b>	1551	5,99	41,78	1433	7,99	44,11
<b>1000</b>	1723	6,66	46,42	1592	8,88	49,01
<b>1100</b>	1895	7,33	51,06	1751	9,77	53,91
<b>1200</b>	2068	7,99	55,70	1910	10,66	58,81
<b>1300</b>	2240	8,66	60,35	2070	11,54	63,71
<b>1400</b>	2412	9,32	64,99	2229	12,43	68,61
<b>1600</b>	2757	10,66	74,27	2547	14,21	78,42
<b>1800</b>	3101	11,99	83,56	2866	15,98	88,22
<b>2000</b>	3446	13,32	92,84	3184	17,76	98,02
<b>2200</b>	3791	14,65	102,12	3502	19,54	107,82
<b>2400</b>	4135	15,98	111,41	3821	21,31	117,62
Radiator exponent n	<b>1,38</b>			<b>1,37</b>		

calculation table

**Simplified procedure for the domain of standard and low-temperature (ST/LT)**

The conversion factors in the table state to which extent the heat emission has to be altered under other operating conditions, compared to the following standard-design data:

**supply temperature**  $t_1$  75 °C  
**return temperature**  $t_2$  65 °C  
**room temperature**  $t_r$  20 °C

Because an average exponent of 1.3 has been used for both the calculation of the performance data and the specification of the conversion factor, a slight performance variation from the calculated value is possible.

The standard heat emission  $\Phi_s$  of a radiator covering the required heat  $\Phi_{HL,i}$  at the chosen operating conditions, is calculated according to the formula:

$$\Phi_s = \Phi_{HL,i} \times f$$

$\Phi_s$  = standard heat emission, in accordance with EN 442

$\Phi_{HL,i}$  = required heat, in accordance with EN 12831

$f$  = conversion factor from the table

**Example:**

The required heat of a room is 1000 W, in accordance with EN 12831.

Design data:  $t_1$  50 °C  
 $t_2$  40 °C  
 $t_r$  20 °C

Factor  $f$  according to the table = **2.50**

$$\Phi_s = \Phi_{HL,i} \times f = 1000 \text{ Watts} \times 2,50 = 2500 \text{ Watts}$$

**A radiator has to be installed that emits 2500 W under the standard design (75/65/20).**

Supply temperature °C	Return temperature °C	Room temperature °C						
		12	15	18	20	22	24	26
90	80	0,61	0,64	0,68	0,71	0,74	0,77	0,81
	70	0,67	0,72	0,76	0,80	0,83	0,87	0,91
80	70	0,74	0,79	0,84	0,88	0,93	0,97	1,03
	60	0,83	0,89	0,96	1,01	1,07	1,13	1,20
	50	0,96	1,04	1,13	1,20	1,28	1,37	1,47
<b>75</b>	<b>65</b>	0,82	0,88	0,95	<b>1,00</b>	1,05	1,12	1,18
	60	0,88	0,94	1,02	1,08	1,14	1,21	1,29
	55	0,94	1,01	1,10	1,17	1,24	1,32	1,42
70	65	0,87	0,94	1,01	1,07	1,13	1,19	1,27
	60	0,93	1,00	1,08	1,15	1,22	1,30	1,39
	55	0,99	1,08	1,17	1,25	1,33	1,42	1,53
	50	1,07	1,17	1,28	1,37	1,47	1,58	1,71
65	60	0,98	1,07	1,16	1,23	1,31	1,40	1,50
	55	1,05	1,15	1,26	1,34	1,43	1,54	1,66
	50	1,14	1,25	1,37	1,47	1,59	1,71	1,86
	45	1,24	1,37	1,52	1,64	1,78	1,94	2,13
60	55	1,13	1,23	1,36	1,45	1,56	1,68	1,82
	50	1,22	1,34	1,48	1,60	1,73	1,87	2,05
	45	1,33	1,47	1,65	1,78	1,94	2,13	2,36
	40	1,47	1,64	1,86	2,03	2,24	2,50	2,80
55	50	1,31	1,45	1,62	1,75	1,90	2,07	2,28
	45	1,43	1,60	1,80	1,96	2,15	2,37	2,64
	40	1,59	1,78	2,03	2,24	2,48	2,78	3,15
	35	1,78	2,03	2,36	2,64	2,99	3,43	4,02
50	45	1,56	1,75	1,98	2,17	2,40	2,67	3,00
	40	1,73	1,96	2,25	2,50	2,79	3,15	3,61
	35	1,94	2,24	2,63	2,96	3,38	3,92	4,64
	30	2,24	2,64	3,20	3,70	4,39	5,39	6,99
45	40	1,90	2,17	2,53	2,83	3,19	3,66	4,25
	35	2,15	2,50	2,96	3,37	3,89	4,58	5,52

**Exact method for the performance calculation for the domain of standard and low-temperature (ST/LT)**

Using the formula  $\Phi = \Phi_s \left[ \frac{\Delta T}{\Delta T_s} \right]^n$  any performance differing from the standard can be calculated.

$\Phi$  = Radiator power [W]

$\Phi_s$  = Standard radiator power in accordance with EN 442 [W]

$\Delta T$  = Arithmetic radiator excess temperature [K]

$\Delta T_s$  = Arithmetic radiator excess temperature 50 K, at a standard state of 75 °C / 65 °C / 20 °C

$n$  = Radiator exponent

Please note: if the condition  $c = \frac{t_2 - t_r}{t_1 - t_r} < 0.7$  is met, the excess temperatures will be specified logarithmically.

$$\Delta T_{\text{arithmetic}} = \frac{t_1 + t_2}{2} - t_r$$

$$\Delta T_{\text{logarithmic}} = \frac{t_1 - t_2}{\ln \frac{t_1 - t_r}{t_2 - t_r}}$$

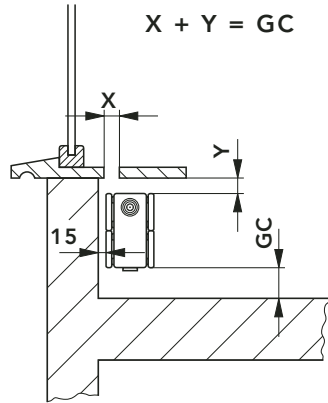
Use our radiator performance calculator under [www.vogelundnoot.com](http://www.vogelundnoot.com)

Technical information subject to change.

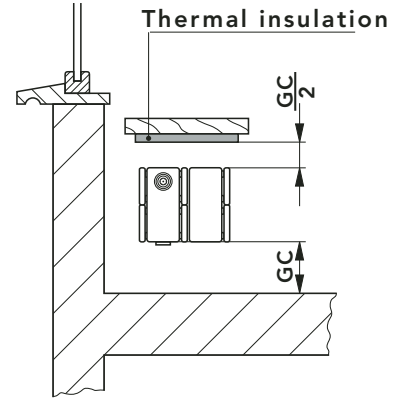
Horizontal design of VONARIS, VONARIS-M and KONTEC

Radiator placement

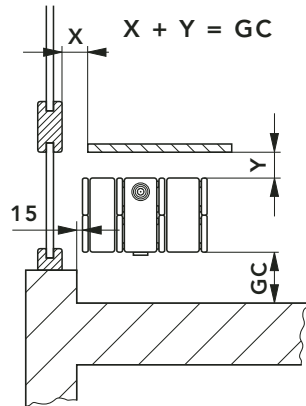
Placement below a window parapet



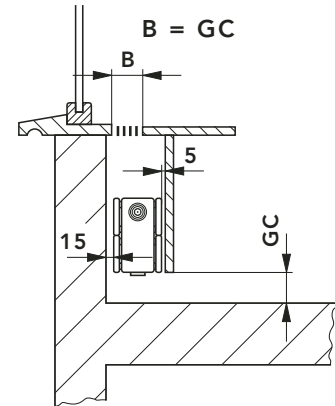
Placement under a bench



Placement behind a glass surface



Placement below a shop window



Schematic diagram

Recommended minimum clearance for convectors

	GC [mm]	VONARIS		VONARIS-M		KONTEC		
		Model	OH [mm] ↑↓	Model	OH [mm] ↑↓	Model	OH [mm] ↑↓	
<p>GC = ground clearance in mm</p> <p>The minimum ground clearance recommended here apply for all images on the pages 306 and 307!</p>	60	VHV 11	214, 286	VHV-M 11	214, 286	KK 11	214, 286	
	60	VHV 20	142	VHV-M 20	142	KK 20	142	
	60	VHV 22	142	VHV-M 22	142	KK 22	70, 142	
	70	VHV 23	142	VHV-M 23	142	KK 23	70, 142	
	80	VHV 20	214, 286	VHV-M 20	214, 286	KK 20	214, 286	
	80	VHV 22	214, 286	VHV-M 22	214, 286	KK 22	214, 286	
	90	VHV 23	214, 286	VHV-M 23	214, 286	KK 23	214, 286	
	100	VHV 34	142	VHV-M 34	142	KK 34	70, 142	
	110	VHV 34	214, 286	VHV-M 34	214, 286	KK 34	214, 286	
	120	VHV 35	142	VHV-M 35	142	KK 35	70, 142	
	130	VHV 35	214, 286	VHV-M 35	214, 286	KK 35	214, 286	
	130	VHV 46	142	VHV-M 46	142	KK 46	70, 142	
	130	-	-	-	-	-	KK 58	70
	140	-	-	-	-	-	KK 46	214, 286
140	-	-	-	-	-	KK 58	142	
150	-	-	-	-	-	KK 58	214, 286	

Horizontal design of VONARIS, VONARIS-M and KONTEC

Radiator placement

Placement behind a screen

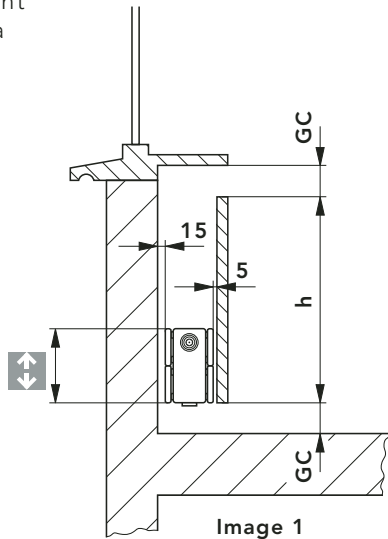


Image 1

Placement behind a desk

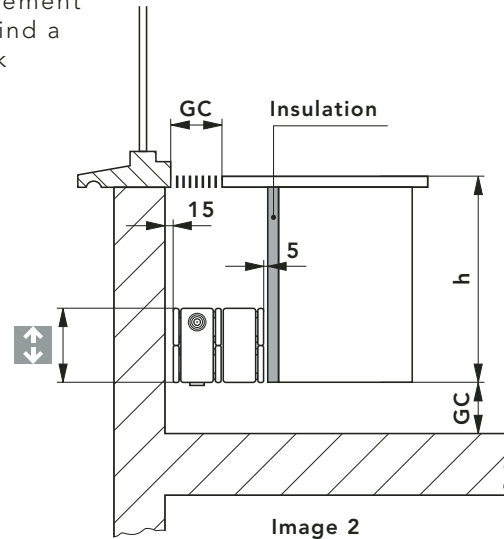






Image 2

Schematische Darstellung

Note:

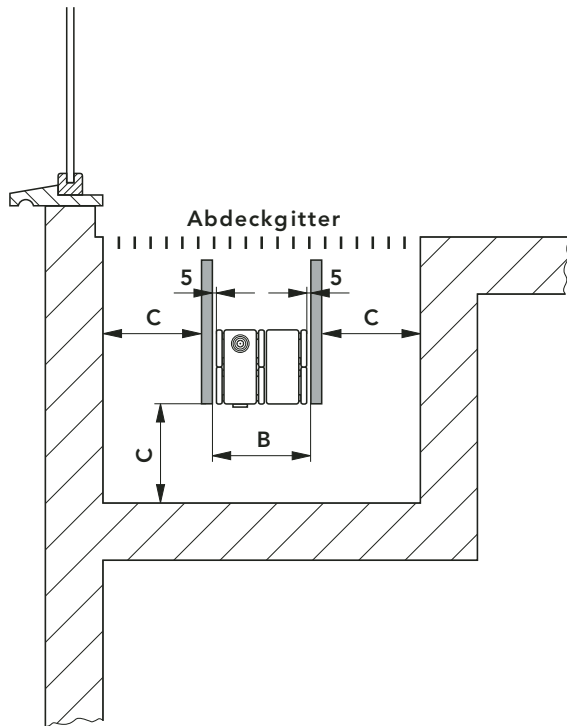
Screens and desks should be movable so that the radiators and conduits can be cleaned.

Percentage increase of the radiator's heat emission due to the chimney effect, as illustrated with the placement in picture 1 and picture 2.

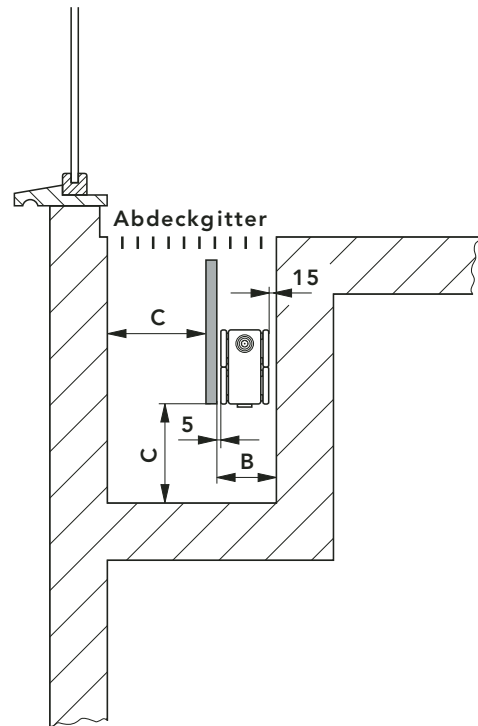
h [mm]	Percentage increase of the heat emission			
	OH  70 mm	OH  142 mm	OH  214 mm	OH  286 mm
150	14	-	-	-
200	20	8	-	-
250	26	12	2	-
300	30	15	6	-
350	33	19	9	3
400	36	22	12	6
450	39	25	15	9
500	41	28	17	11
600	46	32	21	14
700	50	35	24	18
800	-	38	27	21

## Horizontal design of VONARIS, VONARIS-M and KONTEC

## Placement of the radiators in regard to floor conduits



$B = \text{Overall radiator depth} + 10 \text{ mm}$   
 $C \geq B$



$B = \text{Overall radiator depth} + 20 \text{ mm}$   
 $C \geq B$

Schematic diagram

The screening between the radiator surfaces and conduit walls must be made of heat-insulating materials (e. g.: timber, plastics etc.).

Take care that the lower edge of the screening corresponds to the lower edge of the radiator. The top edge of the screening should be fitted as near to the floor conduit cover as possible.

The cover grids of the floor conduit should be designed in a way that the open cross-sectional area amounts to at least 60 %.


We recommend to use cover grids that can easily be taken off in order to facilitate the cleaning of the floor conduit.


The heat emission of radiators installed in floor conduits (subsurface heating) is reduced at about 20 %, compared with the values given in the heat output index.

**Guide table for the selection and number of required fastening systems for VONARIS solitary finished radiators**

Guide for the selection and number of required stand consoles for types VHV and VHV-S (WVO design), up to an overall height of 286 mm


**Stand consoles** for the horizontal design, up to OH 286 mm

Radiator model	VHV 11		VHV 20		VHV 22		VHV-S 22		VHV 23	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 10 for finished floors	2	3								
SK 11 for unfinished floors	2	3								
SK 12 for finished floors			2	3	2	3			2	3
SK 13 for unfinished floors			2	3	2	3			2	3
SK 14 for finished floors							2	3		
SK 15 for unfinished floors							2	3		

Radiator model	VHV 34		VHV-S 34		VHV 35		VHV 46		VHV-S 47	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 14 for finished floors	2	3	2	3	2	3				
SK 15 for unfinished floors	2	3	2	3	2	3				
SK 16 for finished floors							2	3		
SK 17 for unfinished floors							2	3		
SK 18 for finished floors									2	3
SK 19 for unfinished floors									2	3

Guide for the selection and number of required **stand consoles** for types VHV 11, VHV 20 and VHV 22



**Stand consoles suitable for the horizontal design with or without a heat reflector, for types VHV 11, VHV 20 and VHV 22, with an overall height of 358, 430, 502, 574 and 646 mm**



Radiator model	VHV 11		VHV 20		VHV 22	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 22			2			
SK 22				3		
SK 23	2				2	
SK 23		3				3



**Guide table for the selection and number of required fastening systems for VONARIS solitary finished radiators**

Guide for the selection and number of required **wall consoles** for types VHV, up to an overall height of 286 mm

**Wall consoles** for the horizontal design, up to OH 286 mm

Radiator model		VHV 11		VHV 20		VHV 22		VHV 23	
Wall console model		WK 10		WK 10 - M		WK 10 - M		WK 11-M	
	<b>Overall length [mm]</b>	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000
	Overall height [mm]								
	142			2	3	2	3	2	3
	214	2	3	2	3	2	3	2	3
	286	2	3	2	3	2	3	2	3



Radiator model		VHV 34		VHV 35		VHV 35		VHV 35	
Wall console model		WK 11-M		WK 12		WK 12		WK 12	
	<b>Overall length [mm]</b>	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 1800	between 2000 and 2600	between 2800 and 3600	between 3800 and 4000
	Overall height [mm]								
	142	2	3	2	3				
	214	2	3	2	3				
	286	2	3			2	3	4	5

Radiator model		VHV 46		VHV 46		VHV 46		VHV 46	
Wall console model		WK 12		WK 12		WK 12		WK 12	
	<b>Overall length [mm]</b>	between 500 and 2000	between 2200 and 3000	between 500 and 1800	between 2000 and 2800	3000	between 500 and 1400	between 1600 and 2200	between 2400 and 2800
	Overall height [mm]								
	142	2	3						
	214			2	3	4			
	286					5	2	3	4

**Guide table for the selection and number of required fastening systems for VONARIS solitary finished radiators**

Guide for the selection and number of required **VONOFIX rapid installation consoles** for types VHV 20, VHV 22 and VHV 34

**VONOFIX rapid installation consoles** for overall heights of 214, 286, 358, 430, 502, 574, 646 and 790 mm


Radiator model		VHV 20		VHV 22		VHV 34	
	<b>Overall length [mm]</b>	up to 2000	from 2200 with foot console	up to 2000	from 2200 with foot console	up to 2000	from 2200 with foot console
	VONOFIX 1 (set for 214)	1	1	1	1	1	1
	VONOFIX 2 (set for 286)	1	1	1	1	1	1
	VONOFIX 2 (set for 358)	1	1	1	1		
	VONOFIX 3 (set for 430)	1	1	1	1		
	VONOFIX 3 (set for 502)	1	1	1	1		
	VONOFIX 4 (set for 574)	1	1	1	1		
	VONOFIX 4 (set for 646)	1	1	1	1		
	VONOFIX 5 (set for 790)	1	1	1	1		



## Guide table for the selection and number of required fastening systems for VONARIS solitary finished radiators

Guide for the selection and number of required **VONOFIX rapid installation consoles** for types VSV 10, VSV 11, VSV 20 and VSV 21


**Wall mounting brackets** for the vertical design

Radiator model	VSV 10		VSV 11		VSV 20		VSV 21	
 Overall length [mm]	214	ab 286	214	ab 286	214	ab 286	214	ab 286
WA 10, set	1		1		1		1	
WA 11, set of 2		1		1		1		1

## Guide table for the selection and number of required fastening systems for VONARIS central connection radiators

Guide for the selection and number of required **stand consoles** for types VHV-M up to an overall height of 286 mm.



**Stand consoles** for the horizontal design, up to OH 286 mm

Radiator model	VHV-M 22		VHV-M S 22		VHV-M 34		VHV-M 46		VHV-M S 46	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 12 for finished floors	2	3								
SK 13 for unfinished floors	2	3								
SK 14 for finished floors			2	3	2	3				
SK 15 for unfinished floors			2	3	2	3				
SK 16 for finished floors							2	3		
SK 17 for unfinished floors							2	3		
SK 18 for finished floors									2	3
SK 19 for unfinished floors									2	3

## Guide table for the selection and number of required fastening systems for VONARIS central connection radiators

Guide for the selection and number of required **wall fastening brackets** for types VSV-M 10, VSV-M 11, VSV-M 20 and VSV-M 21

**Wall fastening brackets** for the vertical design

Radiator model	VHV-M 22		VHV-M 34		VHV-M 46	
Wall console model	WK 10 - M		WK 11 - M		WK 12	
 Overall length [mm]	between 500 and 2000	between 2200 and 2400	between 500 and 2000	between 2000 and 2400	between 500 and 2000	between 2200 and 2400
Overall height  [mm]	142	2	3			
	214			2	3	4
	286					5
						2

**Guide table for the selection and number of required fastening systems for VONARIS central connection radiators**

Guide for the selection and number of required **VONOFIX rapid installation consoles** for types VHV-M 20, VHV-M 22 and VHV-M 34

**VONOFIX rapid installation consoles** for overall heights of 214, 286, 358, 430, 502, 574, 646 and 790 mm

Radiator model		VHV-M 20		VHV-M 22		VHV-M 34	
↔ Overall length [mm]		up to 2000	from 2200 with foot console	up to 2000	from 2200 with foot console	up to 2000	from 2200 with foot console
	Overall height ↑ ↓ [mm]	VONOFIX 1 (set for 214)			1	1	1
VONOFIX 2 (set for 286)				1	1	1	1
VONOFIX 2 (set for 358)		1	1	1	1		
VONOFIX 3 (set for 430)		1	1	1	1		
VONOFIX 3 (set for 502)		1	1	1	1		
VONOFIX 4 (set for 574)		1	1	1	1		
VONOFIX 4 (set for 646)		1	1	1	1		
VONOFIX 5 (set for 718)		1	1	1	1		
VONOFIX 5 (set for 790)	1	1	1	1			

**Guide for the selection and number of required wall fastening brackets for types VSV-M 10, VSV-M 11, VSV-M 20 and VSV-M 21**

**Wall fastening brackets** for the vertical design

Radiator model	VSV-M 10*		VSV-M 11*		VSV-M 20		VSV-M 21	
↔ Overall length [mm]	214	ab 286	214	ab 286	214	ab 286	214	ab 286
WA 10, set	1		1		1		1	
WA 11, set of 2		1		1		1		1

**\*Note:** when installing the VSV-M 10 and VSV-M 11 models with an angled connection set (**ZE, EE**), please use the appropriate drill consoles and angled fishplates to ensure that the required distance from the wall is maintained.

**Guide table for the selection and number of required fastening systems for KONTEC convectors**

Guide for the selection and number of required **stand consoles** for **KONTEC convectors**, types KK and KK-S (WVO design)

**Stand consoles** for convectors **without brackets**

Radiator model	KK 11		KK 20		KK 22		KK-S 22	
↔ Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 10 for finished floors	2	3						
SK 11 for unfinished floors	2	3						
SK 12 for finished floors			2	3	2	3		
SK 13 for unfinished floors			2	3	2	3		
SK 14 for finished floors							2	3
SK 15 for unfinished floors							2	3


**Guide table for the selection and number of required fastening systems for KONTEC convectors**

Guide for the selection and number of required **stand consoles** for **KONTEC convectors**, types KK and KK-S (WVO design)

**Stand consoles for convectors without brackets**

Radiator model	KK 23		KK 34		KK-S 34		KK 35	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 12 for finished floors	2	3						
SK 13 for unfinished floors	2	3						
SK 14 for finished floors			2	3	2	3	2	3
SK 15 for unfinished floors			2	3	2	3	2	3

Radiator model	KK 46		KK-S 47		KK 58	
 Overall length [mm]	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 16 for finished floors	2	3				
SK 17 for unfinished floors	2	3				
SK 18 for finished floors			2	3	2	3
SK 19 for unfinished floors			2	3	2	3

**Guide table for the selection and number of required fastening systems for KONTEC convectors**

Guide for the selection and number of required wall consoles for KONTEC convectors, type KK

**Wall consoles for convectors without brackets**

Radiator model	KK 11		KK 20		KK 22		KK 23		KK 34	
Wall console model	WK 10		WK 10 - M		WK 10 - M		WK 11-M		WK 11-M	
 Overall length [mm]	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000	between 500 and 2000	between 2200 and 4000
Overall height  [mm]	70		2	3	2	3	2	3	2	3
	142		2	3	2	3	2	3	2	3
	214	2	3	2	3	2	3	2	3	3
	286	2	3	2	3	2	3	2	3	3

Radiator model	KK 35		KK 35		KK 35		KK 46		KK 46	
Wall console model	WK 12		WK 12		WK 12		WK 12		WK 12	
 Overall length [mm]	between 500 and 2000	between 2200 and 4000	between 500 and 1800	between 2000 and 2600	between 2800 and 3600	between 3800 and 4000	between 500 and 2000	between 2200 and 3000	between 500 and 1900	between 2000 and 2800
Overall height  [mm]	70	2	3				2	3		
	142	2	3				2	3		
	214	2	3						2	3
	286			2	3	4	5			

**Guide table for the selection and number of required fastening systems for KONTEC convectors**

 Guide for the selection and number of required **wall consoles** for **KONTEC convectors**, type KK

**Wall consoles for convectors without brackets**

Radiator model		KK 46		KK 46		KK 58		KK 58		KK 58	
Wall console model		WK 12		WK 12		WK 13		WK 13		WK 13	
	<b>Overall length [mm]</b>	3000	between 500 and 1400	between 1500 and 2200	between 2400 and 2800	between 500 and 2000	2200	between 500 and 1700	between 1800 and 2200	between 500 and 1100	between 1200 and 1700
	<b>Overall height [mm]</b>	70				2	3				
		142						2	3		
		214	4							2	3
		286	5	2	3	4		6			

Radiator model		KK 58		KK 58		KK 58	
Wall console model		WK 13		WK 13		WK 13	
	<b>Overall length [mm]</b>	between 1800 and 2200	between 500 and 800	between 900 and 1300	between 1400 and 1700	between 1800 and 2000	
	<b>Overall height [mm]</b>	70					
		142					
		214	4				
		286		2	3	4	5

**Guide table for the selection and number of required fastening systems for KONTEC convectors**


Guide for the selection and number of required fastening systems for KONTEC heating panels

**Stand consoles**, suitable for horizontal heating panels with or without heat reflector, for types KH 11, KH 20 and KH 22

Radiator model		KH 11		KH 20		KH 22	
	<b>Overall length [mm]</b>	up to 2000	from 2200	up to 2000	from 2200	up to 2000	from 2200
SK 22				2			
SK 22					3		
SK 23		2				2	
SK 23			3				3

 Guide for the selection and number of required **wall fastening brackets** for vertical **KONTEC** heating panels, type KS

**Wall fastening brackets for vertical heating panels**

Radiator model		KS 10		KS 11		KS 20		KS 21	
	<b>Overall length [mm]</b>	up to 214	from 286	up to 214	from 286	up to 214	from 286	up to 214	from 286
WA 10, set		1		1		1		1	
WA 11, set of 2			1		1		1		1