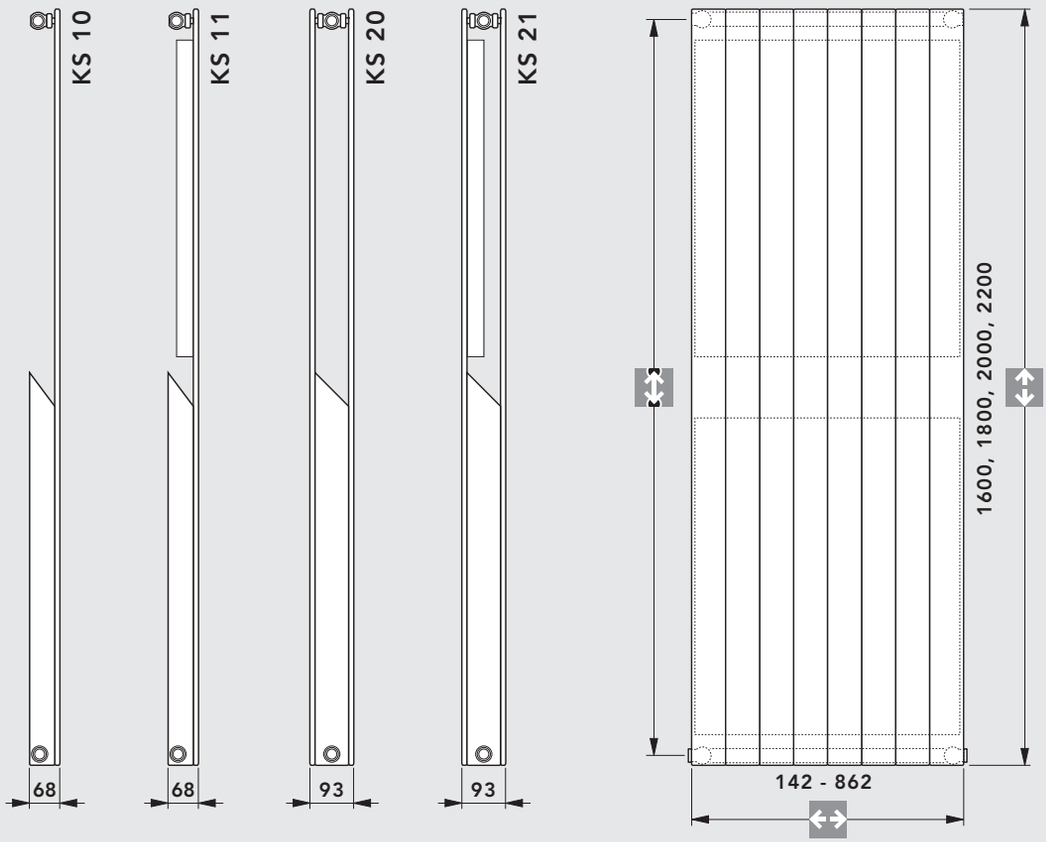
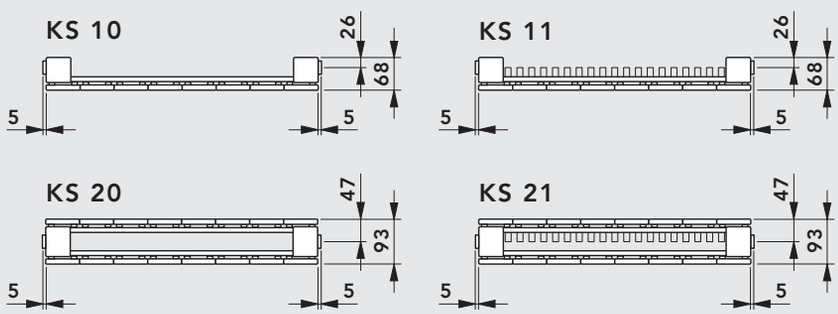
KS models vertical design





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

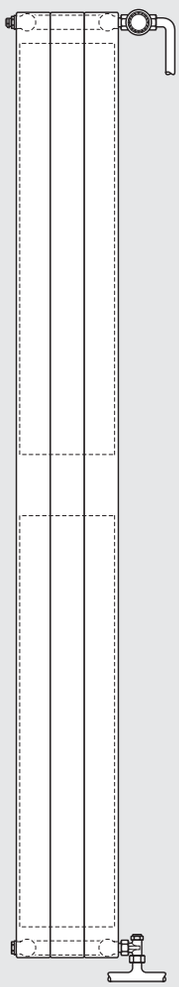
Model	KS 10		KS 11		KS 20		KS 21	
Overall height [mm]	1600	1800	1600	1800	1600	1800	1600	1800
	2000	2200	2000	2200	2000	2200	2000	2200
Overall length [mm]	**142 - 862 mm**							
Increments	**72 mm**							

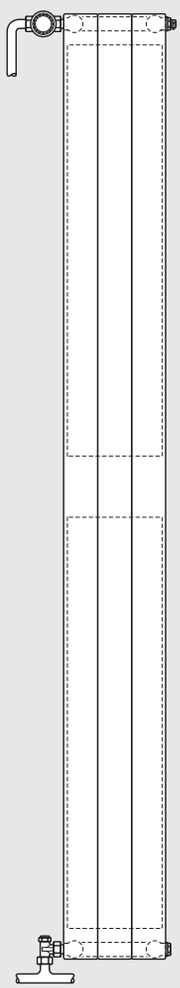
Typen KS

Double-pipe system

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

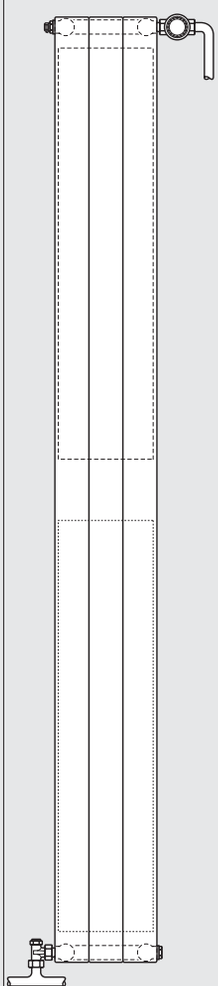
Single-sided connection, right

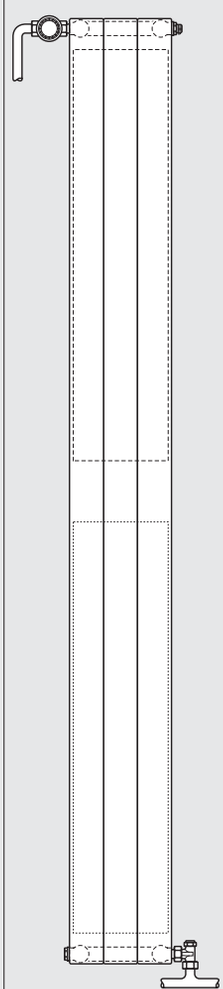




Single-sided connection, left

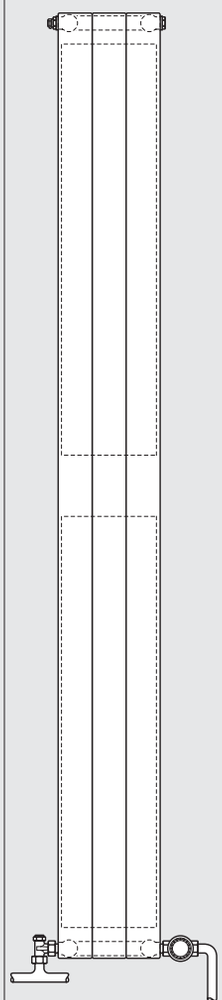
Top-bottom, opposite-end, side-connection, right-side supply

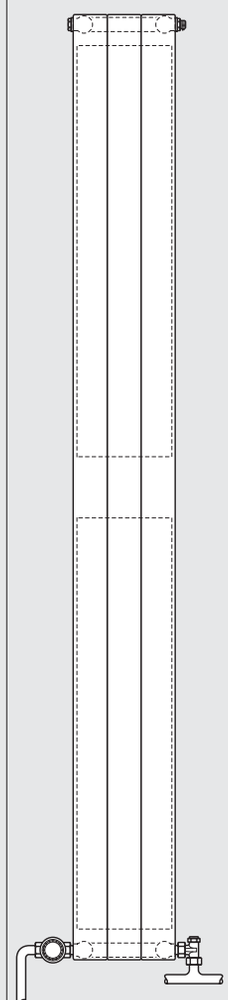




Top-bottom, opposite-end, side-connection, left-side supply

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





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

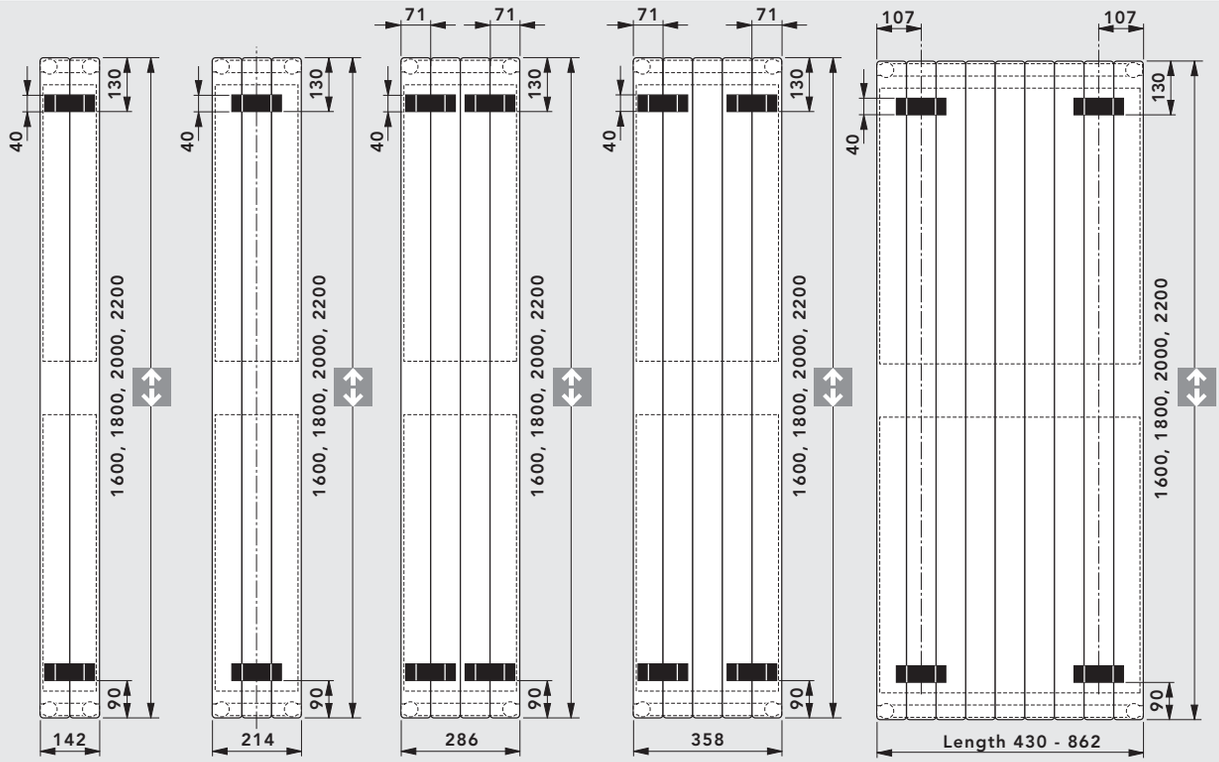
Schematic diagram

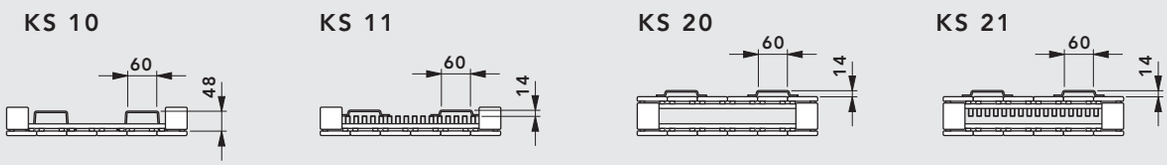
Note: when ordering your **KONTEC** KS model heating panel (see price list "Description of the Ordering Process") the 4 connections must be accurately specified and assigned. This is for technical production reasons. No subsequent changes to the connections on your **KONTEC** KS model heating panel are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

KS models

Overall length [mm]

142	214	286	358	430 - 862

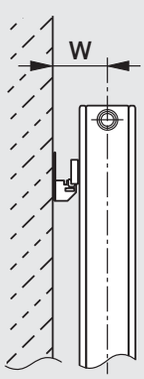




Schematic diagram

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

Connection – wall clearance



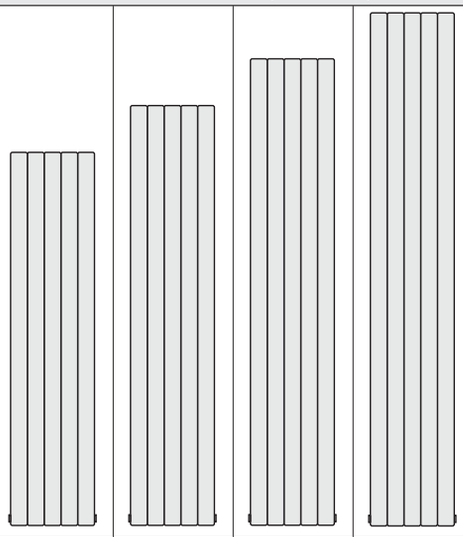
Wall mounting type	vertical design	Measure **W** [mm]
WA 10	KS 10/11*	**35**
WA 10	KS 20/21	**79,5**
WA 11	KS 10/11*	**45**
WA 11	KS 20/21	**89,5**

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

Schematic diagram

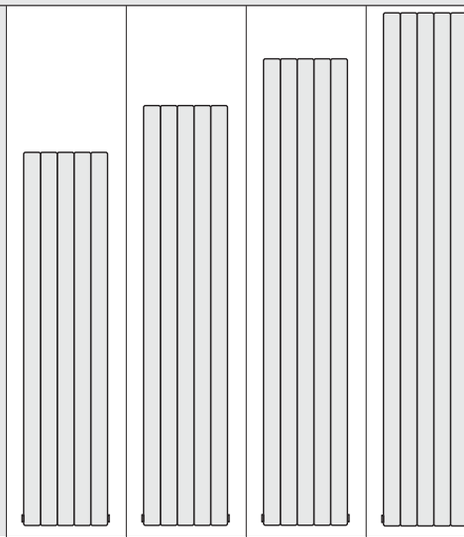
Heating output in compliance with **DIN EN 442**, and **ÖNORM EN 442,** at **75/65/20° C**

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



Overall height [mm]	**1600**	**1800**	**2000**	**2200**
Overall length [mm]	**142, 214, 286, 358, 430, 502, 574, 646, 718, 790, 862**			
Type	**KS 10**	**KS 10**	**KS 10**	**KS 10**
Overall depth	**68**	**68**	**68**	**68**
Watts / m 75/65/20	1738	1979	2232	2495
Watts / m 70/55/20	1384	1577	1781	1994
Watts / m 55/45/20	850	968	1097	1233
Water content l / m	11,37	12,47	13,85	15,24
Weight kg / m	44,45	49,60	54,75	59,70
Radiator exponent **n**	1,40	1,40	1,39	1,38
Type	**KS 11**	**KS 11**	**KS 11**	**KS 11**
Overall depth	**68**	**68**	**68**	**68**
Watts / m 75/65/20	1979	2209	2450	2701
Watts / m 70/55/20	1584	1768	1964	2173
Watts / m 55/45/20	983	1097	1223	1362
Water content l / m	11,37	12,47	13,85	15,24
Weight kg / m	63,39	68,53	73,69	78,83
Radiator exponent **n**	1,37	1,37	1,36	1,34

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



Overall height [mm]	**1600**	**1800**	**2000**	**2200**
Overall length [mm]	**142, 214, 286, 358, 430, 502, 574, 646, 718, 790, 862**			
Type	**KS 20**	**KS 20**	**KS 20**	**KS 20**
Overall depth	**93**	**93**	**93**	**93**
Watts / m 75/65/20	2932	3301	3672	4046
Watts / m 70/55/20	2332	2629	2929	3233
Watts / m 55/45/20	1427	1615	1805	1999
Water content l / m	22,74	24,34	27,71	30,48
Weight kg / m	85,44	95,46	105,48	115,50
Radiator exponent **n**	1,41	1,40	1,39	1,38
Type	**KS 21**	**KS 21**	**KS 21**	**KS 21**
Overall depth	**93**	**93**	**93**	**93**
Watts / m 75/65/20	3184	3588	4012	4455
Watts / m 70/55/20	2536	2857	3206	3572
Watts / m 55/45/20	1557	1755	1983	2224
Water content l / m	22,74	24,34	27,71	30,48
Weight kg / m	104,37	114,39	124,42	134,44
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.

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

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

Φ_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**

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
75	**65**	0,82	0,88	0,95	**1,00**	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

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

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

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.

Φ = Radiator power [W]
Φ_S = Standard radiator power in accordance with EN 442 [W]
ΔT = Arithmetic radiator excess temperature [K]
ΔT_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.

$$\Delta T_{arithmetic} = \frac{t_1 + t_2}{2} - tr \qquad \Delta T_{logarithmic} = \frac{t_1 - t_2}{\ln \frac{t_1 - t_r}{t_2 - t_r}}$$

Use our radiator performance calculator under www.vogelundnoot.com

Technical information subject to change.

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	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 finisched floors	2	3						
SK 11 for unfinished floors	2	3						
SK 12 for finisched floors			2	3	2	3		
SK 13 for unfinished floors			2	3	2	3		
SK 14 for finisched 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 **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**	
Overall length [mm]		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
Overall height	**70**					**2**	**3**				
	142							**2**	**3**		
	214	**4**								**2**	**3**
[mm]	**286**	**5**	**2**	**3**	**4**		**6**				

Radiator model		**KK 58**		**KK 58**		**KK 58**	
Wall console model		**WK 13**		**WK 13**		**WK 13**	
Overall length [mm]		between 1800 and 2200	between 500 and 800	between 900 and 1300	between 1400 and 1700	between 1800 and 2000	
Overall height	**70**						
	142						
	214	**4**					
[mm]	**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**	
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 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**	
Overall length [mm]	**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**