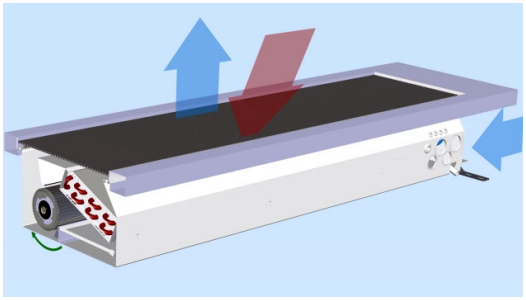
AIR TECH SYSTEMS

Technical Brochure

LTG Air Water Systems

LTG FanPower

Fan coil units VKB



Installation in floors

www.LTG-INC.net

Technical brochure • Fan coil units VKB, floor installation

LTG Comfort Air Technology

Air Diffusers

Air Distribution

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Notes

Dimensions stated in this brochure are in inches.

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 aluminum 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.

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 which cools or heats the room

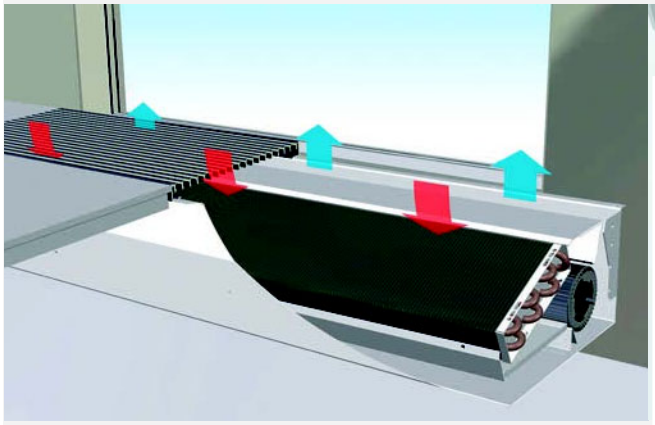
LTG fan coil units use both radial and tangential fans to implement the best flow and acoustics for different installation situations. Flexible and high-performance.

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.

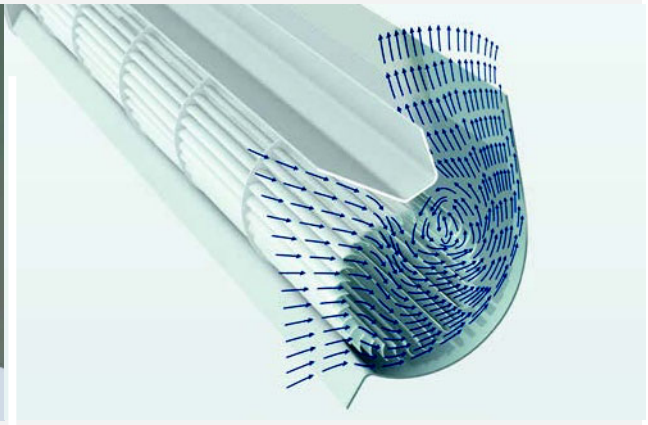
The latest drive technology generation (EC-technology) also permits capacity modulation at the lowest electrical energy consumption.

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



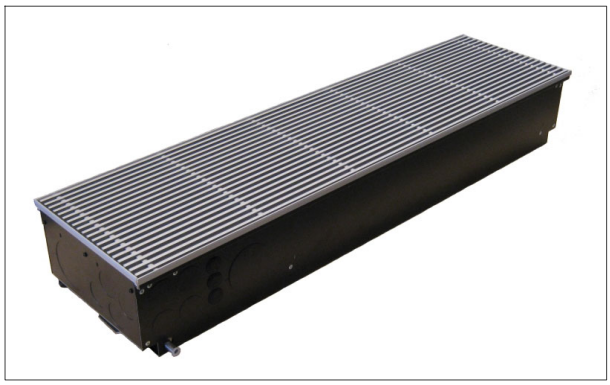
Fan coil chart



Air flow in the fan coil unit with tangential fan

Technical brochure • Fan coil units VKB, floor installation
General description

View of unit



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 41 to 122 °F and a max. relative humidity of 90 % (non-condensing operation).

Installation, placement

Installation in false floors with a recommended clearance of 7.9 to 9.8 in (VKB-N: 5.9 to 7.9 in).

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

Installation example type VKB-N

Function

A integrated fan draws in 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 realized using a stepless high-efficiency EC motor (standard) 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 primary 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 aluminum 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 nipple
- 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, ½" internal thread

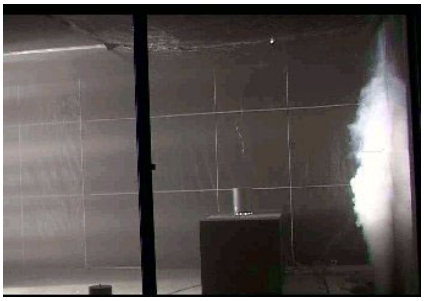
See brochure "Accessories for LTG air-water systems"

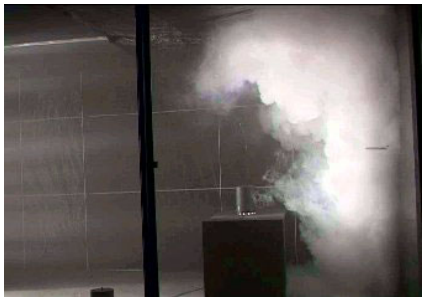
Room air flow

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

Fancoilunitwithoneheatexchangerandtwoseparatecircuits for heating and cooling the ambient air. Installation in access floors with a recommended clearance of 7.9 to 9.8 in.

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
aluminum linear grille,
aluminum roller grille
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) primary air connections (pre-cut)
7a = on the face, 7b = room side

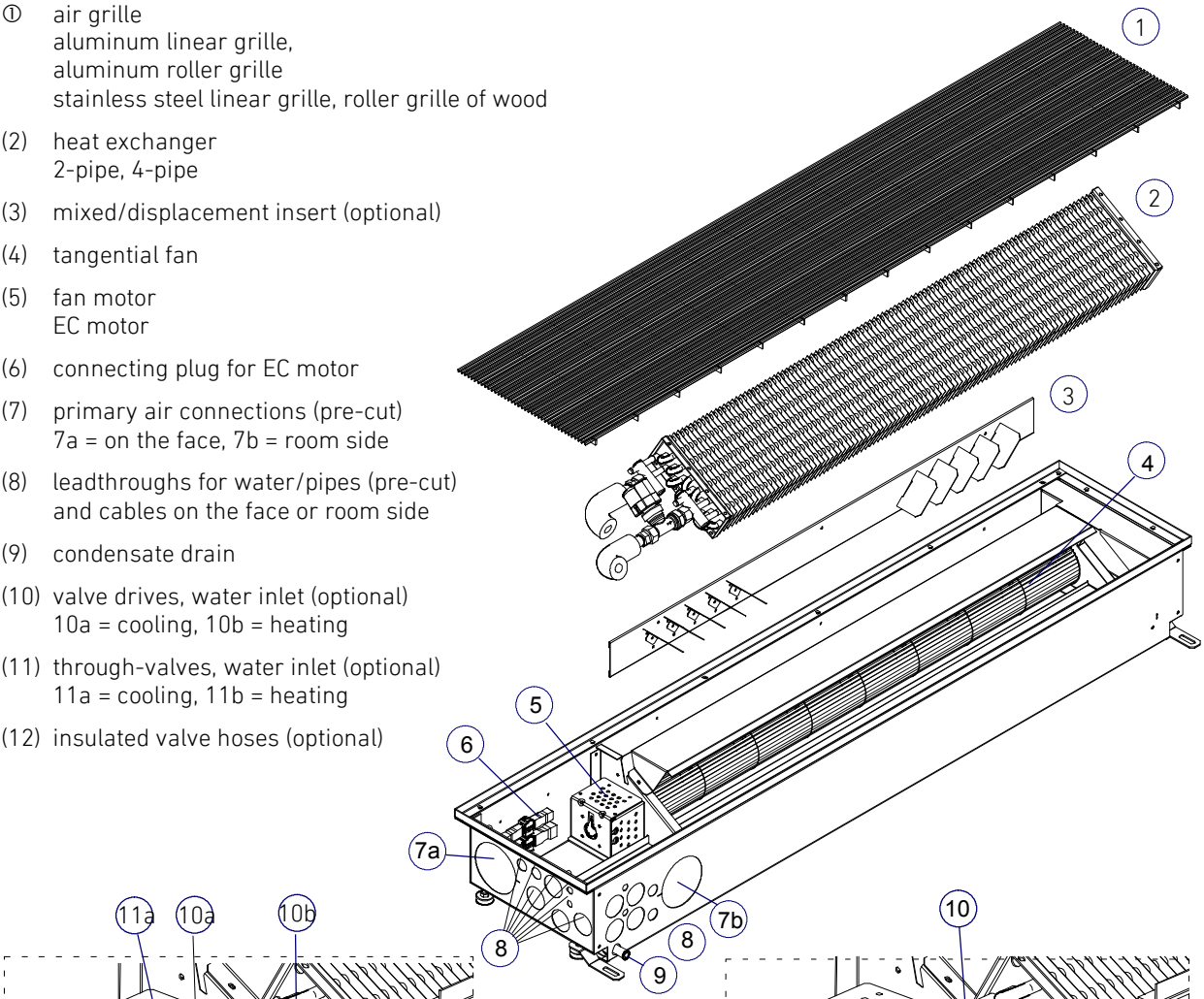
(8) leadthroughs for water/pipes (pre-cut)
and cables on the face or room side

(9) condensate drain

(10) valve drives, water inlet (optional)
10a = cooling, 10b = heating

(11) through-valves, water inlet (optional)
11a = cooling, 11b = heating

(12) insulated valve hoses (optional)



4-pipe system

2-pipe system

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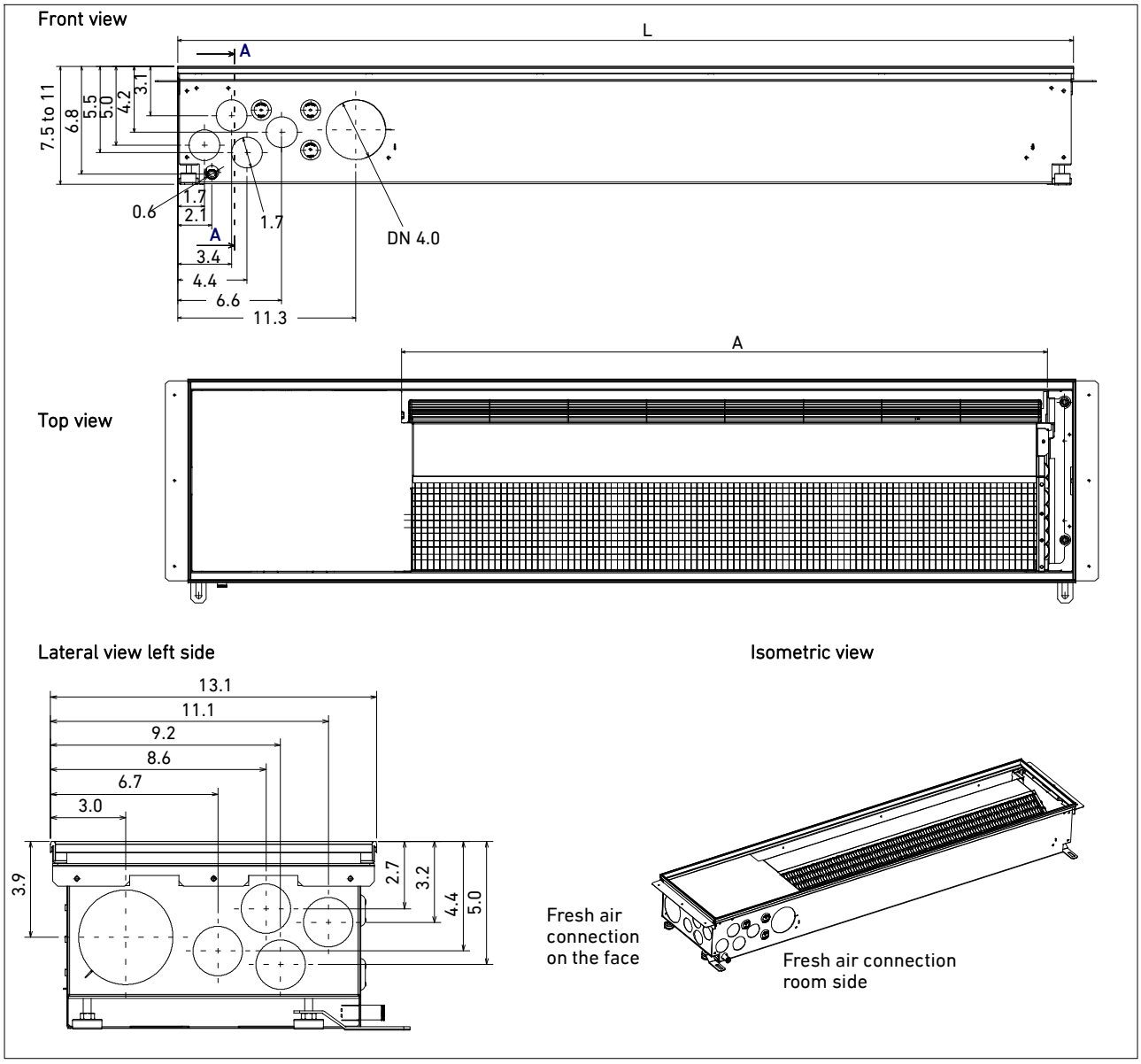
Technical brochure • Fan coil units VKB, floor installation
Type VKB-0/2 and VKB-0/4, 2-pipe and 4-pipe system

Dimensions, weights

Size	Total length L [in]	Air outlet width A [in]	Weight [lb]	Water content [gall.] 4-pipe Cooling circuit	4-pipe Heating circuit	2-pipe
630	40	24.6	59.5	0.16	0.045	0.21
800	49	33.6	68.3	0.21	0.055	0.29
1000	57	41.5	81.5	0.26	0.07	0.37
2000	96.4	80.0	143	0.53	0.14	0.74

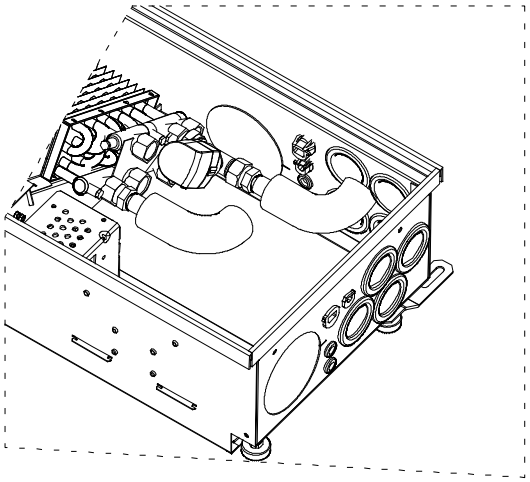


1 socket (DN 4.0), with grille	**Fresh air flow rate V_P**	[cfm/ft]	29	41.2	53	65	7.5
The **total acoustic power level** may be calculated as follows: $L_{wA} = 10 * \log (10^{0,1*LwA\,P} + 10^{0,1\,*\,LwA,VKB})$	**Acoustic power level $L_{wA\,P}$**	[dB(A)]	26	27	29	34	39
	Pressure loss	In/wg]	0.008	0.016	0.024	0.044	0.052

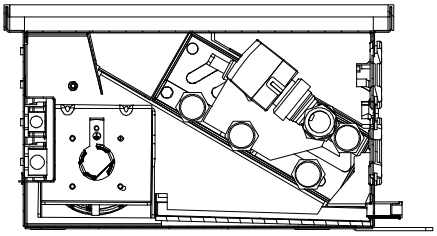
Technical brochure • Fan coil units VKB, floor installation
Type VKB-0/2 and VKB-0/4, 2-pipe and 4-pipe system

Dimensions

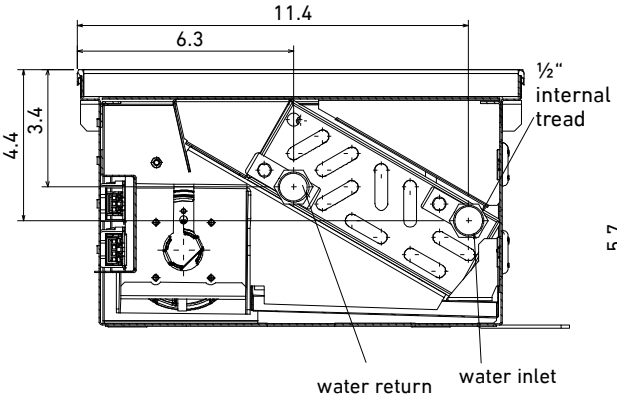
2-pipe system



Isometric view

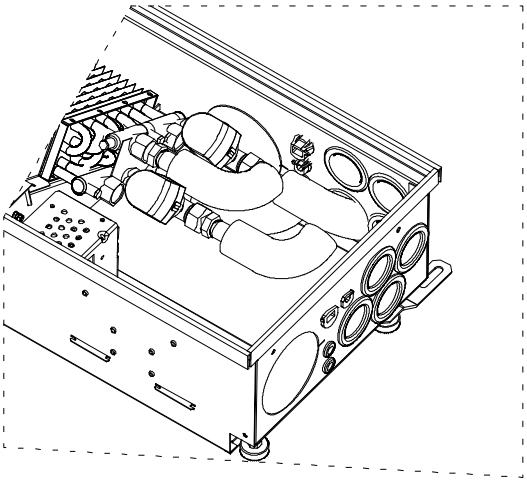


Cut A-A (see previous page)

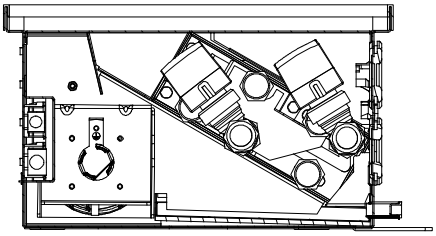


Cut A-A (see previous page)

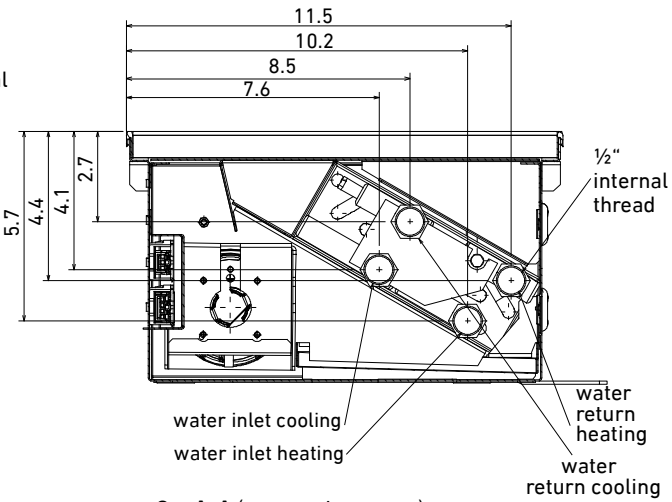
4-pipe system



Isometric view



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, primary 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 235 cfm while maintaining low noise levels.

Separate primary air connection integrated in the housing. Installation in access floors with a recommended clearance of 9 to 11 in.

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 primary air supply

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

1 socket (4 in dia.), with aluminum linear grille

	V_P	[cfm]	23.5	36	47	59
Size 630	$L_{wA\,P}$	[dB(A)]	29	38	-	-
	Pressure loss	[in H_2O]	0.004	0.012	-	-
Size 800	$L_{wA\,P}$	[dB(A)]	27	30	37	47
	Pressure loss	[in H_2O]	0.004	0.004	0.008	0.016
Size 1000	$L_{wA\,P}$	[dB(A)]	27	28	31	37
	Pressure loss	[in H_2O]	0	0.004	0.008	0.012

2 sockets (4 in dia.), with aluminum linear grille

	V_P	29	59	88	118	147
Size 630	$L_{wA\,P}$	27	31	41	-	-
	Pressure loss	0.008	0.028	0.064	-	-
Size 800	$L_{wA\,P}$	27	28	32	40	-
	Pressure loss	0.008	0.016	0.036	0.064	-
Size 1000	$L_{wA\,P}$	27	28	30	36	43
	Pressure loss	0.008	0.012	0.02	0.036	0.06

4 sockets (4 in dia.), with aluminium linear grille

	V_P	[cfm]	59	118	176	235
Size 2000	$L_{wA\,P}$	[dB(A)]	30	31	33	39
	Pressure loss	[in H_2O]	0.008	0.012	0.02	0.036

The total acoustic power level may be calculated as follows:

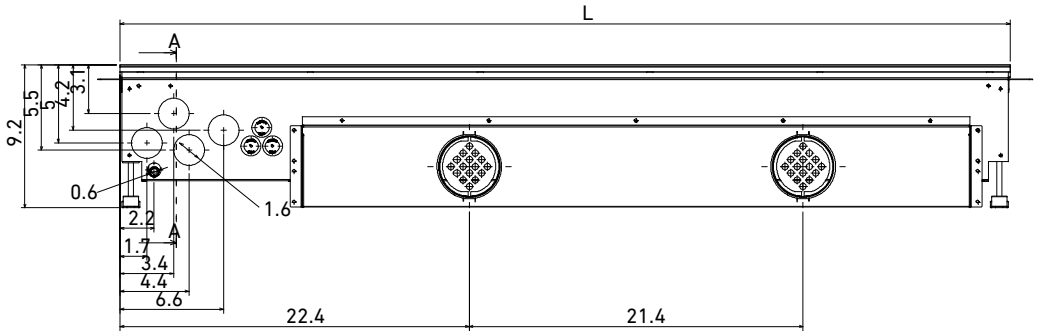
$L_{wA} = 10 * \log (10^{0,1*L_{wA\,P}} + 10^{0,1\,*\,L_{wA,VKB}})$

Dimensions, weights

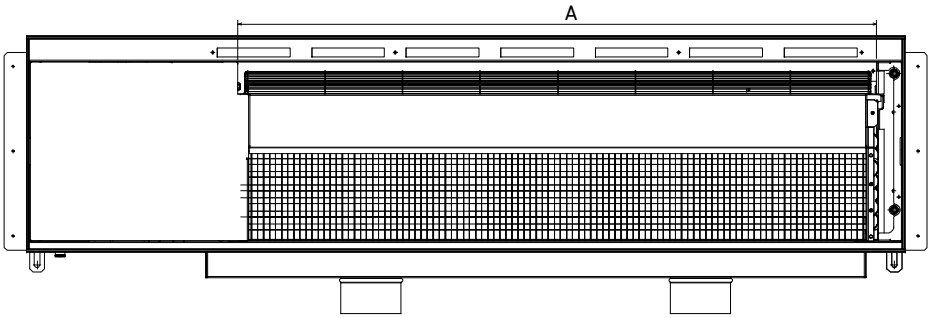
Size	Total length L	Air outlet width A	Weight	Water content [gal]		
				4-pipe		2-pipe
	[in]	[in]	[lb]	Cooling circuit	Heating circuit	
630	40	24.6	60	0.16	0.045	0.21
800	49	33.6	68.5	0.24	0.055	0.29
1000	57	41.5	82	0.29	0.07	0.37
2000	96.4	80	143	0.55	0.14	0.74

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

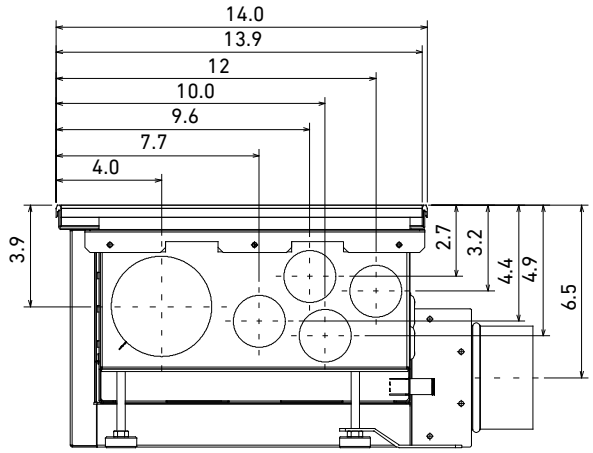
Front view



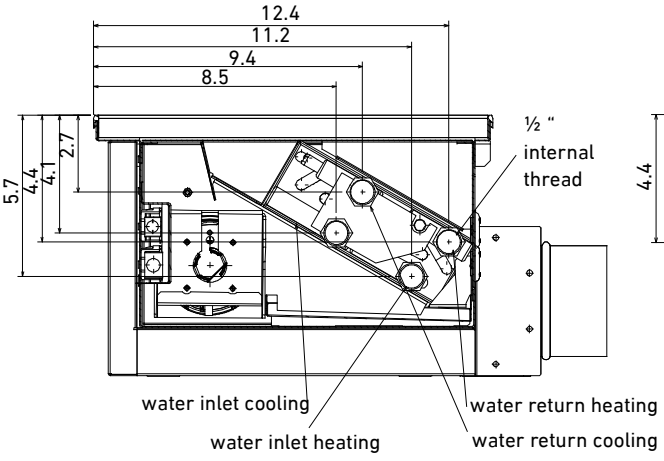
Top view



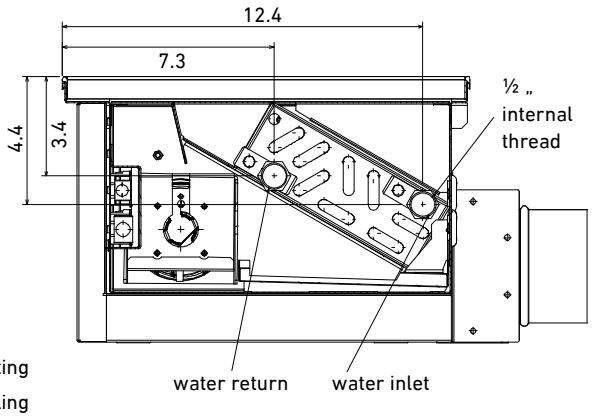
Lateral view left side



Cut A-A (4-pipe system)



Cut A-A (2-pipe system)



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

Technical data size 630

Speed [V DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	Q_h / Δt [BTU/h*Δt]	Q_{st} [2] [BTU/h]	W_{ok} [gpm]	Δp_w [Ft H_2O]	W_{oh} [gpm]	Δp_w [Ft H_2O]	P_{el} [W]
3	106	25	31	70.1	1,262	41.7						3
4	141	30	36	94.8	1,706	47.4						4
5	171	33	39	109.9	1,979	51.2	409	0.88	6.0	0.4	0.4	5
6	212	38	44	125.1	2,252	55.0						7
8	271	46	52	144.1	2,593	60.7						11

Technical data size 800

Speed [V DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	Q_h / Δt [BTU/h*Δt]	Q_{st} [2] [BTU/h]	W_{ok} [gpm]	Δp_w [Ft H_2O]	W_{oh} [gpm]	Δp_w [Ft H_2O]	P_{el} [W]
3	147	25	31	98.6	1,774	56.9						3
4	194	30	36	127.0	2,286	62.5						4
5	241	33	39	147.8	2,661	68.2	546	0.88	7.7	0.4	0.5	5
6	300	38	44	166.8	3,002	73.9						8
8	376	46	52	189.5	3,412	81.5						15

Technical data size 1000

Speed [V DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	Q_h / Δt [BTU/h*Δt]	Q_{st} [2] [BTU/h]	W_{ok} [gpm]	Δp_w [Ft H_2O]	W_{oh} [gpm]	Δp_w [Ft H_2O]	P_{el} [W]
3	182	27	33	121.3	2,184	70.1						3
4	241	29	35	151.6	2,729	75.8						5
5	300	34	40	176.3	3,173	81.5	682	0.88	8.7	0.4	0.6	7
6	371	39	45	195.2	3,514	87.2						10
8	465	47	53	218.0	3,924	96.7						19

Technical data size 2000

Speed [V DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	Q_h / Δt [BTU/h*Δt]	Q_{st} [2] [BTU/h]	W_{ok} [gpm]	Δp_w [Ft H_2O]	W_{oh} [gpm]	Δp_w [Ft H_2O]	P_{el} [W]
3	300	27	33	189.5	3,412	128.9						8
4	400	32	38	242.6	4,367	140.3						10
5	488	37	43	291.9	5,254	147.8	1,365	1.76	9.4	0.7	2.1	13
6	512	42	48	320.3	5,766	155.4						18
8	712	51	57	384.8	6,926	174.4						32

Speed - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - 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 61 °F water supply temperature.
78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.)
non-condensing operation

2) For 131 °F water supply temperature
68 °F 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

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	106	25	31	68.2	41.7	1,228	3,238	2,170						3
4	141	30	36	91.0	45.5	1,638	3,975	2,893						4
5	171	33	39	106.1	49.3	1,911	4,449	3,378	0.88	6.0	0.4	0.4	409	5
6	212	38	44	121.3	53.1	2,184	4,933	3,859						7
8	271	46	52	138.4	58.8	2,491	5,295	4,401						11

Technical data size 800

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	147	25	31	94.8	55.0	1,706	4,497	3,016						3
4	194	30	36	123.2	60.7	2,218	5,380	3,920						4
5	241	33	39	144.1	66.3	2,593	6,035	4,582	0.88	7.4	0.4	0.5	546	6
6	300	38	44	161.1	72.0	2,900	6,551	5,125						8
8	376	46	52	183.9	79.6	3,309	7,035	5,848						14

Technical data size 1000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	182	27	33	117.5	68.2	2,115	5,575	3,739						3
4	241	29	35	147.8	73.9	2,661	6,459	4,705						5
5	300	34	40	170.6	79.6	3,071	7,148	8,840	0.88	8.7	0.4	0.6	682	7
6	371	39	45	189.5	85.3	3,412	7,707	6,029						10
8	465	47	53	212.3	92.9	3,821	8,124	6,755						19

Technical data size 2000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	300	27	33	180.1	123.2	3,241	8,530	5,732						8
4	400	32	38	231.2	132.7	4,162	10,099	7,369						10
5	488	37	43	276.7	140.3	4,981	11,600	8,802	1.76	9.4	0.7	2.1	1,365	13
6	512	42	48	305.2	147.8	5,493	12,419	9,724						18
8	712	51	57	365.8	164.9	6,585	13,988	11,638						32

Speed - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_{ksens} - sensible cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
W_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - 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 61 °F water supply temperature, 78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.), non-condensing operation

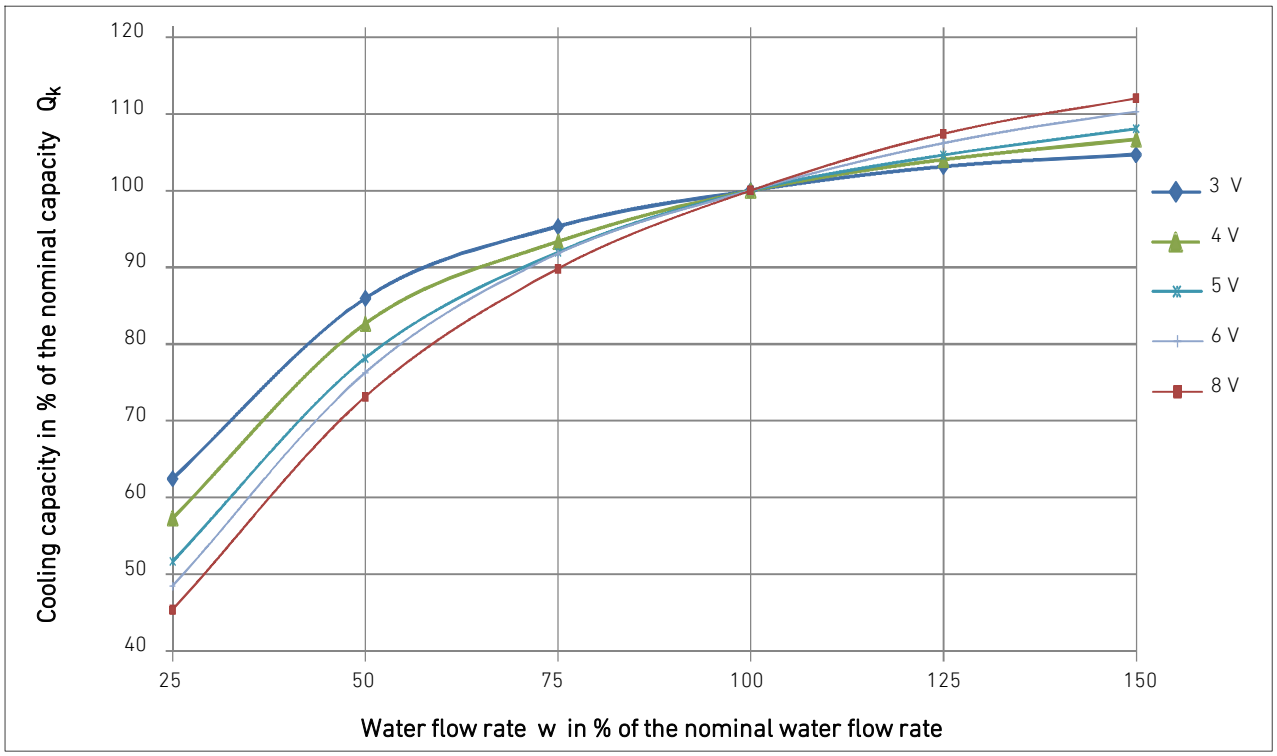
2) For 42.8 °F water supply temperature, 78.8 °F suction air temp. before entering the heat exchanger (may vary from room air temp.), condensing operation, 50 % R.H.

3) For 131 °F water supply temperature, 68 °F room air temperature

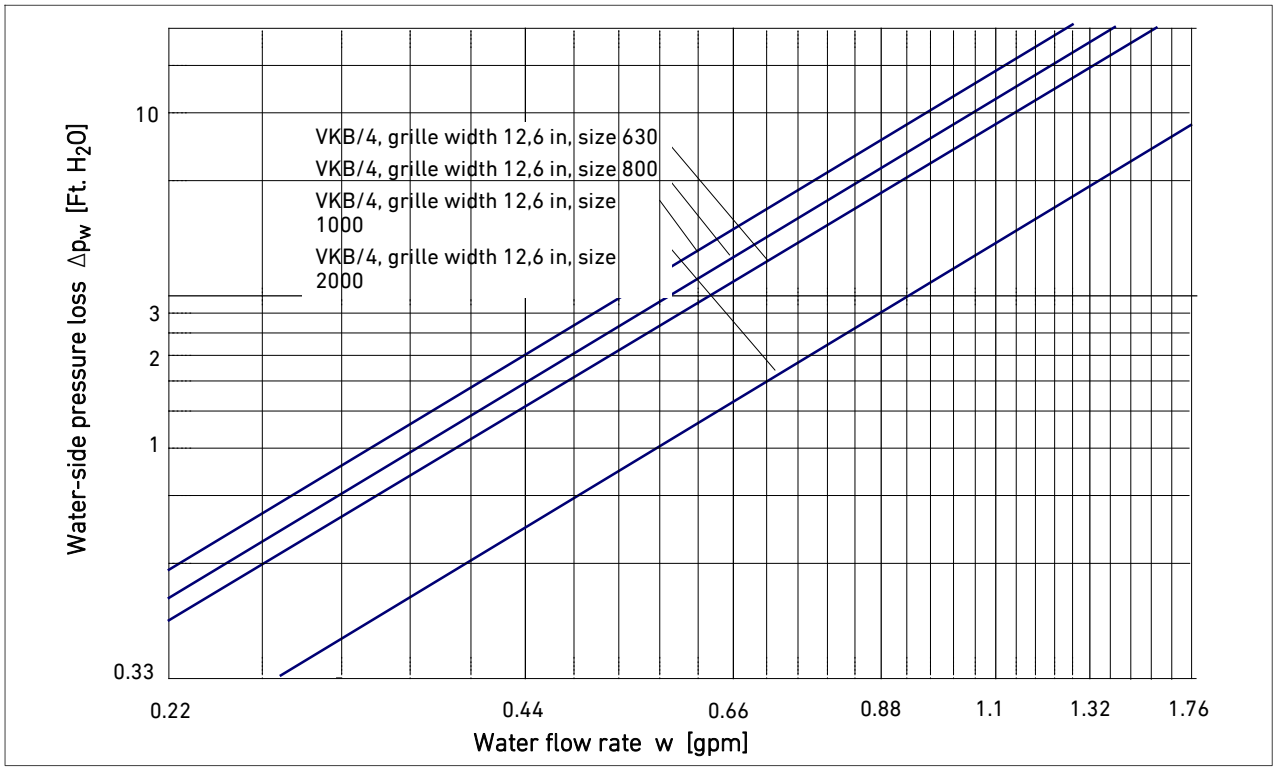
* Correction for other water flow rates see pages 12...14

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

Cooling capacity for different water flow rates

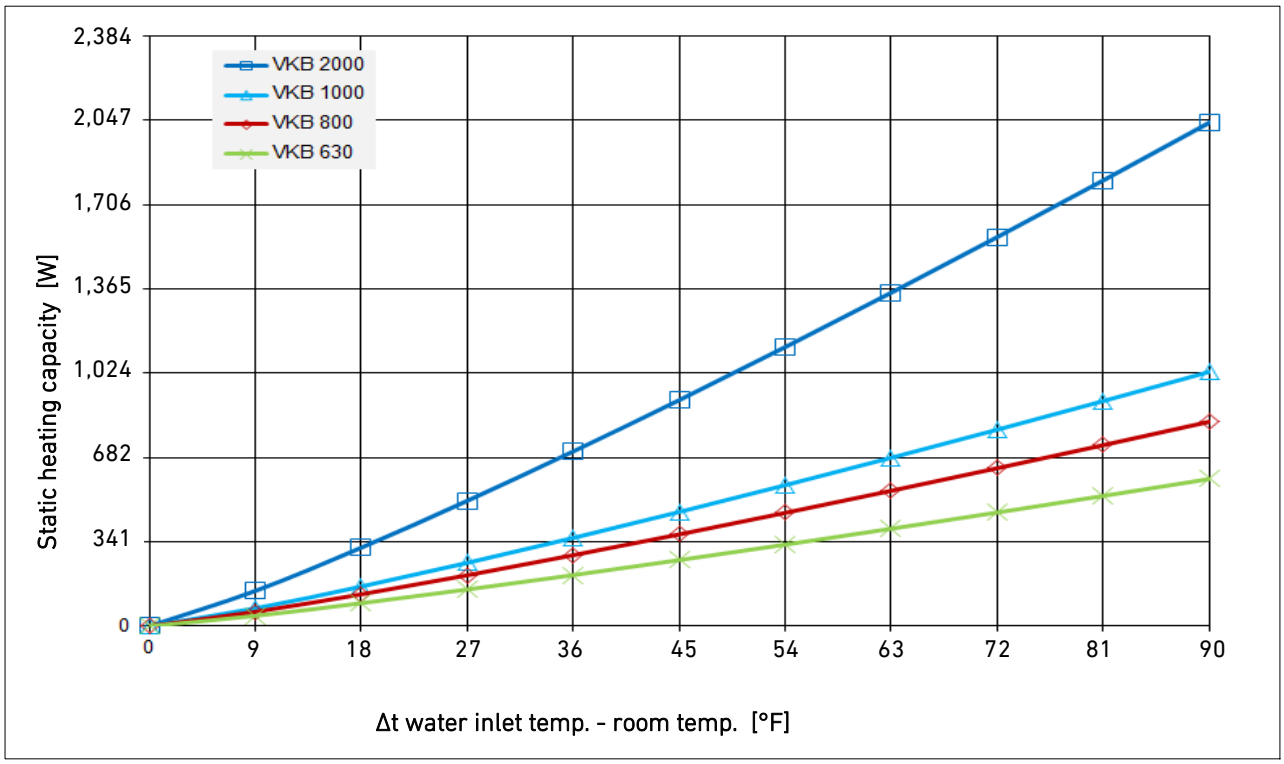


Water-side pressure loss of the cooler for different water flow rates

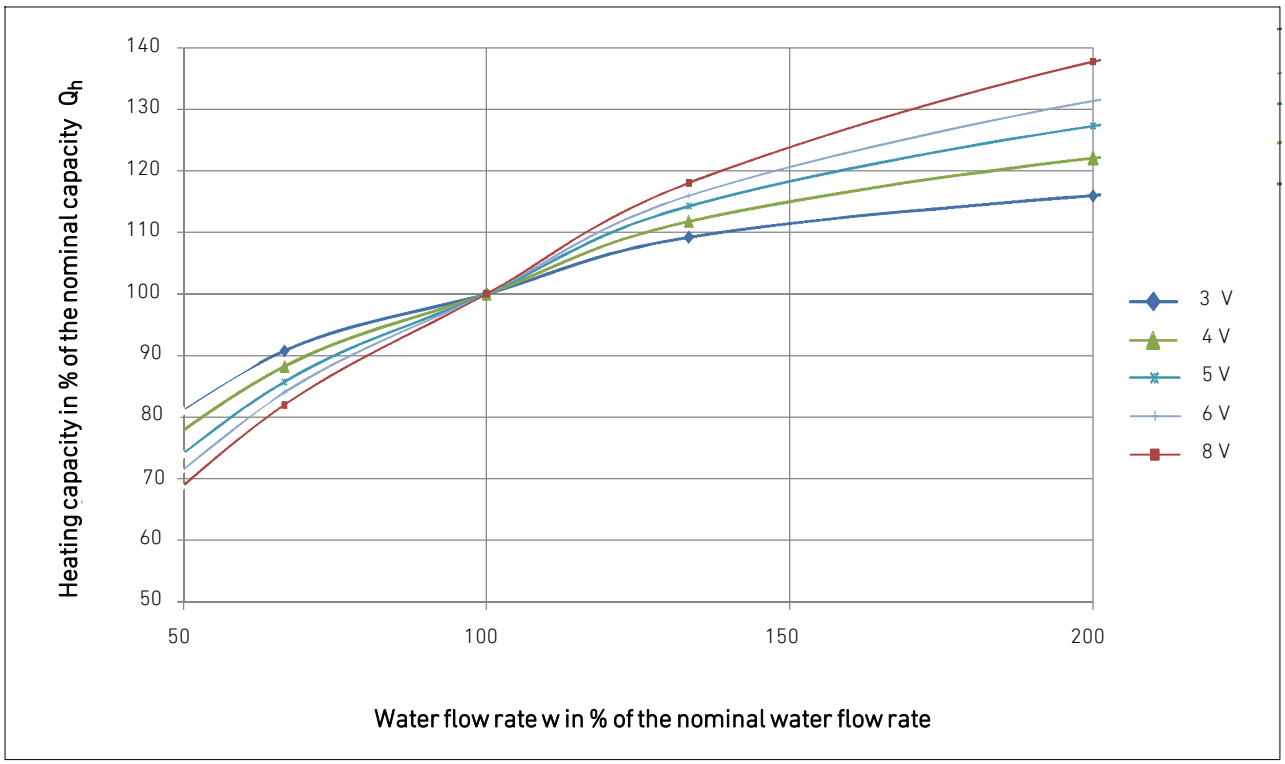


Technical brochure • Fan coil units VKB, floor installation
Type VKB-0/4, 4-pipe system

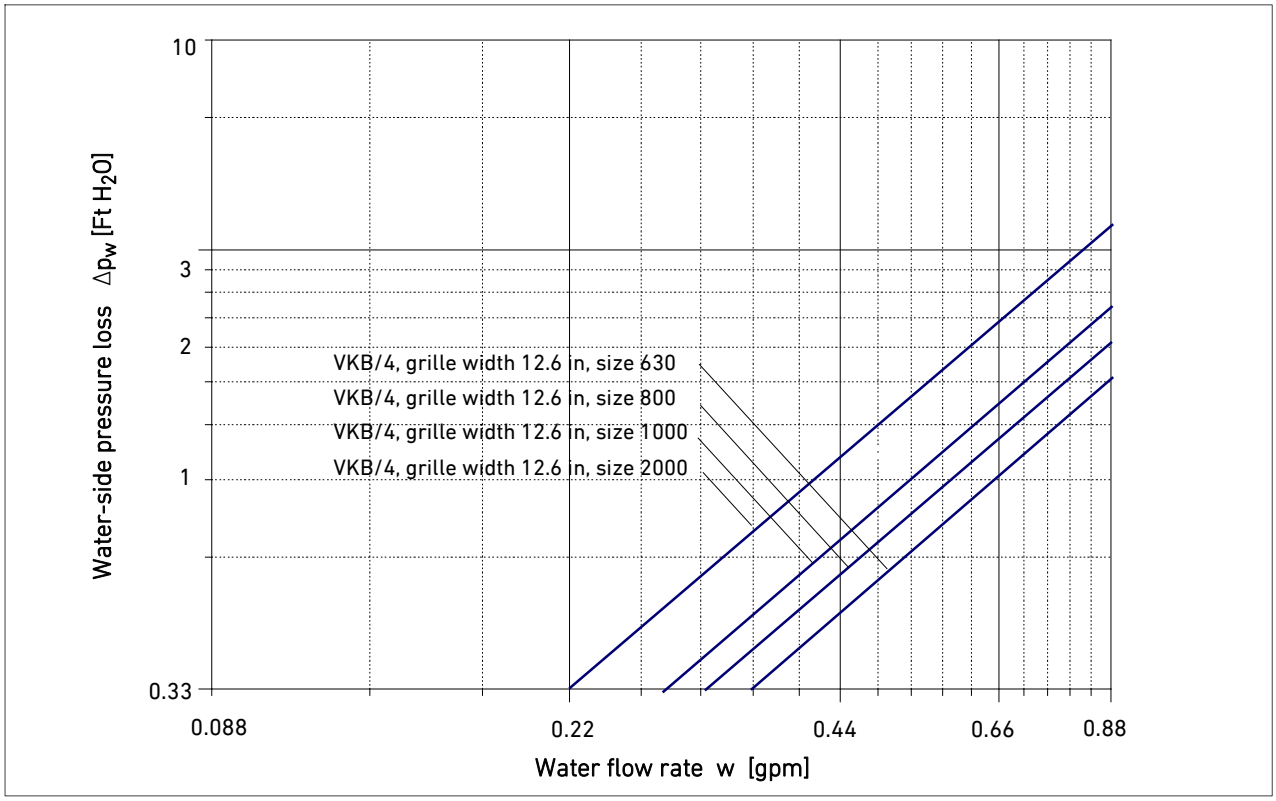
Static heating capacity for 0.44 gpm



Heating capacity for different water flow rates



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

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} [W]
3	106	25	31	79.6	70.1	1,433						3
4	141	30	36	102.4	85.3	1,842						4
5	171	33	39	121.3	96.7	2,184	1.32	2.3	0.7	0.7	409	5
6	212	38	44	140.3	108.0	2,525						7
8	271	46	52	163.0	121.3	2,934						11

Technical data size 800

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} [W]
3	147	25	31	102.4	89.1	1,842						3
4	194	30	36	134.6	111.8	2,422						4
5	241	33	39	163.0	130.8	2,934	1.32	2.7	0.7	0.9	546	6
6	300	38	44	187.6	145.9	3,378						8
8	376	46	52	212.3	157.3	3,821						14

Technical data size 1000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} [W]
3	182	27	33	111.8	96.7	2,013						3
4	241	29	35	144.1	119.4	2,593						5
5	300	34	40	174.4	140.3	3,139	1.32	3.3	0.7	1.0	682	7
6	371	39	45	200.9	155.4	3,617						10
8	465	47	53	231.2	170.6	4,162						19

Technical data size 2000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} [W]
3	300	27	33	200.9	151.6	3,617						8
4	400	32	38	259.7	174.4	4,674						10
5	488	37	43	309.0	193.3	5,561	1.76	3.0	0.7	0.5	1,365	13
6	512	42	48	339.3	212.3	6,107						18
8	712	51	57	405.6	223.7	7,301						32

Speed - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - 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 61 °F water supply temperature, 78.8 °F suction air temperature before entering the heat exchanger (may vary from the room air temp.), non-condensing operation

2) For 131 °F water supply temperature 68 °F 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

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	106	25	31	75.8	66.3	1,365	3,548	2,354						3
4	141	30	36	96.7	79.6	1,740	4,401	3,071						4
5	171	33	39	115.6	92.9	2,081	4,981	3,480	1.32	2.3	0.7	0.7	409	5
6	212	38	44	132.7	104.2	2,388	5,493	4,128						7
8	271	46	52	155.4	115.6	2,798	6,175	4,947						11

Technical data size 800

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	147	25	31	96.7	85.3	1,740	4,538	3,002						3
4	194	30	36	128.9	108.0	2,320	5,766	4,026						4
5	241	33	39	155.4	125.1	2,798	6,687	4,811	1.32	2.7	0.7	0.9	546	6
6	300	38	44	178.2	138.4	3,207	7,369	5,527						8
8	376	46	52	200.9	149.7	3,617	7,950	6,346						14

Technical data size 1000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	182	27	33	106.1	92.9	1,928	5,015	3,309						3
4	241	29	35	138.4	115.6	2,477	6,196	4,333						5
5	300	34	40	166.8	132.7	2,989	7,172	5,152	1.32	3.3	0.7	1.0	682	7
6	371	39	45	189.5	147.8	3,429	7,885	5,902						10
8	465	47	53	219.9	163.0	3,941	8,673	6,926						19

Technical data size 2000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	Q_K 2) [BTU/h]	Q_{ksens} 2) [BTU/h]	w_{ok} [gpm]	Δp_w [feet]	w_{oh} [gpm]	Δp_w [feet]	Q_{st} 3) [BTU/h]	P_{el} [Watt]
3	300	27	33	191.4	140.3	3,446	9,075	6,073						8
4	400	32	38	246.4	157.3	4,435	10,764	7,847						10
5	488	37	43	293.8	168.7	5,288	12,385	9,417	1.76	3.0	0.4	0.7	1,365	13
6	512	42	48	322.2	187.6	5,800	13,101	10,235						18
8	712	51	57	384.8	191.4	6,926	14,705	12,249						32

Speed - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_{ksens} - sensible cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - 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 61 °F water supply temperature, 78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.), non-condensing operation.

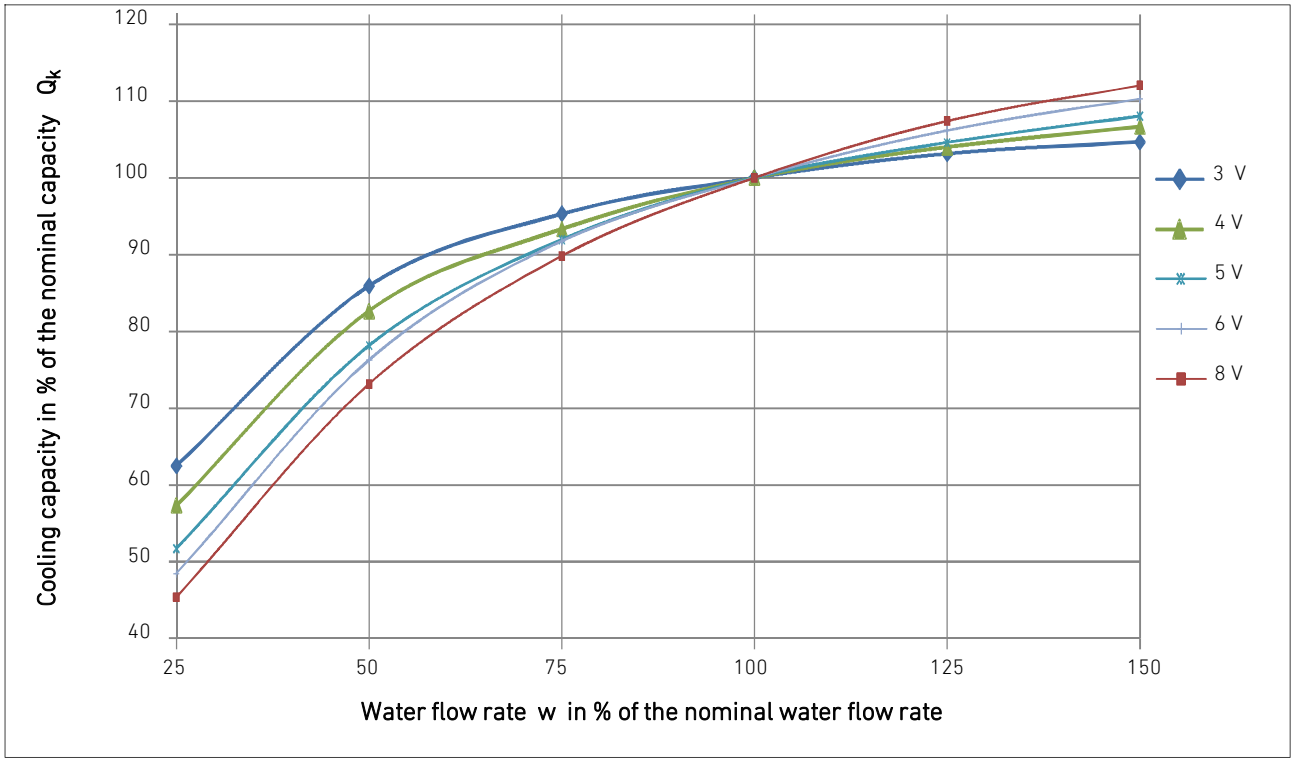
2) For 42.8 °F water supply temperature, 78.8 °F suction air temp. before entering heat exchanger (may vary from room air temp.), condensing operation, 50 % R.H.

3) For 131 °F water supply temperature, 68 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.)

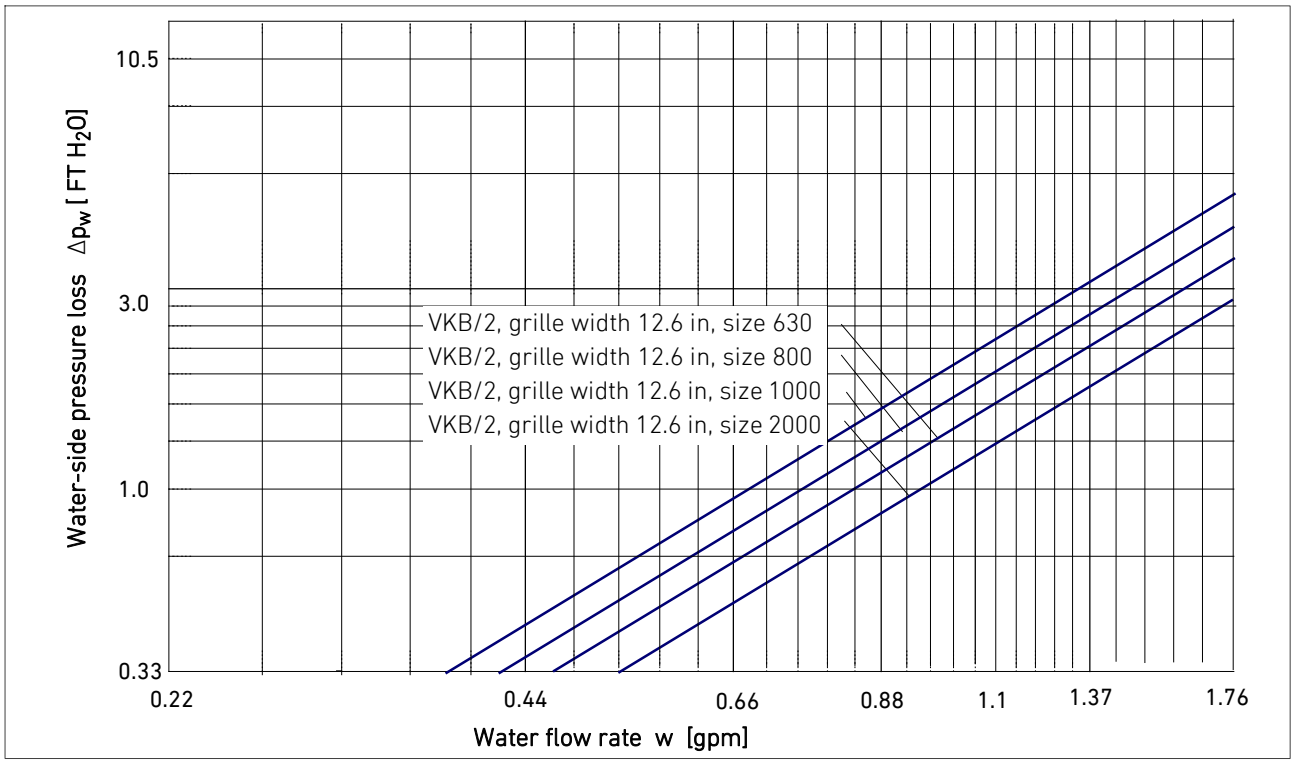
* Correction for other water flow rates see pages 17/18

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

Cooling capacity for different water flow rates

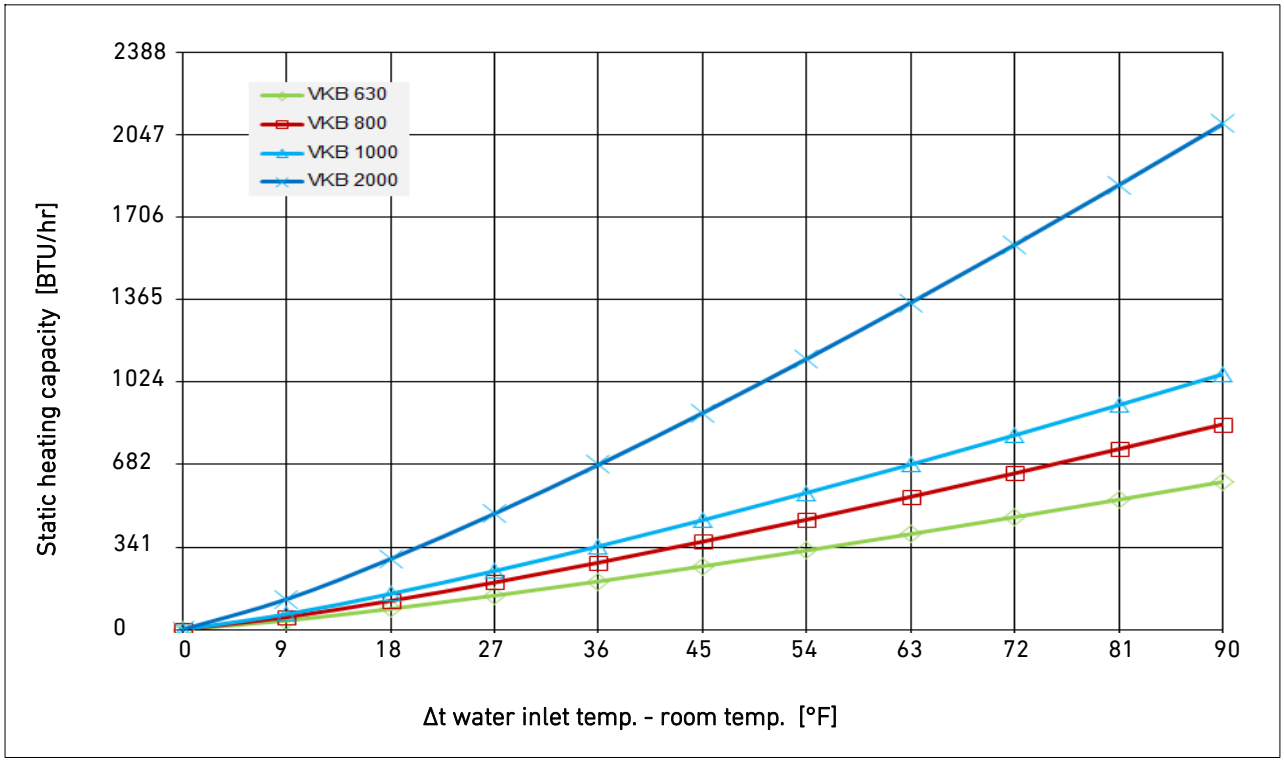


Water-side pressure loss for different water flow rates

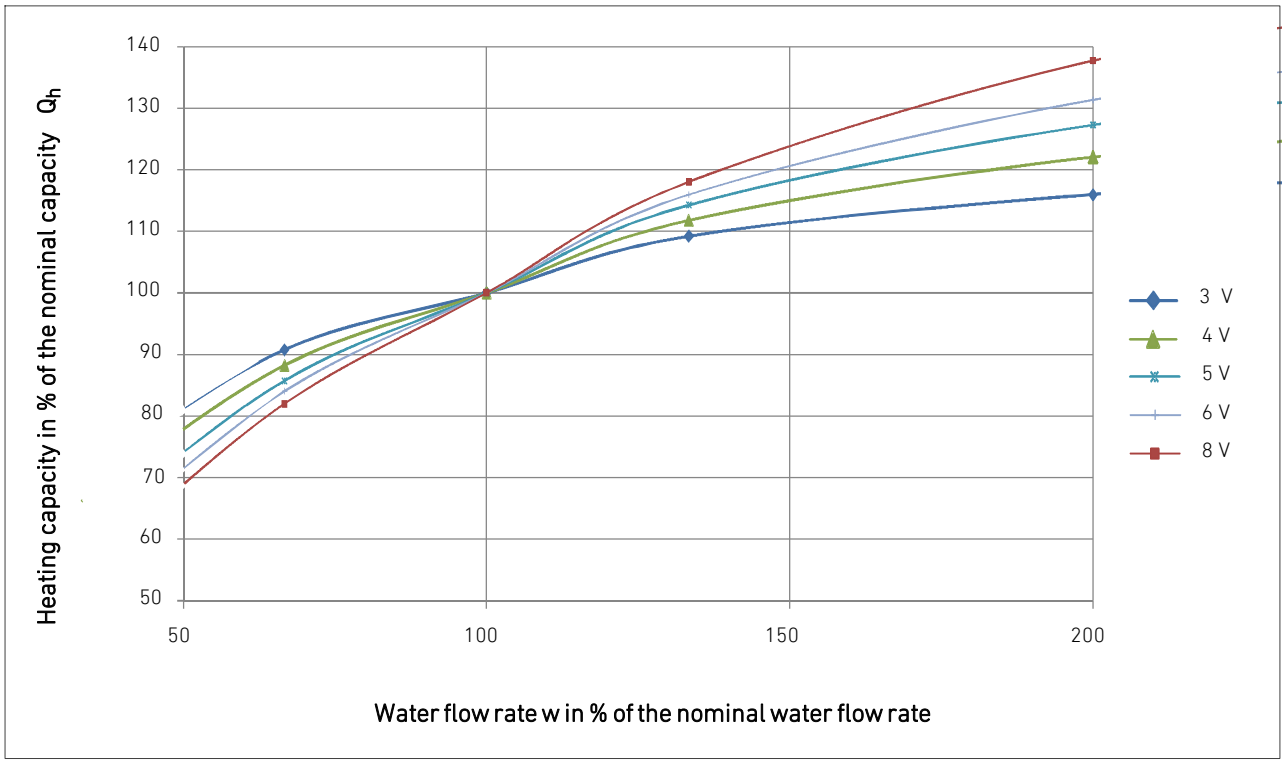


Technical brochure • Fan coil units VKB, floor installation
Type VKB-0/2, 2-pipe system

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 by others.

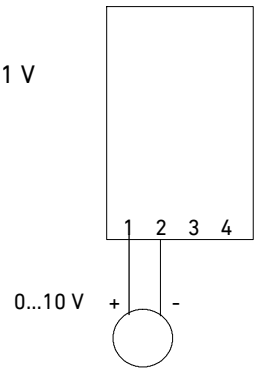
Speed control 0...10 V-DC, plug 4-pin

1 = 0...10 V-DC (yellow), speed, input with control voltage U < 1 V is speed n = 0

2 = GND, 0 V-DC (blue), input

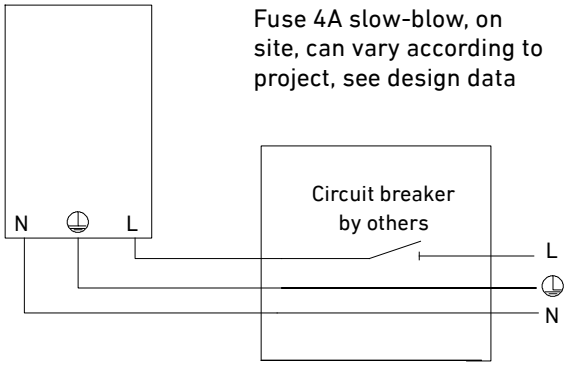
3 = Tacho signal (white), output (optional)

4 = 10 V steady signal (red) output (optional)



115 V-AC main power supply - plug 3-pin

Fuse 4A slow-blow, on site, can vary according to project, see design data



N, L operating voltage 115 V-AC

Technical brochure • Fan coil units VKB, floor installation
Type VKB-N/./..., grille width 12.6 in, low height

Specification

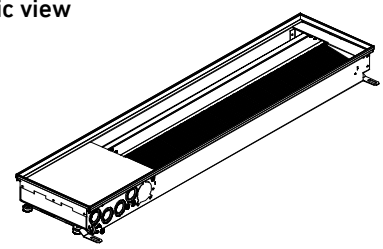
Fan coil unit with one heat exchanger and two separate circuits for heating and cooling the room air. Installation in access floors with a recommended clearance of 5.0 to 6.5 in.

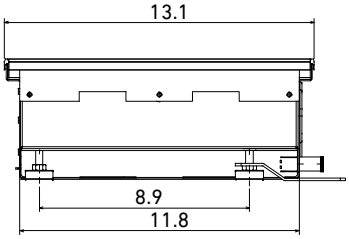
Take careto consider construction tolerances and grille types. Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet - retractable up to 5.1 in.

Dimensions, Weights

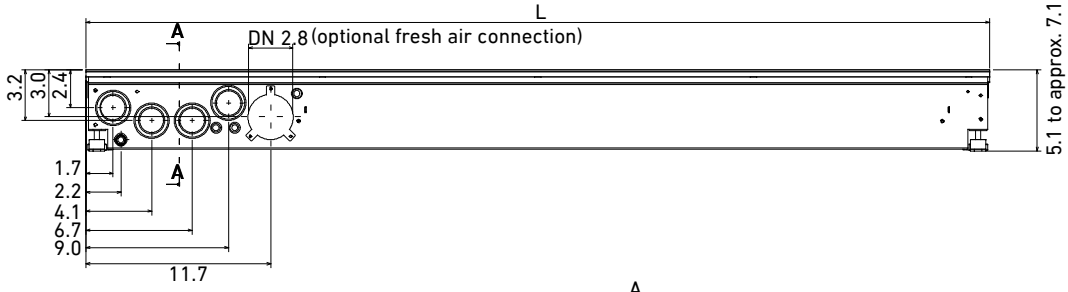
Size	Total length L [in]	Air outlet width A [in]	Weight [lbs]	Water content [gal]	
				Heating circuit	Cooling circuit
630	40.1	12.8	44	0.092	0.092
800	49.2	33.7	51	0.11	0.11
1000	57.0	41.5	52	0.13	0.13

Isometric view

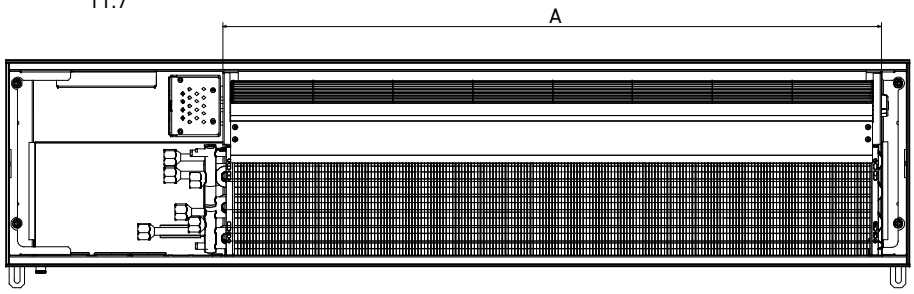




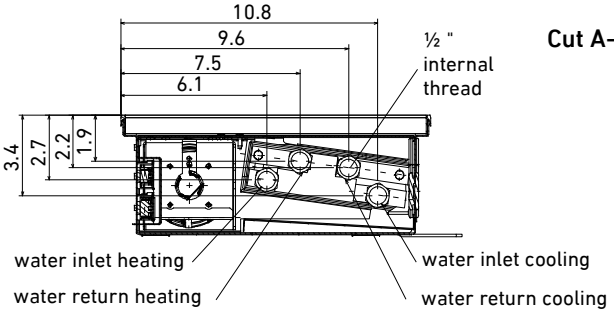
Front view



Top view

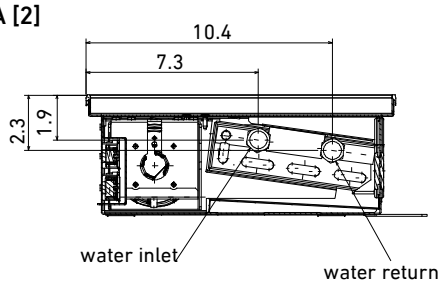


Cut A-A



4-pipe heat exchanger, condensate tray

Cut A-A [2]



2-pipe heat exchanger, condensate tray

Fresh air flow rate V_P	[cfm]	23	35	47	59	1 socket (DN 71), with grille
Sound power level $L_{wA\,P}$	[dB(A)]	<27	32	40	47	The total acoustic power level may be calculated as
Pressure loss	[in H_2O]	–	0.02	0.32	0.48	follows: $L_{wA} = 10 * \log (10^{0,1*L_{wA\,P}} + 10^{0,1\,*\,L_{wA,VKB}})$

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

Technical data size 630

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δpw [Ft H_2O]	w_{oh} [gpm]	Δpw [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} (EC) [W]
3	82	25	31	37.9	34.1	921	0.88	4.3	0.4	0.6	307	3
4	100	27	33	51.2	43.6	1,058	0.88	4.3	0.4	0.6	307	4
5	129	33	39	64.4	56.9	1,262	0.88	4.3	0.4	0.6	307	5
6	147	37	43	72.0	64.4	1,399	0.88	4.3	0.4	0.6	307	7
8	194	46	52	91.0	75.8	1,638	0.88	4.3	0.4	0.6	307	11

Technical data size 800

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δpw [Ft H_2O]	w_{oh} [gpm]	Δpw [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} (EC) [W]
3	112	25	31	51.2	45.5	921	0.88	5.0	0.4	0.7	409	3
4	141	27	33	70.1	58.8	1,262	0.88	5.0	0.4	0.7	409	4
5	176	33	39	85.3	73.9	1,535	0.88	5.0	0.4	0.7	409	5
6	206	37	43	98.6	85.3	1,774	0.88	5.0	0.4	0.7	409	7
8	271	46	52	121.3	98.6	2,184	0.88	5.0	0.4	0.7	409	12

Technical data size 1000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k 1) / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k 1) [BTU/h]	w_{ok} [gpm]	Δpw [Ft H_2O]	w_{oh} [gpm]	Δpw [Ft H_2O]	Q_{st} 2) [BTU/h]	P_{el} (EC) [W]
3	141	25	31	62.5	55.0	1,126	0.88	5.7	0.4	0.8	546	3
4	176	27	33	85.3	70.1	1,535	0.88	5.7	0.4	0.8	546	5
5	218	33	39	104.2	87.2	1,876	0.88	5.7	0.4	0.8	546	7
6	259	37	43	123.2	100.5	2,218	0.88	5.7	0.4	0.8	546	10
8	335	46	52	147.8	117.5	2,661	0.88	5.7	0.4	0.8	546	19

U - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_{ksens} - sensible cooling capacity
Q_h - total heating capacity
Δt - temperature difference between suction air temperature before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
$Δp_w$ - water-side pressure loss
P_{el} - electric power consumption (± 10 %)

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

1) For 61 °F water supply temperature, 78.8 °F suction air temperature before entering the heat exchanger (may vary from room temperature), non condensing operation

2) For 131 °F water supply temperature, 68 °F 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 in, low height, condensing

Technical data size 630

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	82	25	31	32.2	30.3	580	1,604	1,058	0.88	4.3	0.4	0.6	307	3
4	100	30	36	43.6	41.7	785	2,013	1,365	0.88	4.3	0.4	0.6	307	4
5	129	33	39	55.0	51.2	989	2,456	1,740	0.88	4.3	0.4	0.6	307	5
6	147	38	44	62.5	58.8	1,126	2,729	1,945	0.88	4.3	0.4	0.6	307	7
8	194	46	52	77.7	72.0	1,399	3,207	2,422	0.88	4.3	0.4	0.6	307	11

Technical data size 800

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	112	25	31	45.5	39.8	819	2,218	1,501	0.88	5.0	0.4	0.7	409	3
4	141	30	36	64.4	56.9	1,160	3,071	2,047	0.88	5.0	0.4	0.7	409	4
5	176	33	39	79.6	66.3	1,433	3,753	2,525	0.88	5.0	0.4	0.7	409	5
6	206	38	44	92.9	75.8	1,672	4,128	2,900	0.88	5.0	0.4	0.7	409	7
8	271	46	52	119.4	92.9	2,149	4,913	4,299	0.88	5.0	0.4	0.7	409	12

Technical data size 1000

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	141	25	31	53.1	49.3	955	2,593	1,740	0.88	5.7	0.4	0.8	546	3
4	176	27	33	72.0	66.3	1,296	3,309	2,286	0.88	5.7	0.4	0.8	546	5
5	218	33	39	89.1	79.6	1,604	4,026	2,832	0.88	5.7	0.4	0.8	546	7
6	259	37	43	104.2	91.0	1,876	4,538	3,275	0.88	5.7	0.4	0.8	546	10
8	335	46	52	123.2	109.9	2,218	5,152	3,753	0.88	5.7	0.4	0.8	546	19

U - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_{ksens} - sensible cooling capacity
Q_h - total heating capacity
Δt - temperature difference between suction air temperature before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - electric power consumption (± 10 %)

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

1) For 61 °F water supply temperature
78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.)
non condensing operation

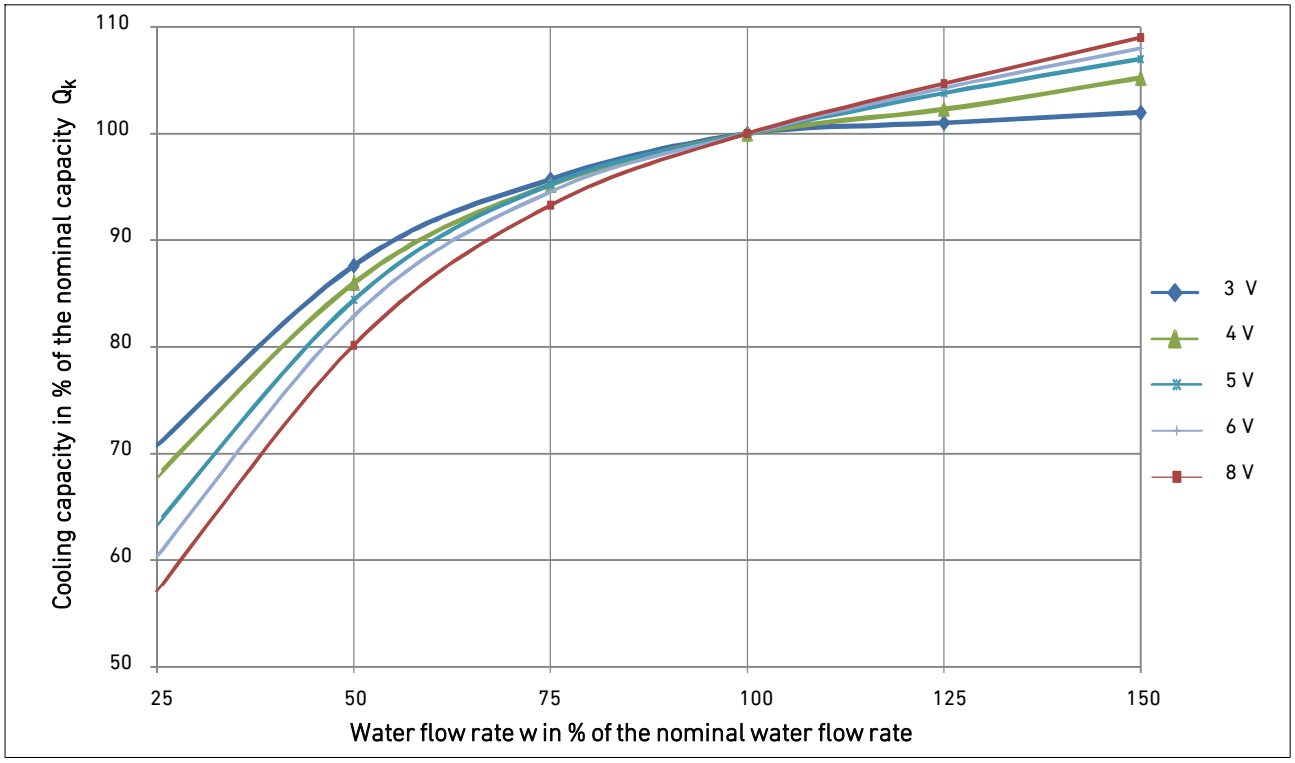
2) For 42.8 °F water supply temperature
78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.) .
non condensing operation, 50 % R.H

3) For 131 °F water supply temperature
68 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.)

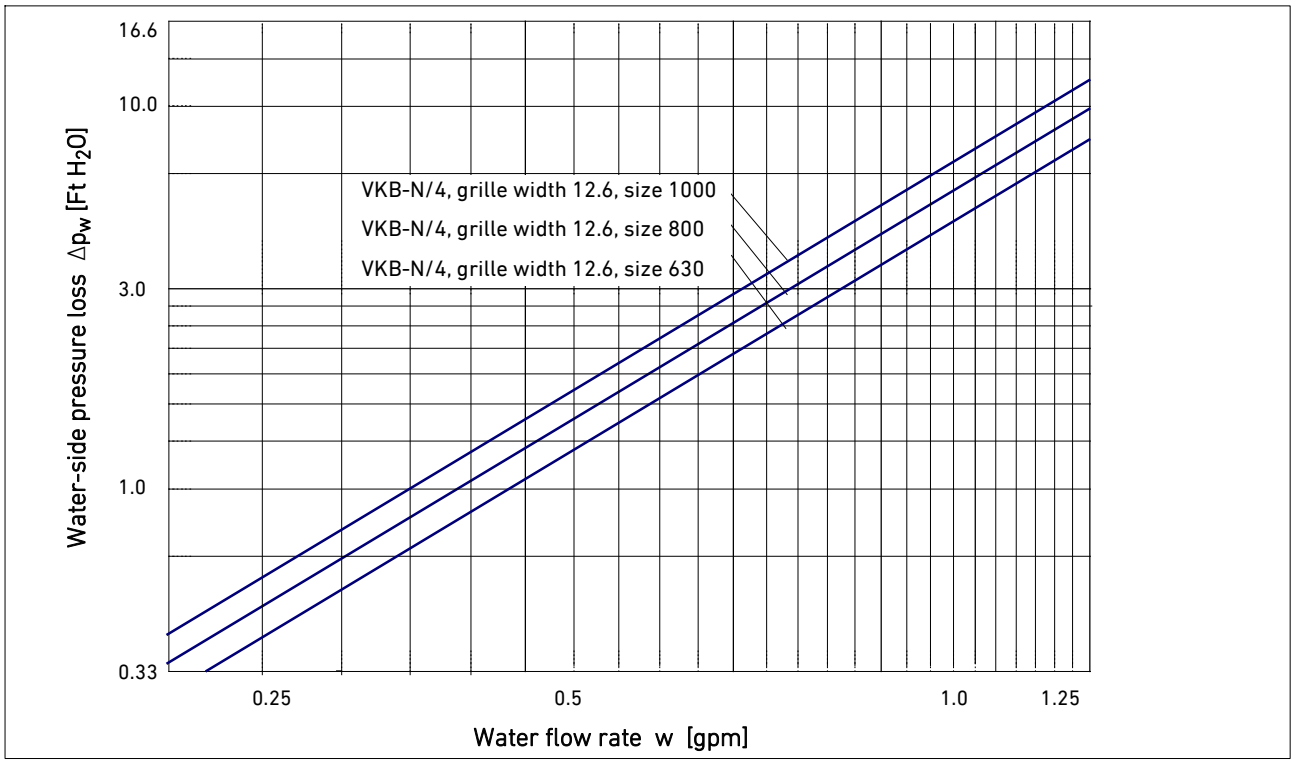
* Correction for other water flow rates see pages 23...25

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

Cooling capacity for different water flow rates

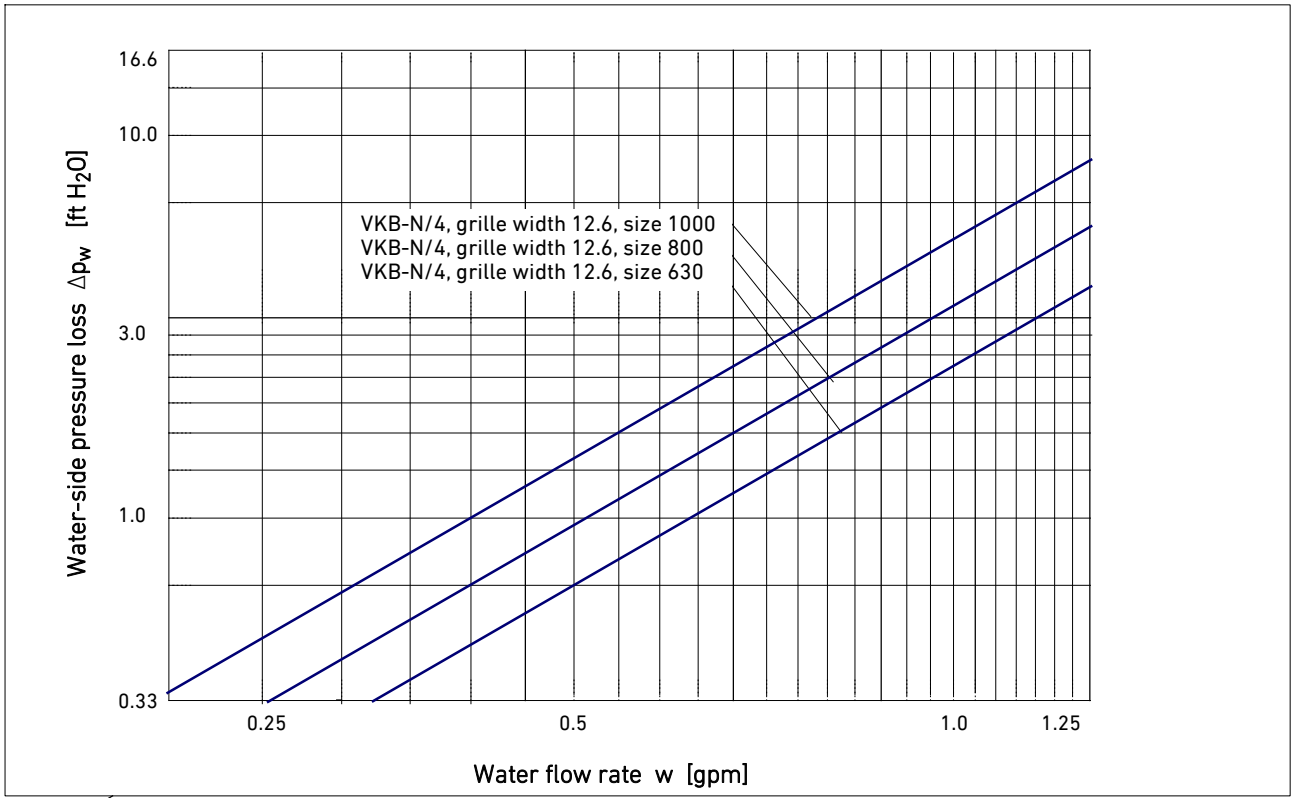


Water-side pressure loss of the cooler for different water flow rates



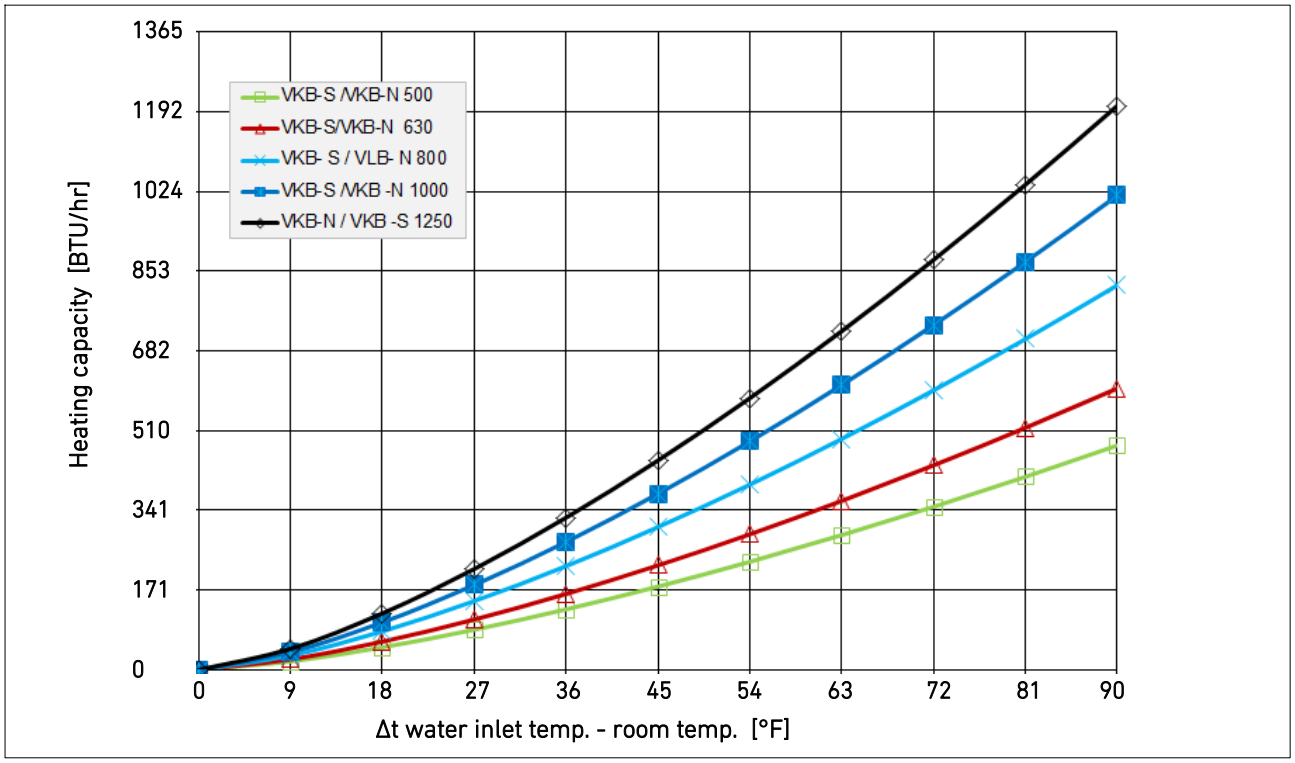
Technical brochure • Fan coil units VKB, floor installation
Type VKB-N/4 (low height)

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

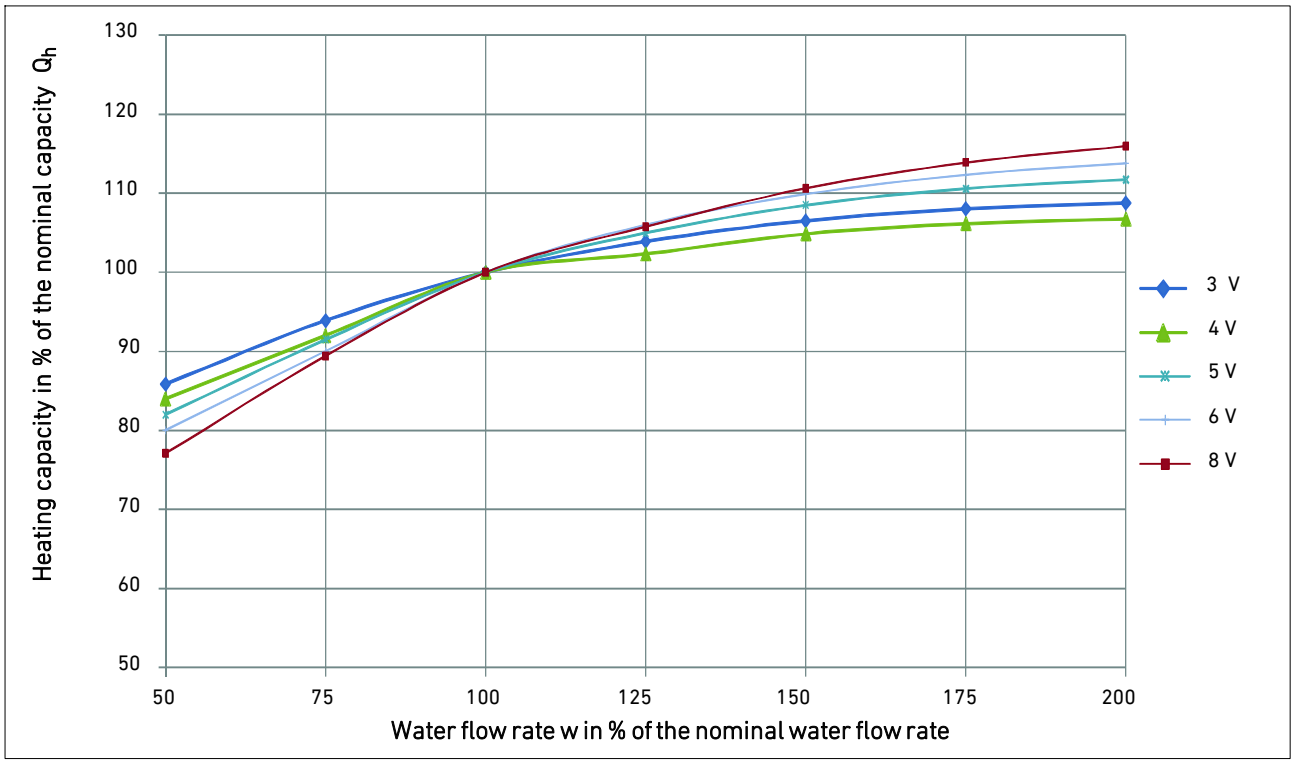


Technical brochure • Fan coil units VKB, floor installation
Type VKB-N/4 (low height)

Static heating capacity for 0.44 gpm



Heating capacity for different water flow rates



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

Technical data size 630

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} (EC) [W]
3	82	25	31	41.7	36.0	921	0.88	5.4	0.4	1.7	307	3
4	100	27	33	56.9	47.4	1,058	0.88	5.4	0.4	1.7	307	4
5	129	33	39	75.8	60.7	1,262	0.88	5.4	0.4	1.7	307	5
6	147	37	43	89.1	70.1	1,399	0.88	5.4	0.4	1.7	307	7
8	194	46	52	108.0	81.5	1,945	0.88	5.4	0.4	1.7	307	11

Technical data size 800

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} (EC) [W]
3	112	25	31	56.9	49.3	1,024	0.88	5.0	0.4	0.7	409	3
4	141	27	33	79.6	66.3	1,433	0.88	5.0	0.4	0.7	409	4
5	176	33	39	100.5	81.5	1,808	0.88	5.0	0.4	0.7	409	5
6	206	37	43	119.4	94.8	2,149	0.88	5.0	0.4	0.7	409	7
8	271	46	52	142.2	108.0	2,559	0.88	5.0	0.4	0.7	409	12

Technical data size 1000

Speed [V-DC]	V [cfm]	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h / Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	Δp_w [Ft H_2O]	w_{oh} [gpm]	Δp_w [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} (EC) [W]
3	141	27	33	72.0	55.0	1,296	0.88	7.0	0.4	2.0	546	3
4	176	27	33	96.7	73.9	1,740	0.88	7.0	0.4	2.0	546	4
5	218	33	39	121.3	89.1	2,184	0.88	7.0	0.4	2.0	546	5
6	259	37	43	145.9	104.2	2,627	0.88	7.0	0.4	2.0	546	7
8	335	46	52	170.6	111.8	3,071	0.88	7.0	0.4	2.0	546	19

U - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - electric power consumption (± 10 %)

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

1) For 61 °F water supply temperature
78.8 °F suction air temp. before entering the heat exchanger (may vary from room temperature)
non condensing operation.

2) For 131 °F water supply temperature
68 °F suction air temp. 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 in, low height, condensing

Technical data size 630

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	82	25	31	37.9	28.4	682	1,808	1,228	0.88	5.4	0.4	1.7	307	3
4	100	27	33	53.1	37.9	955	2,456	1,672	0.88	5.4	0.4	1.7	307	4
5	129	33	39	70.1	47.4	1,262	3,139	2,252	0.88	5.4	0.4	1.7	307	5
6	147	37	43	81.5	51.2	1,467	3,548	2,559	0.88	5.4	0.4	1.7	307	7
8	194	46	52	106.1	60.7	1,911	4,367	3,309	0.88	5.4	0.4	1.7	307	11

Technical data size 800

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	112	25	31	51.2	36.0	921	2491	1672	0.88	5.0	0.4	2.0	409	3
4	141	27	33	72.0	41.4	1296	3344	2286	0.88	5.0	0.4	2.0	409	4
5	176	33	39	92.9	53.1	1672	4128	2934	0.88	5.0	0.4	2.0	409	5
6	200	39	43	111.8	58.8	2013	4845	3480	0.88	5.0	0.4	2.0	409	7
8	271	46	52	138.4	66.3	2491	5732	4231	0.88	5.0	0.4	2.0	409	12

Technical data size 1000

U	V	L_{A18}	L_{wA}	Q_c / Δt	Q_h / Δt	Q_c	Q_c 2)	Q_{ksens}	w_{ok}	Δp_w	w_{oh}	Δp_w	Q_{st}	P_{el} (EC)
[V DC]	[cfm]	[dB(A)]	[dB(A)]	[BTU/h Δt]	[BTU/h Δt]	[BTU/h]	[BTU/h]	[BTU/h]	[gpm]	[feet]	[gpm]	[feet]	[BTU/h]	[W]
3	141	25	31	64.4	43.6	1160	2661	2041	0.88	5.1	0.4	2.3	546	3
4	176	27	33	89.1	56.9	1604	4094	2832	0.88	5.1	0.4	2.3	546	5
5	218	33	39	113.7	66.3	2047	4981	3582	0.88	5.1	0.4	2.3	546	7
6	259	37	43	134.6	72.0	2422	5800	4231	0.88	5.1	0.4	2.3	546	10
8	335	46	52	166.8	19.6	3002	6829	5288	0.88	5.1	0.4	2.3	546	19

U - control voltage fan
V - flow rate (± 10 %)
L_{A18} - sound pressure level
L_{wA} - sound power level ± 3 dB(A)
Q_k - total cooling capacity
Q_{ksens} - sensible cooling capacity
Q_h - total heating capacity
Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply
Q_{st} - heating capacity for natural convection
w_{ok} - standard water flow rate (cooling) *
w_{oh} - standard water flow rate (heating) *
Δp_w - water-side pressure loss
P_{el} - electric power consumption (± 10 %)

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

1) For 61 °F water supply temperature
78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp.)
non condensing operation

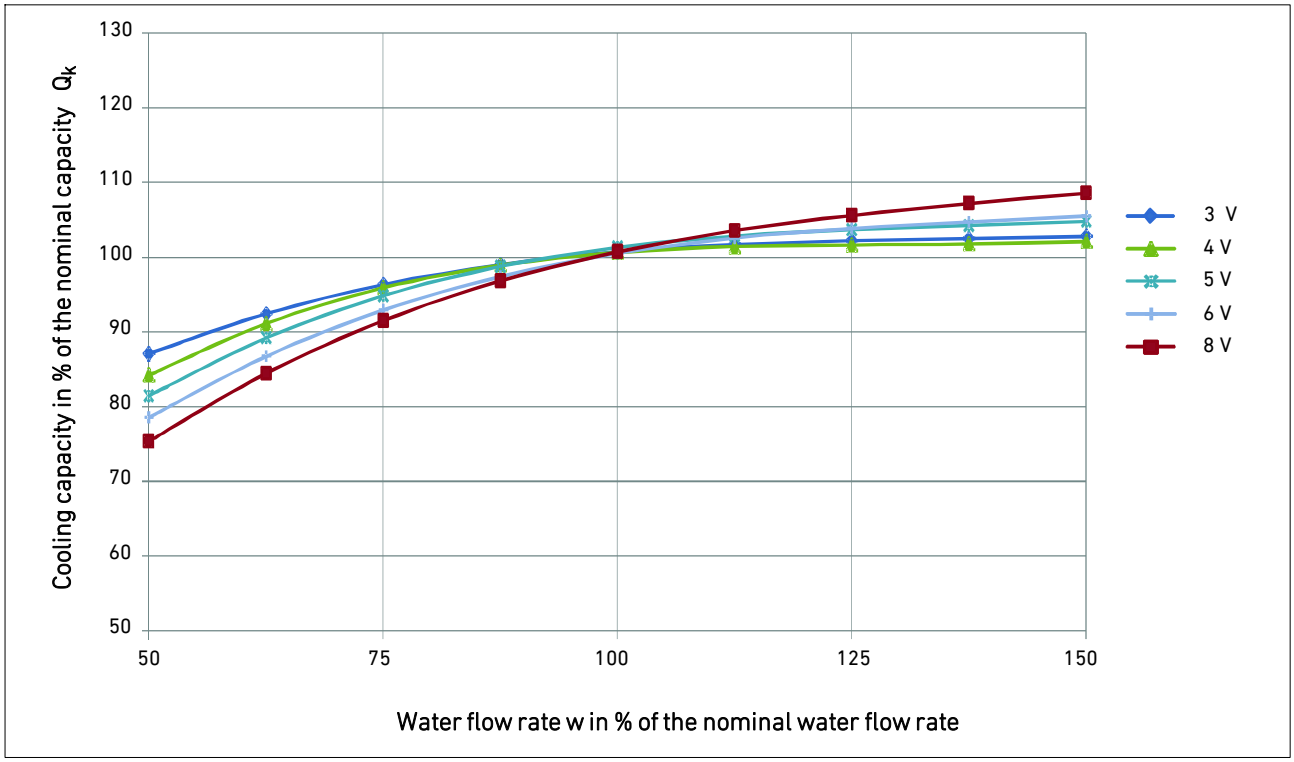
2) For 42.8 °F water supply temperature
78.8 °F suction air temp. before entering the heat exchanger (may vary from the room air temp., condensing operation

3) For 131 °F water supply temperature
68 °F room air temperature

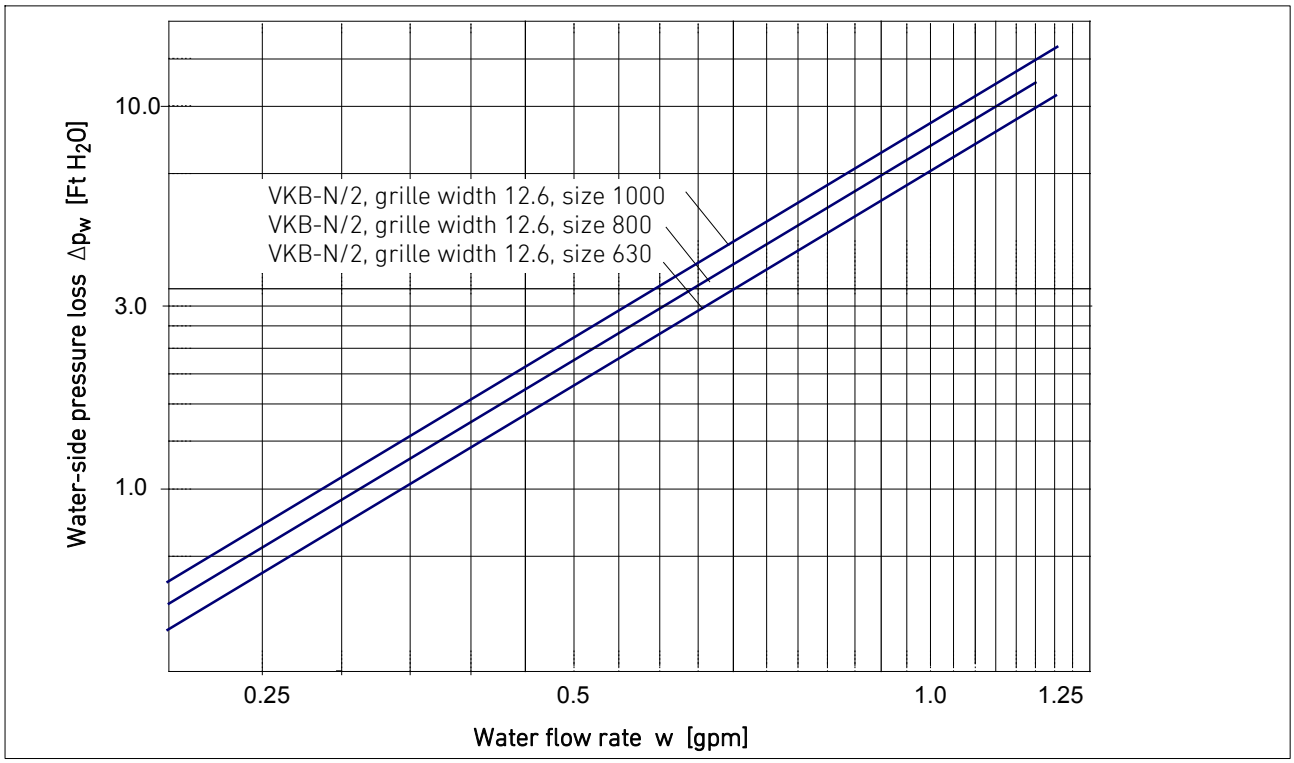
* Correction for other water flow rates see pages 28/29

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

Cooling capacity for different water flow rates

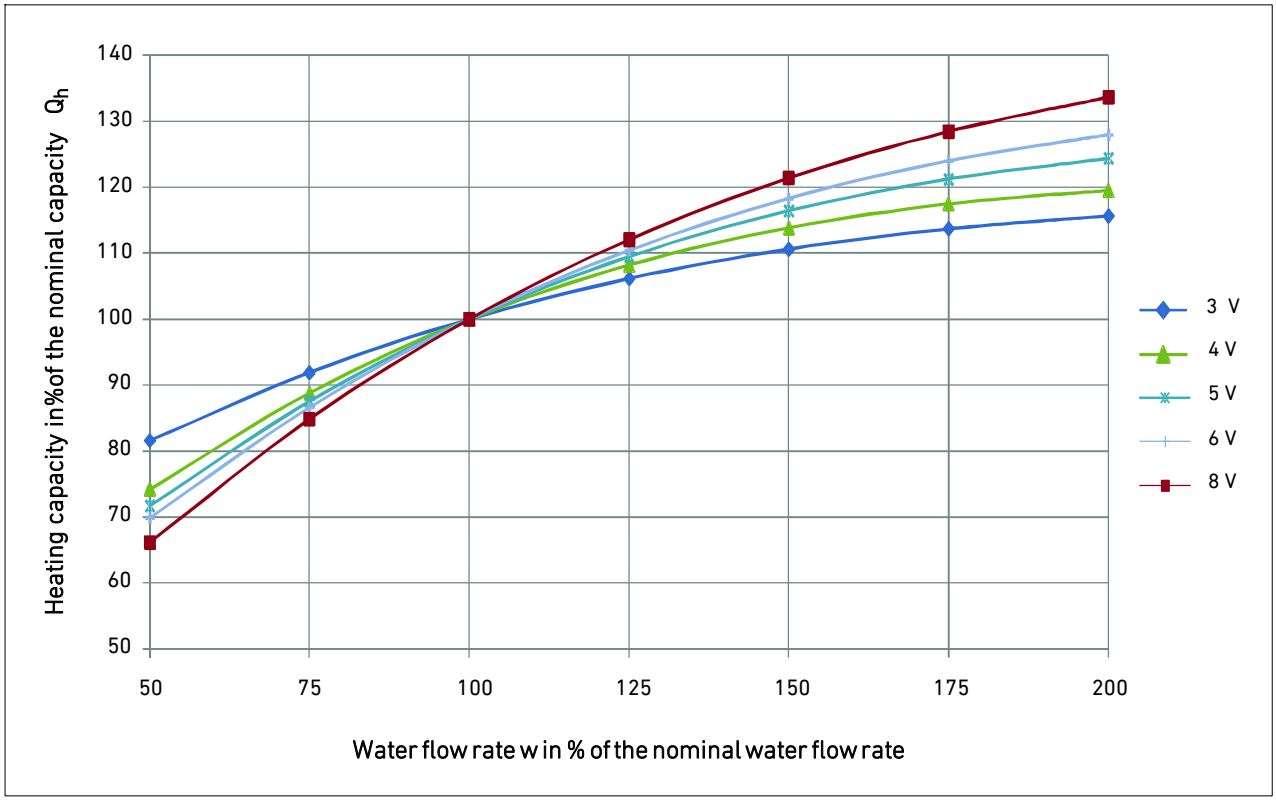


Water-side pressure loss of the cooler for different water flow rates



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.

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.

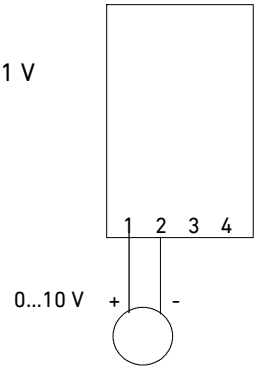
Speed control 0...10 V-DC, plug 4-pin

1 = 0...10 V-DC (yellow), speed, input with control voltage U < 1 V is speed n = 0

2 = GND, 0 V-DC (blue), input

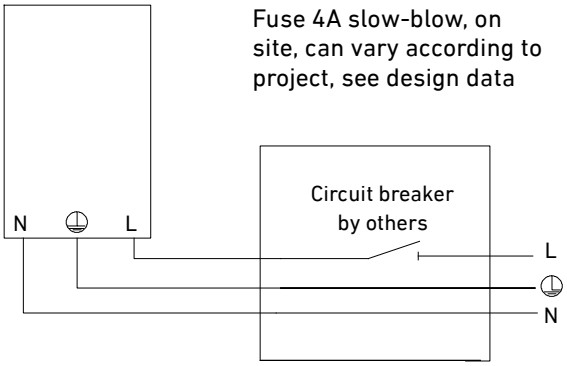
3 = Tacho signal (white), output (optional)

4 = 10 V steady signal (red) output (optional)



115 V-AC main power supply - plug 3-pin

Fuse 4A slow-blow, on site, can vary according to project, see design data



N, L operating voltage 115 V-AC

Technical brochure • Fan coil units VKB, floor installation
Type VKB-S/4, 4-pipe system, grille width 7.9 in

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 7.9 to 9.8 in.

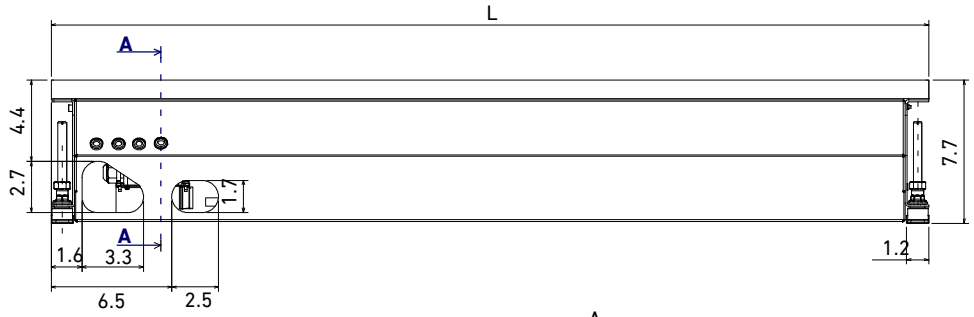
Precise adjustment of the units is realized via vibration-isolated, height-adjustable feet - retractable up to H_{min}.

Water-side control by valves (accessories separate).

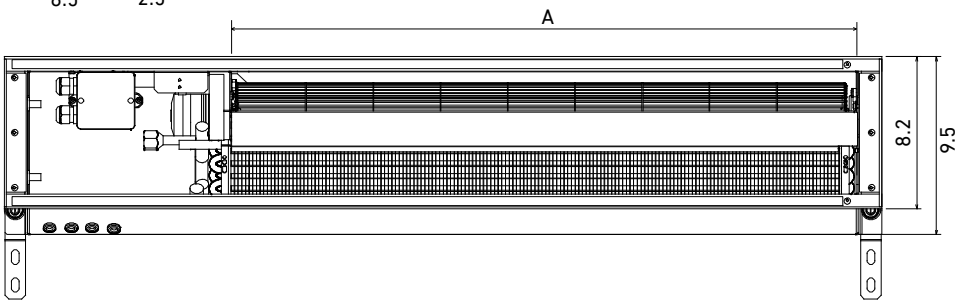
Dimensions, weights

Size	Total length L [in]	Air outlet width A [in]	Minimal height H_{min} [in]	Total width B [in]	Weight [lb]	Water content [gal] Heating circuit	Water content [gal] Cooling circuit
500	35.3	20.7	With stainless steel grille: 7.6 | 8.0 With aluminium roller grille: 7.9 | 8.2 With aluminium linear grille: 7.9 | 8.2		42	0.066	0.066
630	38.9	24.6			46	0.1	0.10
800	47.1	33.7			55	0.11	0.11
1000	55.0	41.6			68	0.13	0.13
1250	63.0	49.4			79	0.16	0.16

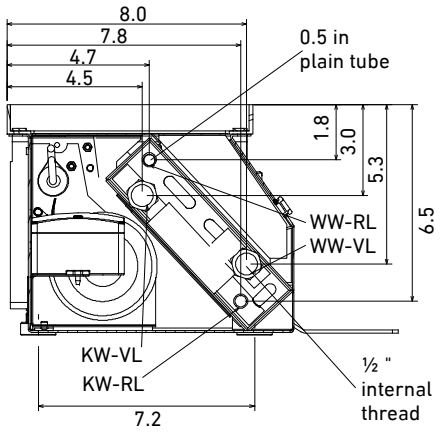
Front view



Top view

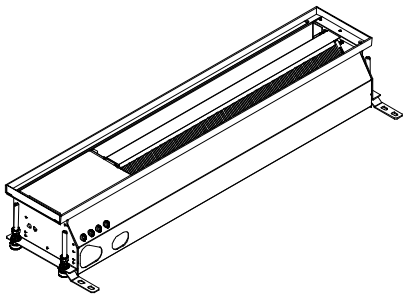


Cut A-A



WW-RL = heating water return
WW-VL = heating water input
KW-RL = cooling water return
KW-VL = cooling water input

Isometric view



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Technical brochure • Fan coil units VKB, floor installation
Type VKB-S/4, 4-pipe, grille width 7.9 in, primary air supply left side, 3.1 " dia.

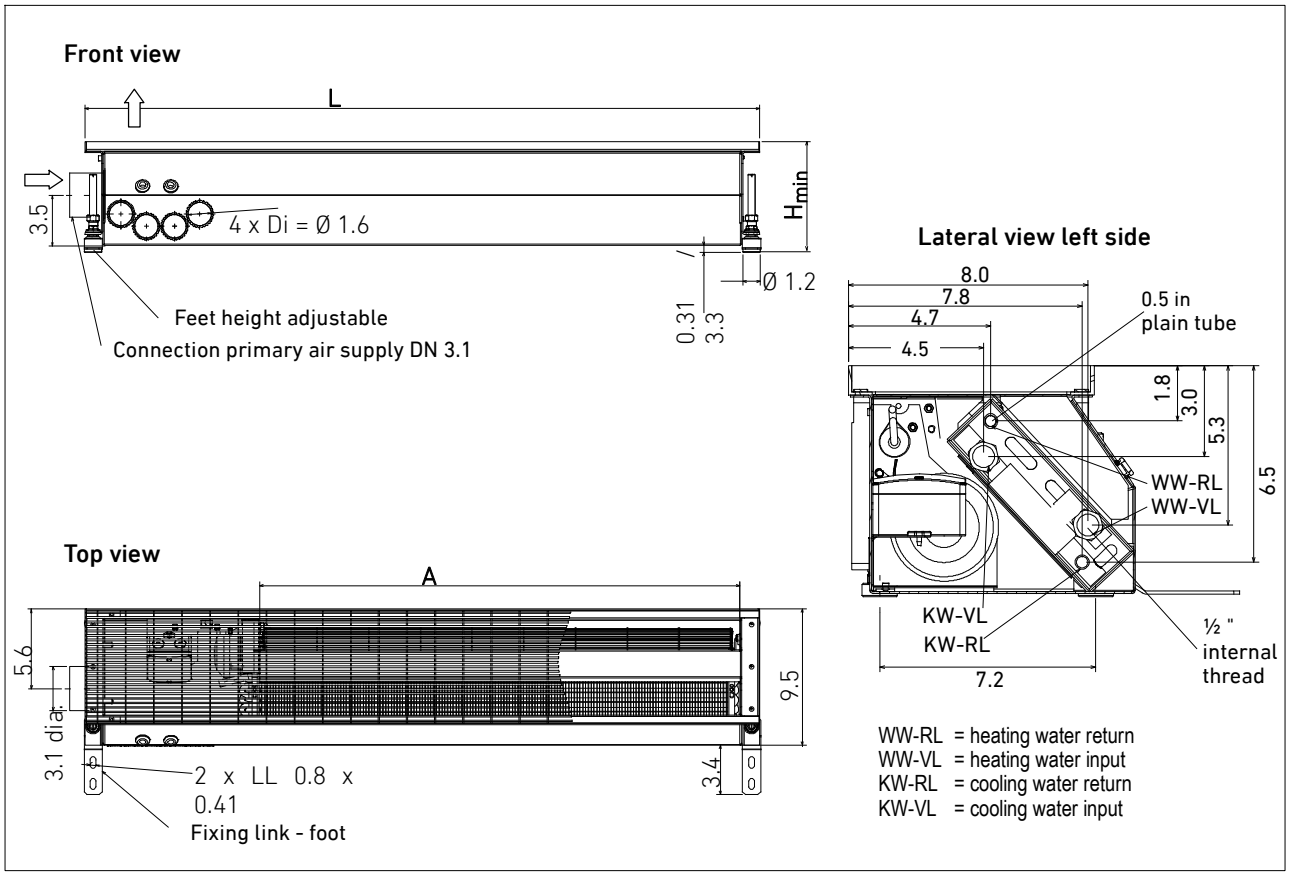
Specification

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

Installation in access floors with a recommended clearance of 7.9 - 9.8 in.
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 [in]	A [in]	H_{min} [in]	B [in]	Weight [lb]	Water content [gal]	
						Heating circuit	Cooling circuit
500	35.3	20.7	With stainless steel grille: 7.6 | 8.0 With aluminium roller grille: 7.9 | 8.0 With aluminium linear grille: 7.9 | 8.0		42	0.066	0.066
630	39	24.6			46.2	0.092	0.092
800	41.1	33.7			55	0.11	0.11
1000	55	41.6			68.2	0.13	0.13
1250	63	49.4			79.2	0.16	0.16



Acoustic power level for separate socket for primary air supply (must be added to the unit's power level)							The **total acoustic power level** may be calculated as follows:
	V_P	[cfm]	29.4	35	47	59	
	$L_{wA\,P}$	[dB(A)]	27	28	29	31	
	Pressure loss	[in H_2O]		0.016	0.02	0.032	$L_{wA} = 10 * \log (10^{0,1*L_{wA\,P}} + 10^{0,1\,*\,L_{wA,VKB}})$

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 (cfm)	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h /Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	$\Delta p_{w(k)}$ [Ft H_2O]	w_{oh} [gpm]	$\Delta p_{w(h)}$ [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} [W]	P_{el} (EC) [W]
I	3	106	25	32	72.0	58.8	1,296	0.88	2.7	0.4	0.8	307	15	3
II	4	147	32	38	87.2	68.2	1,569	0.88	2.7	0.4	0.8	307	17	4
III	5	176	36	42	98.6	79.6	1,774	0.88	2.7	0.4	0.8	307	20	5
IV	6	200	41	47	108.0	87.2	1,945	0.88	2.7	0.4	0.8	307	22	7
V	8	235	47	53	117.5	94.8	2,115	0.88	2.7	0.4	0.8	307	27	12

Technical data size 630

n (not EC) [-]	U [V]	V (cfm)	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h /Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	$\Delta p_{w(k)}$ [Ft H_2O]	w_{oh} [gpm]	$\Delta p_{w(h)}$ [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} [W]	P_{el} (EC) [W]
I	3	135	26	32	87.2	72.0	1,569	0.88	3.3	0.4	1.2	341	15	3
II	4	176	32	38	108.0	85.3	1,945	0.88	3.3	0.4	1.2	341	17	4
III	5	218	36	42	121.3	96.7	2,184	0.88	3.3	0.4	1.2	341	20	5
IV	6	247	41	47	130.8	104.2	2,354	0.88	3.3	0.4	1.2	341	22	7
V	8	288	47	53	142.2	113.7	2,559	0.88	3.3	0.4	1.2	341	27	13

Technical data size 800

n (not EC) [-]	U [V]	V (cfm)	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h /Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	$\Delta p_{w(k)}$ [Ft H_2O]	w_{oh} [gpm]	$\Delta p_{w(h)}$ [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} [W]	P_{el} (EC) [W]
I	3	165	25	31	102.4	85.3	1,842	0.88	4.0	0.4	1.3	478	15	3
II	4	229	31	37	121.3	96.7	2,184	0.88	4.0	0.4	1.3	478	17	4
III	5	276	34	42	136.5	106.1	2,456	0.88	4.0	0.4	1.3	478	20	5
IV	6	306	40	46	145.9	115.6	2,627	0.88	4.0	0.4	1.3	478	22	7
V	8	353	46	52	159.2	121.3	2,866	0.88	4.0	0.4	1.3	478	27	14

Technical data size 1000

n (not EC) [-]	U [V]	V (cfm)	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h /Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	$\Delta p_{w(k)}$ [Ft H_2O]	w_{oh} [gpm]	$\Delta p_{w(h)}$ [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} [W]	P_{el} (EC) [W]
I	3	176	25	31	113.7	83.4	2,047	0.88	5.0	0.4	1.7	583	15	3
II	4	241	32	38	132.7	106.1	2,388	0.88	5.0	0.4	1.7	583	17	4
III	5	300	36	42	149.7	119.4	2,695	0.88	5.0	0.4	1.7	583	19	5
IV	6	335	41	47	159.2	127.0	2,866	0.88	5.0	0.4	1.7	583	22	7
V	8	388	47	53	174.4	140.3	3,139	0.88	5.0	0.4	1.7	583	27	14

Technical data size 1250

n (not EC) [-]	U [V]	V (cfm)	L_{A18} [dB(A)]	L_{wA} [dB(A)]	Q_k [1] / Δt [BTU/h*Δt]	Q_h /Δt [BTU/h*Δt]	Q_k [1] [BTU/h]	w_{ok} [gpm]	$\Delta p_{w(k)}$ [Ft H_2O]	w_{oh} [gpm]	$\Delta p_{w(h)}$ [Ft H_2O]	Q_{st} [2] [BTU/h]	P_{el} [W]	P_{el} (EC) [W]
I	3	194	25	31	125.1	102.4	2,252	0.88	5.7	0.4	2.2	696	15	3
II	4	265	32	38	145.9	115.6	2,627	0.88	5.7	0.4	2.2	696	17	4
III	5	329	36	42	163.0	130.8	2,934	0.88	5.7	0.4	2.2	696	19	5
IV	6	365	41	47	174.4	138.4	3,139	0.88	5.7	0.4	2.2	696	22	8
V	8	424	47	53	191.4	153.5	3,446	0.88	5.7	0.4	2.2	696	27	14

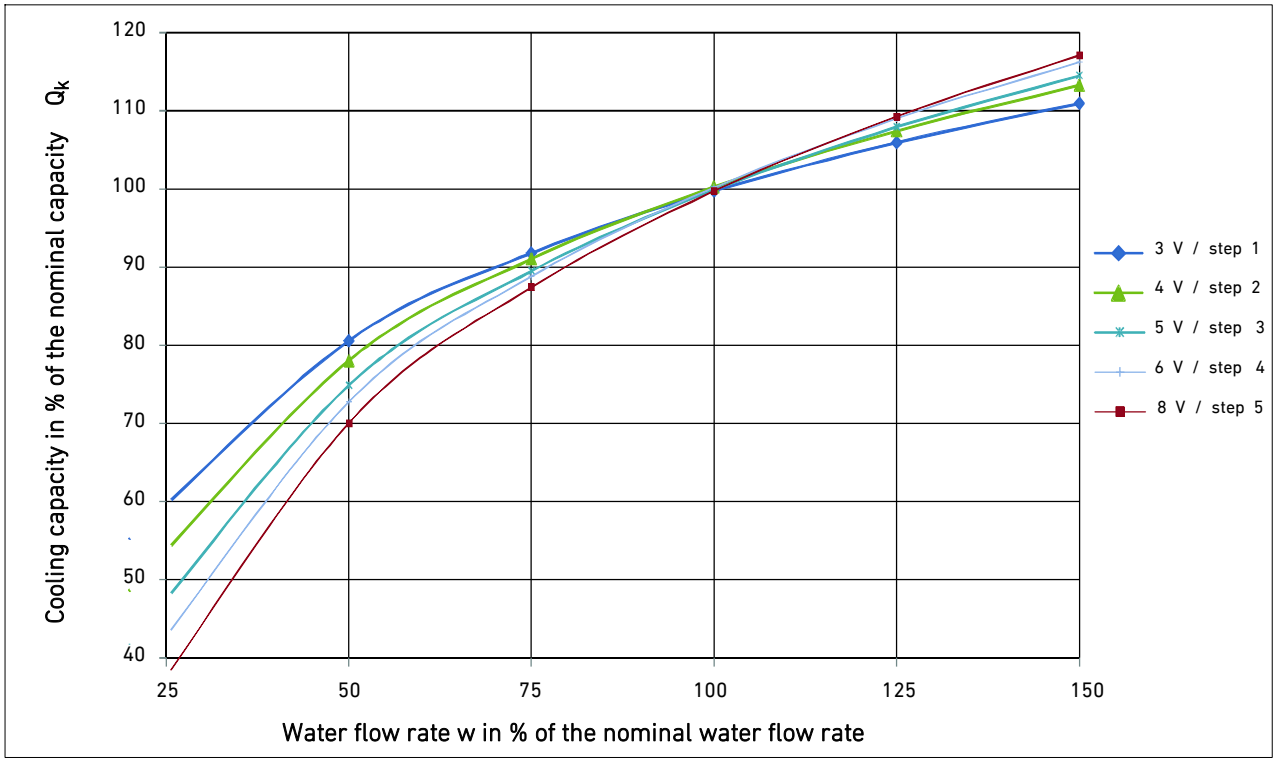
Values are given for the unit with air outlet grille, without filter.

Correction for other water flow rates see pages 33/34
Legend see page 26

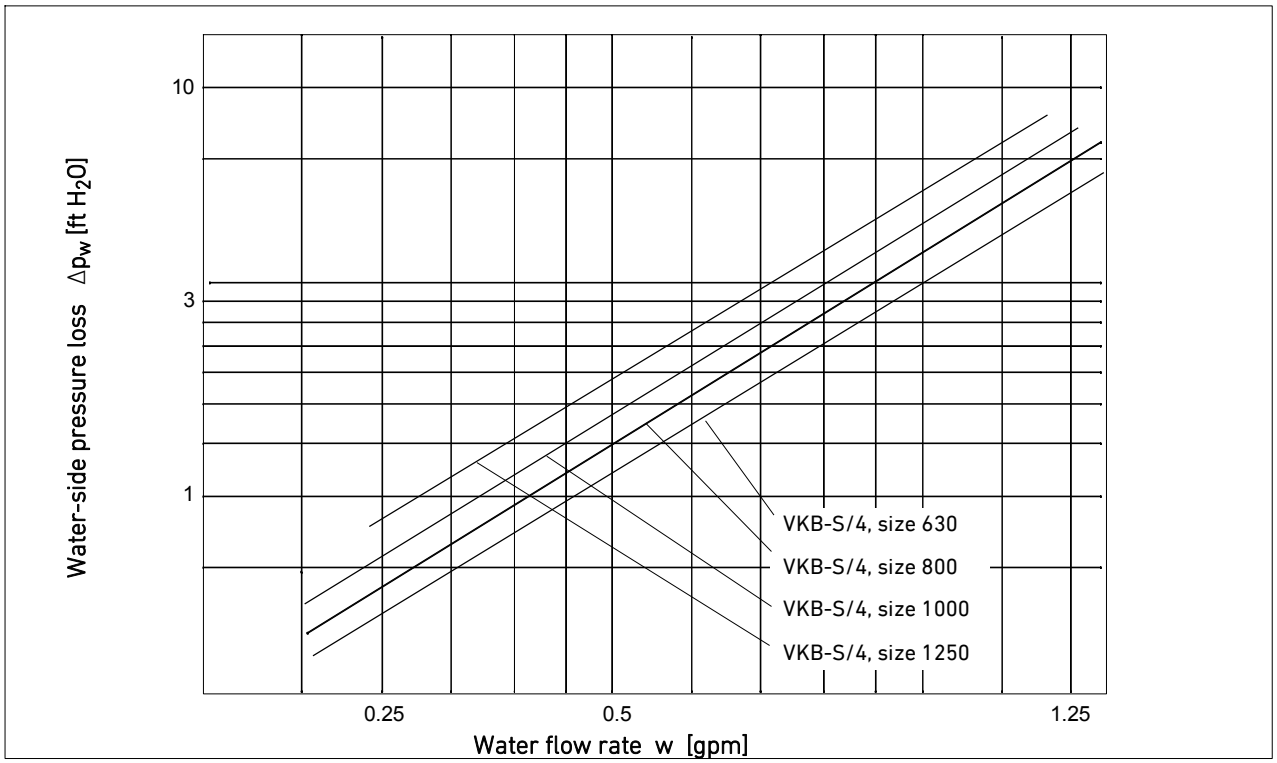
1) For 61 °F water supply temp., 78.8 °F suction air temp. before entering the heat exchanger, (may vary from room temp.), non condensing operation
2) For 131 °F water supply temp., 68 °F suction air temp.

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

Cooling capacity for different water flow rates

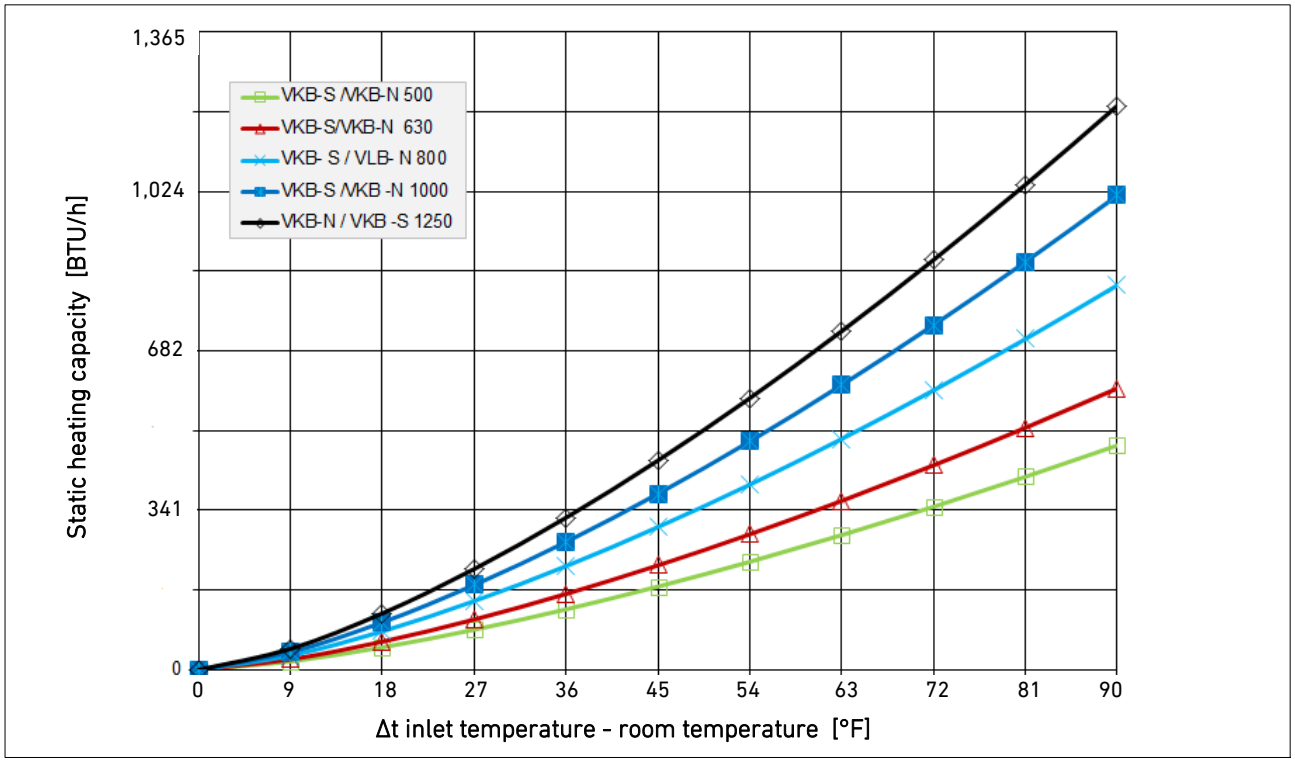


Water-side pressure loss of the cooler for different water flow rates

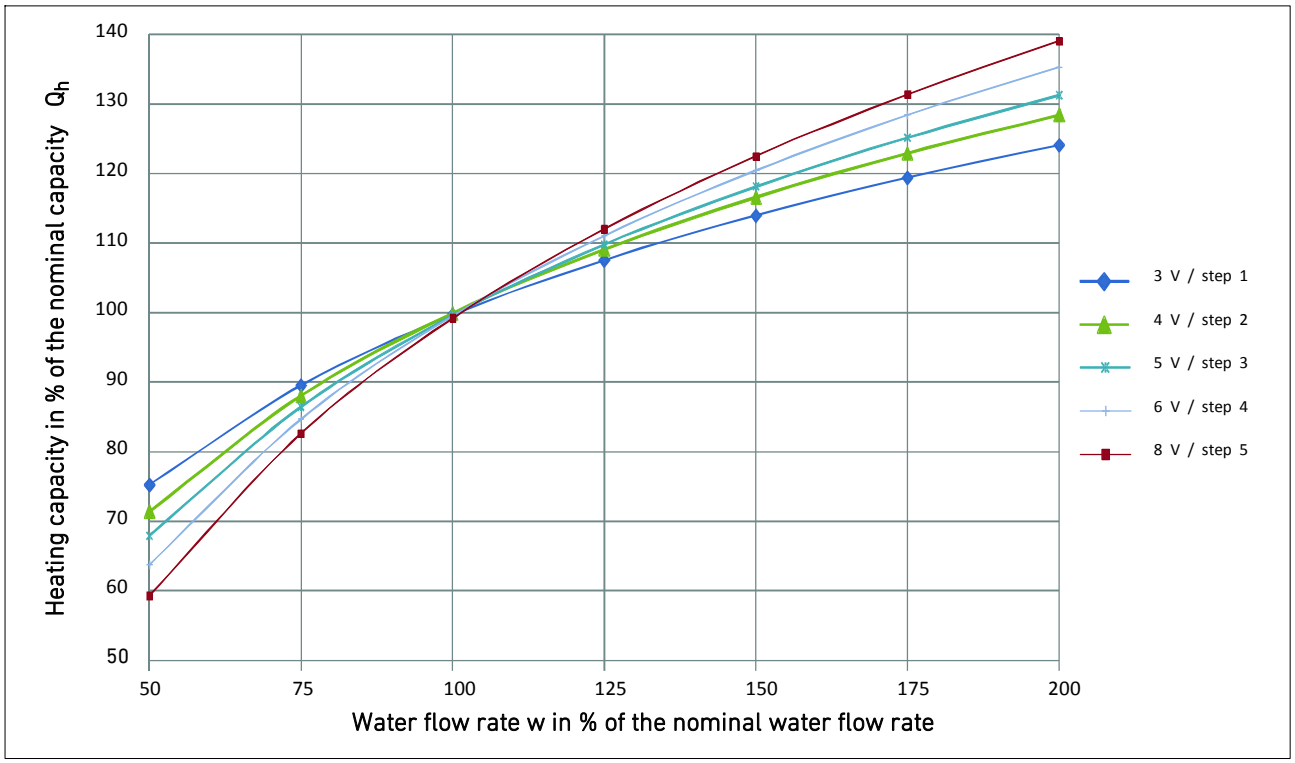


Technical brochure • Fan coil units VKB, floor installation
Type VKB-S/4 (slim)

Static heating capacity for 0.44 gpm



Heating capacity for different water flow rates



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.

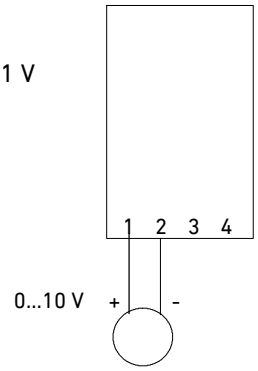
Speed control 0...10 V-DC, plug 4-pin

1 = 0...10 V-DC (yellow), speed, input with control voltage U < 1 V is speed n = 0

2 = GND, 0 V-DC (blue), input

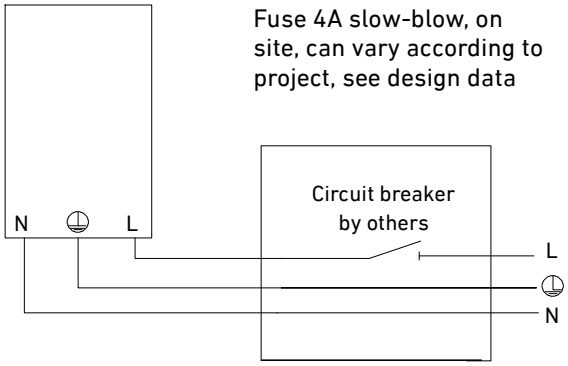
3 = Tacho signal (white), output (optional)

4 = 10 V steady signal (red) output (optional)



115 V-AC main power supply - plug 3-pin

Fuse 4A slow-blow, on site, can vary according to project, see design data



N, L operating voltage 115 V-AC

Nomenclature, ordering code

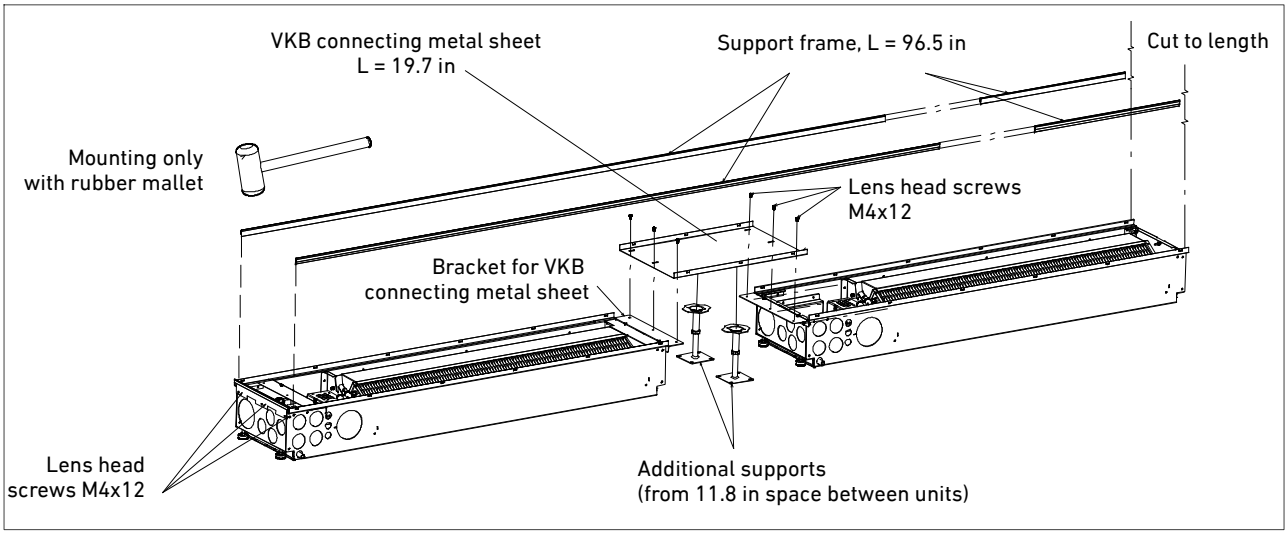
VKB-0 / 2 / 630, 1020 / T / EC / OL / MQ / AL / OF / 4R / NE

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

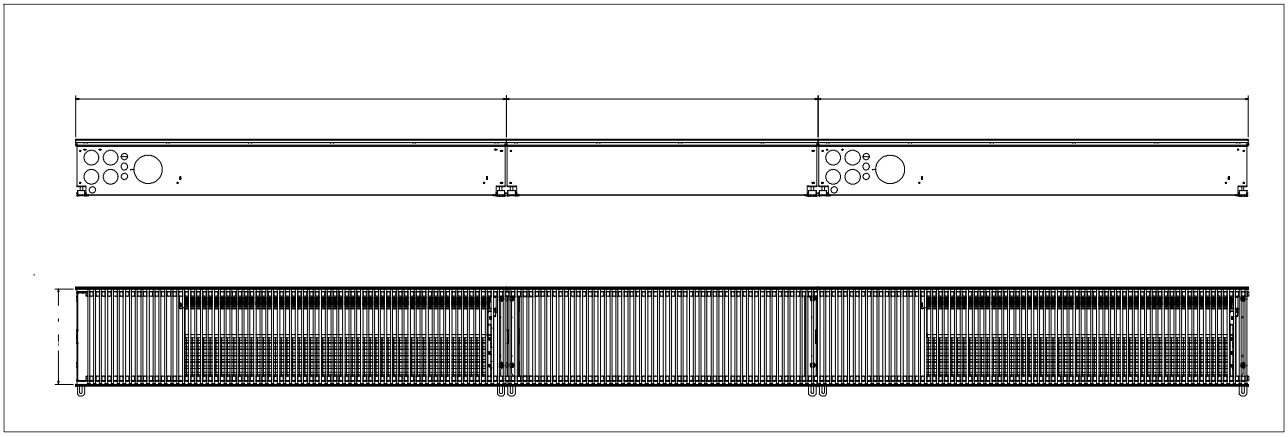
(1)	**Series**	**VKB**	=	VKB
(2)	**Type**	**0**	=	Standard
		N	=	Low height
		S	=	Slim
(3)	**Heat exchanger**	**2**	=	2-pipe
		4	=	4-pipe
(4)	**Size, length**	**500, 898**	=	500, 898 (type VKB-S)
		630, 1020	=	630, 1020 (type VKB-0 and VKB-N)
		630, 988	=	630, 988 (type VKB-S)
		800, 1250	=	800, 1250 (type VKB-0 and VKB-N)
		800, 1198	=	800, 1198 (type VKB-S)
		1000, 1450	=	1000, 1450 (type VKB-0 and VKB-N)
		1000, 1398	=	1000, 1398 (type VKB-S)
		1250, 1598	=	1250, 1598 (type VKB-S)
		2000, **2450**	=	2000, 2450 (type VKB-0 and VKB-N)
(5)	**Condensate tray**	**T**	=	Without additional condensate tray (non condensing)
		E	=	With additional condensate tray (condensing)
(6)	**Fan motor**	**EC**	=	EC motor 0...10 V signal
(7)	**Primary air supply**	**OL**	=	Without primary air supply
		FQ	=	Integrated displacement air diffuser, separated from recirculating air
		FL	=	Inductive linear diffuser, grille width 13.58 in (type VKB-0 only)
(8)	**Mixed/displacement air insert**	**MQ**	=	With mixed/displacement air insert (type VKB-0 and VKB-S only)
		–	=	Without mixed/displacement air insert
(9)	**Filter**	**OF**	=	Without filter
		MF	=	With filter
(10)	**Grille**	**AL**	=	Aluminium linear grille
		AR	=	Aluminium roller grille (on request)
		E	=	Stainless steel linear grille
		H	=	Wood roller grille
(11)	**Frame**	**2R**	=	Frame lengthwise (prepared for installation in line)
		4R	=	Frame all around
(12)	**Surface grille/frame**	**NE**	=	Natural anodized (E6-EV1)
		PB	=	Powder coated
		SE	=	Special colour

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

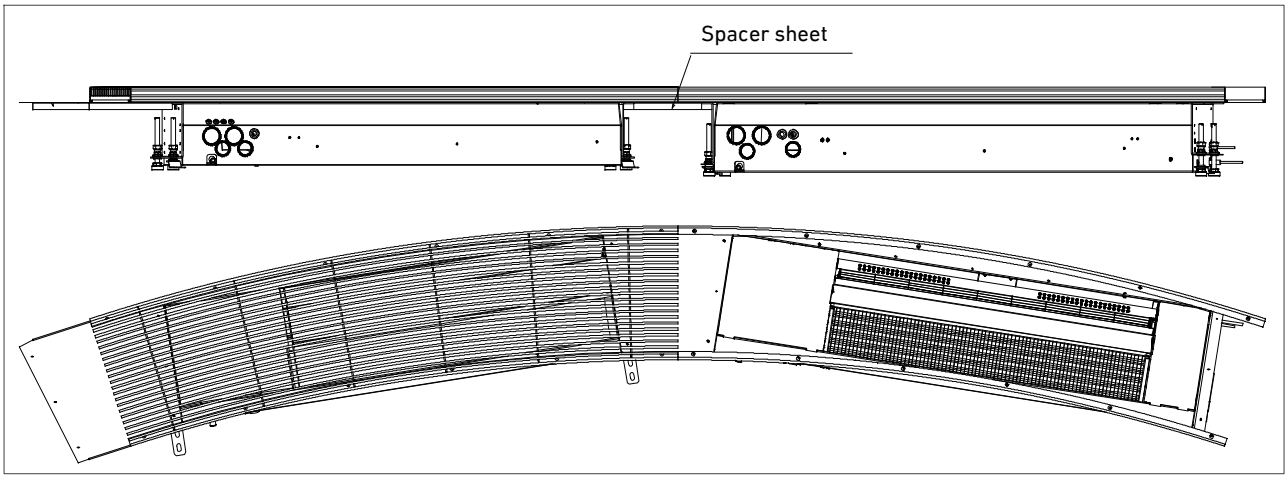
Example for installation in line, version with spacer sheet



Example for installation in line, version with empty tray

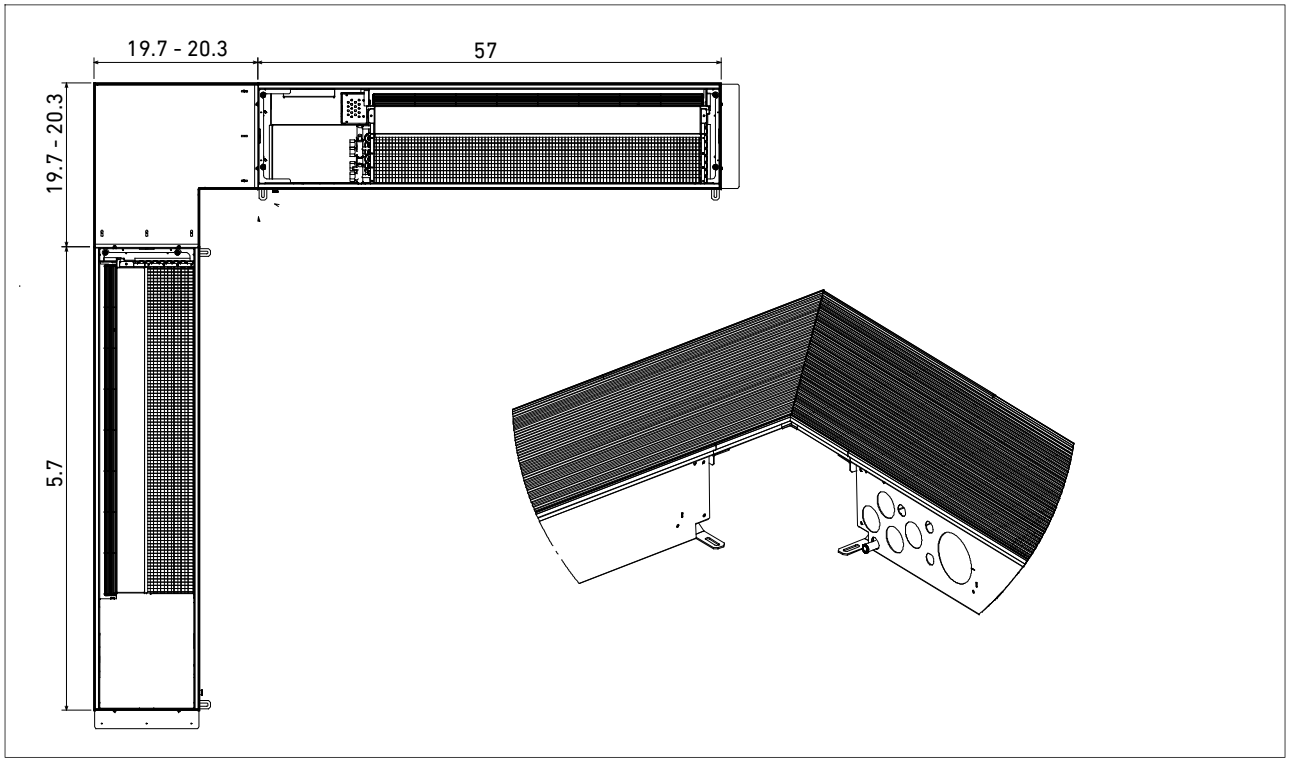


Example for installation in line, curved version



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, 19.7 or 31.5 in long, for cutting to length by others, frame loose in 6.6 ft for fitting, incl. required feet on bottom.

If the space between units is greater than 11.8 in or if end pieces are used, additional supports will be required to provide more stability.

If the space is 23.6 in or greater, the use of an empty tray type SKB-L is recommended for stabilization:
- Empty tray with aluminum frame and grille, for installation in line, sizes (width/length)
  12.6/33.5 • 12.6/41.3 • 12.6/49.2 • 12.6/57

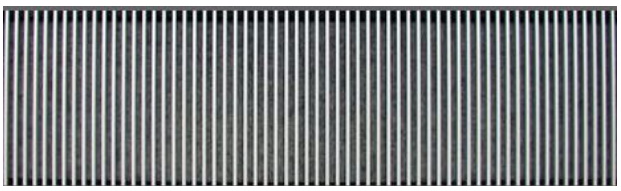
The LTG roller grilles may also be used to create cutouts for columns or mitre edges.

Grille load capacity

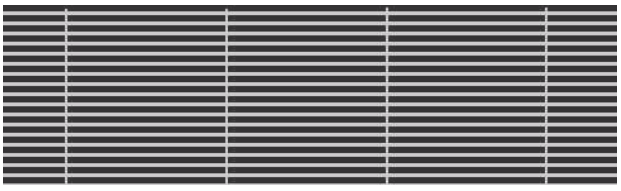
The 3 variants of foot traffic resistant LTG grilles offer the following static load capacities:
- Stainless steel grille 154 lb/ft^2
- Aluminum roller grille 328 lb/ft^2
- Aluminum linear grille 410 lb/ft^2

Other capacities on request

LTG stainless steel grille



LTG aluminum roller grille



LTG aluminum linear grille

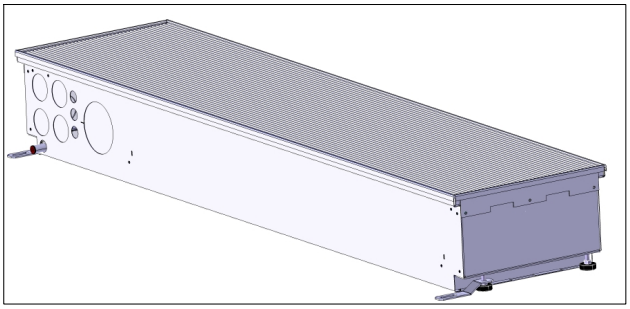
Installation

The compact design with a unit depth of 13 in allows the installation of the unit between floor supports. Height-adjustable feet ensure a precise alignment of the unit.

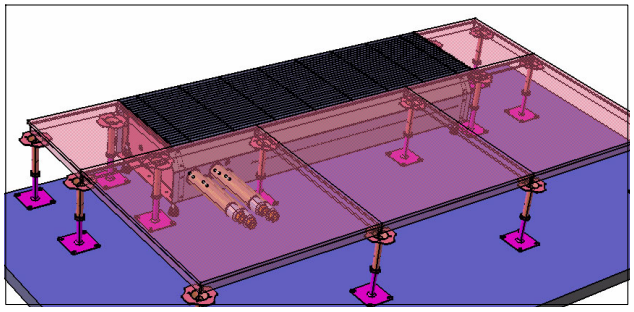
The control valve compartment and the water connection are located on the unit's left side. Bushings for water connection hoses are provided on the unit's rear panel, on the left hand side.

Power connection is to be realized on the left hand side, for EC motor at the pre-assembled plugs.

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 countersunk 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 brochure "Control for LTG induction/fan coil units".

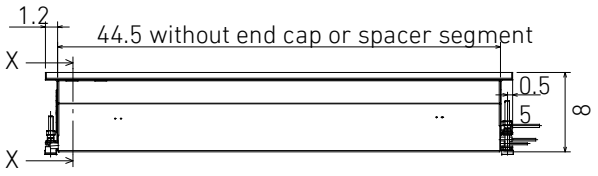
Technical brochure • Fan coil units VKB, floor installation
Special constructions

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

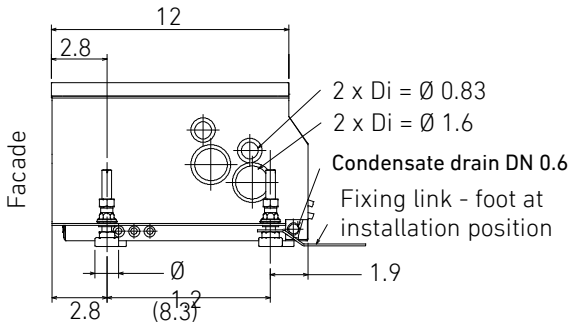
Example: with humidification

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).

Front view



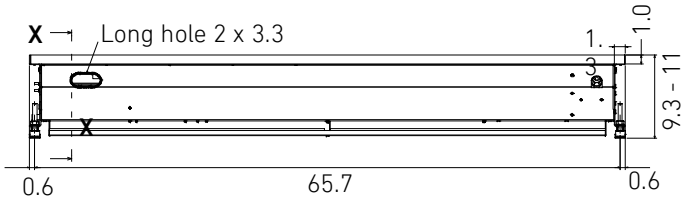
Lateral view



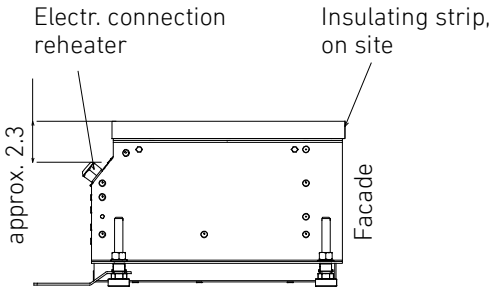
Example: with electric heating element

An electric finned-tube radiator is integrated into the equipment housing, which heats the circulated air with a 5,118 BTU/h heating capacity and introduces it evenly into the discharge cross-section when the fan is switched on (regulation by others).

Front view



Lateral view, right side



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. 7.9 in height.

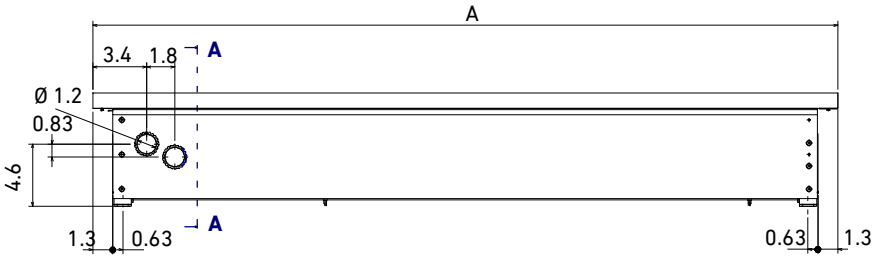
The heat exchangers have been specially optimized for low water quantities and high calorific output. Connection with a ½ " valve connection.

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

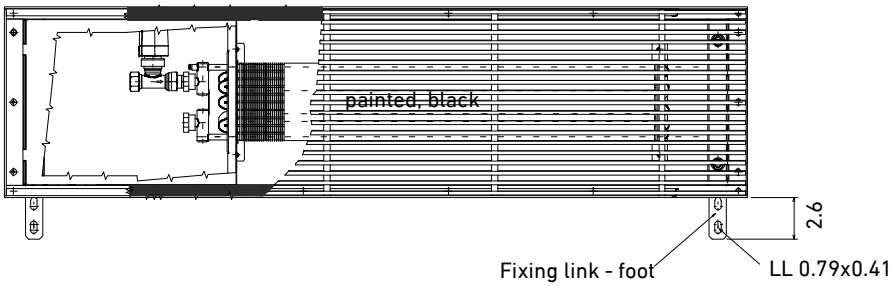
Dimensions, weights

Size	A [in]	Weight [lb]	Water content [gal] Heating circuit
630	40.1	37.4	0.13
800	49.2	44.0	0.16
1000	57.0	50.6	0.18

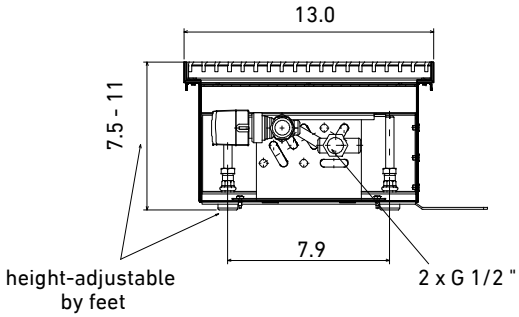
Front view



Top view

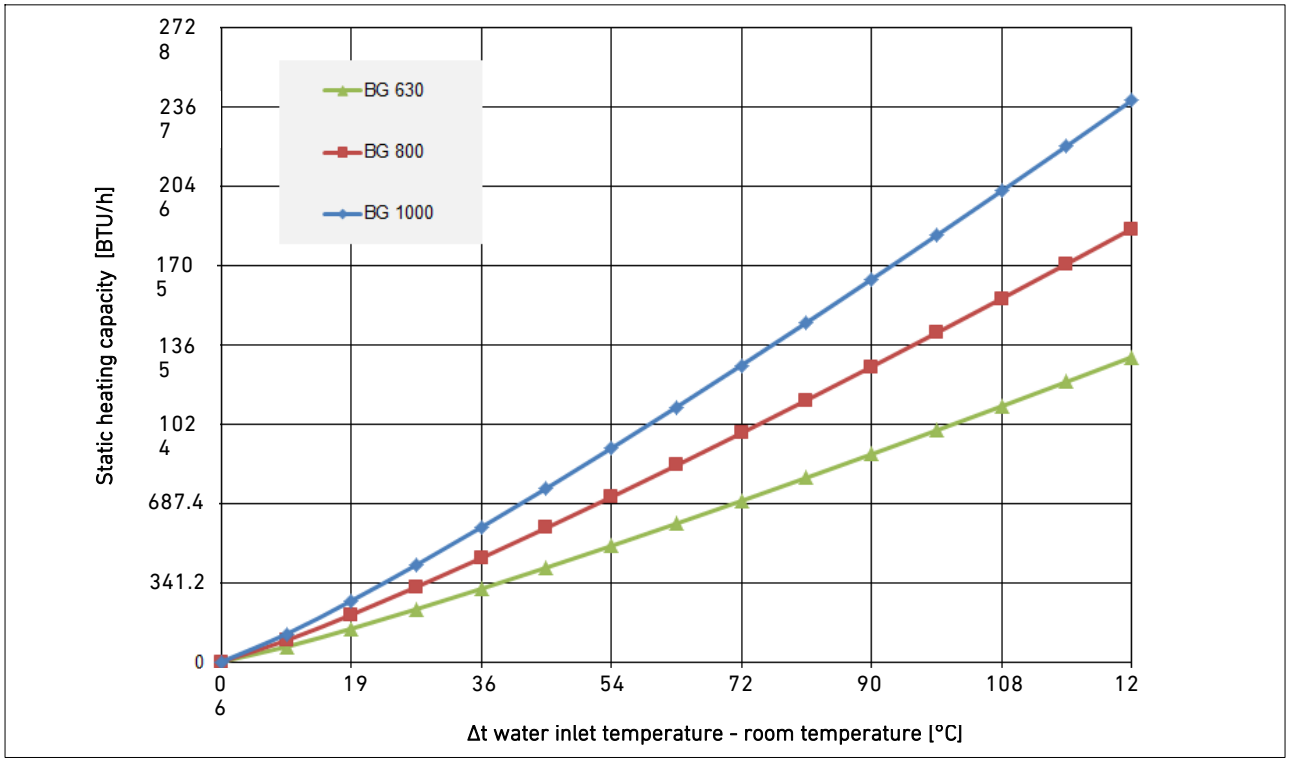


Cut A - A

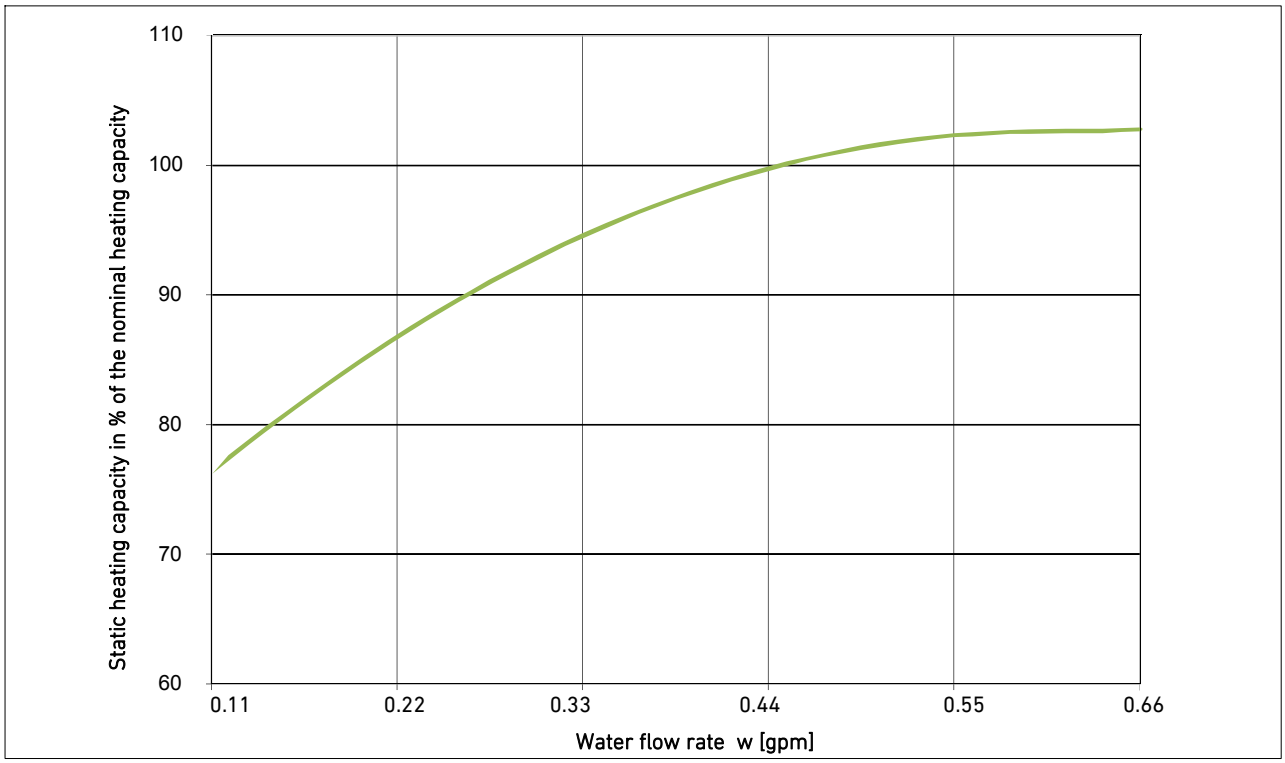


Technical brochure • Fan coil units VKB, floor installation
Static convector heater type SKB

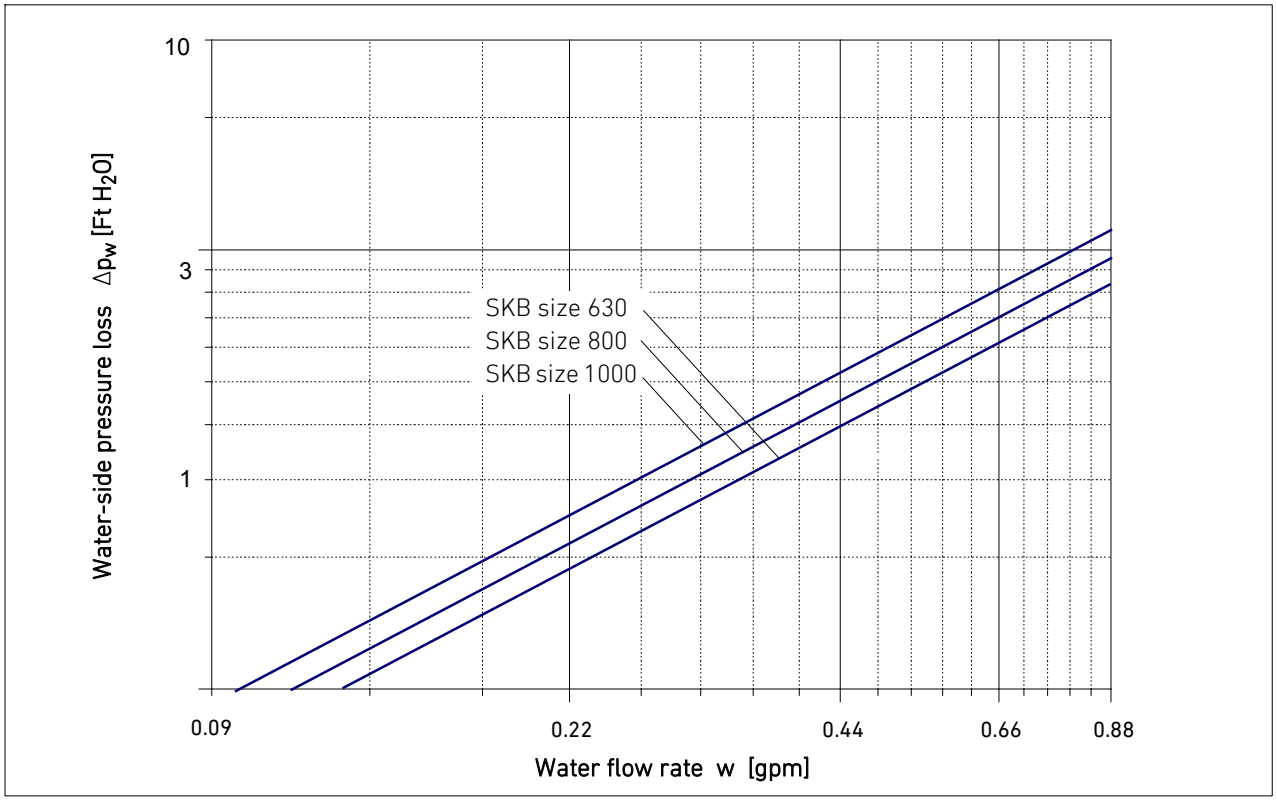
Static heating capacity (0.44 gpm)



Static heating capacity for different water flow rates



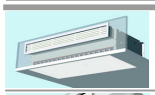
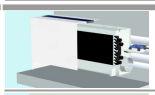
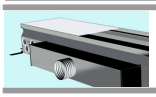
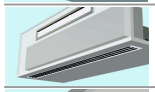
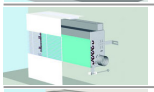
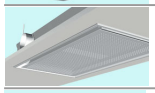
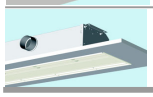
Water-side pressure loss of the electrical heating element for different water flow rates



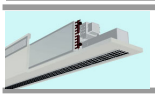
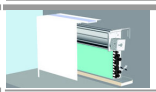
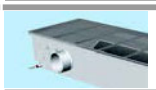
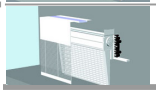
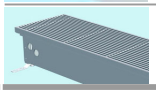
AIR TECH SYSTEMS

Product Overview
LTG Air-Water Systems

LTG Induction – Induction Units and Chilled Beams

Ceiling installation	Sill Installation	Floor Installation
 HFF*suite* SilentSuite	 HFV / *HFVsf* System SmartFlow	 HFB / HFB*sf* System SmartFlow
 LHG System Indivent	 HFG	
 HDF / HDF*sf* System SmartFlow	 QHG	
 HDC		

LTG FanPower – Fan Coil Units

Ceiling Installation	Sill Installation	Floor Installation
 LVC System Indivent	 VFC	 VKB
	 QVC	 SKB

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Air Distribution

Process Air Technology

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LTG Aktiengesellschaft
Grenzstraße 7
70435 Stuttgart
Germany
Tel.: +49 (711) 8201-0
Fax: +49 (711) 8201-720
E-Mail: info@LTG.de
www.LTG.de

LTG Incorporated
105 Corporate Drive, Suite E
Spartanburg, SC 29303
USA
Tel..: +1 (864) 599-6340
Fax: +1 (864) 599-6344
E-Mail: info@LTG-INC.net
www.LTG-INC.net

VKB-usa-TP (05/19) 416-145