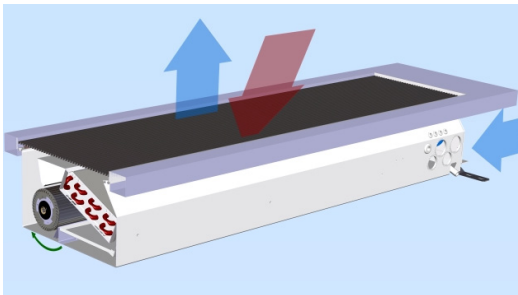


Technical Brochure

# LTG Air-Water Systems

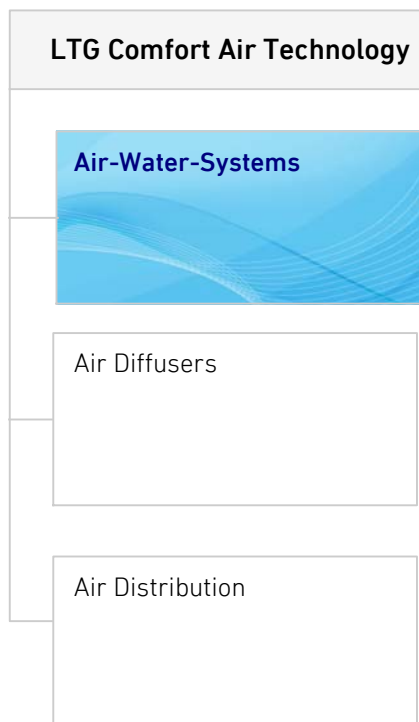
**LTG FanPower**

Fan coil units VKB



Installation in floors

## Technical brochure • Fan coil units VKB, floor installation



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Type VKB-0/4/...	10
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### Notes

Dimensions stated in this brochure are in mm.

Dimensions stated in this brochure are subject to General Tolerances according to DIN ISO 2768-vL.

For the outlet grille special tolerances stated in the drawing apply.

Straightness and twist tolerances for extruded aluminium profiles according to DIN EN 12020-2.

The surface finish is designed to meet the requirements for applications in buildings - room climate according to DIN 1946 part 2. Other requirements on request.

The actual tender documentations are available in word format at your local dealership or at [www.LTG.net](http://www.LTG.net).

### LTG planning tools – we support you!

Ask for your own DVD with helpful tools, such as dimensioning programs, streaming videos and product information! Also available: our product overviews about air diffusers and air distribution products

Visit us on [www.LTG.net](http://www.LTG.net) and get detailed technical information as PDF files at „Download“.



# LTG FanPower

## Fan Coil Units

### The air conditioning classic - energy-efficient and low noise

The principle: A fan conveys room air through a heat exchanger and cools or heats the room

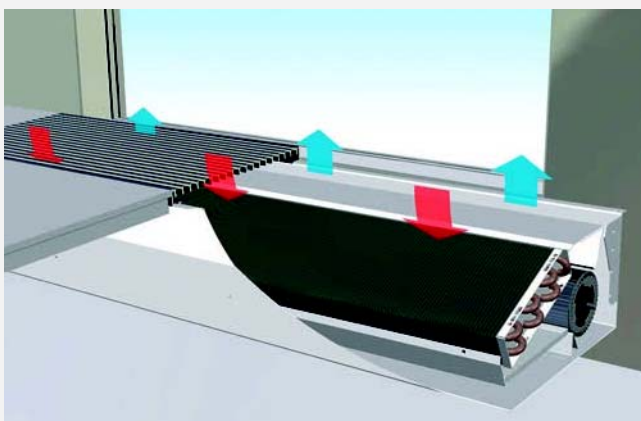
LTG fan coil units use both radial and tangential fans to implement the best flow and acoustics for different installation situations. Flexible and high-performance.

LTG fan coil units with tangential technology are characterized by a particularly even and large-area flow through the heat exchanger. Low pressure loss and low noise level with high cooling or heating output.

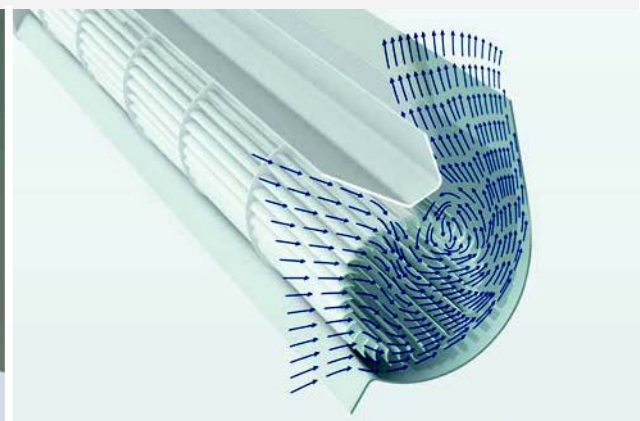
The latest drive technology generation (EC-technology) also permits capacity modulation at the lowest electrical energy consumption.

### Benefits

- Best flow form, e.g. with displacement ventilation
- Demand-controlled air conditioning
- Low power consumption of the fan by smart EC-technology
- Rapid response for cooling and heating output
- Fresh air supply possible



Fan coil chart



Air flow in the fan coil unit with tangential fan

## Technical brochure • Fan coil units VKB, floor installation

### General description

#### View of unit



Type VKB with stainless steel grille

#### Application

Specifically designed for hotels and office buildings with strict acoustic requirements.

Designed and approved for an ambient temperature of +5...+50 °C and a max. relative humidity of 90 % (non-condensing operation).

#### Installation, placement

Installation in false floors with a recommended clearance of 200...250 mm (VKB-N: 130...180 mm).

Since all the components are below floor level the fan coil unit VKB may also be used with full height facade glazing.



Bild: ArtInvest Hamburg

Installation example type VKB-N

#### Function

A integrated fan draws in the ambient air. In a water-fed heat exchanger this air is cooled or heated and returned to the room.

The system uses low-noise, maintenance-free tangential fans. Speed control is realised using a stepless high-efficiency EC motor (standard) or a 5-speed AC motor (optional) that may be triggered through individual switches (see brochure "Accessories for LTG air-water systems"). Group triggering of several units with one switch is also possible. The fan coil units recirculate room air. However, on request they may also be delivered with a connection for fresh air. The solid construction and finish of the fan coil units ensure both reliability and long-term functional safety.

#### Specification

The airflow optimized stainless steel or aluminium air grille is foot traffic resistant and does not require any additional supporting cross members.

Visible parts of the housing are coated black.

#### Accessories, special versions

- Special fan insert for mixed air/displacement air
- Condensate tray with drainage spigot
- For water-side unit connection:
  - coupling 1/2" or air bleed fitting,
  - flexible connection hoses with or without venting
- Air outlet grille
- Fresh air supply
- Control accessories
- Control valves optionally with continuous, thermal or 3-point drives
- Insulated and flexible hoses, 1/2" internal thread

See brochure "Accessories for LTG air-water systems"

#### Room air flow

The supply air is discharged from the air grille close to the facade and vertically upwards, then mixes in summer with the hot room air in front of the facade, in winter with the falling cold air in front of the window (mixed air flow close to the facade).

In the cooling mode, the supply air, having passed the mixing air zone, flows through the room by displacement.

#### Example of room air flow type VKB





## Technical brochure • Fan coil units VKB, floor installation Type VKB-./4 and VKB-./2, 4-pipe and 2-pipe system

### Specification

Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the ambient air.

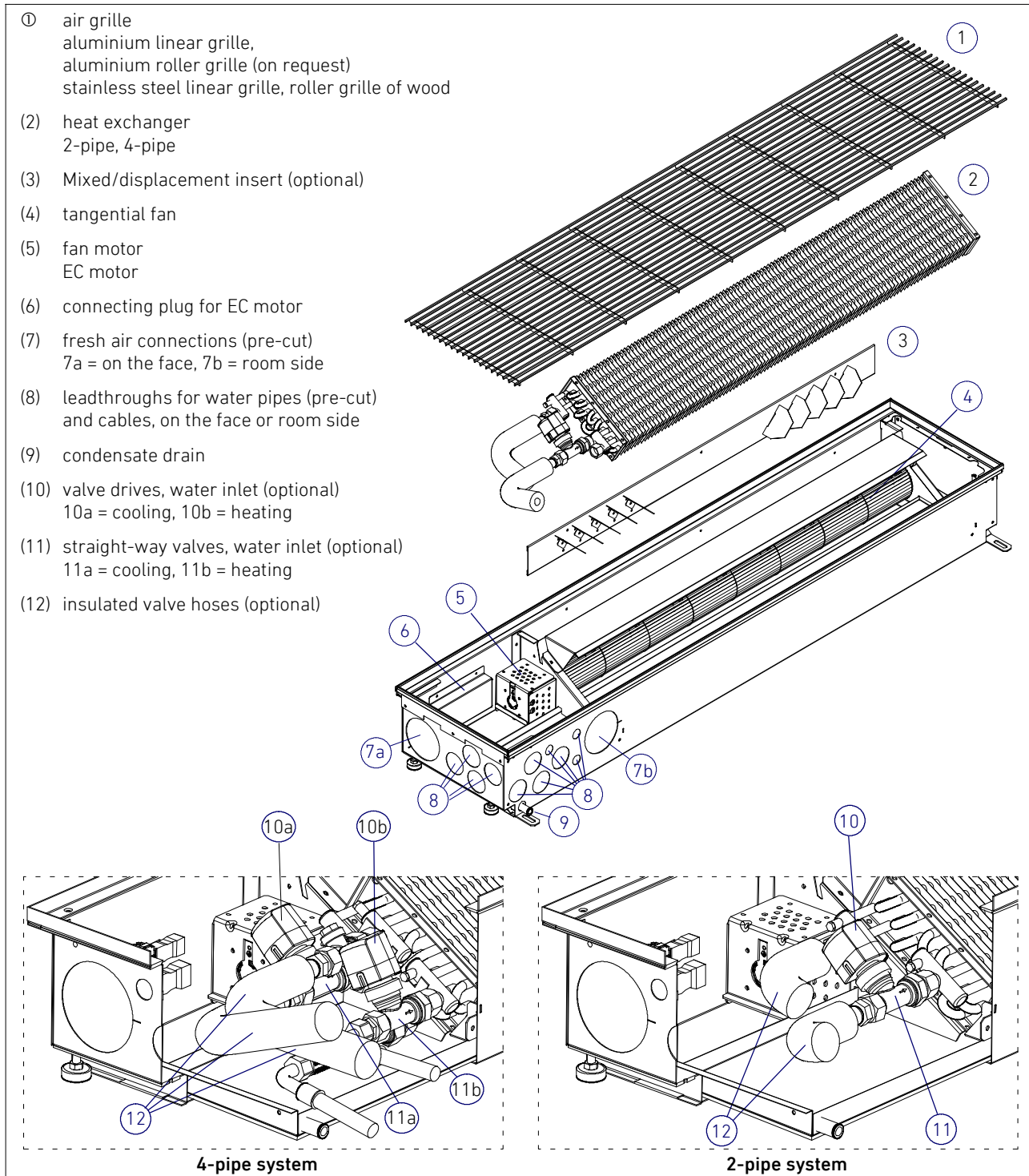
Installation in access floors with a recommended clearance of 200...250 mm.

Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet.

Water-side control by valves (accessories separate).

### Unit configuration

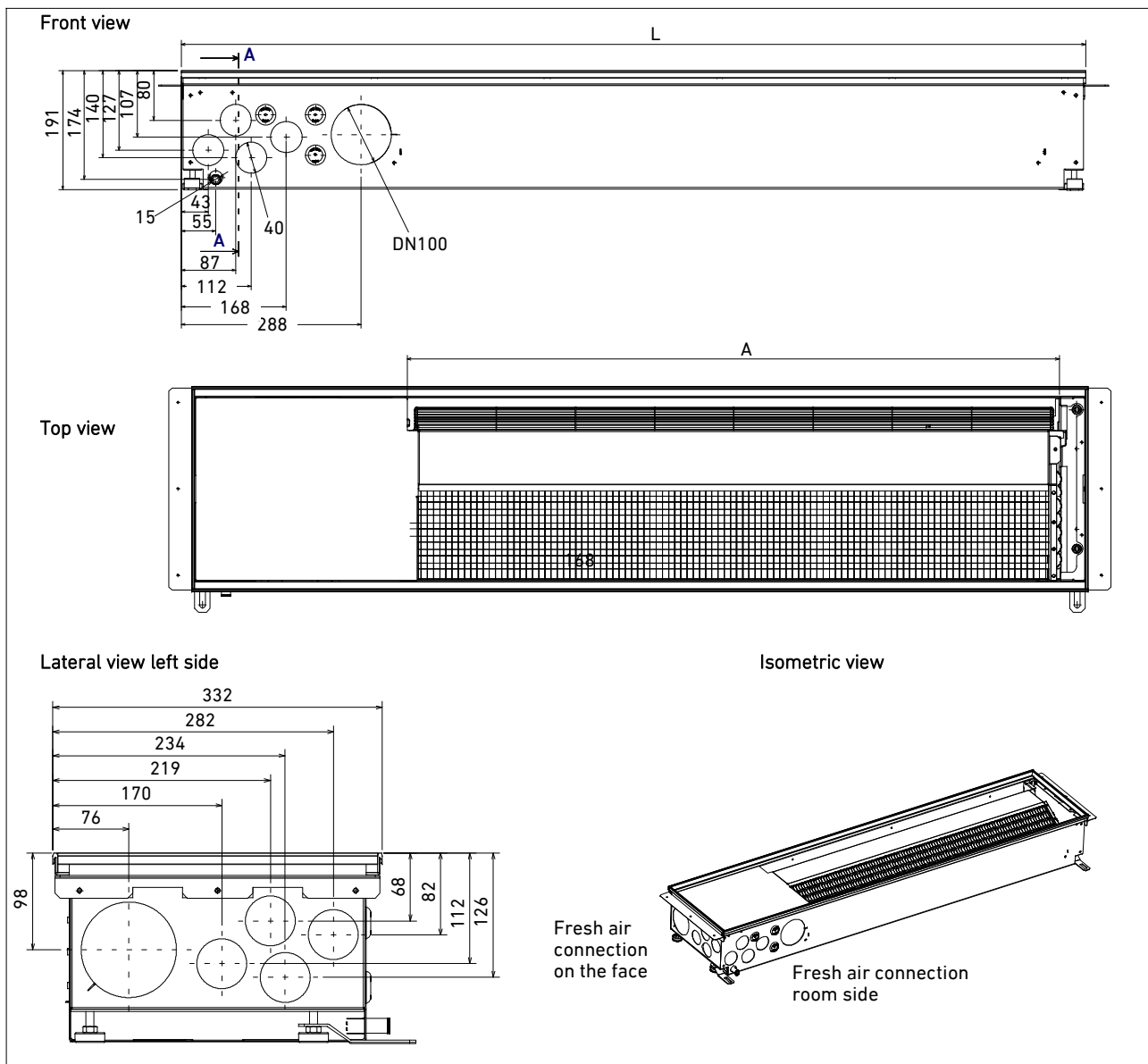
- ① air grille  
aluminium linear grille,  
aluminium roller grille (on request)  
stainless steel linear grille, roller grille of wood
- (2) heat exchanger  
2-pipe, 4-pipe
- (3) Mixed/displacement insert (optional)
- (4) tangential fan
- (5) fan motor  
EC motor
- (6) connecting plug for EC motor
- (7) fresh air connections (pre-cut)  
7a = on the face, 7b = room side
- (8) leadthroughs for water pipes (pre-cut)  
and cables, on the face or room side
- (9) condensate drain
- (10) valve drives, water inlet (optional)  
10a = cooling, 10b = heating
- (11) straight-way valves, water inlet (optional)  
11a = cooling, 11b = heating
- (12) insulated valve hoses (optional)



## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/2 and VKB-0/4, 2-pipe and 4-pipe system

### Dimensions, weights

Size	Total length L [mm]	Air outlet width A [mm]	Weight [kg]	Water content [l]		
				4-pipe		2-pipe
				Cooling circuit	Heating circuit	
630	1020	625	27	0.6	0.16	0.8
800	1250	855	31	0.9	0.21	1.1
1000	1450	1055	37	1.1	0.26	1.4
2000	2450	2038	65	2.1	0.53	2.8

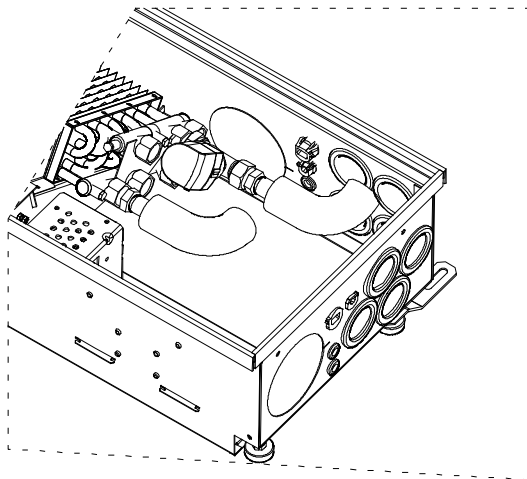


<b>1 socket (DN 100), with grille</b> The <b>total acoustic power level</b> may be calculated as follows: $L_{WA} = 10 \cdot \log (10^{0,1 \cdot L_{WA P}} + 10^{0,1 \cdot L_{WA, VKB}})$	<b>Fresh air flow rate <math>V_p</math></b>	[m <sup>3</sup> /(h)]	50	70	90	110	130
	<b>Acoustic power level <math>L_{WA P}</math></b>	[dB(A)]	26	27	29	34	39
	<b>Pressure loss</b>	[Pa]	2	4	6	11	13

Technical brochure • Fan coil units VKB, floor installation  
 Type VKB-0/2 and VKB-0/4, 2-pipe and 4-pipe system

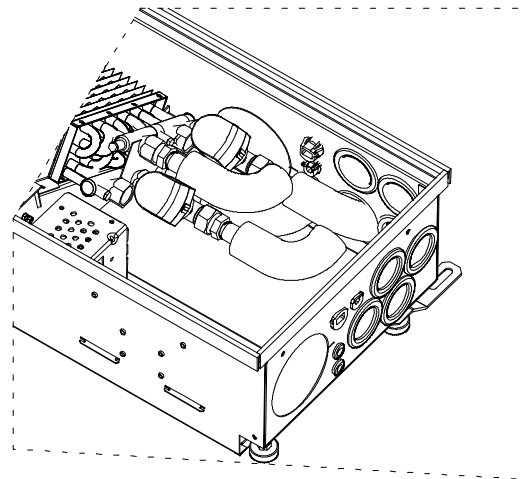
Dimensions

2-pipe system

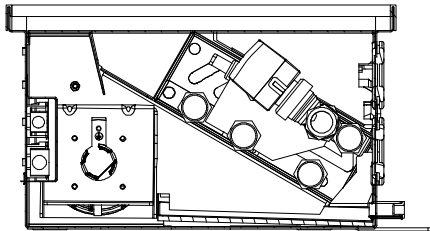


Isometric view

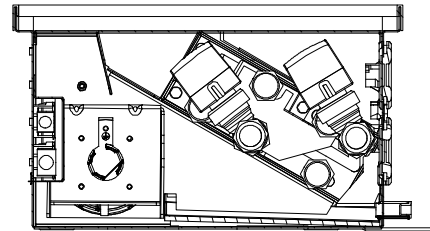
4-pipe system



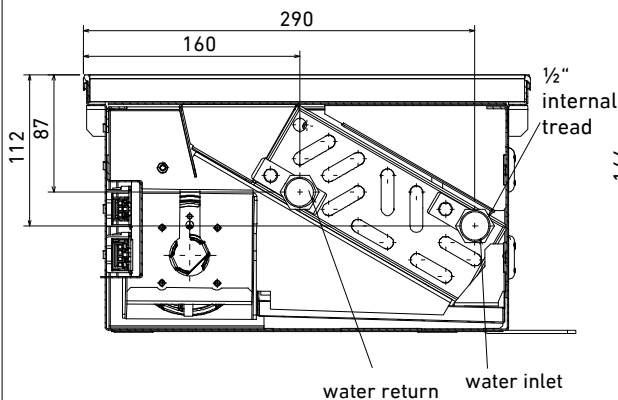
Isometric view



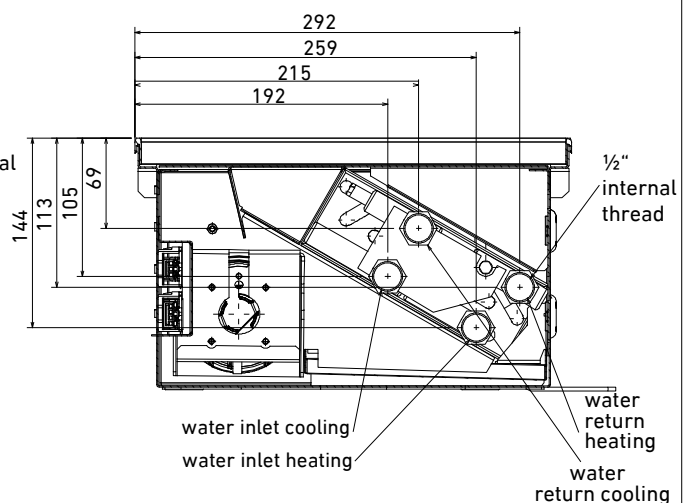
Cut A-A (see previous page)



Cut A-A (see previous page)



Cut A-A (see previous page)



Cut A-A (see previous page)

## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4/.../FL and VKB-0/2/.../FL, fresh air supply (in front)

### Specification

Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the room air. Fresh air supply with flow rates up to 400 m<sup>3</sup>/h while maintaining low noise levels.

Separate fresh air connection integrated in the housing. Installation in access floors with a recommended clearance of 230...280 mm.

Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet.

Water-side control by valves (accessories separate).

### Acoustic power level for separate socket for fresh air supply

(must be added to the unit's power level)

1 socket (DN 100), with aluminium linear grille

	V <sub>P</sub>	[m <sup>3</sup> /h]	40	60	80	100
Size 630	L <sub>wA P</sub>	[dB(A)]	29	38	-	-
	Pressure loss	[Pa]	1	3	-	-
Size 800	L <sub>wA P</sub>	[dB(A)]	27	30	37	47
	Pressure loss	[Pa]	1	1	2	4
Size 1000	L <sub>wA P</sub>	[dB(A)]	27	28	31	37
	Pressure loss	[Pa]	0	1	2	3

2 sockets (DN 100), with aluminium linear grille

	V <sub>P</sub>	[m <sup>3</sup> /h]	50	100	150	200	250
Size 630	L <sub>wA P</sub>	[dB(A)]	27	31	41	-	-
	Pressure loss	[Pa]	2	7	16	-	-
Size 800	L <sub>wA P</sub>	[dB(A)]	27	28	32	40	-
	Pressure loss	[Pa]	2	4	9	16	-
Size 1000	L <sub>wA P</sub>	[dB(A)]	27	28	30	36	43
	Pressure loss	[Pa]	2	3	5	9	15

4 sockets (DN 100), with aluminium linear grille

	V <sub>P</sub>	[m <sup>3</sup> /h]	100	200	300	400
Size 2000	L <sub>wA P</sub>	[dB(A)]	30	31	33	39
	Pressure loss	[Pa]	2	3	5	9

The total acoustic power level may be calculated as follows:

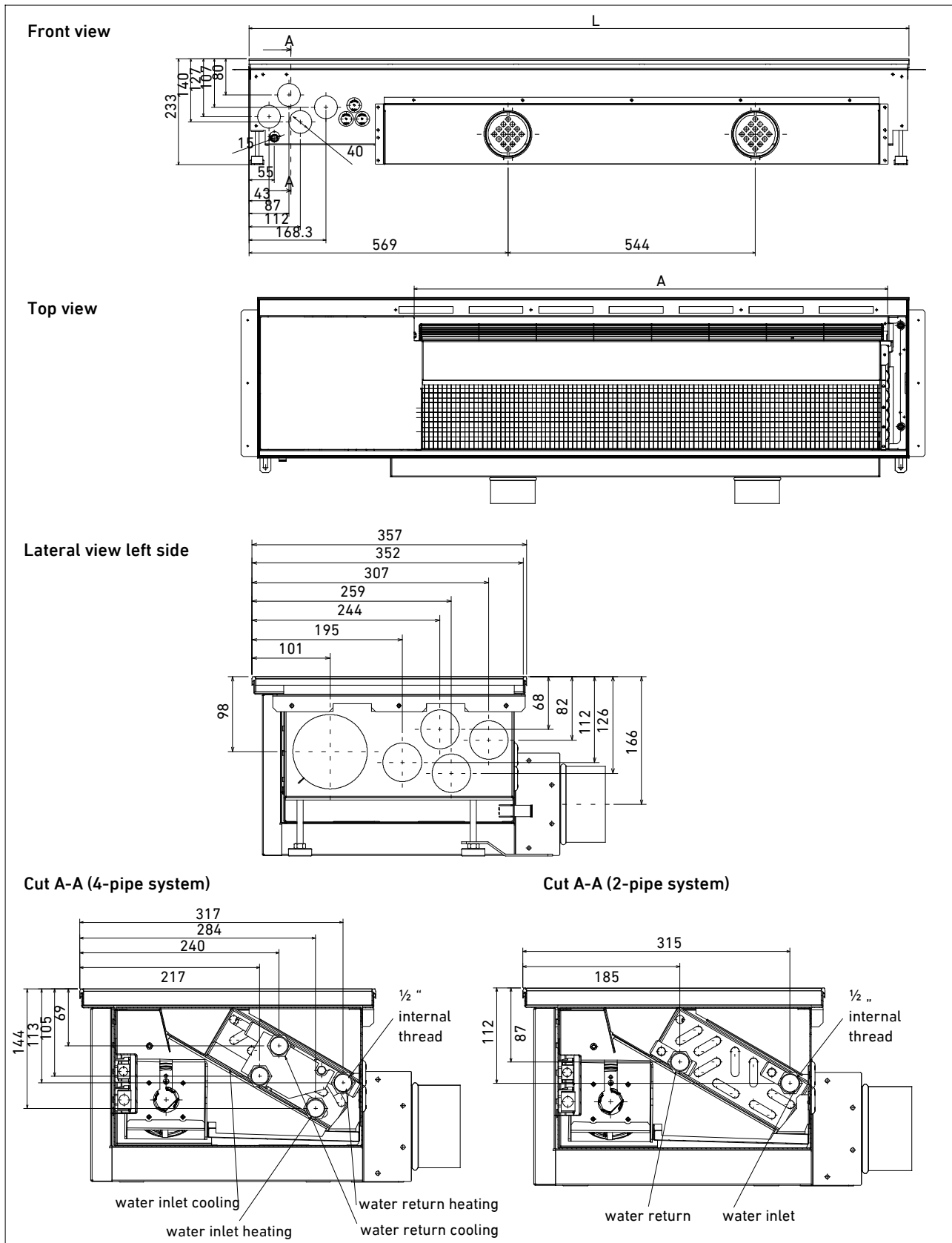
$$L_{wA} = 10 * \log (10^{0,1 * L_{wA P}} + 10^{0,1 * L_{wA, VKB}})$$

### Dimensions, Weights

Size	Total length L [mm]	Air outlet width A [mm]	Weight [kg]	Water content [l]		
				4-pipe		2-pipe
				Cooling circuit	Heating circuit	
630	1020	625	28	0.6	0.16	0.8
800	1250	855	32	0.9	0.21	1.1
1000	1450	1055	38	1.1	0.26	1.4
2000	2450	2038	66	2.1	0.53	2.8



Technical brochure • Fan coil units VKB, floor installation  
 Type VKB-0/4/.../FL and VKB 0/2/.../FL, fresh air supply (in front)



## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4/.../T, 4-pipe system, non condensing

### Technical data size 630

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	180	25	31	37	370	22	120	200 / 18	100 / 1.3	3
4	240	30	36	50	500	25				4
5	290	33	39	58	580	27				5
6	360	38	44	66	660	29				7
8	460	46	52	76	760	32				11

### Technical data size 800

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	250	25	31	52	520	30	160	200 / 23	100 / 1.6	3
4	330	30	36	67	670	33				4
5	410	33	39	78	780	36				5
6	510	38	44	88	880	39				8
8	640	46	52	100	1000	43				15

### Technical data size 1000

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	310	27	33	64	640	37	200	200 / 26	100 / 1.8	3
4	410	29	35	80	800	40				5
5	510	34	40	93	930	43				7
6	630	39	45	103	1030	46				10
8	790	47	53	115	1150	51				19

### Technical data size 2000

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	510	27	33	100	1000	68	400	400 / 28	150 / 6.2	8
4	680	32	38	128	1280	74				10
5	830	37	43	154	1540	78				13
6	870	42	48	169	1690	82				18
8	1210	51	57	203	2030	92				32

- U** - control voltage fan  
**V** - flow rate (± 10 %)  
**L<sub>A18</sub>** - sound pressure level  
**L<sub>wA</sub>** - sound power level ± 3 dB(A)  
**Q<sub>k</sub>** - total cooling capacity  
**Q<sub>h</sub>** - total heating capacity  
**Δt** - temp. difference between suction air temp. before entering the heat exchanger and water supply  
**Q<sub>st</sub>** - heating capacity for natural convection  
**w<sub>ok</sub>** - standard water flow rate (cooling) \*  
**w<sub>oh</sub>** - standard water flow rate (heating) \*  
**Δp<sub>w</sub>** - water-side pressure loss  
**P<sub>el</sub>** - electric power consumption (± 10 %)

Values are given for the unit including the air outlet grille, without spreading vanes, without filter. The spreading vanes have the effect of reducing capacity by max. 10 %.

- 1) For 16 °C water supply temperature  
26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.)  
non-condensing operation
- 2) For 55 °C water supply temperature  
20 °C room air temperature

\* Correction for other water flow rates see pages 12...14

## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4.../E, 4-pipe system, condensing

### Technical data size 630

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	180	25	31	36	360	949	636	22				3
4	240	30	36	48	480	1165	848	24				4
5	290	33	39	56	560	1304	990	26	120	200 / 18	100 / 1.3	5
6	360	38	44	64	640	1446	1131	28				7
8	460	46	52	73	730	1552	1290	31				11

### Technical data size 800

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	250	25	31	50	500	1318	884	29				3
4	330	30	36	65	650	1577	1149	32				4
5	410	33	39	76	760	1769	1343	35	160	200 / 22	100 / 1.6	6
6	510	38	44	85	850	1920	1502	38				8
8	640	46	52	97	970	2062	1714	42				14

### Technical data size 1000

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	310	27	33	62	620	1634	1096	36				3
4	410	29	35	78	780	1893	1379	39				5
5	510	34	40	90	900	2095	1591	42	200	200 / 26	100 / 1.8	7
6	630	39	45	100	1000	2259	1767	45				10
8	790	47	53	112	1120	2381	1980	49				19

### Technical data size 2000

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
3	510	27	33	95	950	2500	1680	65				8
4	680	32	38	122	1220	2960	2160	70				10
5	830	37	43	146	1460	3400	2580	74	400	400 / 28	150 / 6.3	13
6	870	42	48	161	1610	3640	2850	78				18
8	1210	51	57	193	1930	4100	3411	87				32

- U** - control voltage fan  
**V** - flow rate (± 10 %)  
**LA<sub>18</sub>** - sound pressure level  
**L<sub>WA</sub>** - sound power level ± 3 dB(A)  
**Q<sub>k</sub>** - total cooling capacity  
**Q<sub>ksens</sub>** - sensible cooling capacity  
**Q<sub>h</sub>** - total heating capacity  
**Δt** - temp. difference between suction air temp. before entering the heat exchanger and water supply  
**Q<sub>st</sub>** - heating capacity for natural convection  
**w<sub>ok</sub>** - standard water flow rate (cooling) \*  
**w<sub>oh</sub>** - standard water flow rate (heating) \*  
**Δp<sub>w</sub>** - water-side pressure loss  
**P<sub>el</sub>** - electric power consumption (± 10 %)

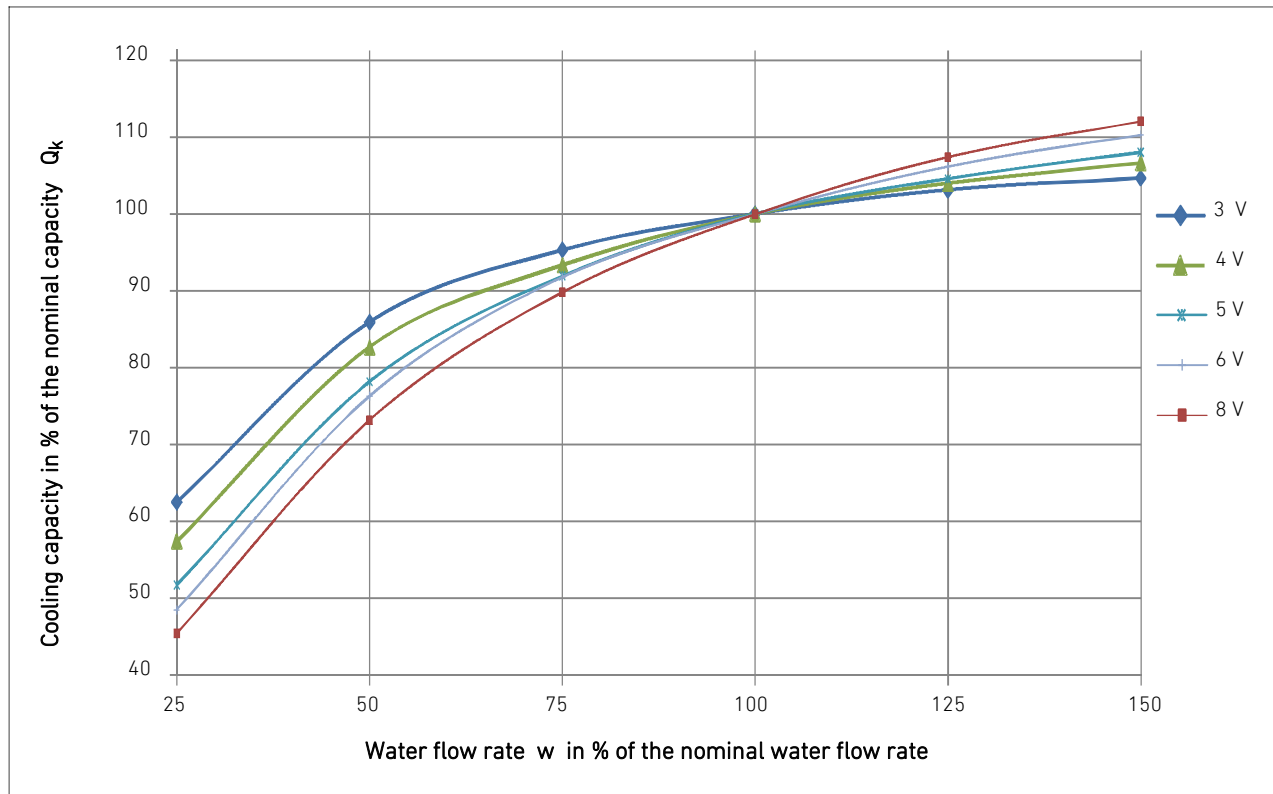
Values are given for the unit with air outlet grille, without spreading vanes, without filter. The spreading vanes have the effect of reducing capacity by max. 10 %.

- 1) For 16 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.), non-condensing operation
- 2) For 6 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.), condensing operation, 50 % relative humidity.
- 3) For 55 °C water supply temperature, 20 °C room air temperature

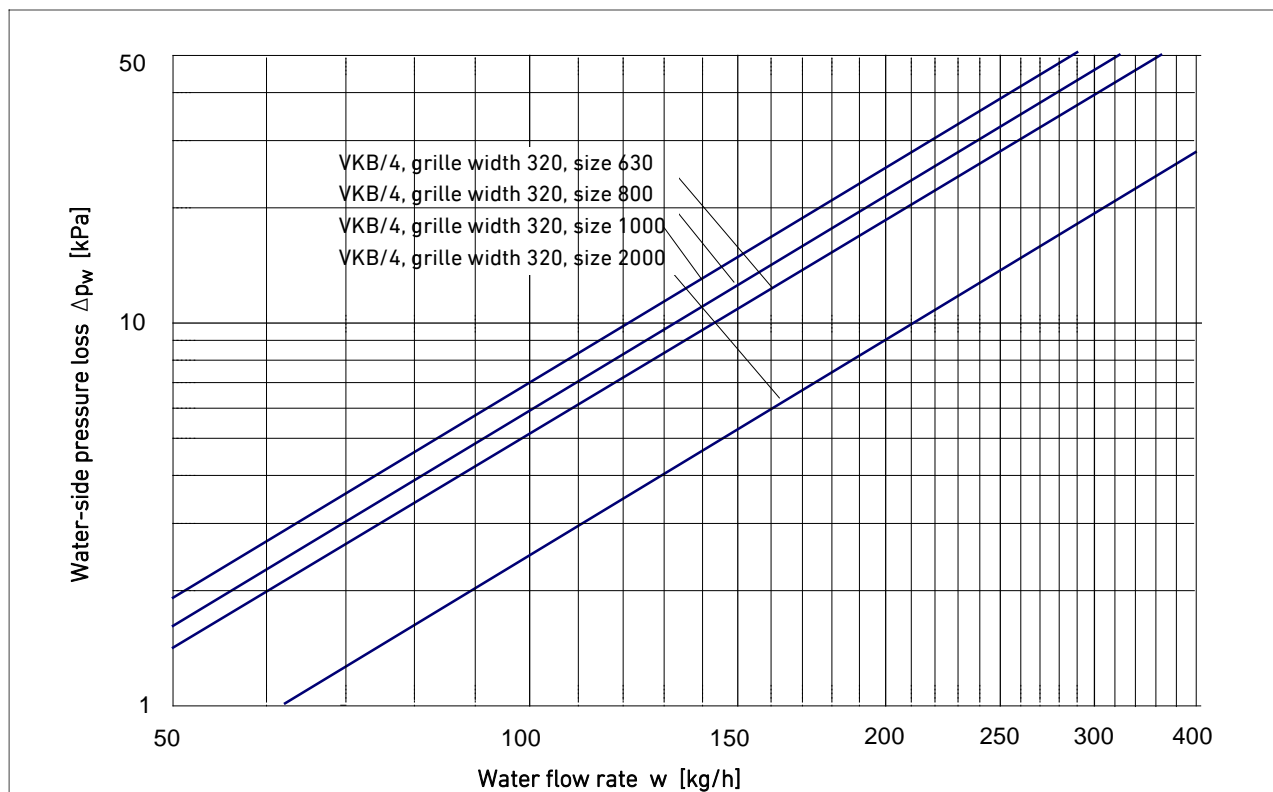
\* Correction for other water flow rates see pages 12...14

## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4, 4-pipe system

### Cooling capacity for different water flow rates

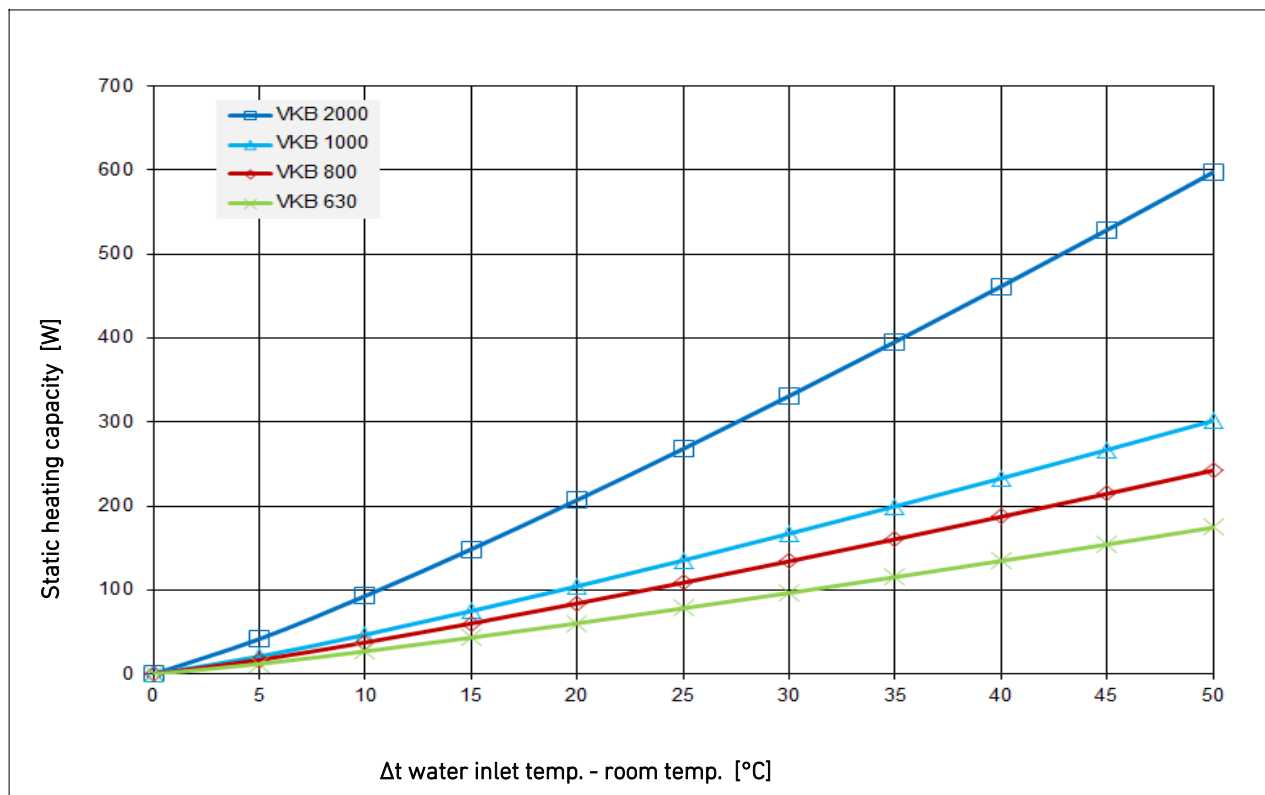


### Water-side pressure loss of the cooler for different water flow rates

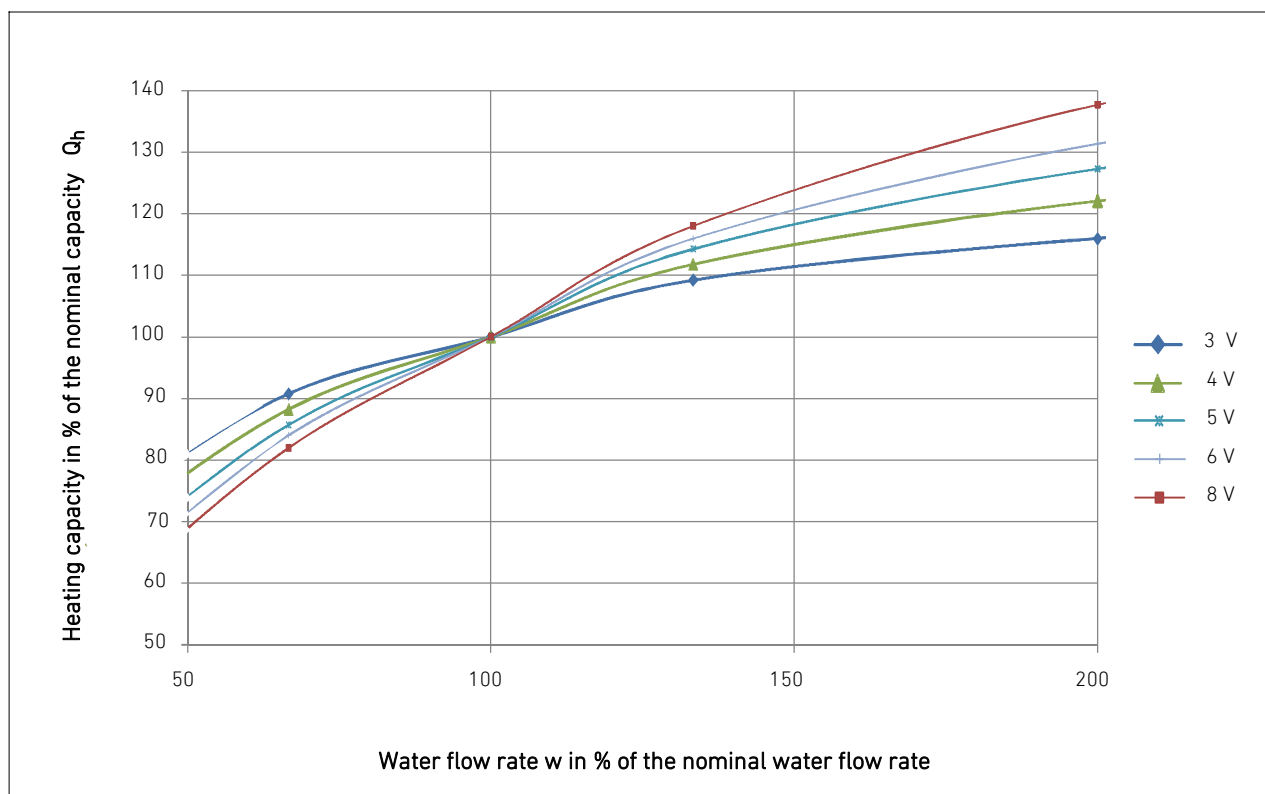


## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4, 4-pipe system

### Static heating capacity for 100 kg/h



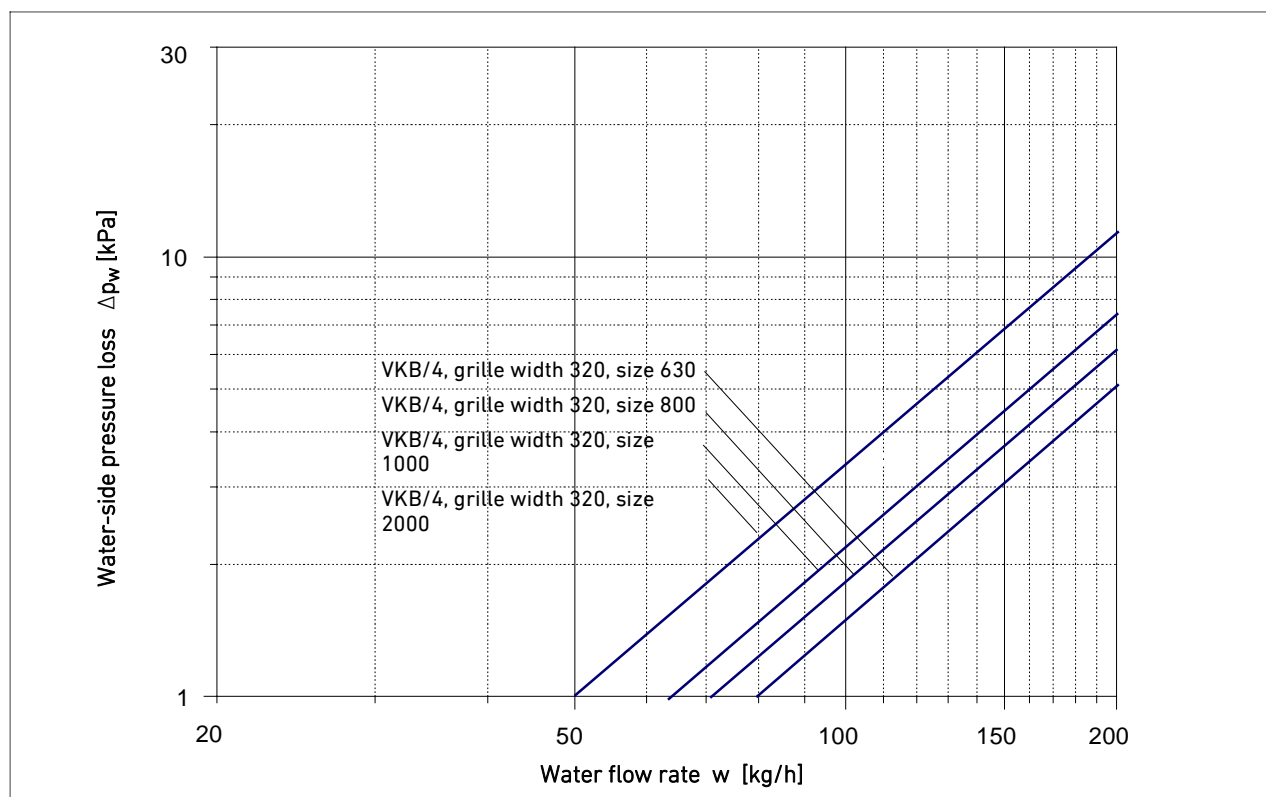
### Heating capacity for different water flow rates





## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/4, 4-pipe system

### Water-side pressure loss of the heater for different water flow rates



## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/2/...T, 2-pipe system, non-condensing

### Technical data size 630

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	180	25	31	42	420	37	120	300 / 7	150 / 2	3
4	240	30	36	54	540	45				4
5	290	33	39	64	640	51				5
6	360	38	44	74	740	57				7
8	460	46	52	86	860	64				11

### Technical data size 800

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	230	25	31	54	540	47	160	300 / 8	150 / 2.6	3
4	330	30	36	71	710	59				4
5	410	33	39	86	860	69				6
6	510	38	44	99	990	77				8
8	640	46	52	112	1120	83				14

### Technical data size 1000

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	310	27	33	59	590	51	200	300 / 10	150 / 2.9	3
4	410	29	35	76	760	63				5
5	510	34	40	92	920	74				7
6	630	39	45	106	1060	82				10
8	790	47	53	122	1220	90				19

### Technical data size 2000

U [V DC]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	510	27	33	106	1060	80	400	400 / 9	150 / 1.5	8
4	680	32	38	137	1370	92				10
5	830	37	43	163	1630	102				13
6	870	42	48	179	1790	112				18
8	1210	51	57	214	2140	118				32

- U** - control voltage fan  
**V** - flow rate (± 10 %)  
**L<sub>A18</sub>** - sound pressure level  
**L<sub>wA</sub>** - sound power level ± 3 dB(A)  
**Q<sub>k</sub>** - total cooling capacity  
**Q<sub>h</sub>** - total heating capacity  
**Δt** - temp. difference between suction air temp. before entering the heat exchanger and water supply  
**Q<sub>st</sub>** - heating capacity for natural convection  
**w<sub>ok</sub>** - standard water flow rate (cooling) \*  
**w<sub>oh</sub>** - standard water flow rate (heating) \*  
**Δp<sub>w</sub>** - water-side pressure loss  
**P<sub>el</sub>** - electric power consumption (± 10 %)

Values are given for the unit including the air outlet grille, without spreading vanes. The spreading vanes have the effect of reducing capacity by max. 10 %.

- 1) For 16 °C water supply temperature  
26 °C suction air temperature before entering the heat exchanger (may vary from the room air temp.)  
non-condensing operation
- 2) For 55 °C water supply temperature  
20 °C room air temperature

\* Correction for other water flow rates see pages 17/18

## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/2/.../E, 2-pipe system, condensing

### Technical data size 630

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	180	25	31	40	400	1040	690	35				3
4	240	30	36	51	510	1290	900	42				4
5	290	33	39	61	610	1460	1050	49	120	300 / 7	150 / 2	5
6	360	38	44	70	700	1610	1210	55				7
8	460	46	52	82	820	1810	1450	61				11

### Technical data size 800

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	250	25	31	51	510	1330	880	45				3
4	330	30	36	68	680	1690	1180	57				4
5	410	33	39	82	820	1960	1410	66	160	300 / 8	150 / 2.6	6
6	510	38	44	94	940	2160	1620	73				8
8	640	46	52	106	1060	2330	1860	79				14

### Technical data size 1000

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	310	27	33	56	565	1470	970	49				3
4	410	29	35	73	726	1816	1270	61				5
5	510	34	40	88	876	2102	1510	70	200	300 / 10	150 / 2.9	7
6	630	39	45	100	1005	2311	1730	78				10
8	790	47	53	116	1155	2542	2030	86				19

### Technical data size 2000

U [V DC]	V [m <sup>3</sup> /h]	LA <sub>18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	510	27	33	101	1010	2660	1780	74				8
4	680	32	38	130	1300	3155	2300	83				10
5	830	37	43	155	1550	3630	2760	89	400	400 / 9	100 / 2.1	13
6	870	42	48	170	1700	3840	3000	99				18
8	1210	51	57	203	2030	4310	3590	101				32

U	- control voltage fan
V	- flow rate (± 10 %)
LA <sub>18</sub>	- sound pressure level
L <sub>WA</sub>	- sound power level ± 3 dB(A)
Q <sub>k</sub>	- total cooling capacity
Q <sub>ksens</sub>	- sensible cooling capacity
Q <sub>h</sub>	- total heating capacity
Δt	- temp. difference between suction air temp. before entering the heat exchanger / water supply
Q <sub>st</sub>	- heating capacity for natural convection
w <sub>ok</sub>	- standard water flow rate (cooling) *
w <sub>oh</sub>	- standard water flow rate (heating) *
Δp <sub>w</sub>	- water-side pressure loss
P <sub>el</sub>	- electric power consumption (± 10 %)

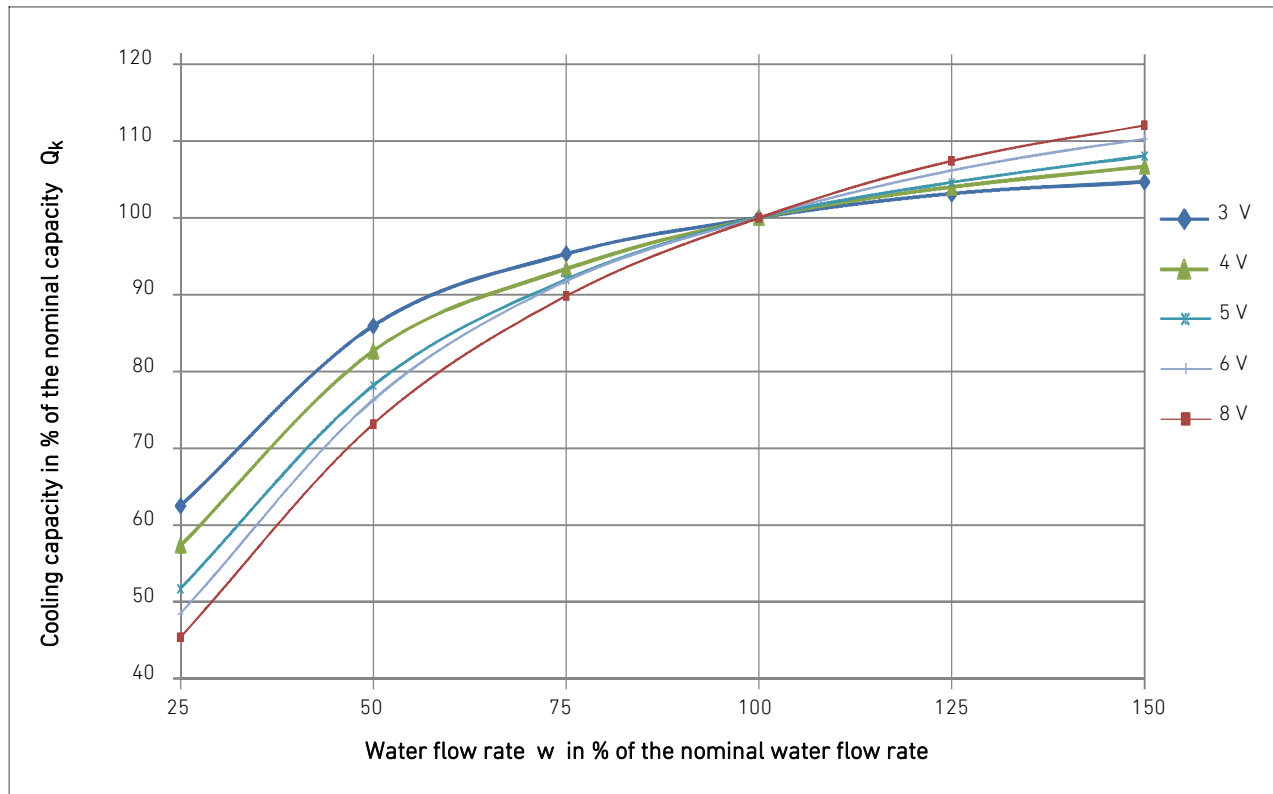
Values are given for the unit including the air outlet grille, without spreading vanes. The spreading vanes have the effect of reducing capacity by max. 10 %.

- 1) For 16 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.), non-condensing operation.
- 2) For 6 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.)  
condensing operation, 50 % relative humidity
- 3) For 55 °C water supply temperature  
20 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.)

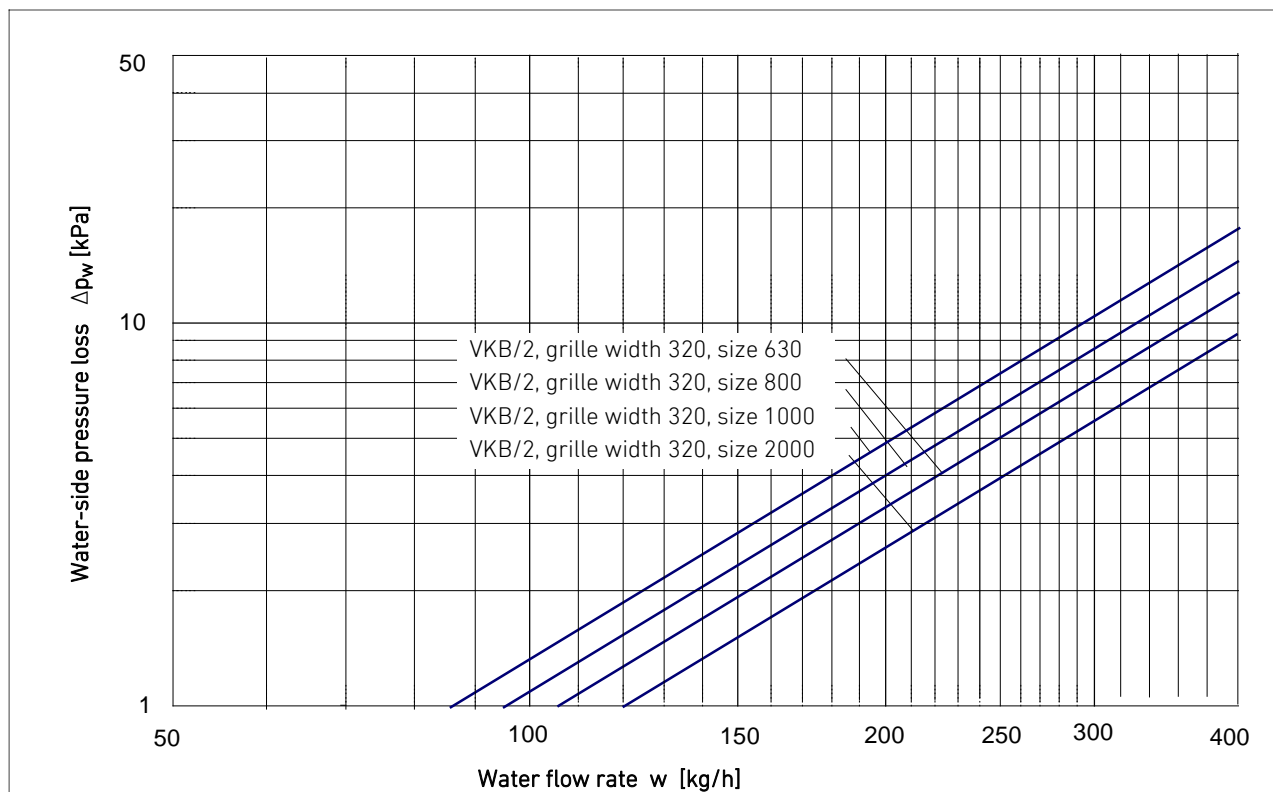
\* Correction for other water flow rates see pages 17/18

## Technical brochure • Fan coil units VKB, floor installation Type VKB-0/2, 2-pipe system

### Cooling capacity for different water flow rates

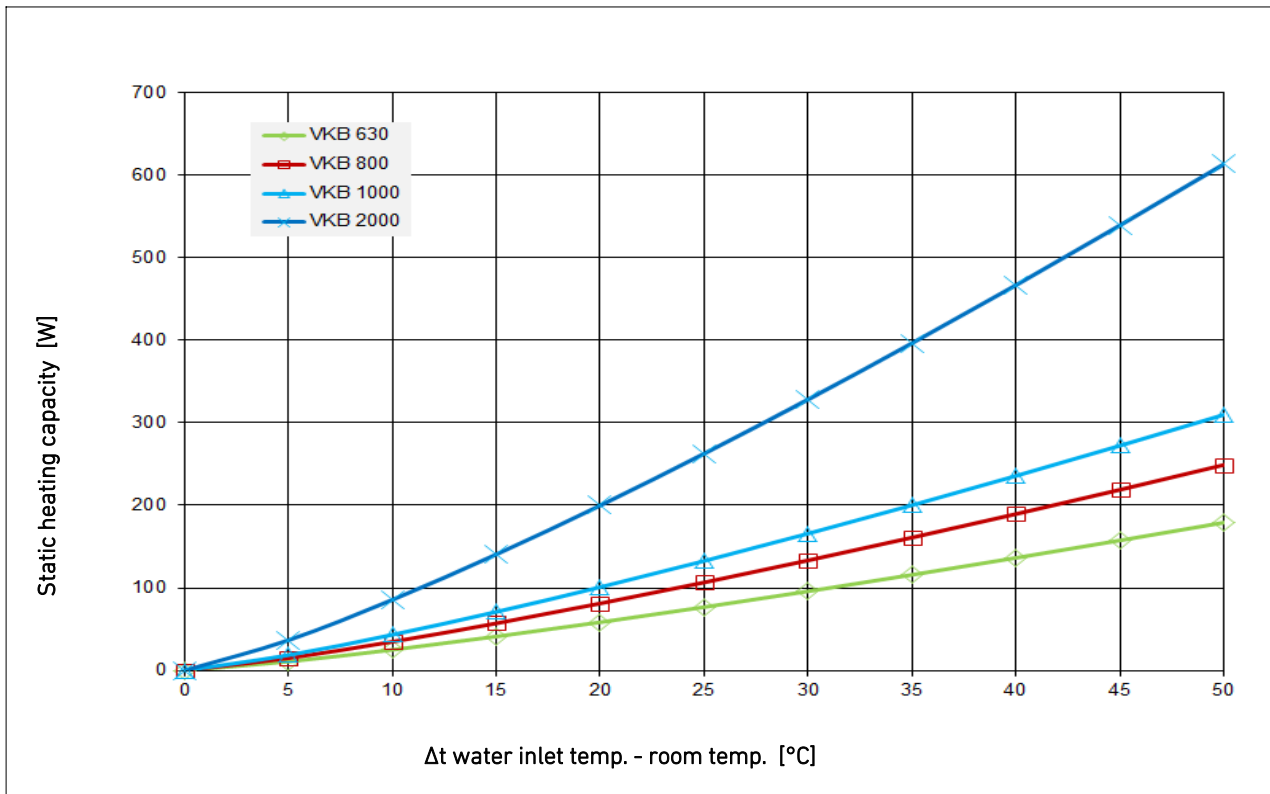


### Water-side pressure loss for different water flow rates

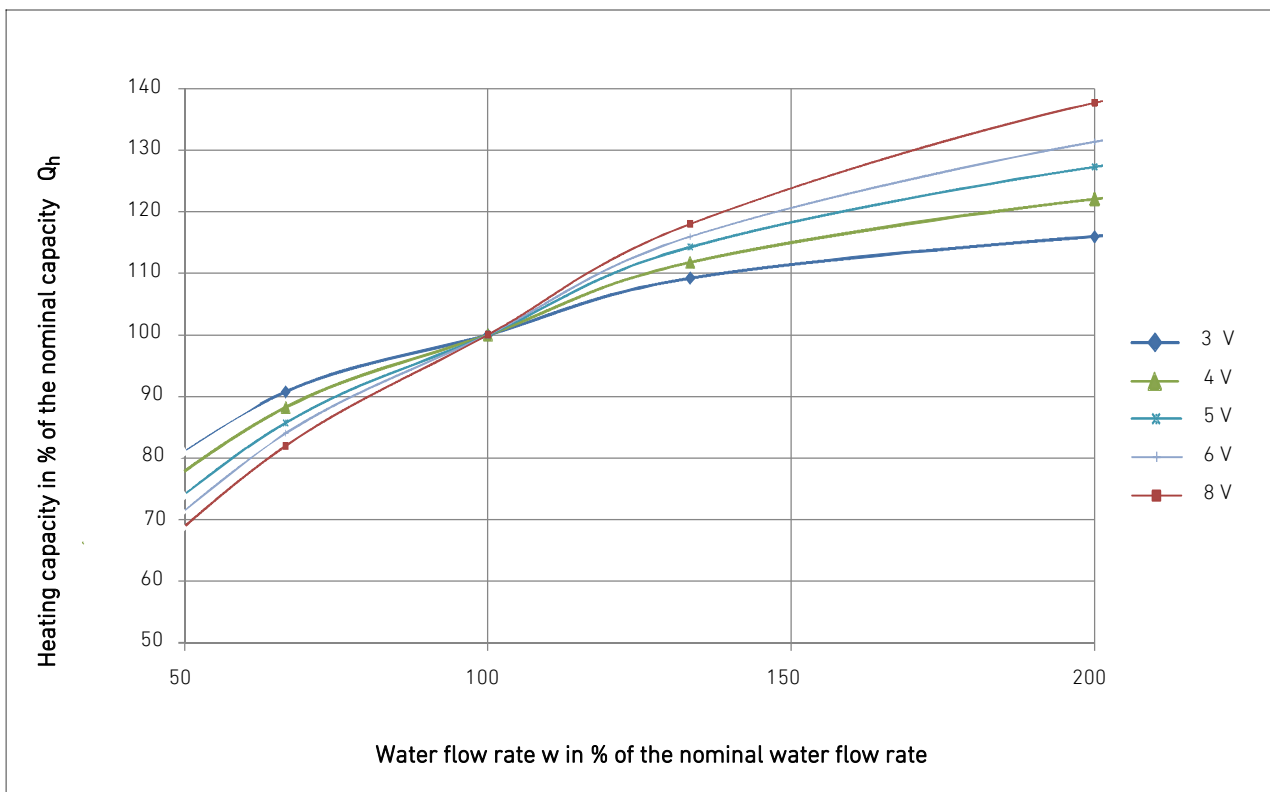


# Technical brochure • Fan coil units VKB, floor installation Type VKB-0/2, 2-pipe system

## Static heating capacity



## Heating capacity for different water flow rates





## Technical brochure • Fan coil units VKB, floor installation Type VKB-0 and VKB-N

### Speed control wiring diagram for EC motor

Two connections are necessary for electrically connecting the fan convector. These are provided by plug connections, protection IP 21. The plugs are preassembled on the motor side at the factory. Only the supplied mating plugs have to be assembled by others accordingly.

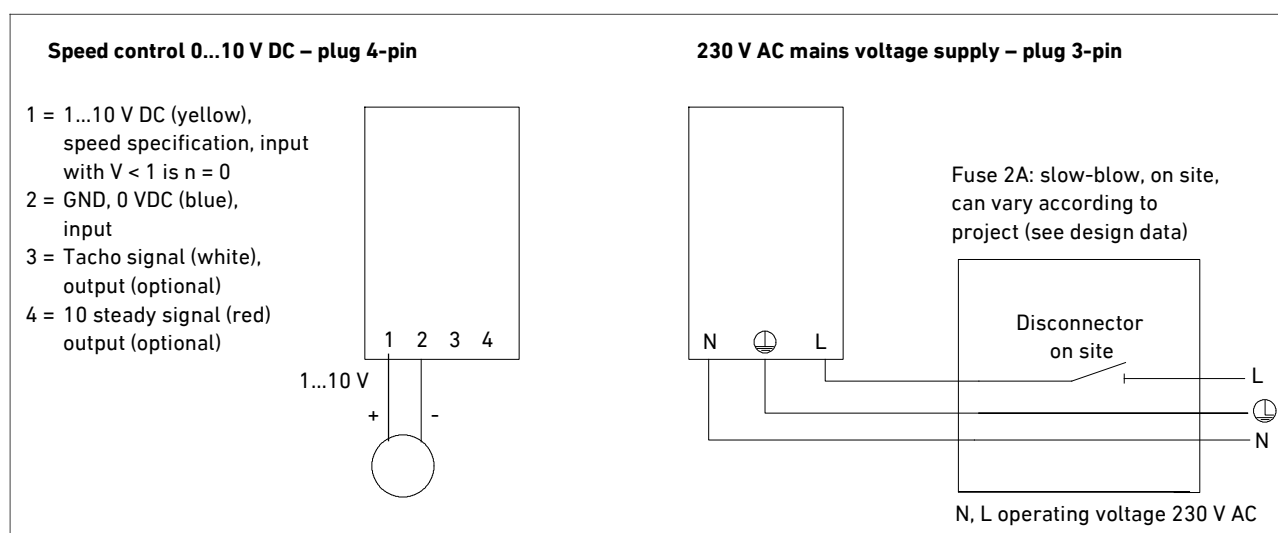
Connection diagram for speed control for 2 EC motors (for VKB size 2000) on request

#### Note

As a rule, we are not familiar with the full scope of the ventilation, air-conditioning and control engineering systems. For this reason, the designs, drawings and circuit diagrams only show the systems that are relevant to the basic functions. Other units or components, such as those required for overall control engineering and/or design in compliance with VDE regulations, are not shown and are not explicitly mentioned.

Please also note the assembly and installation instructions in the original documentation.

The controllers for this application are parametrized on site.



## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/. /..., grille width 320 mm, low height

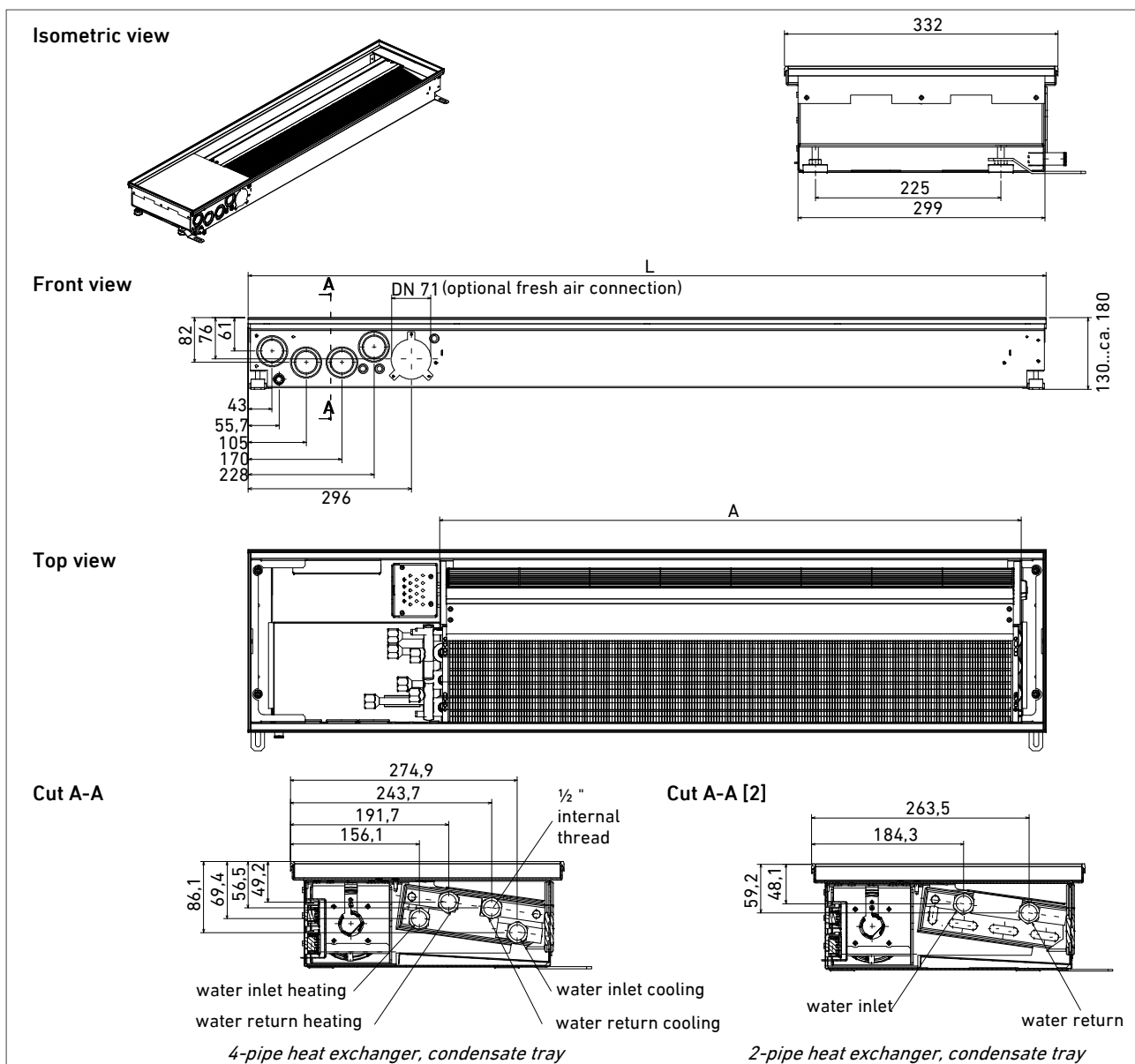
### Specification

Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the room air. Installation in access floors with a recommended clearance of 125...165 mm

(take care to consider construction tolerances and grille types). Precise adjustment of the units via vibration-isolated, height-adjustable feet - retractable up to 130 mm.

### Dimensions, Weights

Size	Total length L [mm]	Air outlet width A [mm]	Weight [kg]	Water content [l]	
				Heating circuit	Cooling circuit
630	1020	625	20	0.35	0.35
800	1250	855	23	0.40	0.40
1000	1450	1055	26	0.50	0.50



Fresh air flow rate $V_p$	[m <sup>3</sup> /(h)]	40	60	80	100	1 socket (DN 71), with grille The total acoustic power level may be calculated as follows: $L_{WA} = 10 \cdot \log(10^{0,1} \cdot L_{WA P} + 10^{0,1} \cdot L_{WA, VKB})$
Sound power level $L_{WA P}$	[dB(A)]	<27	32	40	47	
Pressure loss	[Pa]	<1	5	8	12	

## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/4/.../T, 4-pipe, grille width 320 mm, low height, non condensing

### Technical data size 630

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	140	25	31	20	270	18	90	200 / 13	100 / 1.8	3
4	170	27	33	27	310	23				4
5	220	33	39	34	370	30				5
6	250	37	43	38	410	34				7
8	330	46	52	48	480	40				11

### Technical data size 800

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	190	25	31	27	270	24	120	200 / 15	100 / 2.2	3
4	240	27	33	37	370	31				4
5	300	33	39	45	450	39				5
6	350	37	43	52	520	45				7
8	460	46	52	64	640	52				12

### Technical data size 1000

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	240	25	31	33	330	29	160	200 / 17	100 / 2.5	3
4	300	27	33	45	450	37				5
5	370	33	39	55	550	46				7
6	440	37	43	65	650	53				10
8	570	46	52	78	780	62				19

- U - control voltage fan
- V - flow rate (± 10 %)
- L<sub>A18</sub> - sound pressure level
- L<sub>wA</sub> - sound power level ± 3 dB(A)
- Q<sub>k</sub> - total cooling capacity
- Q<sub>k sens</sub> - sensible cooling capacity
- Q<sub>h</sub> - total heating capacity
- Δt - temperature difference between suction air temperature before entering the heat exchanger and water supply
- Q<sub>st</sub> - heating capacity for natural convection
- w<sub>ok</sub> - standard water flow rate (cooling) \*
- w<sub>oh</sub> - standard water flow rate (heating) \*
- Δp<sub>w</sub> - water-side pressure loss
- P<sub>el</sub> - electric power consumption (± 10 %)

Values are given for the unit without air outlet grille, without filter.

1) For 16 °C water supply temperature, 26 °C suction air temperature before entering the heat exchanger (may vary from room temperature), non condensing operation

2) For 55 °C water supply temperature, 20 °C room air temperature

\* Correction for other water flow rates see pages 23...25

## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/4/.../E, 4-pipe, grille width 320 mm, low height, condensing

### Technical data size 630

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	140	25	31	17	170	470	310	16				3
4	170	30	36	23	230	590	400	22				4
5	220	33	39	29	290	720	510	27	90	200 / 13	100 / 1.8	5
6	250	38	44	33	330	800	570	31				7
8	330	46	52	41	410	940	710	38				11

### Technical data size 800

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	190	25	31	24	240	650	440	21				3
4	240	30	36	34	340	900	600	30				4
5	300	33	39	42	420	1100	740	35	120	200 / 15	100 / 2.2	5
6	350	38	44	49	490	1210	850	40				7
8	460	46	52	63	630	1440	1260	49				12

### Technical data size 1000

U [V]	V [m <sup>3</sup> /h]	L <sub>A 18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>ksens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	240	25	31	28	280	760	510	26				3
4	300	27	33	38	380	970	670	35				5
5	370	33	39	47	470	1180	830	42	160	200 / 17	100 / 2.5	7
6	440	37	43	55	550	1330	960	48				10
8	570	46	52	65	650	1510	1100	58				19

- U - control voltage fan
- V - flow rate (± 10 %)
- L<sub>A18</sub> - sound pressure level
- L<sub>WA</sub> - sound power level ± 3 dB(A)
- Q<sub>k</sub> - total cooling capacity
- Q<sub>ksens</sub> - sensible cooling capacity
- Q<sub>h</sub> - total heating capacity
- Δt - temperature difference between suction air temperature before entering the heat exchanger and water supply
- Q<sub>st</sub> - heating capacity for natural convection
- w<sub>ok</sub> - standard water flow rate (cooling) \*
- w<sub>oh</sub> - standard water flow rate (heating) \*
- Δp<sub>w</sub> - water-side pressure loss
- P<sub>el</sub> - electric power consumption (± 10 %)

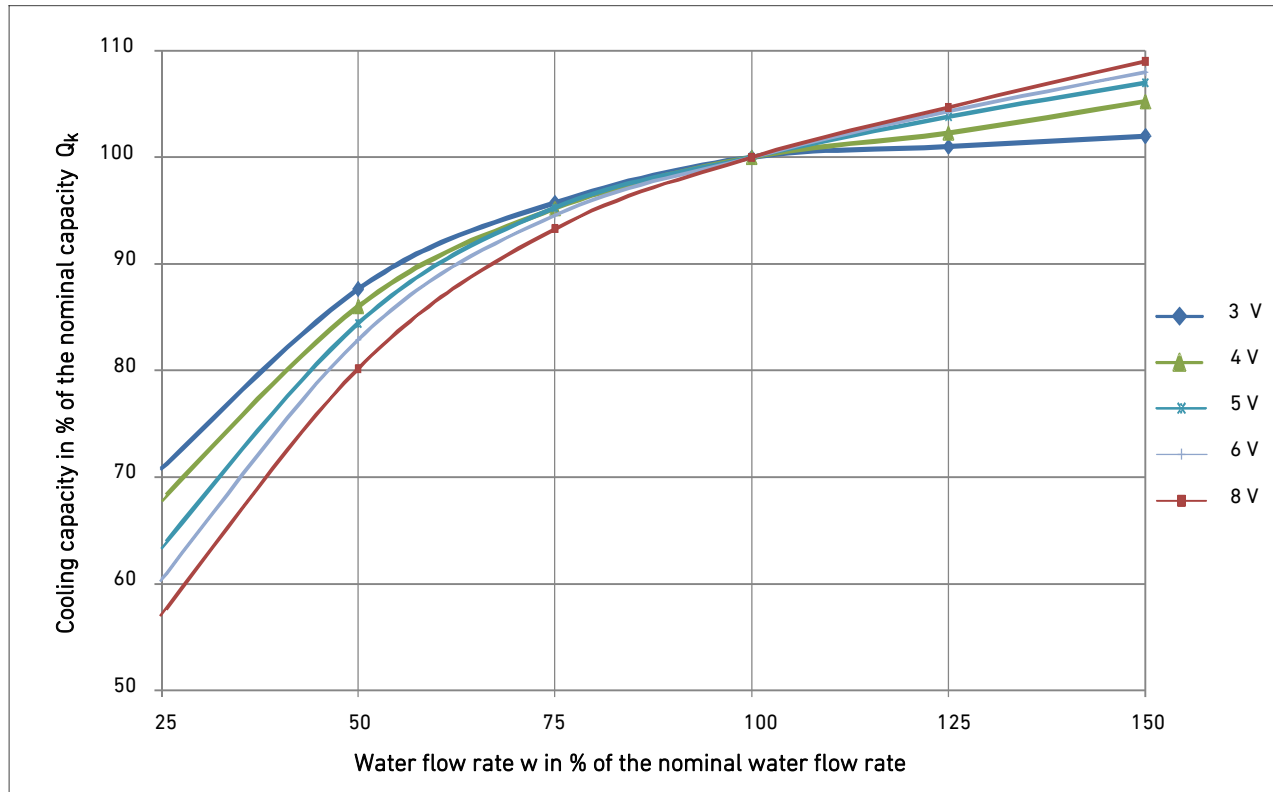
Values are given for the unit including the air outlet grille, without filter.

- 1) For 16 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.), non-condensing operation
- 2) For 6 °C water supply temperature, 26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.), non condensing operation
- 3) For 55 °C water supply temperature, 20 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.)

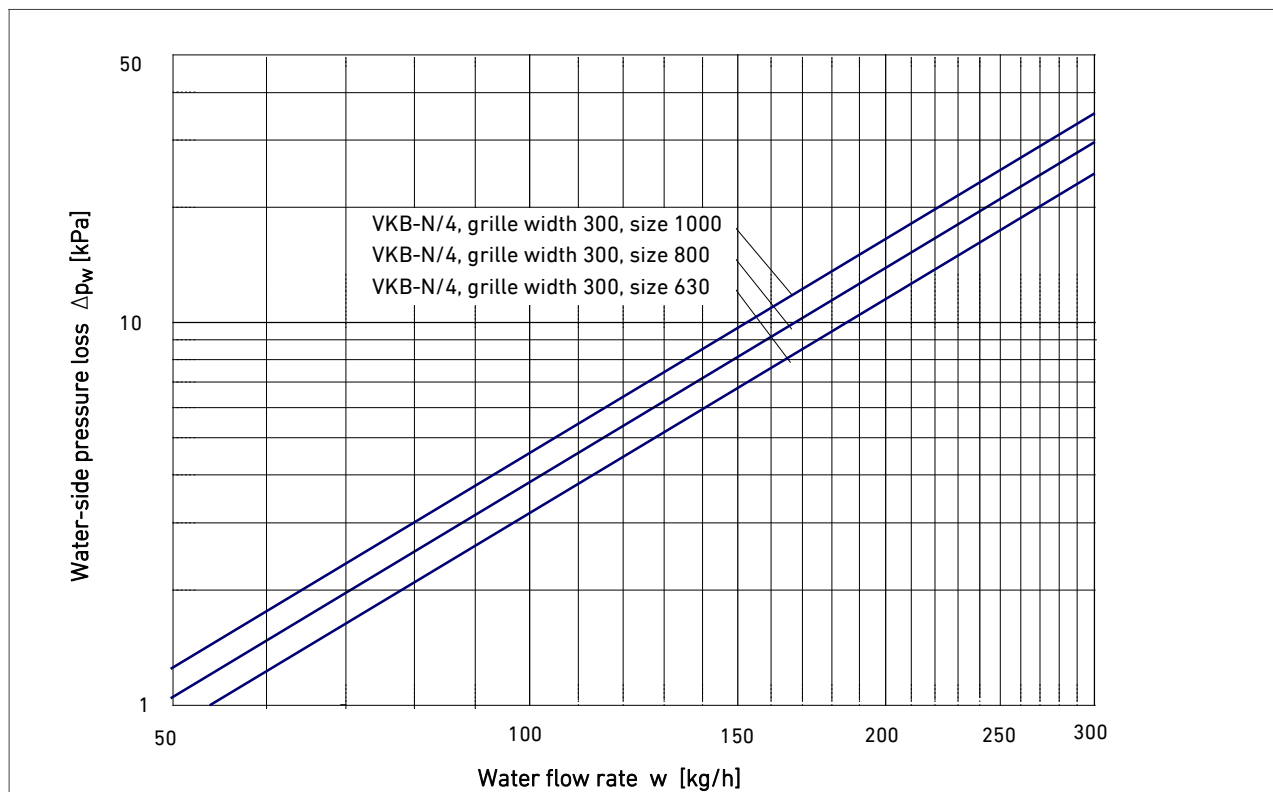
\* Correction for other water flow rates see pages 23...25

## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/4 (low height)

### Cooling capacity for different water flow rates



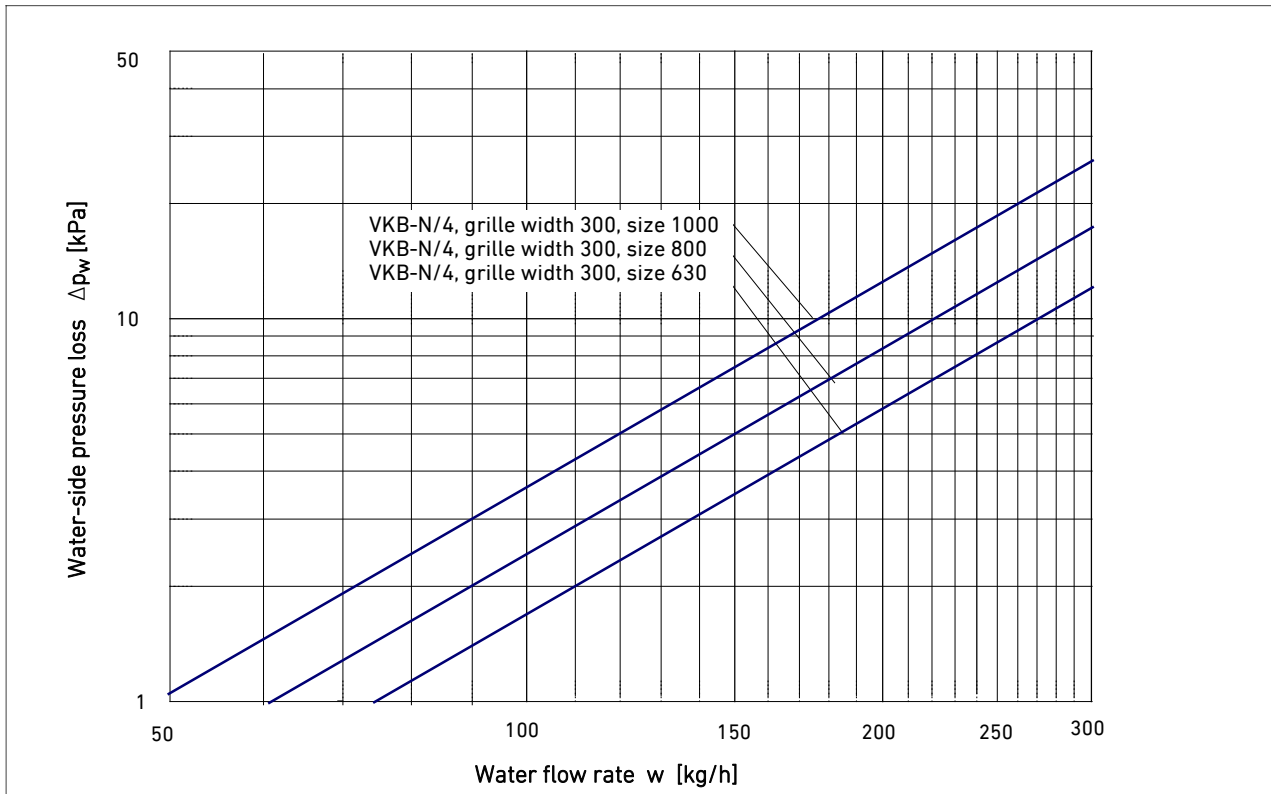
### Water-side pressure loss of the cooler for different water flow rates





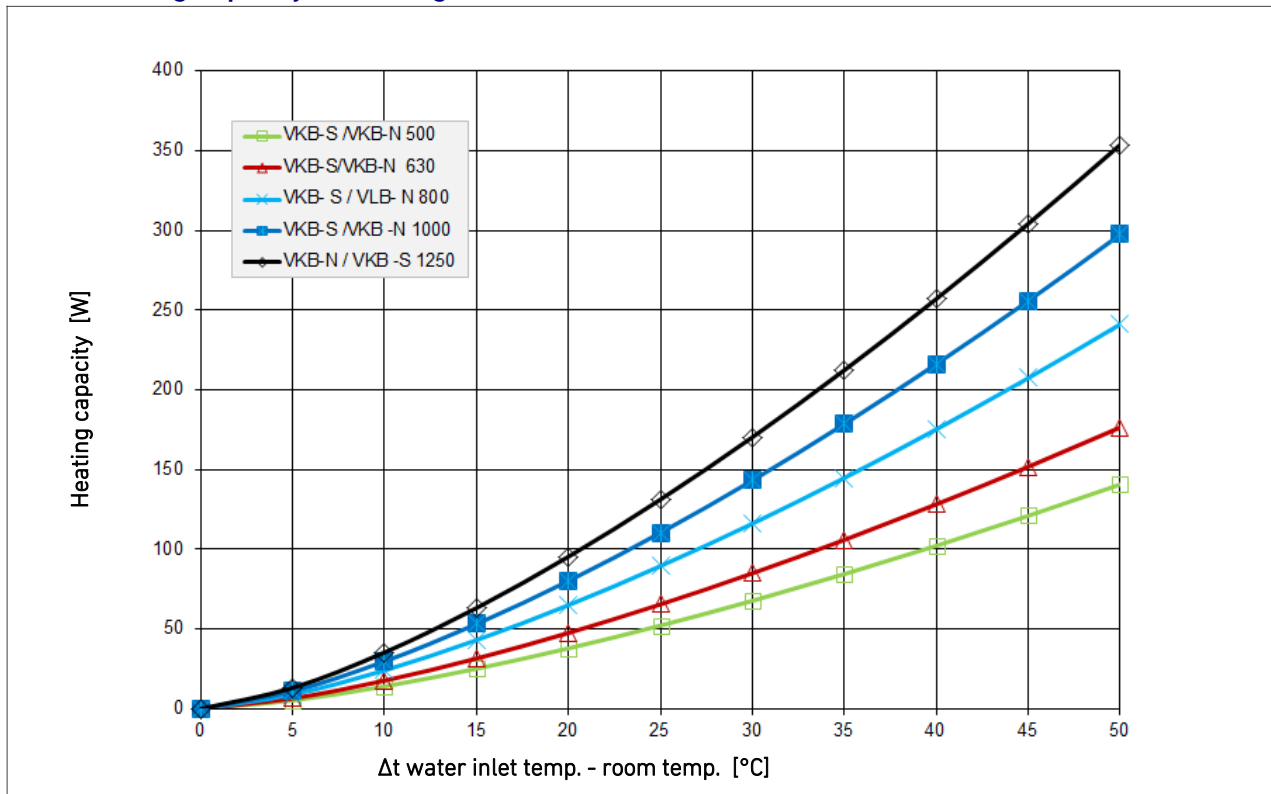
## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/4 (low height)

### Water-side pressure loss of the heater for different water flow rates

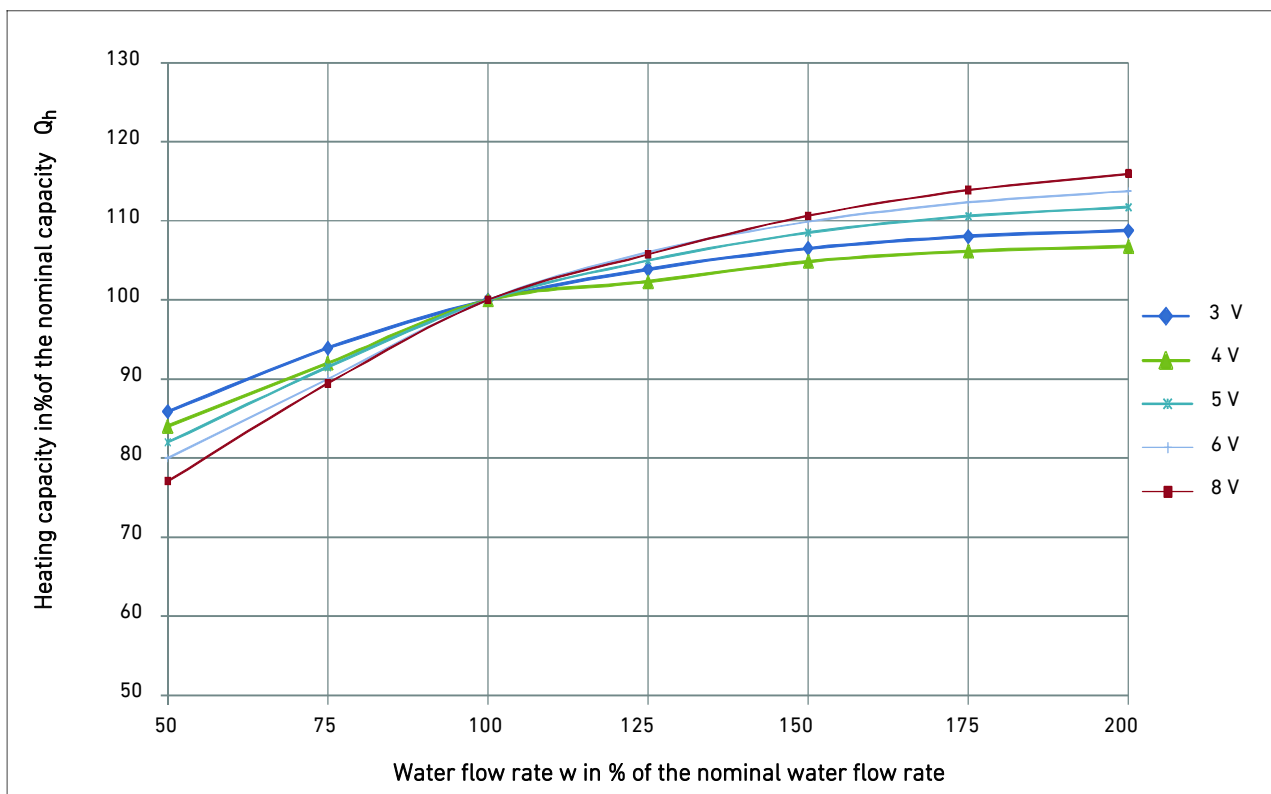


## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/4 (low height)

Static heating capacity for 100 kg/h



Heating capacity for different water flow rates



## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/2/.../T, 2-pipe, grille 320 mm, low height, non condensing

### Technical data size 630

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	140	25	31	22	270	19	90	200 / 16	100 / 5	3
4	170	27	33	30	310	25				4
5	220	33	39	40	370	32				5
6	250	37	43	47	410	37				7
8	330	46	52	57	570	43				11

### Technical data size 800

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	190	25	31	30	300	26	120	200 / 19	100 / 6	3
4	240	27	33	42	420	35				4
5	300	33	39	53	530	43				5
6	350	37	43	63	630	50				7
8	460	46	52	75	750	57				12

### Technical data size 1000

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	240	27	33	38	380	29	160	200 / 21	100 / 6	3
4	300	27	33	51	510	39				4
5	370	33	39	64	640	47				5
6	440	37	43	77	770	55				7
8	570	46	52	90	900	59				19

<b>U</b>	- control voltage fan
<b>V</b>	- flow rate (± 10 %)
<b>L<sub>A18</sub></b>	- sound pressure level
<b>L<sub>WA</sub></b>	- sound power level ± 3 dB(A)
<b>Q<sub>k</sub></b>	- total cooling capacity
<b>Q<sub>h</sub></b>	- total heating capacity
<b>Δt</b>	- temp. difference between suction air temp. before entering the heat exchanger and water supply
<b>Q<sub>st</sub></b>	- heating capacity for natural convection
<b>w<sub>ok</sub></b>	- standard water flow rate (cooling) *
<b>w<sub>oh</sub></b>	- standard water flow rate (heating) *
<b>Δp<sub>w</sub></b>	- water-side pressure loss
<b>P<sub>el</sub></b>	- electric power consumption (± 10 %)

Values are given for the unit without air outlet grille, without filter.

1) For 16 °C water supply temperature, 26 °C suction air temperature before entering the heat exchanger (may vary from room temperature), non condensing operation.

2) For 55 °C water supply temperature, 20 °C suction air temperature before entering the heat exchanger (may vary from room temperature),

\* Correction for other water flow rates see pages 28/29

## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/2/.../E, -pipe, grille width 320 mm, low height, condensing

### Technical data size 630

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>k sens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	140	25	31	20	200	530	360	15	90	200 / 16	100 / 5	3
4	170	27	33	28	280	720	490	20				4
5	220	33	39	37	370	920	660	25				5
6	250	37	43	43	430	1040	750	27				7
8	330	46	52	56	560	1280	970	32				11

### Technical data size 800

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>k sens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
3	190	25	31	27	270	730	490	19	120	200 / 15	100 / 6	3
4	240	27	33	38	380	980	670	25				4
5	300	33	39	49	490	1210	860	28				5
6	350	37	43	59	590	1420	1020	31				7
8	460	46	52	73	730	1680	1240	35				12

### Technical data size 1000

U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>k</sub> <sup>2)</sup> [W]	Q <sub>k sens</sub> <sup>2)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>3)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> (EC) [W]
4	240	25	31	34	340	780	600	23	160	200 / 17	100 / 7	3
4	300	27	33	47	470	1200	830	30				5
5	370	33	39	60	600	1460	1050	35				7
6	440	37	43	71	710	1700	1240	38				10
8	570	46	52	88	880	2020	1550	42				19

- U** - control voltage fan  
**V** - flow rate (± 10 %)  
**L<sub>A18</sub>** - sound pressure level  
**L<sub>wA</sub>** - sound power level ± 3 dB(A)  
**Q<sub>k</sub>** - total cooling capacity  
**Q<sub>ksens</sub>** - sensible cooling capacity  
**Q<sub>h</sub>** - total heating capacity  
**Δt** - temp. difference between suction air temp. before entering the heat exchanger and water supply  
**Q<sub>st</sub>** - heating capacity for natural convection  
**w<sub>ok</sub>** - standard water flow rate (cooling) \*  
**w<sub>oh</sub>** - standard water flow rate (heating) \*  
**Δp<sub>w</sub>** - water-side pressure loss  
**P<sub>el</sub>** - electric power consumption (± 10 %)

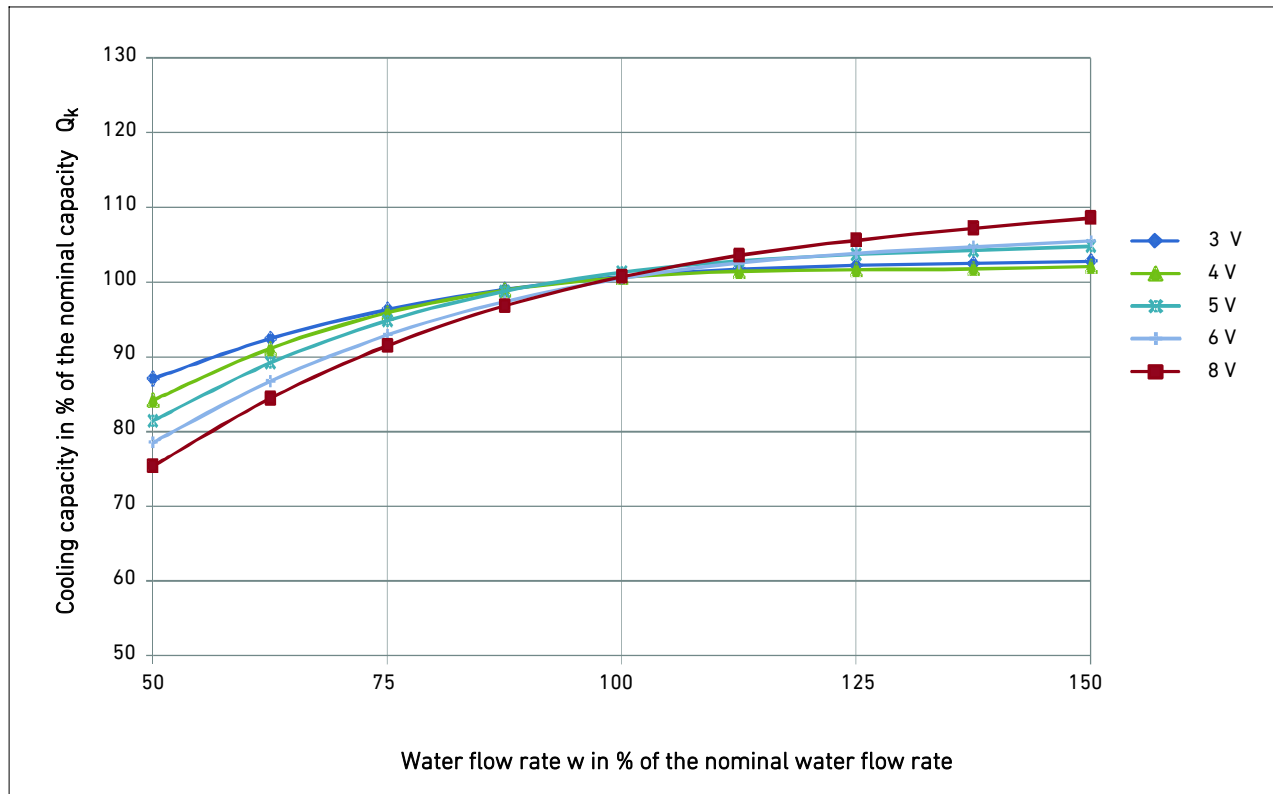
Values are given for the unit including the air outlet grille.

- 1) For 16 °C water supply temperature  
26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.) non-condensing operation
- 2) For 6 °C water supply temperature  
26 °C suction air temp. before entering the heat exchanger (may vary from the room air temp.) condensing operation
- 3) For 55 °C water supply temperature  
20 °C room air temperature

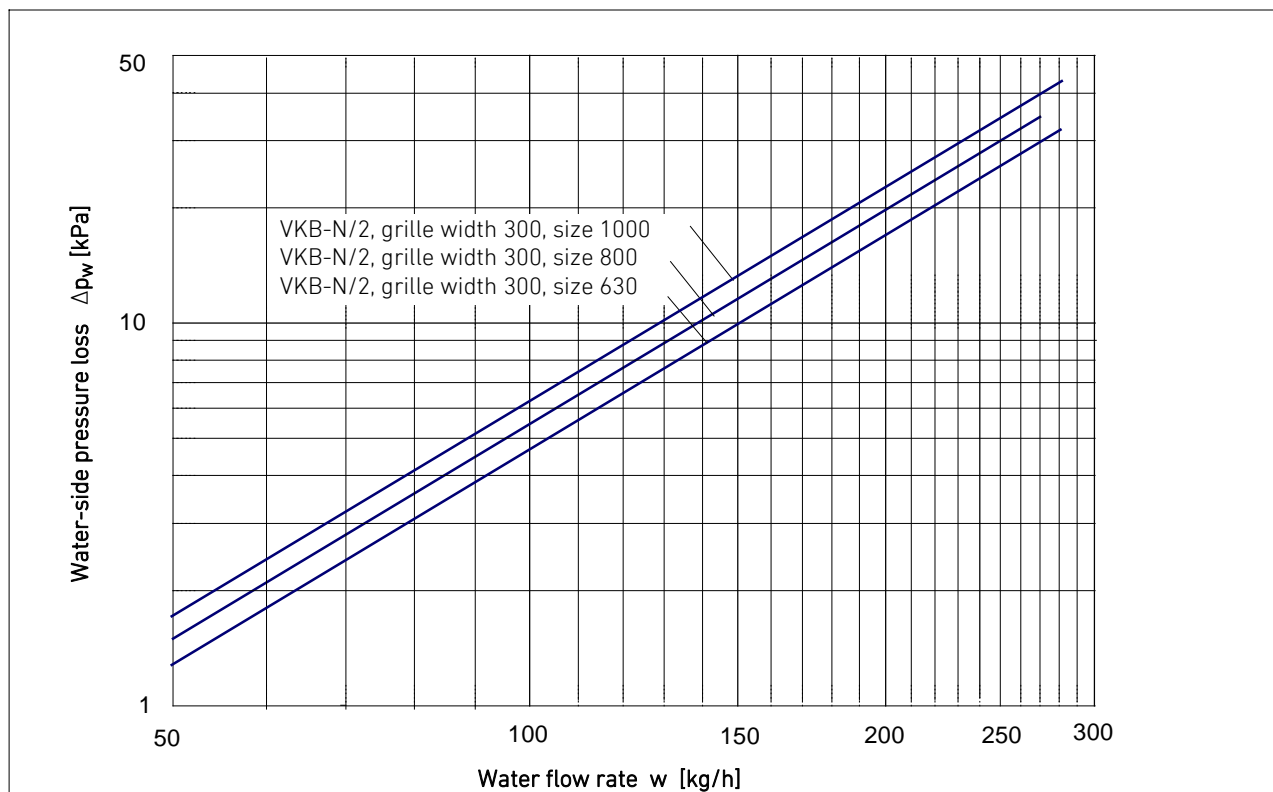
\* Correction for other water flow rates see pages 28/29

## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/2 (low height)

### Cooling capacity for different water flow rates



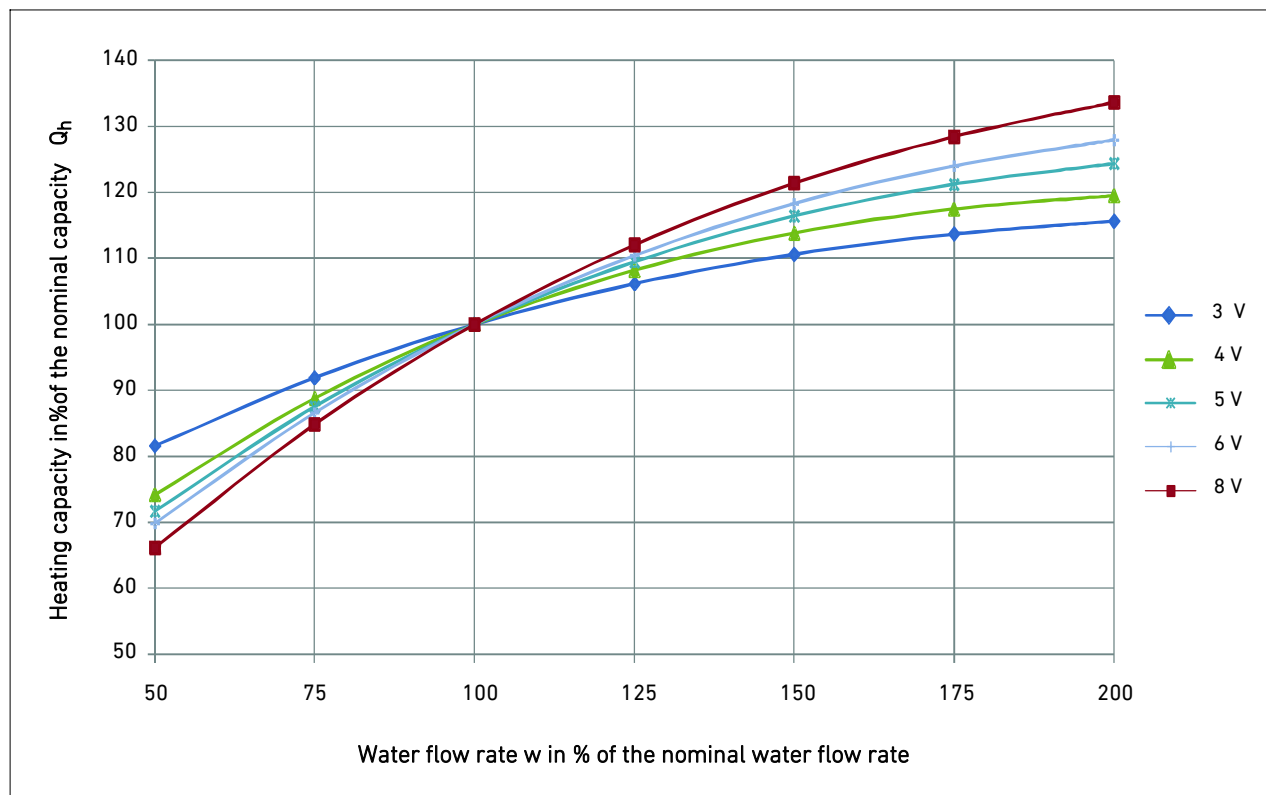
### Water-side pressure loss of the cooler for different water flow rates





## Technical brochure • Fan coil units VKB, floor installation Type VKB-N/2 (low height)

### Heating capacity for different water flow rates



## Technical brochure • Fan coil units VKB, floor installation Type VKB-0 and VKB-N

### Speed control wiring diagram for EC motor

Two connections are necessary for electrically connecting the fan convector. These are provided by plug connections, protection IP 21. The plugs are preassembled on the motor side at the factory. Only the supplied mating plugs have to be assembled by others accordingly.

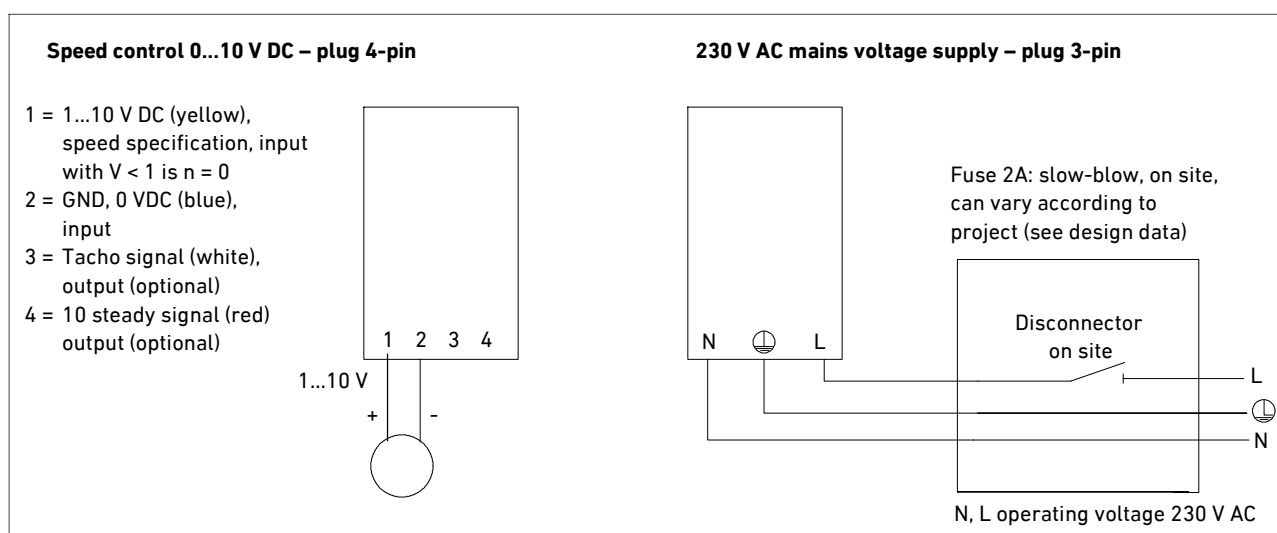
Connection diagram for speed control for 2 EC motors (for VKB size 2000) on request

#### Note

As a rule, we are not familiar with the full scope of the ventilation, air-conditioning and control engineering systems. For this reason, the designs, drawings and circuit diagrams only show the systems that are relevant to the basic functions. Other units or components, such as those required for overall control engineering and/or design in compliance with VDE regulations, are not shown and are not explicitly mentioned.

Please also note the assembly and installation instructions in the original documentation.

The controllers for this application are parametrized on site.



## Technical brochure • Fan coil units VKB, floor installation Type VKB-S/4, 4-pipe system, grille width 200 mm

### Specification

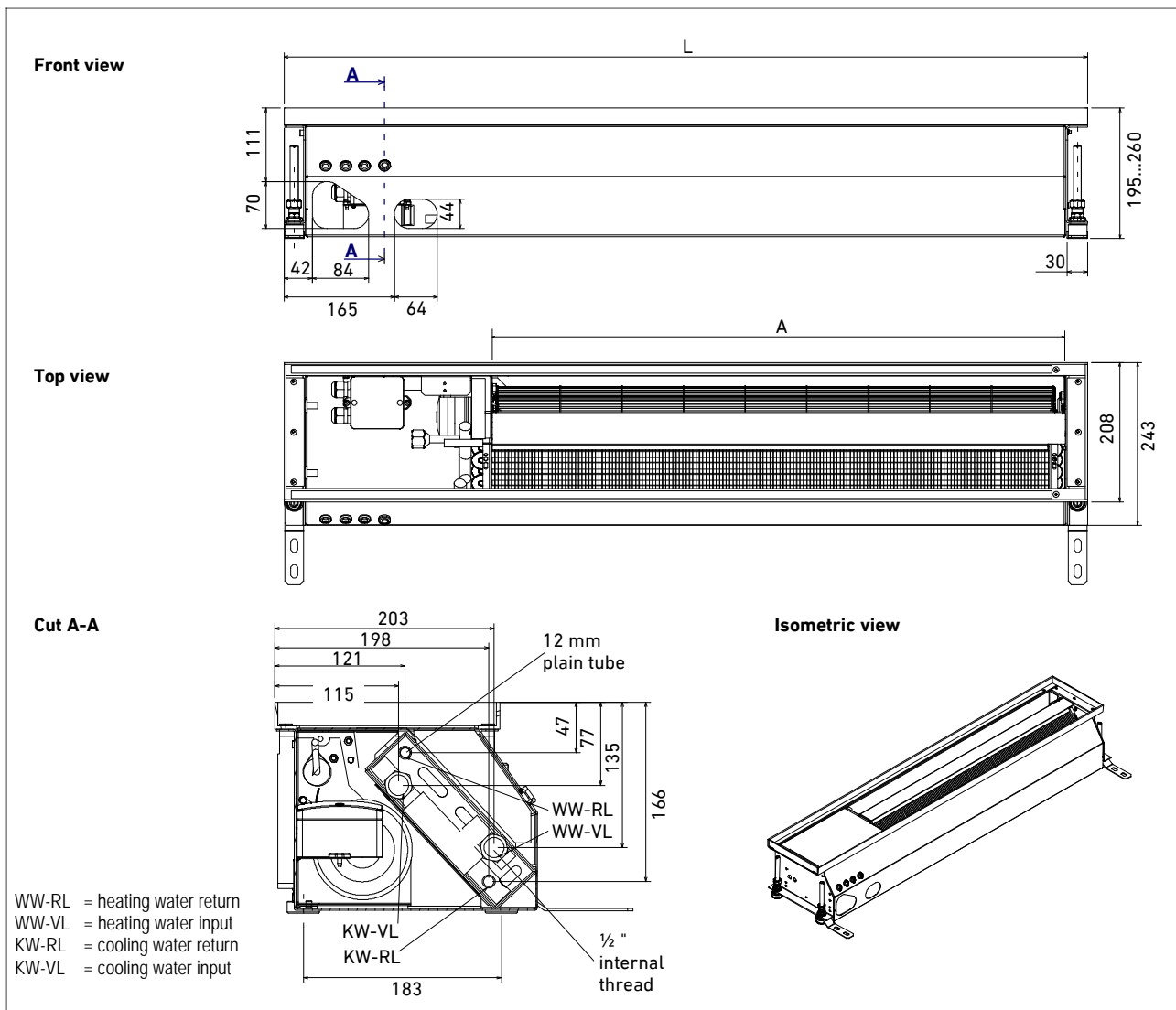
Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the room air.  
Installation in access floors with a recommended clearance of 200...250 mm.

Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet - retractable up to  $H_{min}$ .

Water-side control by valves (accessories separate).

### Dimensions, weights

Size	Total length L [mm]	Air outlet width A [mm]	Minimal height $H_{min}$ [mm]	Total width B [mm]	Weight [kg]	Water content [l]	
						Heating circuit	Cooling circuit
500	898	526	With stainless steel grille: 195   205		19	0.25	0.25
630	988	626	With aluminium roller grille (on request): 201   208		21	0.35	0.35
800	1198	856			25	0.40	0.40
1000	1398	1056			31	0.50	0.50
1250	1598	1256			36	0.60	0.60



## Technical brochure • Fan coil units VKB, floor installation

### Type VKB-S/4, 4-pipe, grille width 200 mm, fresh air supply left side DN 80

#### Specification

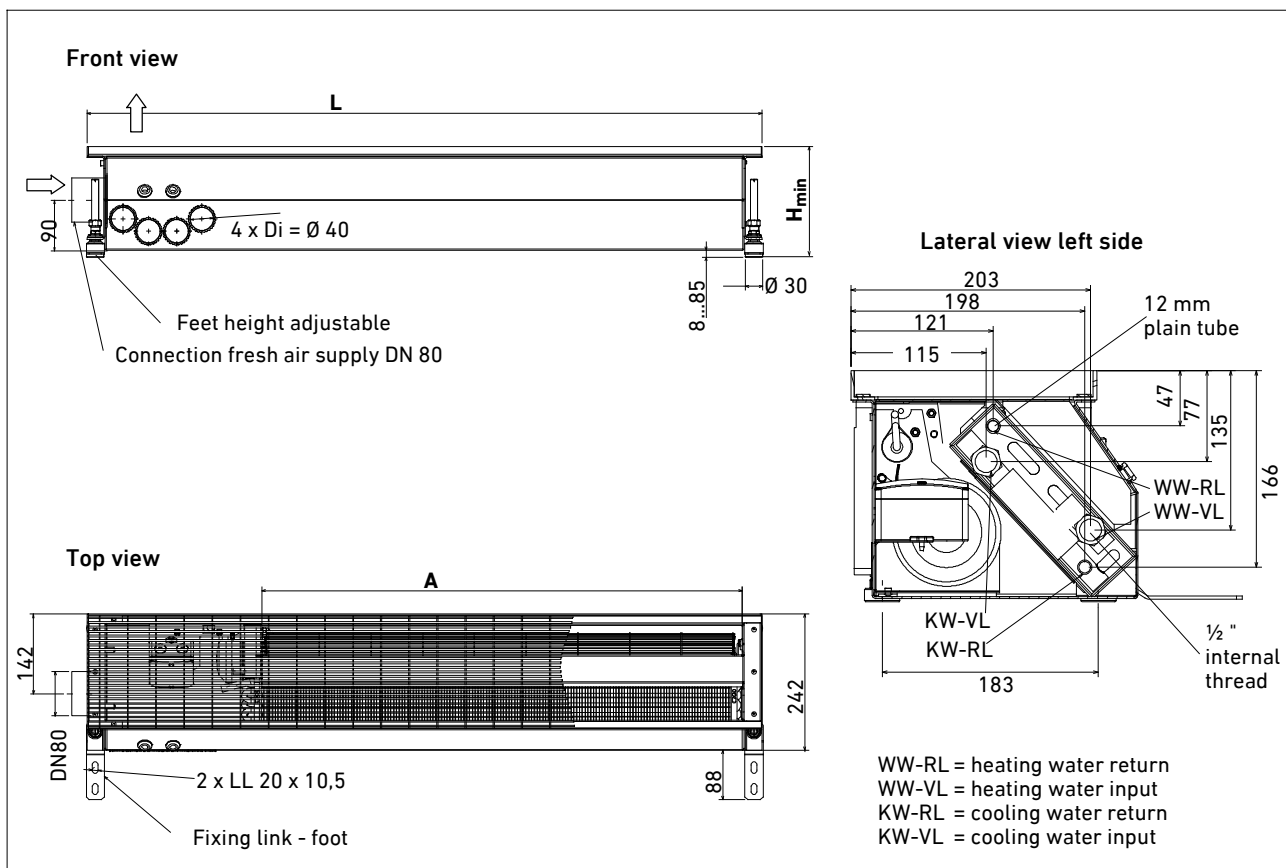
Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the room air.  
Additional socket for fresh air supply DN 80, air discharge via perforated plate.

Installation in access floors with a recommended clear-ance of 200...250 mm.

Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet - retractable up to  $H_{min}$ .  
Water-side control by valves (accessories separate).

#### Dimensions, Weights

Size	L [mm]	A [mm]	$H_{min}$ [mm]	B [mm]	Weight [kg]	Water content [l]	
						Heating circuit	Cooling circuit
500	898	526	With stainless steel grille: 195   205		19	0.25	0.25
630	988	626				0.35	0.35
800	1198	856	With aluminium roller grille (on request): 201   208		25	0.40	0.40
1000	1398	1056				0.50	0.50
1250	1598	1256	With aluminium linear grille: 201   208		36	0.60	0.60



Acoustic power level for separate socket for fresh air supply (must be added to the unit's power level)	$V_p$	[m <sup>3</sup> /h]	50	60	80	100	The total acoustic power level may be calculated as follows: $L_{WA} = 10 * \log (10^{0,1 * L_{WA P}} + 10^{0,1 * L_{WA, VKB}})$
	$L_{WA P}$	[dB(A)]	27	28	29	31	
	Pressure loss	[Pa]	2	4	5	8	

## Technical brochure • Fan coil units VKB, floor installation Type VKB-S/4, 4-pipe system, grille width 200 mm

### Technical data size 500

n (not EC) [-]	U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]	P <sub>el</sub> (EC) [W]
I	3	180	25	32	38	380	31				15	3
II	4	250	32	38	46	460	36				17	4
III	5	300	36	42	52	520	42	90	200 / 8	100 / 2.5	20	5
IV	6	340	41	47	57	570	46				22	7
V	8	400	47	53	62	620	50				27	12

### Technical data size 630

n (not EC) [-]	U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]	P <sub>el</sub> (EC) [W]
I	3	230	26	32	46	460	38				15	3
II	4	300	32	38	57	570	45				17	4
III	5	370	36	42	64	640	51	100	200 / 10	100 / 3.5	20	5
IV	6	420	41	47	69	690	55				22	7
V	8	490	47	53	75	750	60				27	13

### Technical data size 800

n (not EC) [-]	U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]	P <sub>el</sub> (EC) [W]
I	3	280	25	31	54	540	45				15	3
II	4	390	31	37	64	640	51				17	4
III	5	470	34	42	72	720	56	140	200 / 12	100 / 4	20	5
IV	6	520	40	46	77	770	61				22	7
V	8	600	46	52	84	840	64				27	14

### Technical data size 1000

n (not EC) [-]	U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]	P <sub>el</sub> (EC) [W]
I	3	300	25	31	60	600	44				15	3
II	4	410	32	38	70	700	56				17	4
III	5	510	36	42	79	790	63	171	200 / 15	100 / 5	19	5
IV	6	570	41	47	84	840	67				22	7
V	8	660	47	53	92	920	74				27	14

### Technical data size 1250

n (not EC) [-]	U [V]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub> [dB(A)]	Q <sub>k</sub> <sup>1)</sup> / Δt [W/K]	Q <sub>k</sub> <sup>1)</sup> [W]	Q <sub>h</sub> / Δt [W/K]	Q <sub>st</sub> <sup>2)</sup> [W]	w <sub>ok</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	w <sub>oh</sub> / Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]	P <sub>el</sub> (EC) [W]
I	3	330	25	31	66	660	54				15	3
II	4	450	32	38	77	770	61				17	4
III	5	560	36	42	86	860	69	204	200 / 17	100 / 6.5	19	5
IV	6	620	41	47	92	920	73				22	8
V	8	720	47	53	101	1010	81				27	14

Values are given for the unit with air outlet grille, without filter.

1) 16°C water supply temp., 26°C suction air temp. before entering the heat exchanger (may vary from room temp.), non condensing operation.

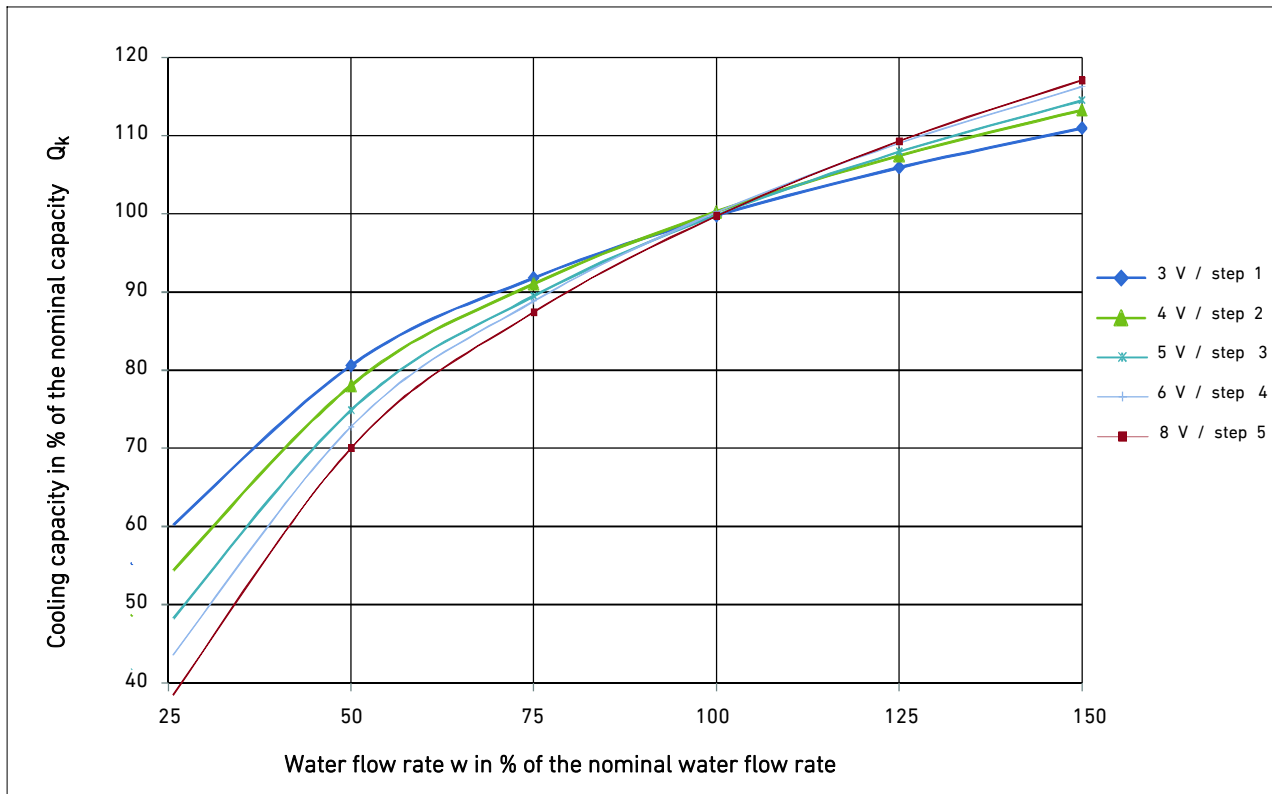
2) For 55°C water supply temp., 20°C suction air temp.

Correction for other water flow rates see pages 34/35

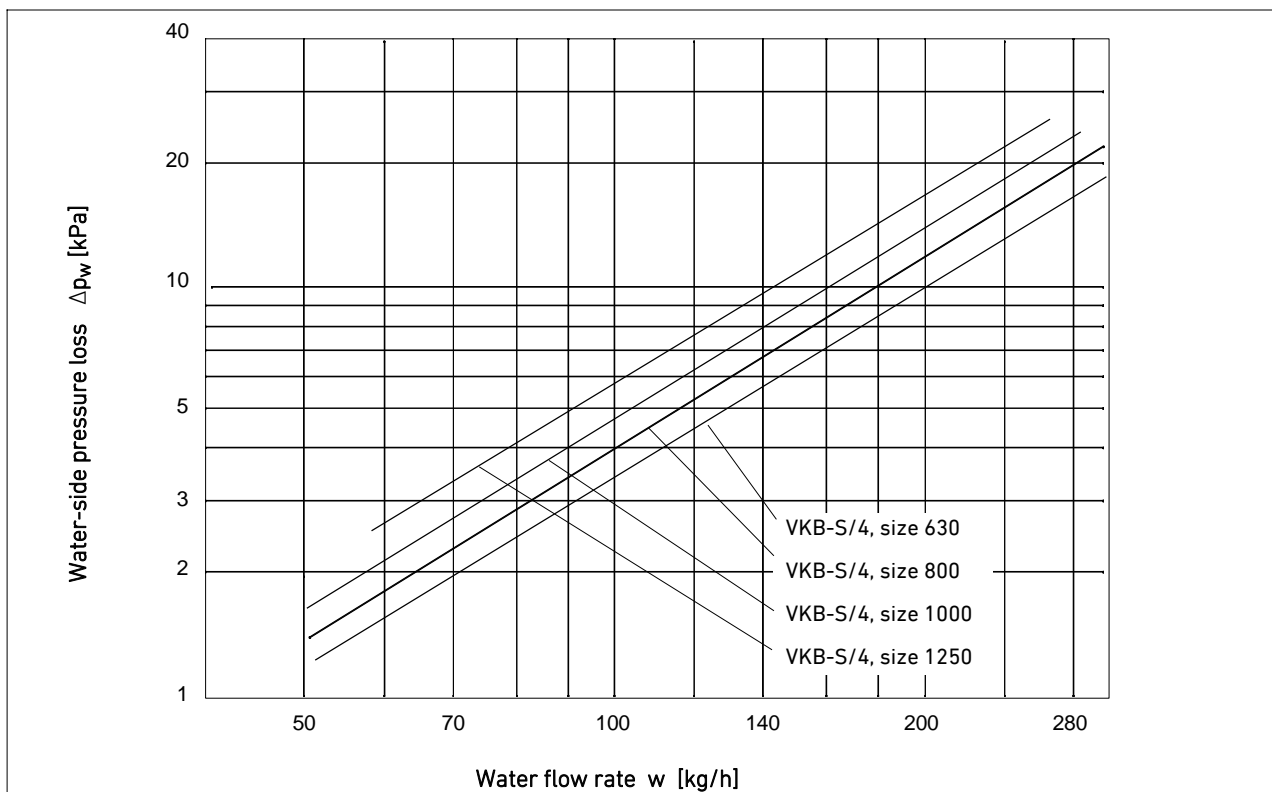
Legend see page 26

## Technical brochure • Fan coil units VKB, floor installation Type VKB-S/4 (slim)

### Cooling capacity for different water flow rates

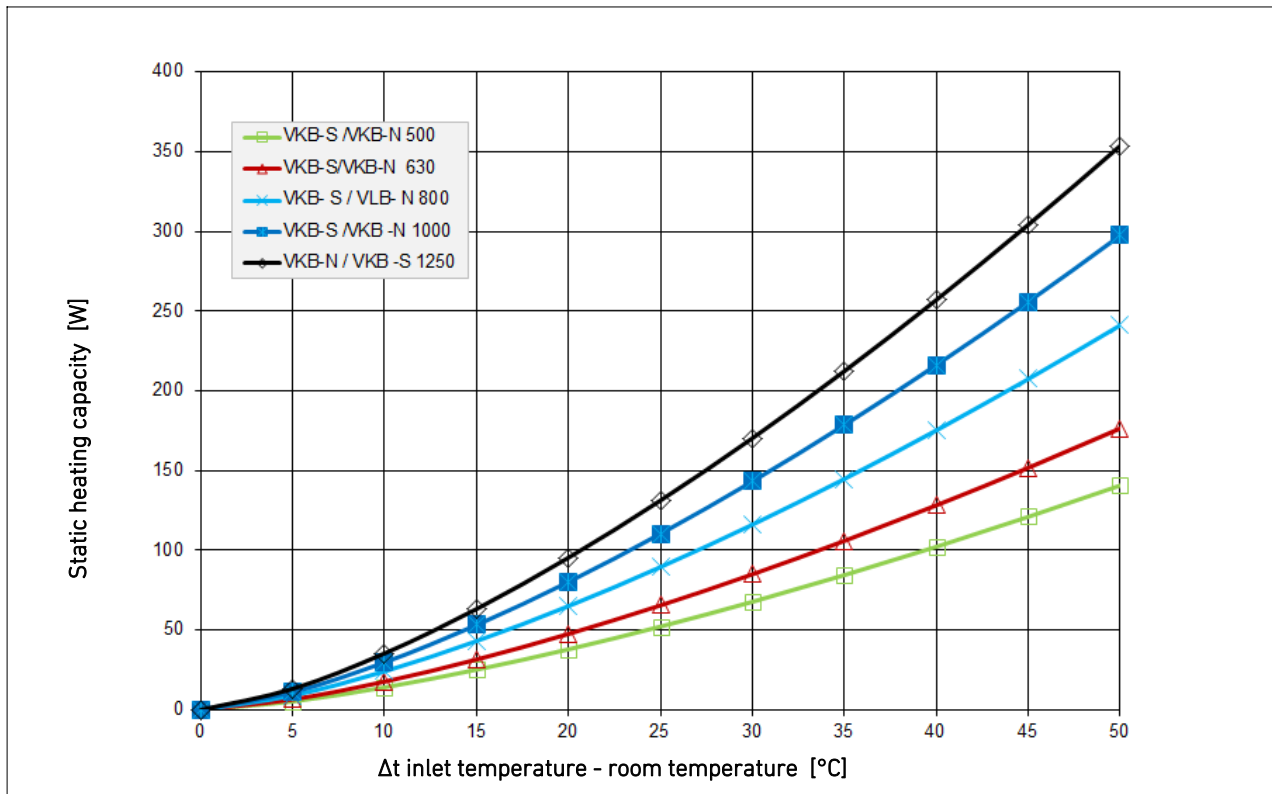


### Water-side pressure loss of the cooler for different water flow rates

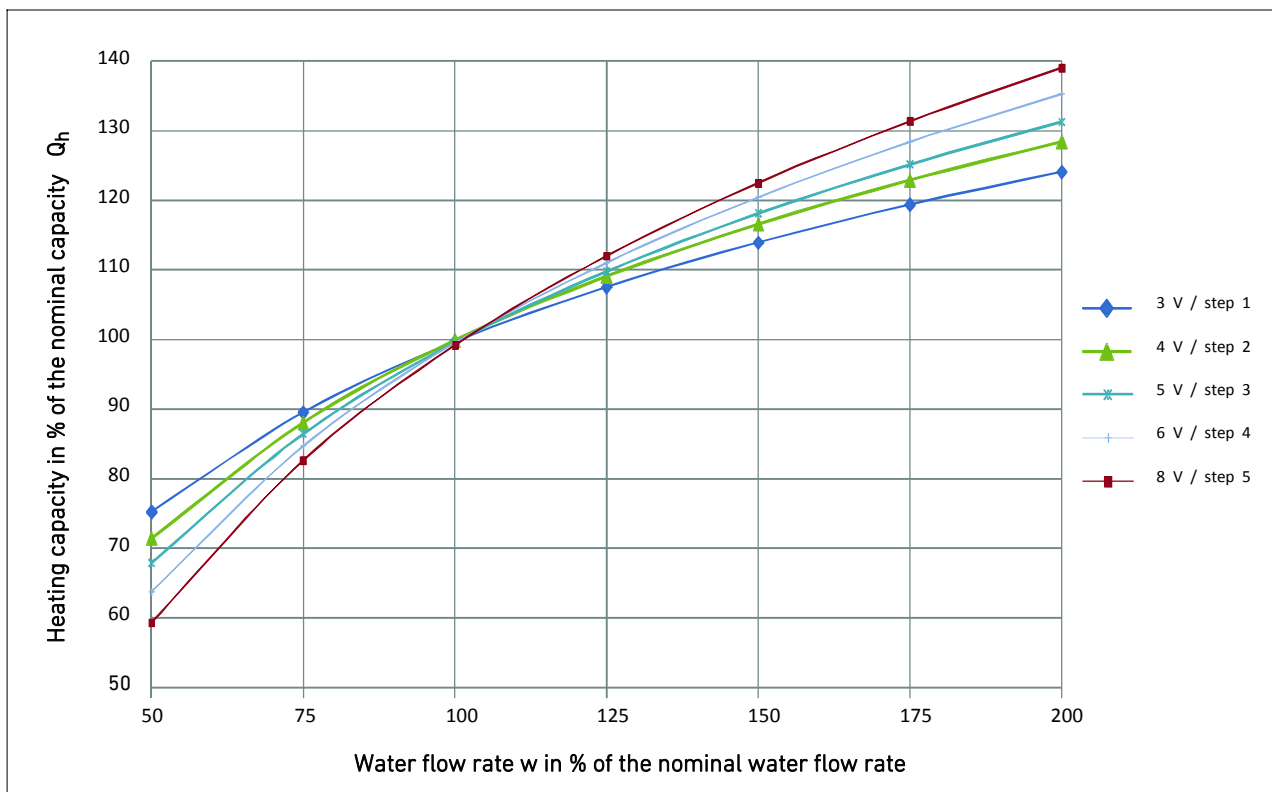


## Technical brochure • Fan coil units VKB, floor installation Type VKB-S/4 (slim)

Static heating capacity for 100 kg/h



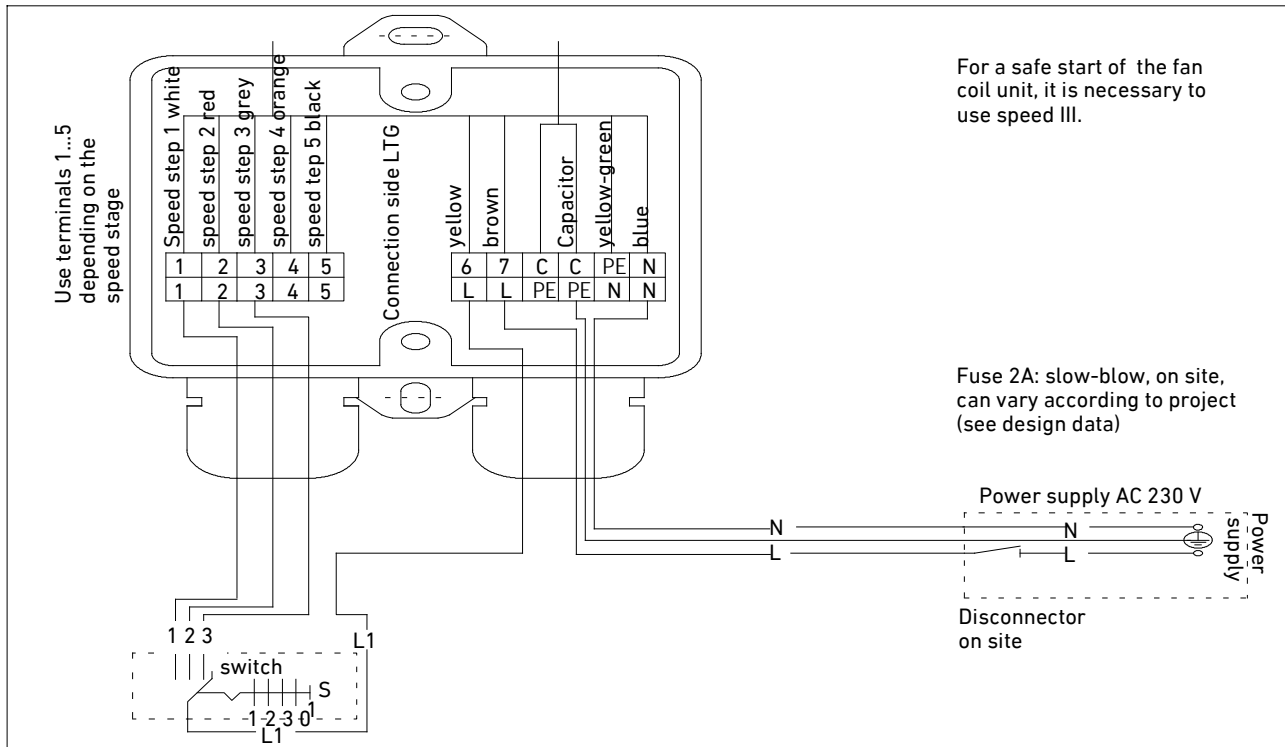
Heating capacity for different water flow rates



## Technical brochure • Fan coil units VKB, floor installation Type VKB-N (low height) and VKB-S (slim)

### Speed control wiring diagram for 5-speed AC motor

- Note:**
- Capacitor motor with 5 tapings.
  - Multiple unit triggering possible (max. 4 units).
  - The technical data contain details about the current consumption and the corresponding electrical power.



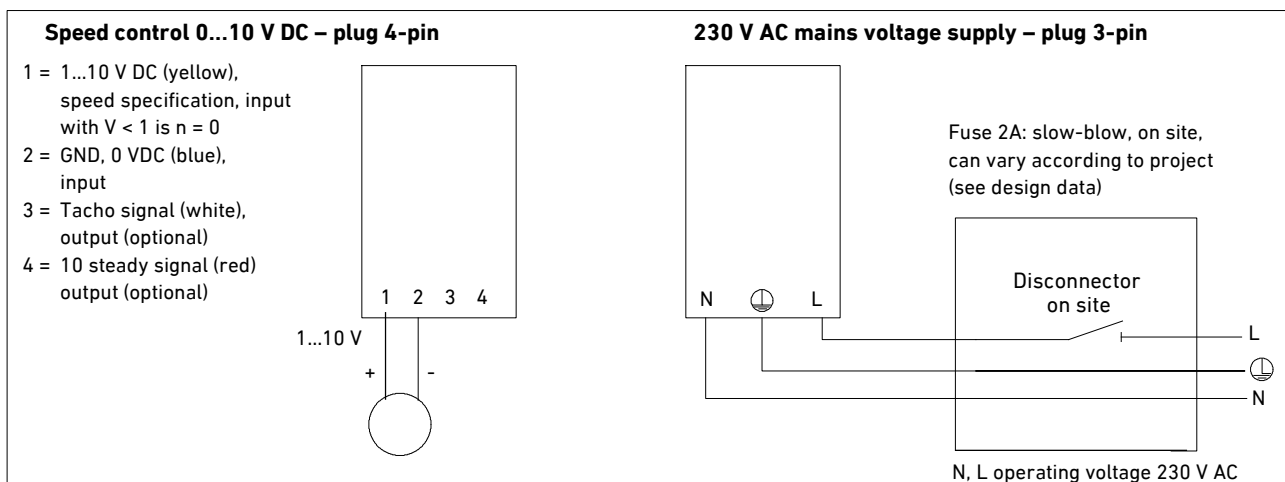
### Speed control wiring diagram for EC motor

Two connections are necessary for electrically connecting the fan convector. These are provided by plug connections, protection IP 21. The plugs are preassembled on the motor side at the factory. Only the supplied mating plugs have to be assembled by others accordingly.

**Note:** As a rule, we are not familiar with the full scope of the ventilation, air-conditioning and control engineering systems. For this reason, the designs, drawings and

circuit diagrams only show the systems that are relevant to the basic functions. Other units or components, such as those required for overall control engineering and/or design in compliance with VDE regulations, are not shown and are not explicitly mentioned.

Please also note the assembly and installation instructions in the original documentation. The controllers for this application are parametrized by others.





## Technical brochure • Fan coil units VKB, floor installation

### Nomenclature, ordering code

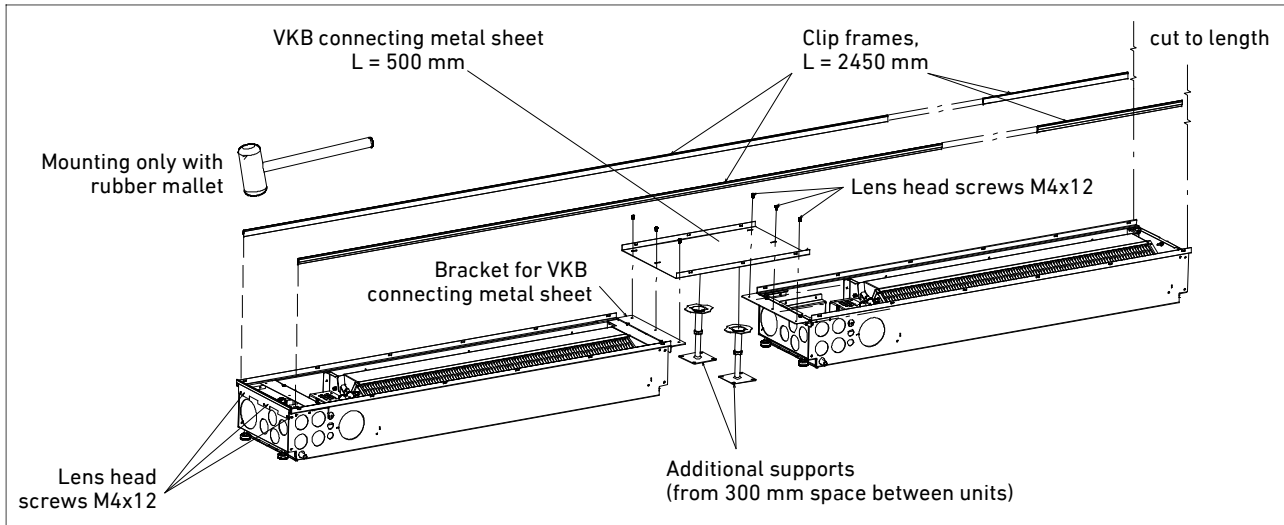
**VKB- 0 / 2 / 630, 1020 / T / EC / OL / MQ / AL / 4R / NE**

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

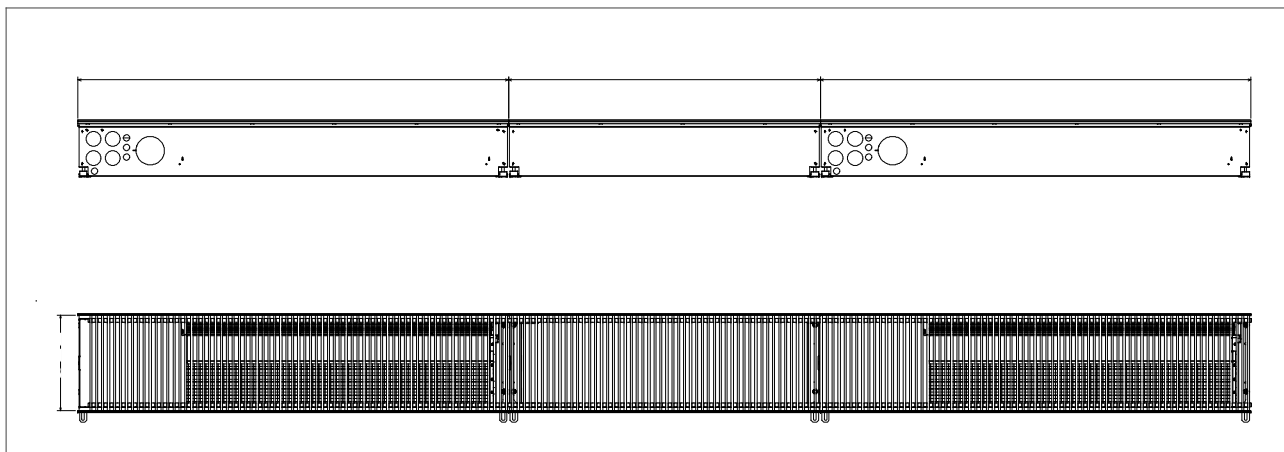
(1) <b>Series</b>	<b>VKB</b>	= VKB
(2) <b>Type</b>	<b>S</b>	= Slim (grille width 200)
	<b>N</b>	= Low height (grille width 320)
	<b>0</b>	= Standard (grille width 320)
(3) <b>Heat exchanger</b>	<b>2</b>	= 2-pipe
	<b>4</b>	= 4-pipe
(4) <b>Size, length</b>	<b>500, 898</b>	= 500, 898 (type VKB-S)
	<b>630, 1020</b>	= 630, 1020 (type VKB-0 and VKB-N)
	<b>630, 988</b>	= 630, 988 (type VKB-S)
	<b>800, 1250</b>	= 800, 1250 (type VKB-0 and VKB-N)
	<b>800, 1198</b>	= 800, 1198 (type VKB-S)
	<b>1000, 1450</b>	= 1000, 1450 (type VKB-0 and VKB-N)
	<b>1000, 1398</b>	= 1000, 1398 (type VKB-S)
	<b>1250, 1598</b>	= 1250, 1598 (type VKB-S)
	<b>2000, 2450</b>	= 2000, 2450 (type VKB-0)
(5) <b>Condensate tray</b>	<b>T</b>	= Without additional condensate tray
	<b>E</b>	= With additional condensate tray
(6) <b>Fan motor</b>	<b>EC</b>	= Stepless EC motor
	<b>AC5</b>	= 5-speed AC motor (type VKB-S only)
(7) <b>Fresh air supply</b>	<b>OL</b>	= Without fresh air supply
	<b>FQ</b>	= Integrated displacement air diffuser, separated from recirculating air
	<b>FL</b>	= Inductive linear diffuser, grille width 335 mm (type VKB-0 only)
(8) <b>Mixed/displacement air insert</b>	<b>MQ</b>	= With mixed/displacement air insert (type VKB-0 and VKB-S only)
	<b>-</b>	= Without mixed/displacement air insert
(9) <b>Grille</b>	<b>AL</b>	= Aluminium linear grille
	<b>AR</b>	= Aluminium roller grille (on request)
	<b>E</b>	= Stainless steel
	<b>H</b>	= Wood
(10) <b>Frame</b>	<b>2R</b>	= Frame lengthwise (prepared for installation in line)
	<b>4R</b>	= Frame all around
(11) <b>Surface grille/frame</b>	<b>NE</b>	= Natural anodized
	<b>RAL</b>	= Coated RAL
	<b>SE</b>	= Special anodized

## Technical brochure • Fan coil units VKB, floor installation Type VKB-./...

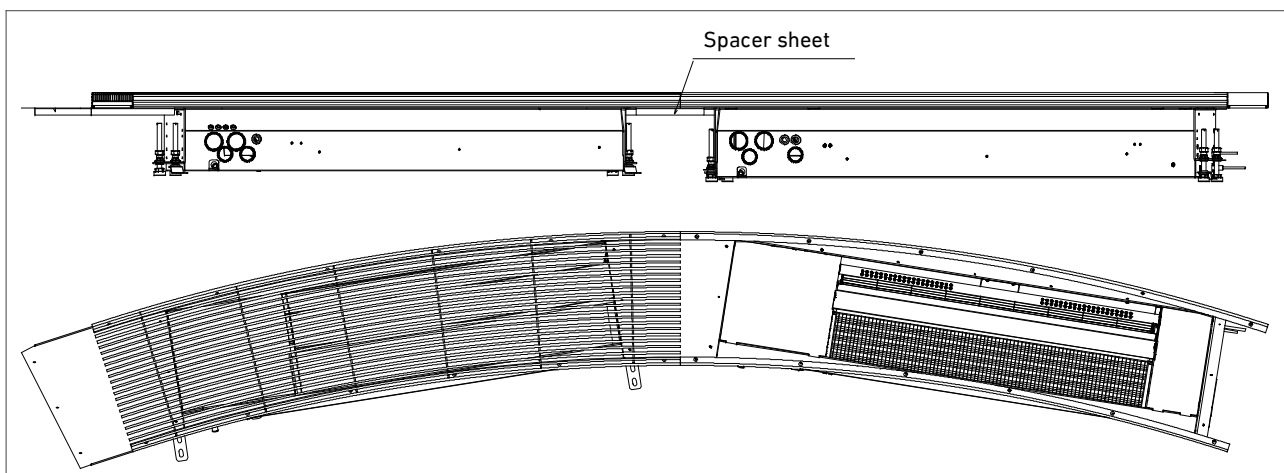
### Example for installation in line, version with spacer sheet



### Example for installation in line, version with empty tray

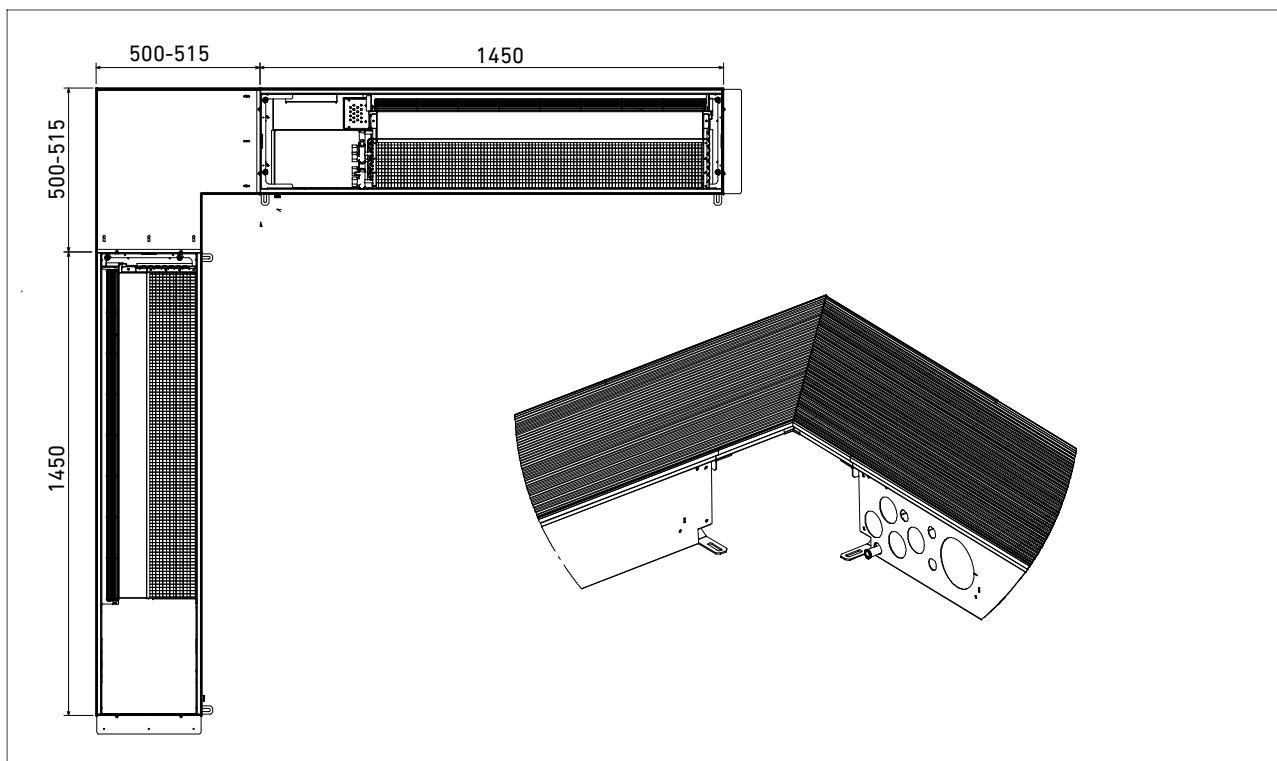


### Example for installation in line, curved version



# Technical brochure • Fan coil units VKB, floor installation Type VKB-./...

## Example for installation in line, angled version



## Technical brochure • Fan coil units VKB, floor installation Type VKB-./...

### Installation in line

In order to produce a "continuous effect" grille, black coated spacer sheets are fixed between the units:

- Intermediate piece as bridge or end section, 500 mm or 800 mm long, for cutting to length by others, frame loose in 2 m for fitting, incl. required feet on bottom.

If the space between units is greater than 300 mm or if end pieces are used, additional supports will be required to provide more stability.

If the space is 600 mm or greater, the use of an empty tray type SKB-L is recommended for stabilization:

- Empty tray with aluminium frame and grille, for installation in line, sizes (width/length)
  - 320/850
  - 320/1050
  - 320/1250
  - 320/1450

The LTG roller grilles may also be used to create cutouts for columns or mitre edges.

### Grille load capacity

The 3 variants of foot traffic resistant LTG grilles offer the following static load capacities:

- Stainless steel grille 750 kg/m<sup>2</sup>
- Aluminium roller grille (on request) 1600 kg/m<sup>2</sup>
- Aluminium linear grille 2000 kg/m<sup>2</sup>

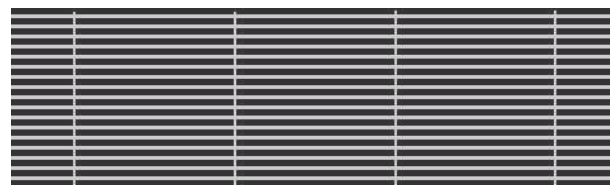
Other capacities on request



*LTG stainless steel grille*



*LTG aluminium roller grille (on request)*



*LTG aluminium linear grille*

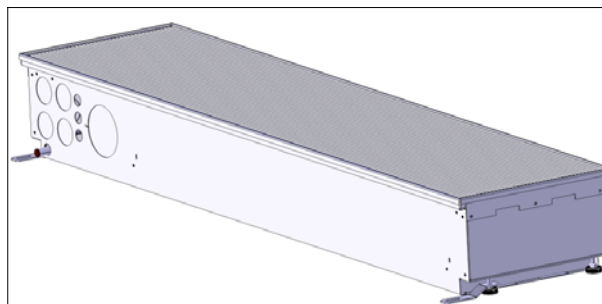
### Installation

The compact design with a unit depth of 332 mm allows the installation of the unit between floor supports. Height-adjustable feet ensure a precise alignment of the unit.

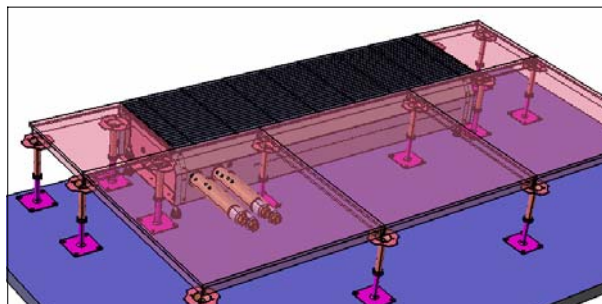
The control valve compartment and the water connection are located on the unit's left side. Bushings for water connection hoses are provided on the unit's rear panel, on the left hand side.

Power connection is to be realised on the left hand side, for EC motor at the pre-assembled plugs, for AC motor using the splash-protected terminal box.

The ventilation grille is designed to be flush-mounted to the floor. It is foot traffic resistant without the need for any additional cross members.



*Fan coil unit type VKB with ventilation grille*



*Fan coil unit type VKB - installation between floor supports*

### Installation sequence

- Set the unit with insulating strips directly on the facade.
- Height adjustment and exact positioning of the unit through adjustable feet.
- If required, use e.g. a PU adhesive to fix the unit feet in order to avoid accidental movement.
- Fixation of the unit on fixing links using bolts.
- Set the feet for floor panels and install the floor panels so that a direct contact with the unit is ensured.
- In case of continuous grille: Align units precisely and attach connecting pieces to the unit's bottom using counter-sunk head screws.

### Maintenance

All components are located within a sheet steel pan and are easily accessible from above for maintenance, inspection and cleaning.

### Control

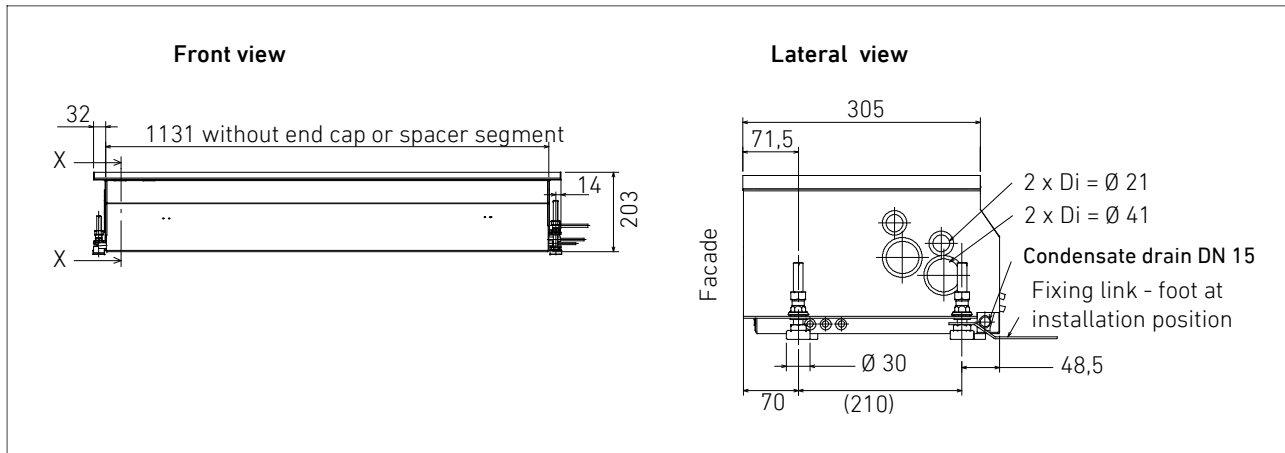
See separate brochure "Control for LTG induction units and fan coil units".

## Technical brochure • Fan coil units VKB, floor installation Special constructions

We perform optimization for special requirements within the scope of our engineering services.

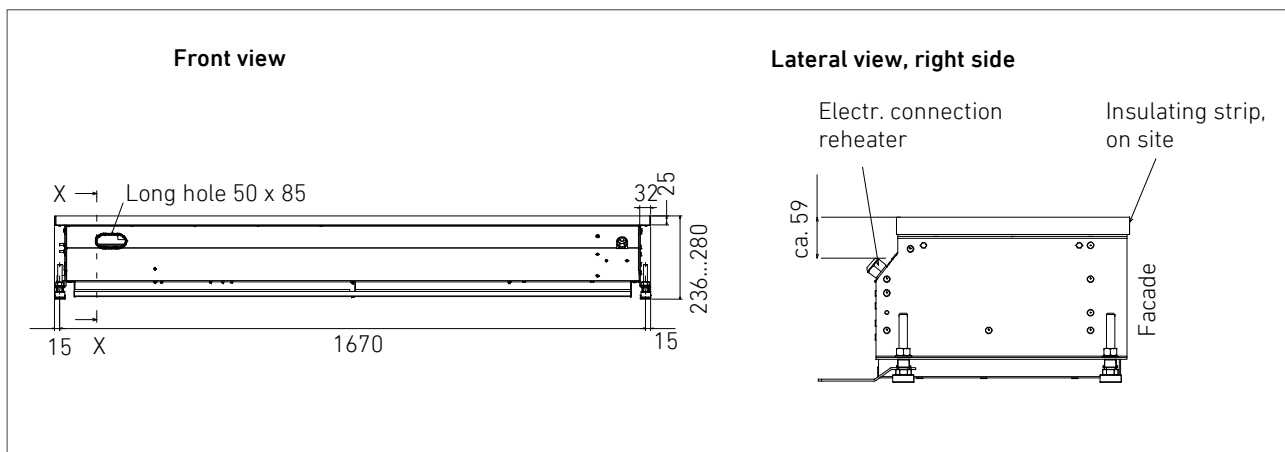
### Example: with humidification

An ultrasonic humidifier is integrated into the equipment housing, which humidifies the circulated air using a special steel humidifying lance and introduces it evenly into the discharge cross-section when the fan is switched on (regulation by others).



### Example: with electric heating element

An electric finned-tube radiator is integrated into the equipment housing, which heats the circulated air with a 1500 W heating capacity and introduces it evenly into the discharge cross-section when the fan is switched on (regulation by others).



## Technical brochure • Fan coil units VKB, floor installation Static heating convector type SKB, grille width 320 mm

### Specification

The static heating convector SKB is a 2-pipe heating convector which is suitable by free convection for covering the entire heat requirement or the residual heat.

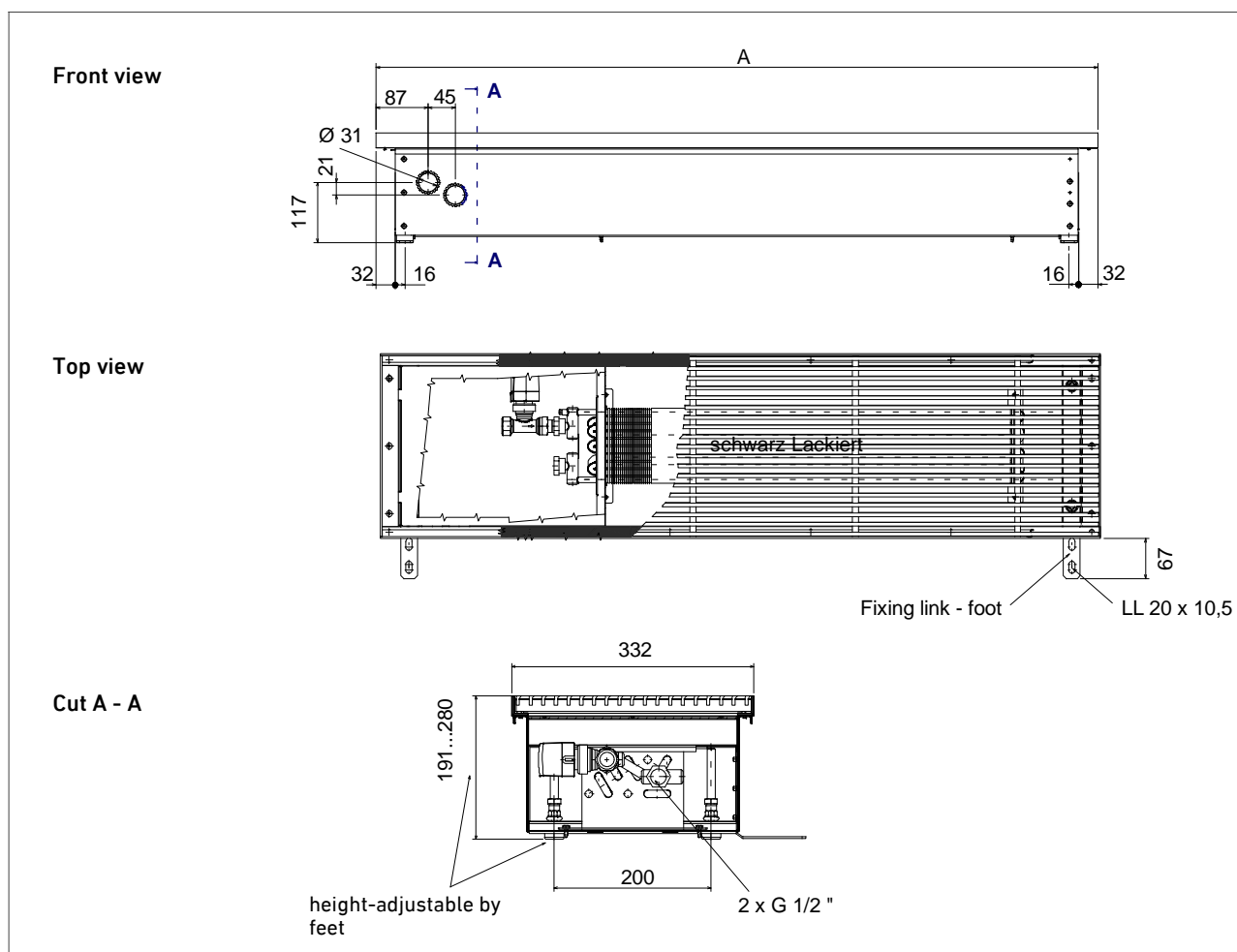
Installation in double floors with min. 200 mm height.

The heat exchangers have been specially optimized for low water quantities and high calorific output. Connection with a ½ " valve connection.

**Empty tray SKB-L:** empty tray with aluminum frame and grille, for installation in line.

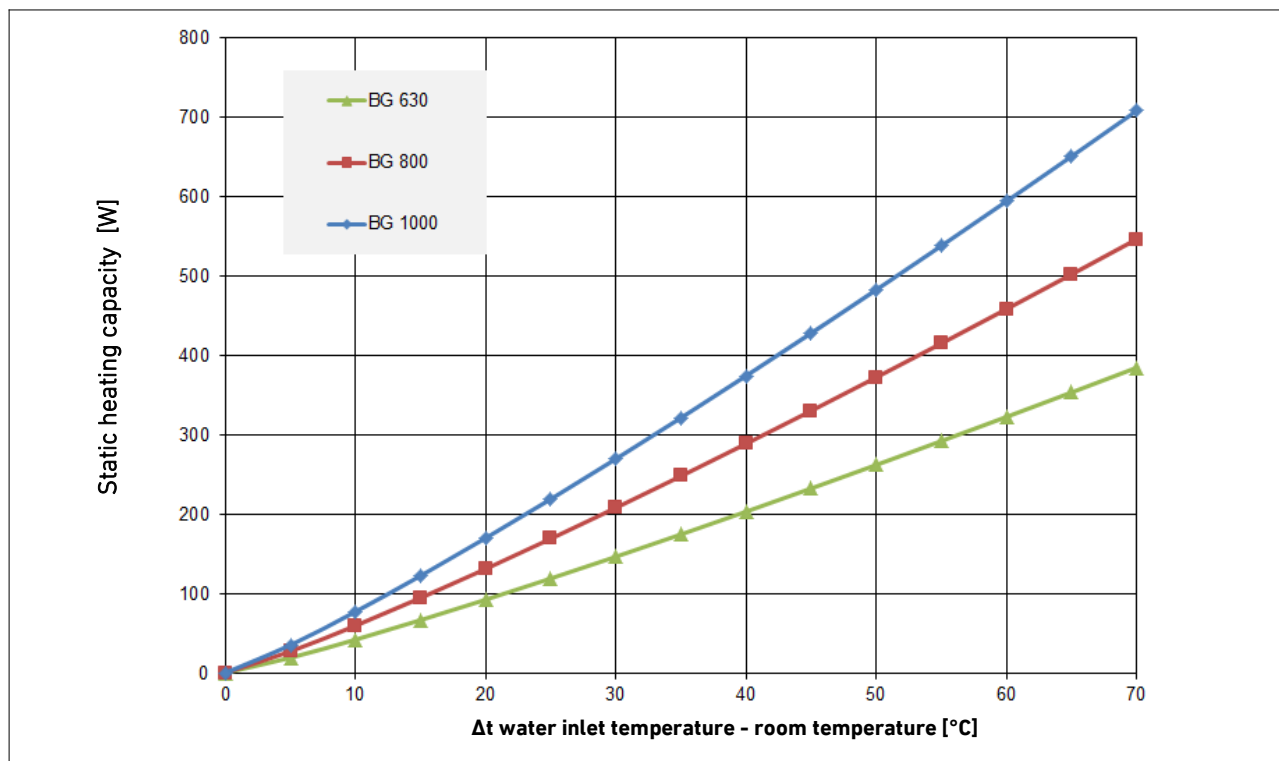
### Dimensions, weights

Size	A [mm]	Weight [kg]	Water content [l] Heating circuit
630	1020	17	0.5
800	1250	20	0.6
1000	1450	23	0.7

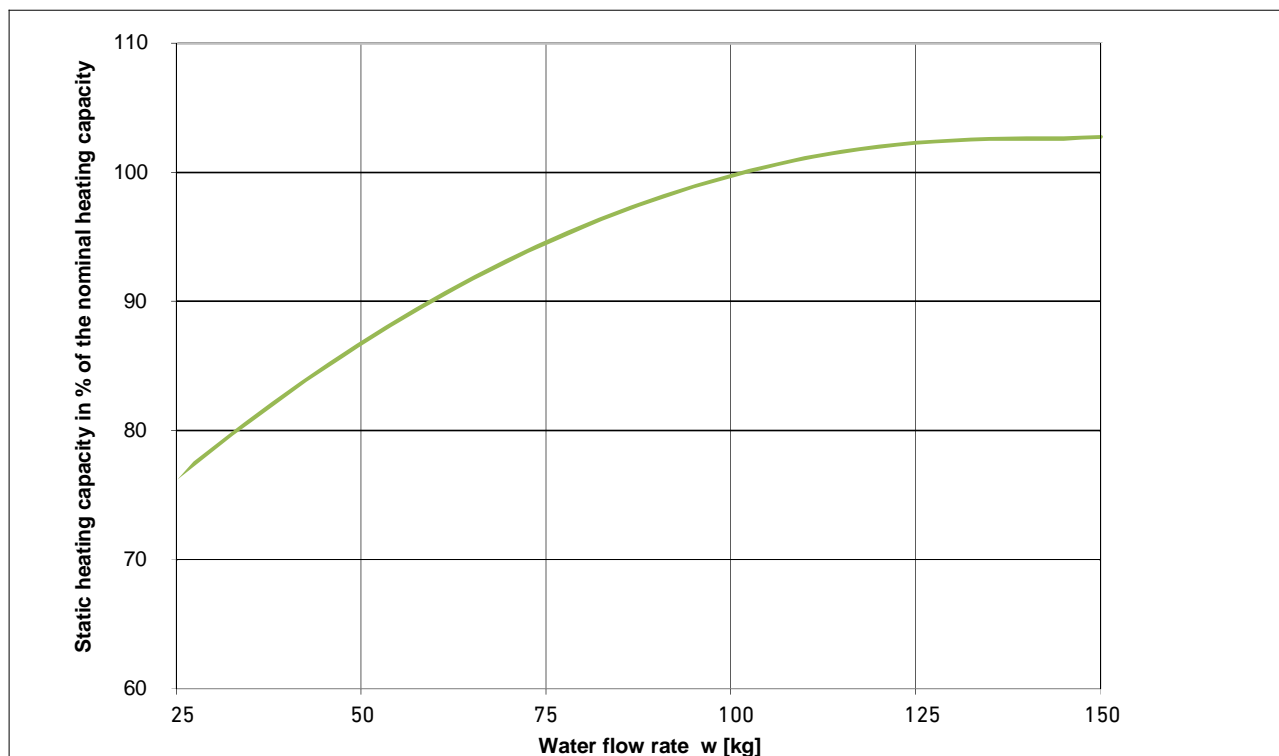


## Technical brochure • Fan coil units VKB, floor installation Static convector heater type SKB

### Static heating capacity (100 kg/h)

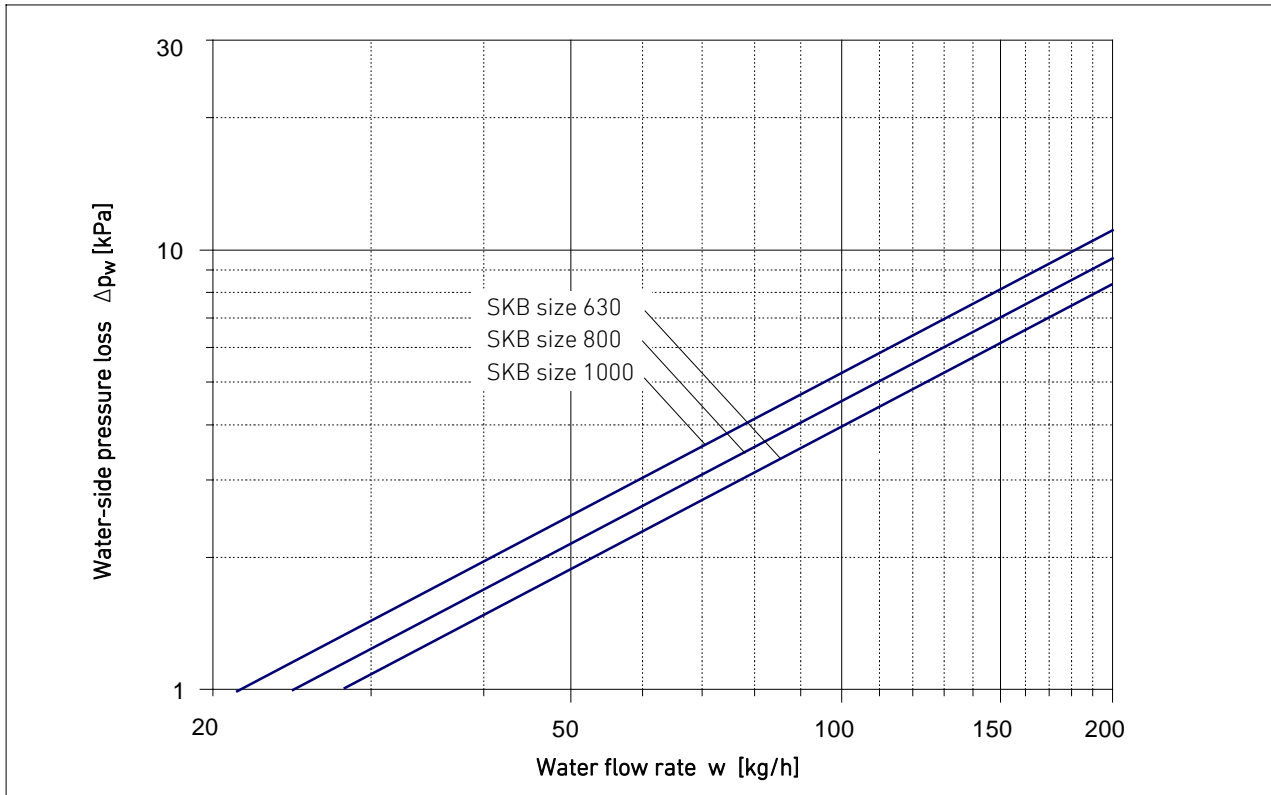


### Static heating capacity for different water flow rates



Technical brochure • Fan coil units VKB, floor installation  
 Static convector heater type SKB



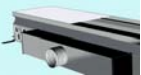

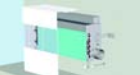



Water-side pressure loss of the electrical heating element for different water flow rates




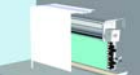



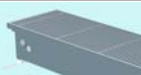
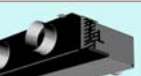



## Product Overview LTG Air-Water Systems





### LTG Induction – Induction Units

Ceiling installation	Sill Installation	Floor Installation
 HFF <i>suite</i> SilentSuite	 HFV / HFVsf System SmartFlow	 HFB / HFBsf System SmartFlow
 LHG System Indivent	 HFG	
 HDF / HDFsf System SmartFlow	 QHG	
 HDC		

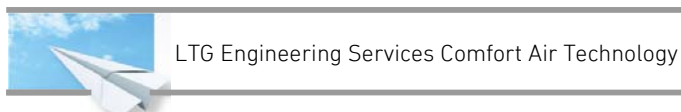
### LTG FanPower– Fan Coil Units

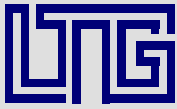
Ceiling Installation	Sill Installation	Floor Installation
 LVC System Indivent	 VFC	 VKB
 VKH	 QVC	 SKB
 VKE		
 KFA CoolWave		

### LTG Decentral – Decentralised Ventilation Units

Ceiling Installation	Sill Installation	Floor Installation
 FVS Univent	 FVP <i>pulse-V</i> System PulseVentilation	 FVP <i>pulse-B</i> System PulseVentilation
		 FVD/FVDplus

### Engineering Services





**AIR TECH  
SYSTEMS**

### **Comfort Air Technology**

Air-Water Systems  
Air Diffusers  
Air Distribution

### **Process Air Technology**

Fans  
Filtration technology  
Humidification Technology

### **Engineering Services**

Laboratory Test / Experiment  
Field Measurement / Optimisation  
Simulation / Analysis  
R&D / Start-up

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