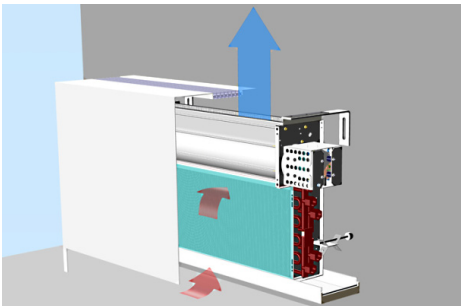


Technical Brochure

# LTG Air-Water Systems

**LTG FanPower**

Fan Coil Units



Installation in sills

## Fan Coil Units for Perimeter Installation

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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 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.

You will find the actual tender documentations at the end of this document.

They are available in word format at your local dealership or at [www.LTG-AG.de](http://www.LTG-AG.de).

## LTG Fan coil units

### Room airflow

LTG offer air diffusion by various techniques:

- Mixed/displacement flow from the sill
- Tangential flow from the sill
- Air displacement from the sill
- Indivent<sup>®</sup> flow from the ceiling

### Types

LTG offers different types for any application. The main distinctive feature of the LTG fan coil units is the way the temperature is controlled.

#### Two-pipe system

The fan coil unit has only one heat exchanger through which chilled water flows for cooling and hot water for heating. Thus, it is only possible to either heat or cool in a single water circuit.

#### Four-pipe system

The fan coil unit has two separate water systems, one for heating, the other for cooling. Thus, chilled and hot water will always remain separate. The four-pipe system fulfills all requirements on varying loads and small control zones.

#### Valve control (water-side control)

The heating or cooling output of the heat exchanger is controlled by modifying the water flow.

#### Damper control (air-side control)

The heating or cooling output is controlled by modifying the flow of secondary air. Adjustable dampers guide the air current through the air cooler or the air heater or they divert the secondary air through a bypass avoiding the heat exchanger.

### Functionality

LTG fan coil units use an integrated fan that draws in the ambient air. In a water-fed heat exchanger this air is cooled or heated, then discharged again into the room. The heat exchanger is usually equipped with a filter for protection.

The system uses low-noise, maintenance-free cross-flow fans. Speed control is realized using a 5-speed motor that may be triggered through individual switches. Group triggering of several units with one switch is also possible.

The fan coil units re-circulate 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.

### Advantages

#### • Versatile Range

- two- and four-pipe systems
- different sizes

#### • Features

- Low-noise tangential or centrifugal fan
- Energy-saving fan operation
- Units with fresh air supply (option)

#### • Room air flow

- Uniform air discharge over the entire unit length thanks to a tangential fan
- Inlet and outlet grille with adjustable air guidance for optimum room air flow
- A variety of flow patterns

#### • Installation properties

- Compact construction and minimum unit height
- Low installation depth

#### • Complete packaged systems

- Integrated control systems
- Integrated ventilation systems, including fan coil units and linear diffusers

#### • Maintenance

- Easily removable, maintenance-free fan
- Easy replacement of filter, filter class G2
- Easily accessible heat exchanger on the suction side

### Accessories, special versions

(see brochure Accessories for LTG Air Conditioning Units)

- Special fan insert for mixed air / displacement air
- Units without secondary air filter and safety grille on the outlet (standard version with filter and grille)
- Drainage spigot for drain tray
- For water-side unit connection: transition 1/2" or air bleed fitting, flexible connection hoses
- Air outlet grille and frame
- Fresh air inlet
- Control accessories

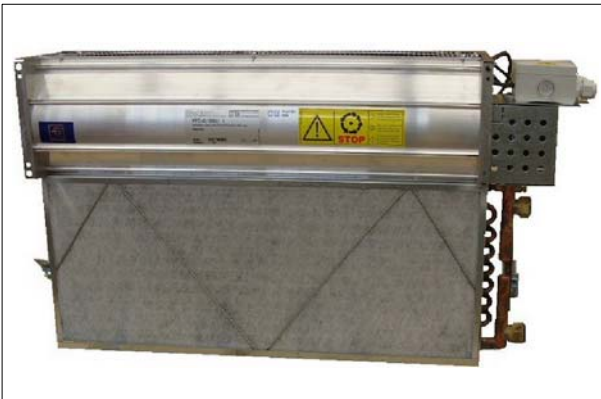
## Fan coil units for perimeter installation

### Product Overview

Type	Features	Functions	Sizes
<b>VFC-2/F</b>	Standard unit	2-pipe-unit Water-side control by valves Cooling only or heating only	500 not available) 630 800 1000 1250
VFC-2/F/Z	For extremely low inlet temperatures		
VFC-2/F/PL	Upright unit with fresh air supply by LTG linear air diffuser type LDB		
VFC-2/F/PK	Upright unit with fresh air supply by fresh air box		
VFC-2/F/S	Upright unit with solid floor fixation		
VFC-2/F/EC	With energy-saving EC motor		
<b>VFN-2</b>	Particularly small built-in depth and height For high demands on acoustics		630 800 1000 1250
VFN-2/E	Condensing		630
<b>QVC-2</b>	Displacement fan coil unit for particularly high demands on comfort		630 800 1000 1250
<b>VFC-4/F</b>	Standard unit		4-pipe unit Water-side control by valves Cooling and heating
VFC-4/F/Z	For extremely low inlet temperatures		
VFC-4/F/PL	Upright unit with fresh air supply by LTG linear air diffuser type LDB		
VFC-4/F/PK	Upright unit with fresh air supply by fresh air box		
VFC-4/F/S	Upright unit with solid floor fixation		
VFC-4/F/EC	With energy-saving EC motor		
<b>VFN-4</b>	Particularly small built-in depth and height For high demands on acoustics	630 800 1000 1250	
VFN-4/E	Condensing	630	
<b>QVC-4</b>	Displacement fan coil unit for particularly high demands on comfort	630 800 1000 1250	

## Fan coil units for perimeter installation Series VFC

### Unit view



Fan coil unit for perimeter installation Type VFC

### Application

The fan coil unit type VFC has been specifically designed for hotels and office buildings with strict acoustic requirements. It offers versatile possibilities for design of air distribution systems. Installation in sills.

### Advantages

- Low-noise operation.
- Insulation of the unit suitable for operation with 6 °C cooling water.
- Energy-saving fan operation
- Maintenance-friendly design.  
 Motor, impeller and heat exchanger are accessible from below.
- Low installation depth of only 165 mm
- Highly efficient EC and AC motors with low energy consumption (SFP 200 W/(m³/s))
- Excellent aerodynamic integration of fan and large-area heat exchanger for high caloric output 30 - 75 W<sub>th</sub>/W<sub>el</sub> with low sound level
- Very smooth running and low sound level thanks to vibration isolated tangential fan and low-noise slide bearing
- Heat exchanger for efficient room heating via natural convection
- Fan with maintenance-free, low-noise slide bearings for long service life
- Air guiding elements for patented, optimized LTG mixed displacement air ventilation, adjustable to a variety of room geometries (optional)

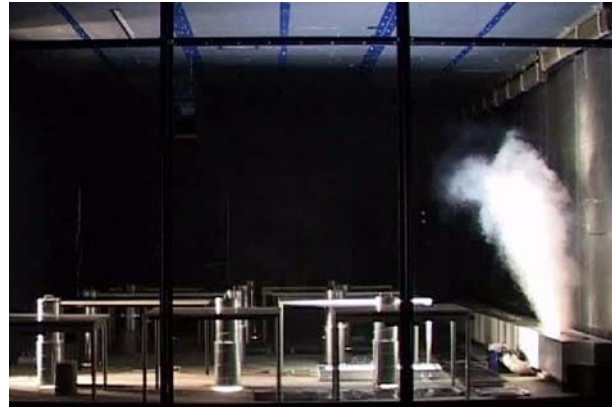
### Design

- 2-pipe system for cooling only or heating only (VFC-2)
- 4-pipe system for cooling and heating (VFC-4)

### Operation principle

The tangential fan of the VFC draws in ambient air. This air passes through a heat exchanger (cooling or heating) and is then returned into the room.

Output control is water-side using valves.



Example of room air flow:  
 VFC with special fan insert for mixed air/displacement air

# Fan Coil Units for Perimeter Installation Type VFC-4/F

## Specification

Fan coil unit with one heat exchanger with two separate water cycles for heating and cooling the ambient air. Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving perimeter installation.

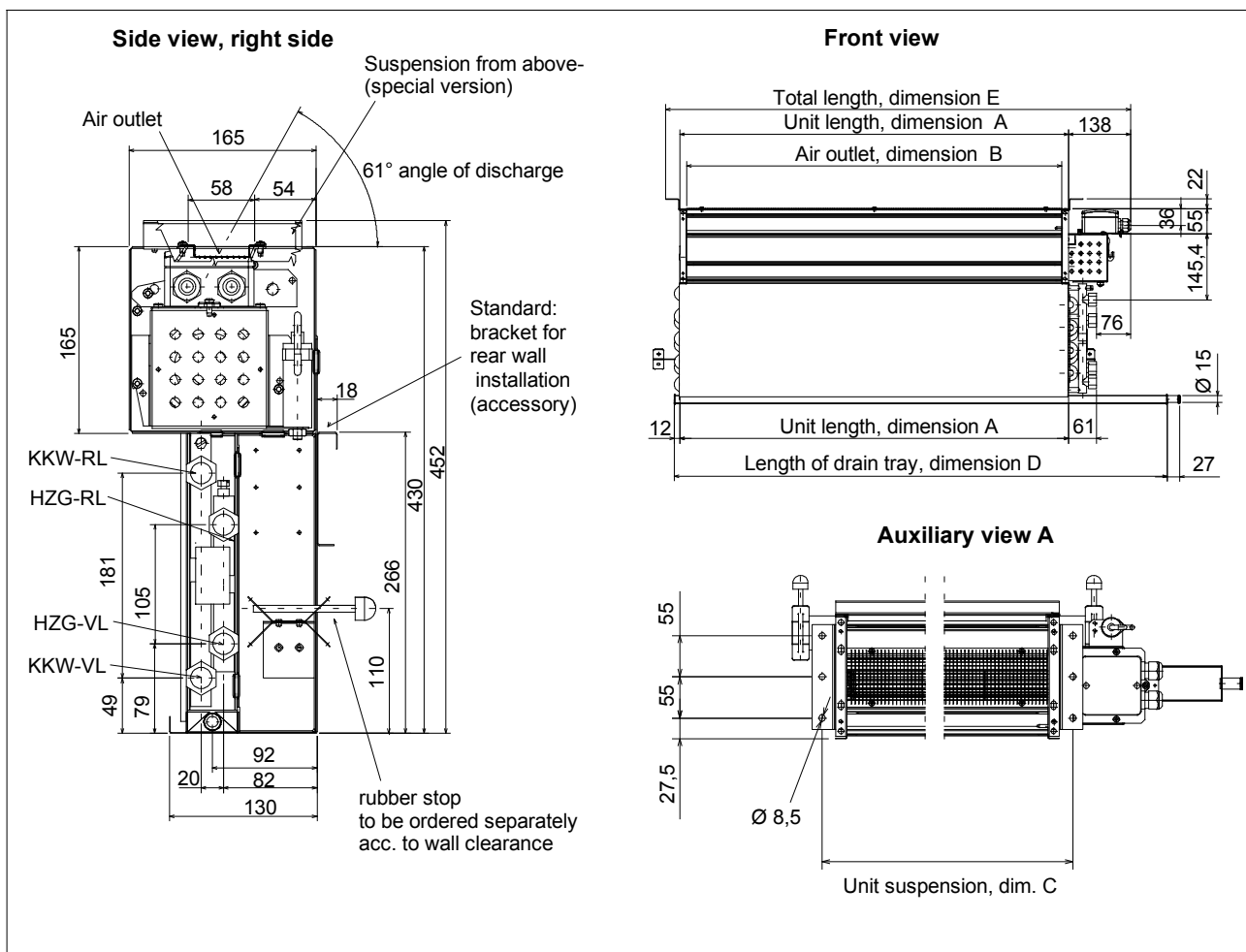
For extremely low inlet temperatures the unit is available with an insulated drain tray (see page 10).

Vertical installation. Water connection on the right or left.

## Dimensions, Weights

Size	A	B	C	D	E	Weight*
	[mm]					[kg]
500	527	497	563	730	695	13
630	627	597	663	885	795	15
800	857	827	893	1085	1025	19
1000	1057	1027	1093	1335	1225	23
1250	1257	1227	1293	1553	1425	28

\* approx. values, depending on execution



KKW-VL = cooling - water inlet  
 KKW-RL = cooling - water return  
 HZG-VL = heating - water inlet  
 HZG-RL = heating - water return

The unit may be mounted using one of the following possibilities (please state with your order):  
 - suspension from above (attachment to the sill) or  
 - wall mounting (rear suspension)  
 (see brochure Accessories for LTG air conditioning units)



# Fan Coil Units for Perimeter Installation

## Type VFC-4/F

### Technical data size 500

n	V	L <sub>A18</sub>	L <sub>WA</sub>	Q <sub>k of/Δt</sub> <sup>1)</sup>	Q <sub>k mF/Δt</sub> <sup>1)</sup>	Q <sub>k mF</sub> <sup>2)</sup>	Q <sub>k sens mF</sub> <sup>2)</sup>	Q <sub>h of/Δt</sub>	Q <sub>h mF/Δt</sub>	w <sub>ok</sub> /Δp <sub>w</sub>	w <sub>oh</sub> /Δp <sub>w</sub>	P <sub>el</sub>
[-]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]	[W/K]	[W/K]	[W]	[W]	[W/K]	[W/K]	[kg/h]/[kPa]	[kg/h]/[kPa]	[W]
I	160	26	32	34	28	672	560	21	19	200 / 13	100 / 2.5	16
II	240	30	36	46	45	1080	900	28	28			20
III	290	36	42	54	54	1220	1080	32	32			23
IV	340	40	46	60	60	1320	1200	35	35			25
V	430	46	52	68	68	1468	1360	40	40			31

### Technical data size 630

n	V	L <sub>A18</sub>	L <sub>WA</sub>	Q <sub>k of/Δt</sub> <sup>1)</sup>	Q <sub>k mF/Δt</sub> <sup>1)</sup>	Q <sub>k mF</sub> <sup>2)</sup>	Q <sub>k sens mF</sub> <sup>2)</sup>	Q <sub>h of/Δt</sub>	Q <sub>h mF/Δt</sub>	w <sub>ok</sub> /Δp <sub>w</sub>	w <sub>oh</sub> /Δp <sub>w</sub>	P <sub>el</sub>
[-]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]	[W/K]	[W/K]	[W]	[W]	[W/K]	[W/K]	[kg/h]/[kPa]	[kg/h]/[kPa]	[W]
I	170	25	31	41	36	864	720	26	23	200 / 14	100 / 2.7	16
II	260	29	35	52	51	1224	1020	32	31			20
III	310	35	41	60	60	1356	1200	35	35			23
IV	370	39	45	67	67	1474	1340	39	39			25
V	480	46	52	76	76	1641	1520	43	43			31

### Technical data size 800

n	V	L <sub>A18</sub>	L <sub>WA</sub>	Q <sub>k of/Δt</sub> <sup>1)</sup>	Q <sub>k mF/Δt</sub> <sup>1)</sup>	Q <sub>k mF</sub> <sup>2)</sup>	Q <sub>k sens mF</sub> <sup>2)</sup>	Q <sub>h of/Δt</sub>	Q <sub>h mF/Δt</sub>	w <sub>ok</sub> /Δp <sub>w</sub>	w <sub>oh</sub> /Δp <sub>w</sub>	P <sub>el</sub>
[-]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]	[W/K]	[W/K]	[W]	[W]	[W/K]	[W/K]	[kg/h]/[kPa]	[kg/h]/[kPa]	[W]
I	220	25	31	47	42	1008	840	29	26	200 / 16	100 / 3.1	16
II	320	28	34	64	60	1440	1200	38	36			20
III	380	34	40	74	71	1604	1420	42	41			23
IV	460	38	44	82	81	1782	1620	47	47			25
V	580	45	51	92	91	1965	1820	51	51			31

### Technical data size 1000

n	V	L <sub>A18</sub>	L <sub>WA</sub>	Q <sub>k of/Δt</sub> <sup>1)</sup>	Q <sub>k mF/Δt</sub> <sup>1)</sup>	Q <sub>k mF</sub> <sup>2)</sup>	Q <sub>k sens mF</sub> <sup>2)</sup>	Q <sub>h of/Δt</sub>	Q <sub>h mF/Δt</sub>	w <sub>ok</sub> /Δp <sub>w</sub>	w <sub>oh</sub> /Δp <sub>w</sub>	P <sub>el</sub>
[-]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]	[W/K]	[W/K]	[W]	[W]	[W/K]	[W/K]	[kg/h]/[kPa]	[kg/h]/[kPa]	[W]
I	300	27	33	58	53	1272	1060	36	33	200 / 18	100 / 3.4	25
II	420	30	36	76	71	1704	1420	47	44			29
III	470	34	40	85	82	1853	1640	54	51			33
IV	570	38	44	95	92	2024	1840	59	57			36
V	720	46	52	107	105	2268	2100	65	65			42

### Technical data size 1250

n	V	L <sub>A18</sub>	L <sub>WA</sub>	Q <sub>k of/Δt</sub> <sup>1)</sup>	Q <sub>k mF/Δt</sub> <sup>1)</sup>	Q <sub>k mF</sub> <sup>2)</sup>	Q <sub>k sens mF</sub> <sup>2)</sup>	Q <sub>h of/Δt</sub>	Q <sub>h mF/Δt</sub>	w <sub>ok</sub> /Δp <sub>w</sub>	w <sub>oh</sub> /Δp <sub>w</sub>	P <sub>el</sub>
[-]	[m <sup>3</sup> /h]	[dB(A)]	[dB(A)]	[W/K]	[W/K]	[W]	[W]	[W/K]	[W/K]	[kg/h]/[kPa]	[kg/h]/[kPa]	[W]
I	360	27	33	74	68	1632	1360	46	43	200 / 20	100 / 3.6	25
II	470	30	36	90	85	2040	1700	54	51			29
III	570	35	41	98	96	2196	1920	61	58			33
IV	690	38	44	106	104	2288	2080	63	61			36
V	830	46	52	118	116	2505	2320	69	67			42

1) Specific cooling capacity (non-condensing operation)

2) Cooling capacity with the following parameters: water inlet: 6°C, air inlet: 26°C, 50% rel. humidity

#### Legend

n - speed  
V - flow rate (approx. values, tolerance ±10%)  
L<sub>A18</sub> - sound pressure level, 18 m<sup>2</sup> Sabine  
L<sub>WA</sub> - sound power level ±3 dB(A) (without casing)  
Q<sub>k of</sub> - cooling capacity (without filter)  
Q<sub>k mF</sub> - cooling capacity (with filter)  
Q<sub>h of</sub> - heating capacity (without filter)  
Q<sub>h mF</sub> - heating capacity (with filter)  
Q<sub>k sens mF</sub> - sensible cooling capacity (with filter)

Δt - temperature difference between suction air temp. before entering heat exchanger and water supply  
w<sub>ok</sub> - standard water flow rate at cooling capacity\*  
w<sub>oh</sub> - standard water flow rate at heating capacity\*  
Δp<sub>w</sub> - water-side pressure loss  
P<sub>el</sub> - electric power consumption (± 20%)

\* Correction for other flow rates see page 17

#### Speed control wiring diagram

See page 38.

# Fan coil units for perimeter installation Type VFC-2/F

## Specification

Fan coil unit with one heat exchanger for heating or cooling the ambient air.  
 Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving perimeter installation.

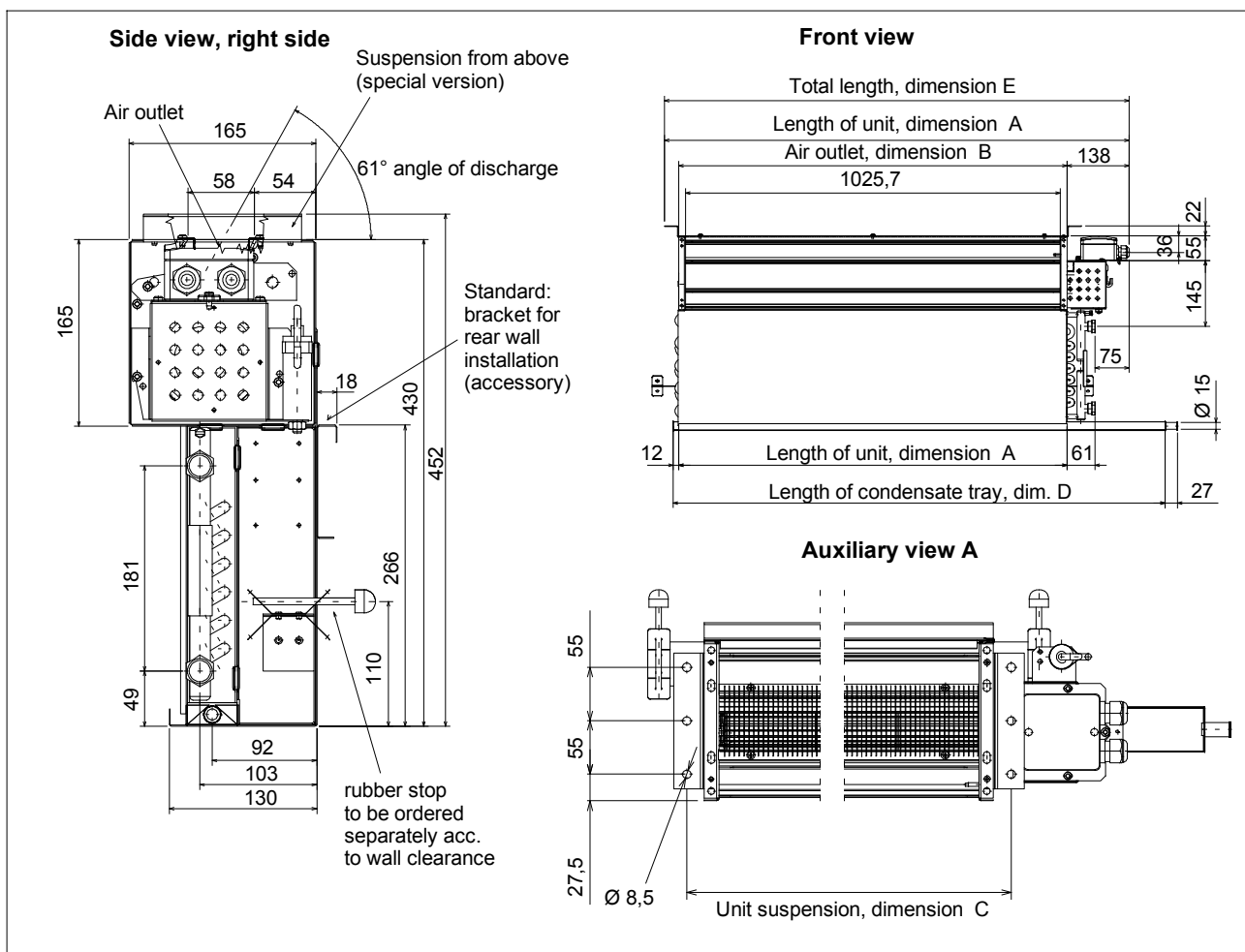
For extremely low inlet temperatures the unit is available with an insulated drain tray (see page 11).

Vertical installation. Water connection on the right or left.

## Dimensions, weights

Size	A	B	C	D	E	Weight*
	[mm]					[kg]
500	527	497	563	730	695	13
630	627	597	663	885	795	15
800	857	827	893	1085	1025	19
1000	1057	1027	1093	1335	1225	23
1250	1257	1227	1293	1553	1425	28

\* approx. values, depending on execution



The unit may be mounted using one of the following possibilities (please state with your order):

- suspension from above (attachment to the sill) or
- wall mounting, rear suspension (see brochure Accessories for LTG Air Conditioning Units)



## Fan coil units for perimeter installation Type VFC-2/F

### Technical data size 500

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> <sup>2)</sup> [W]	Q <sub>sens mF</sub> <sup>2)</sup> [W]	w <sub>o</sub> /Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
I	160	26	32	37	36	864	720	200/18	16
II	240	30	36	49	48	1152	960		20
III	290	36	42	57	56	1265	1120		23
IV	340	40	46	64	64	1408	1280		25
V	430	46	52	73	73	1576	1460		31

### Technical data size 630

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> <sup>2)</sup> [W]	Q <sub>sens mF</sub> <sup>2)</sup> [W]	w <sub>o</sub> /Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
I	170	25	31	48	43	1032	860	200/20	16
II	260	29	35	59	59	1416	1180		20
III	310	35	41	68	68	1536	1360		23
IV	370	39	45	76	76	1672	1520		25
V	480	46	52	87	87	1879	1740		31

### Technical data size 800

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> <sup>2)</sup> [W]	Q <sub>sens mF</sub> <sup>2)</sup> [W]	w <sub>o</sub> /Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
I	220	25	31	52	48	1152	960	200/22	16
II	320	28	34	72	64	1536	1280		20
III	380	34	40	83	78	1762	1560		23
IV	460	38	44	95	92	2024	1840		25
V	580	45	51	105	105	2268	2100		31

### Technical data size 1000

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> <sup>2)</sup> [W]	Q <sub>sens mF</sub> <sup>2)</sup> [W]	w <sub>o</sub> /Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
I	300	27	33	62	59	1488	1180	200/23	25
II	420	30	36	82	76	1968	1520		29
III	470	34	40	92	89	2079	1780		33
IV	570	38	44	104	102	2288	2040		36
V	720	46	52	114	114	2462	2280		42

### Technical data size 1250

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>mF</sub> <sup>2)</sup> [W]	Q <sub>sens mF</sub> <sup>2)</sup> [W]	w <sub>o</sub> /Δp <sub>w</sub> [kg/h]/[kPa]	P <sub>el</sub> [W]
I	360	27	33	80	73	1752	1460	200/25	25
II	470	30	36	98	92	2208	1840		29
III	570	35	41	107	104	2350	2080		33
IV	690	38	44	116	113	2486	2260		36
V	830	46	52	128	124	2678	2480		42

1) Specific cooling capacity (non condensing operation)

2) Cooling capacity with the following parameters: water inlet 6°C, air inlet: 26°C, 50% rel. humidity

#### Legend

n - speed

V - flow rate (approx. values, tolerance ±10%)

L<sub>A18</sub> - sound pressure level

L<sub>wA</sub> - sound power level ±3 dB(A) (without casing)

Q<sub>oF</sub> - capacity (without filter)

Q<sub>mF</sub> - capacity (with filter)

Q<sub>k sens mF</sub> - sensible cooling capacity (with filter)

Δt - temp. difference between suction air temp. before entering the heat exchanger and water supply

w<sub>o</sub> - standard water flow rate\*

Δp<sub>w</sub> - water-side pressure loss

P<sub>el</sub> - electric power consumption (± 20%)

\* Correction for other flow rates see page 17 et seq.

#### Speed control wiring diagram

See page 38.

## Fan coil units for perimeter installation Type VFC-4/F/Z, for extremely low inlet temperatures

### Specification

Fan coil unit with one heat exchanger and two separate cycles for heating or cooling the ambient air.  
Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving perimeter installation.

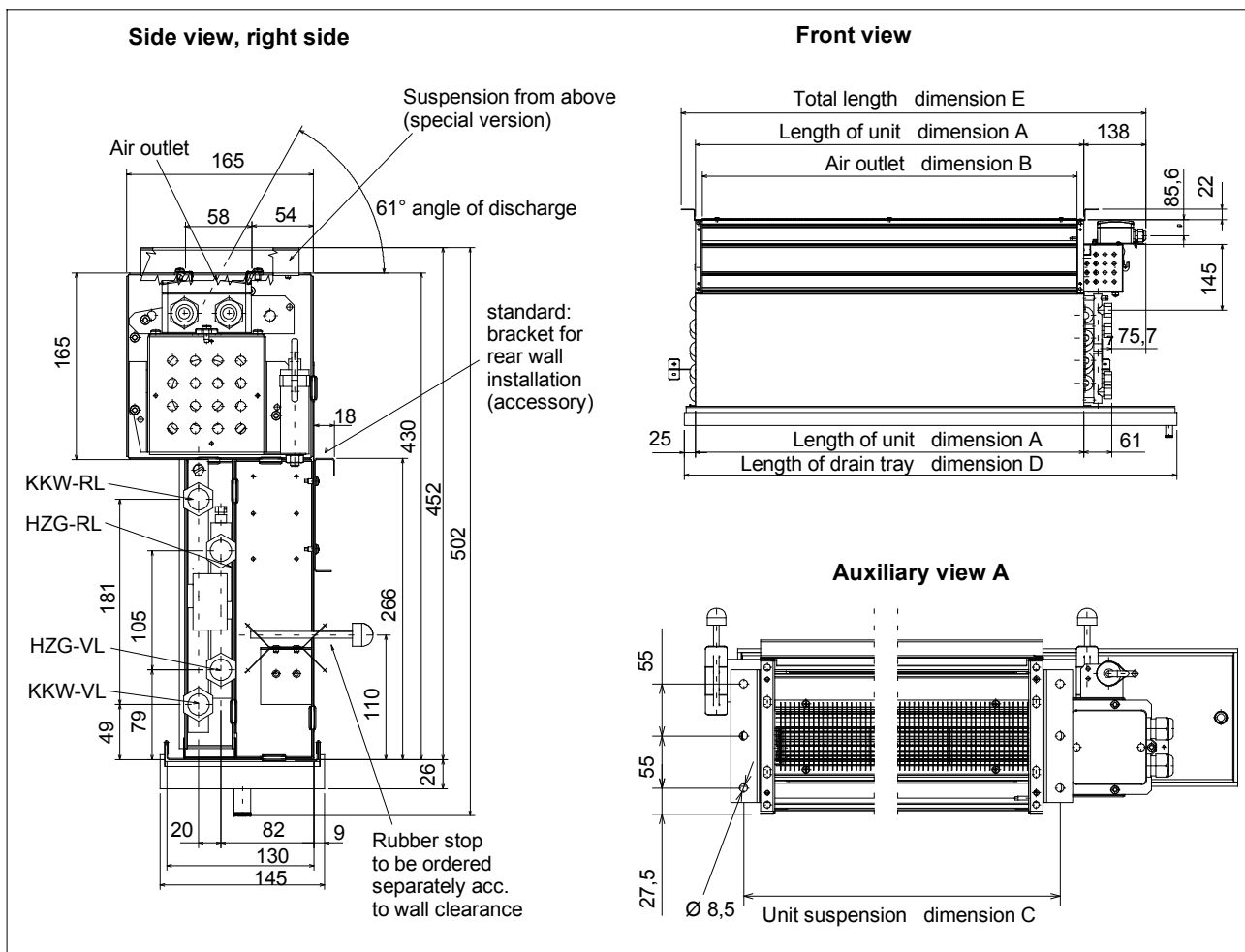
For extremely low inlet temperatures an insulated drain tray is available for insertion on site.

Vertical installation. Water connection on the right or left.

### Dimensions, weights

Size	A	B	C	D	E	Weight*
500	527	497	563	757	695	16
630	627	597	663	857	795	19
800	857	827	893	1087	1025	24
1000	1057	1027	1093	1287	1225	29
1250	1257	1227	1293	1487	1425	34

\* approx. values, depending on execution



KKW-VL = cooling - water inlet  
 KKW-RL = cooling - water return  
 HZG-VL = heating - water inlet  
 HZG-RL = heating - water return

The unit may be mounted using one of the following possibilities (please state with your order):

- suspension from above (attachment to the sill) or
- wall mounting (rear suspension)

(see brochure Accessories for LTG Air Conditioning Units)

### Technical data

See standard unit VFC-4/F (page 7).

## Fan coil units for perimeter installation Type VFC-2/F/Z, for extremely low inlet temperatures

### Specification

Fan coil unit with one heat exchanger for heating or cooling the ambient air.  
Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving perimeter installation.

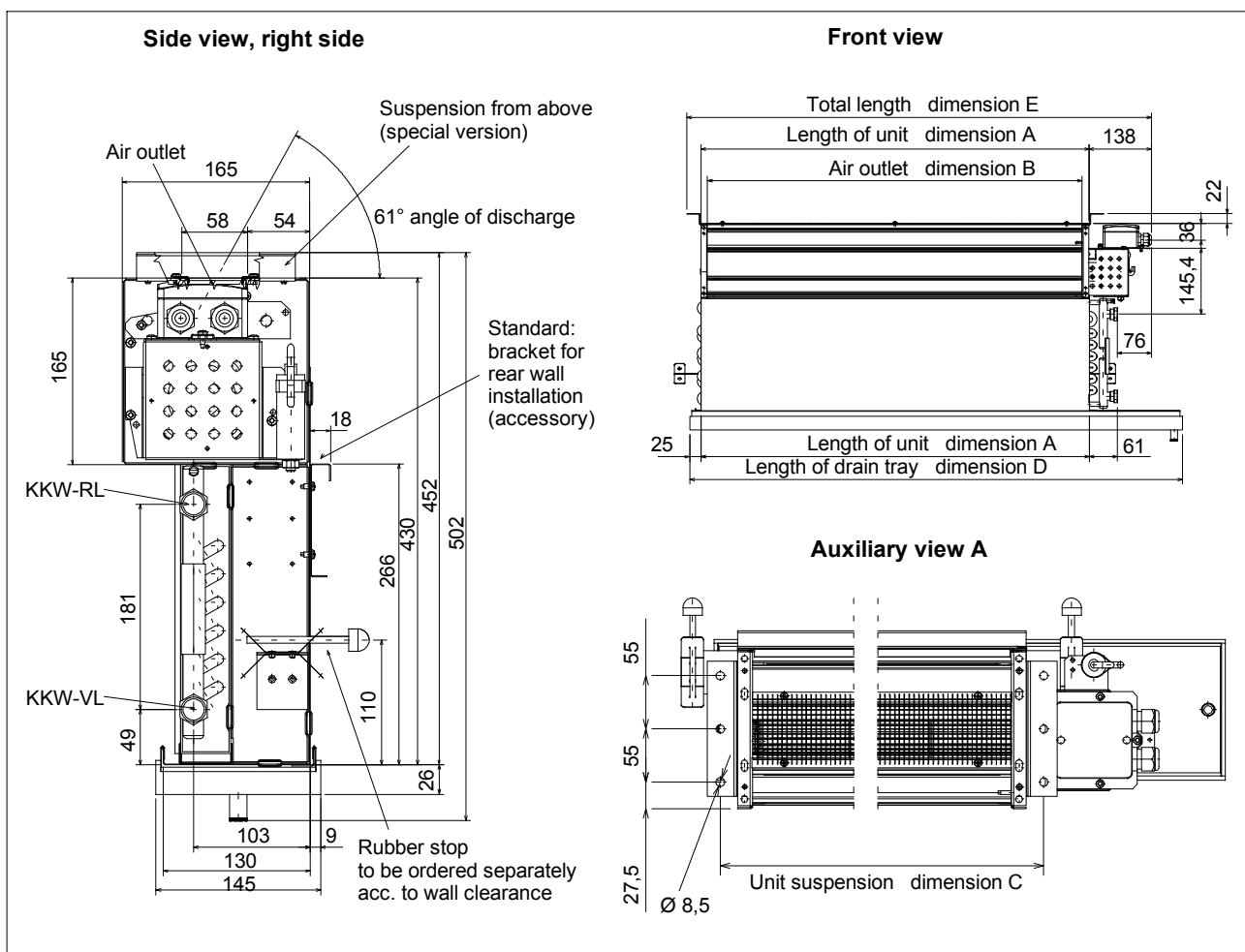
For extremely low inlet temperatures an insulated drain tray is available for insertion on site.

Vertical installation. Water connection on the right or left.

### Dimensions, weights

Size	A	B	C	D	E	Weight* [kg]
	[mm]					
500	527	497	563	757	695	16
630	627	597	663	857	795	19
800	857	827	893	1087	1025	24
1000	1057	1027	1093	1287	1225	29
1250	1257	1227	1293	1487	1425	34

\* approx. values, depending on execution



KKW-VL = cooling - water inlet  
 KKW-RL = cooling - water return  
 HZG-VL = heating - water inlet  
 HZG-RL = heating - water return

The unit may be mounted using one of the following possibilities (please state with your order):

- suspension from above (attachment to the sill casing) or
- wall mounting (rear suspension)

(see brochure Accessories for LTG Air Conditioning Units)

### Technical data

See standard unit VFC-2/F (page 9).

## Fan coil units for perimeter installation, type VFC-4/F/PL and VFC-2/F/PL Upright units with fresh air supply by linear diffuser type LDB

### Specification

Fan coil unit special version with fresh air supply.  
Through an adjustable LTG diffuser type LDB, the air is blown out in parallel to the tangential fan outlet. Optimum fresh air supply is ensured even with the fan at standstill.

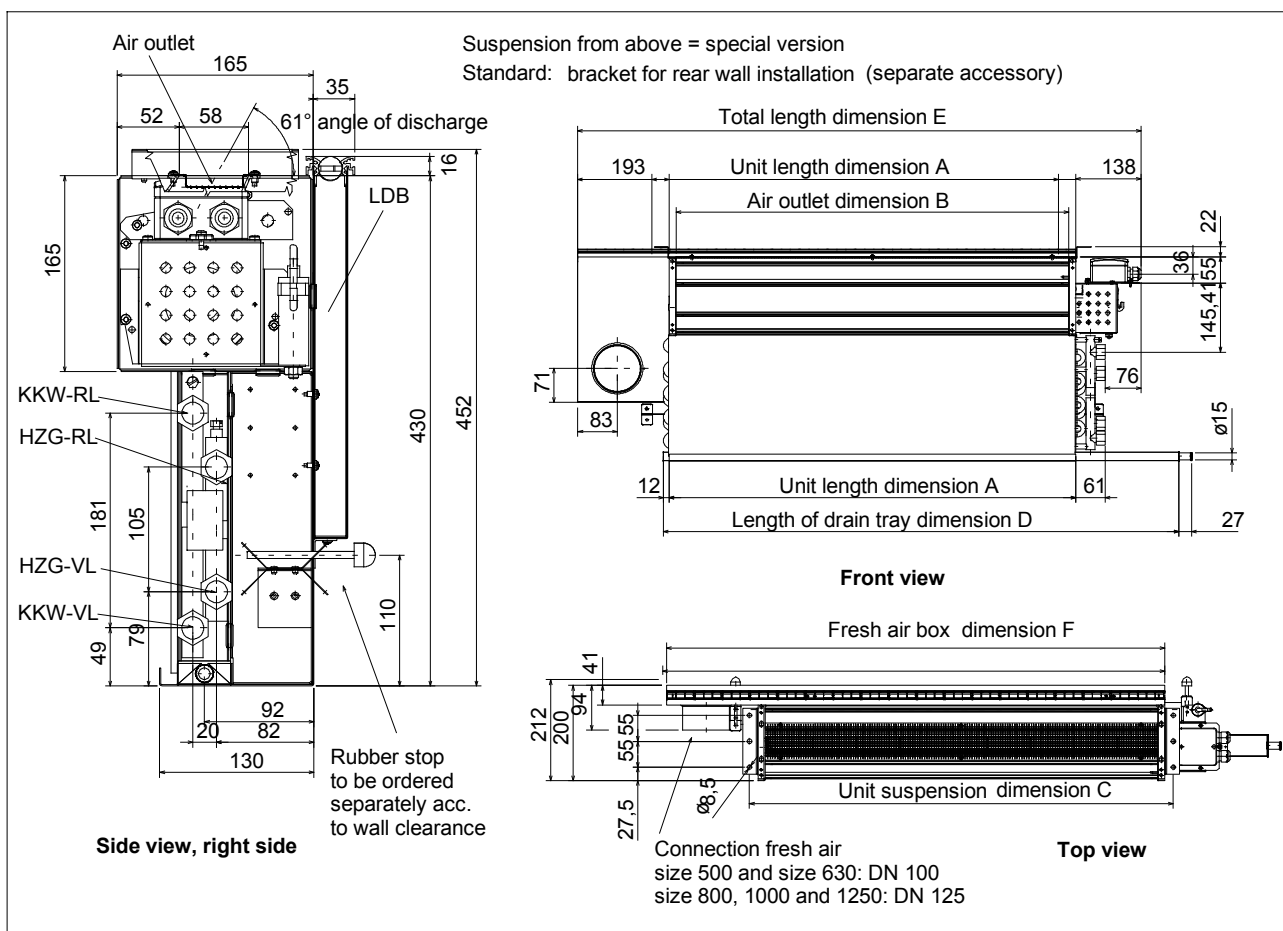
Fan coil unit with one heat exchanger and two separate circuits for heating or cooling the ambient air.  
Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving perimeter installation.  
Vertical installation. Water connection on the right or left.

### Dimensions, weights

Size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Weight* [kg]
500	527	497	563	730	860	720	16
630	627	597	663	885	960	820	19
800	857	827	893	1085	1190	1050	24
1000	1057	1027	1093	1335	1390	1250	29
1250	1257	1227	1293	1553	1590	1450	35

\* approx. values, depending on execution



Shown: Type VFC-4 (4-pipe system)

### Technical data

See standard unit VFC-4/F (page 7) und VFC-2/F (page 9).  
Acoustic data may vary according to fresh air rate.

**Sound power level for separate fresh air box**  
(to be added to unit level)

The **overall sound power level** is 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 $L_{wA}$ [dB(A)]

Size	V [m³/h]					
	40	60	80	100	120	140
500	15	26	34	40	46	>45
630	15	23	31	37	42	>45
800	<15	28	25	32	37	41
1000	<15	<15	19	26	31	35
1250	<15	<15	<15	22	26	31

## Fan coil units for perimeter installation, type VFC-4/F/PK, VFC-2/F/PK Upright units with fresh air supply by fresh air box

### Specification

Fan coil unit special version with fresh air supply, with lateral (left, opposite to motor) primary air box in extension to the recirculating air outlet. Optimum fresh air supply is ensured even with the fan at standstill.

Connection is realized using a DN 100 socket, with integrated damper (option).

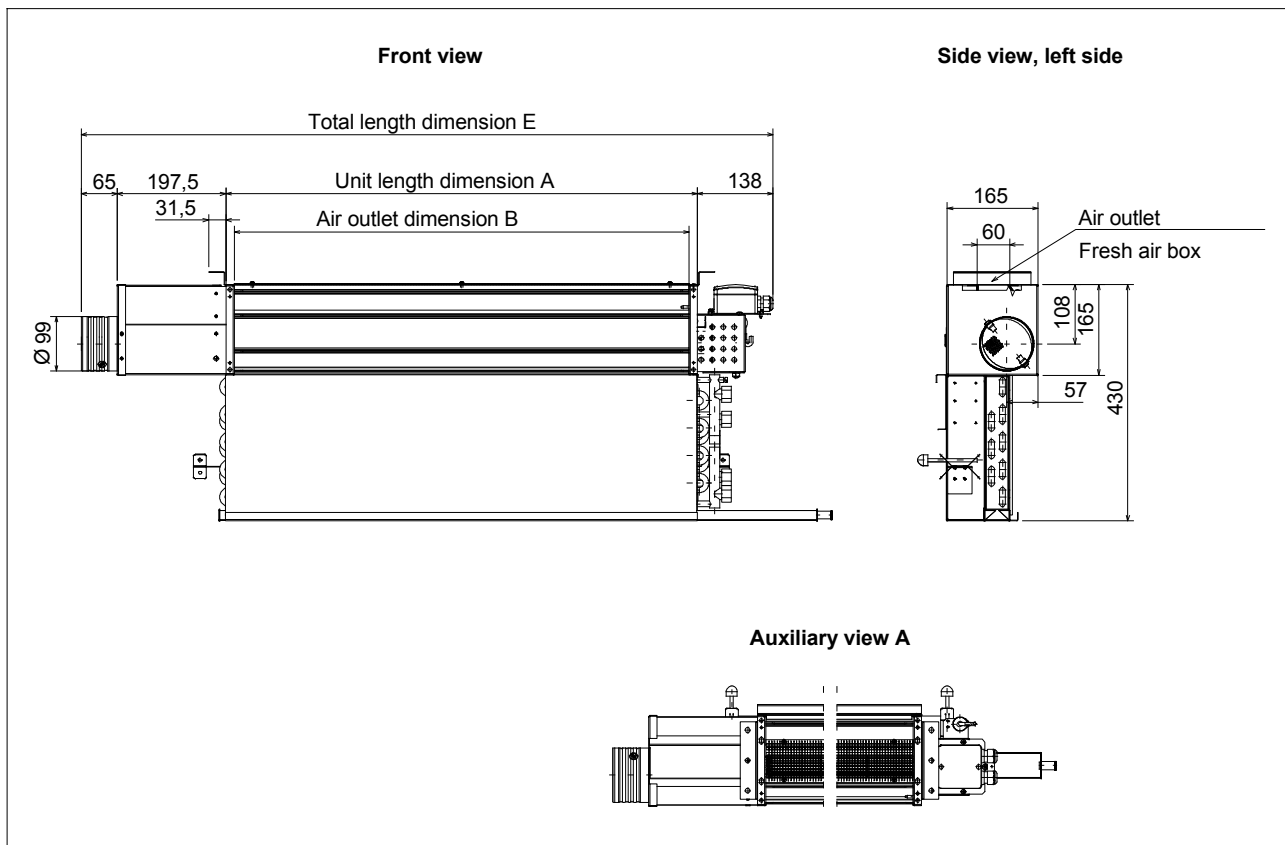
Fan coil unit with one heat exchanger and two separate circuits for heating or cooling the ambient air.  
Water-side control by valves.

Particularly small built-in depth and height, therefore esp. appropriate for a room-saving perimeter installation.

Vertical installation. Water connection on the right or left.

### Dimensions, weights

Size	A	B	E	Weight * [kg]
	[mm]			
500	527	497	928	14
630	627	597	1028	16
800	857	827	1258	20
1000	1057	1027	1458	24
1250	1257	1227	1658	29
* approx. values, depending on execution				



Shown: Type VFC-4 800 (4-pipe system)

### Technical data

See standard unit VFC-4/F (page 7) and VFC-2/F (page 9).  
Acoustic data may vary according to fresh air rate.

### Sound power level for separate fresh air box (to be added to unit level)

The **overall sound power level** is calculated as follows:  
 $L_{wA} = 10 * \log (10^{0,1 * L_{wA P}} + 10^{0,1 * L_{wA, VKB}})$

1 socket (DN 100), with aluminum linear grille					
<b>V<sub>p</sub></b>	[m <sup>3</sup> /(hm)]	60	80	100	120
<b>L<sub>wA P</sub></b>	[dB(A)]	29	31	32	37
<b>Pressure loss</b>	[Pa]	3,5	6	10	14

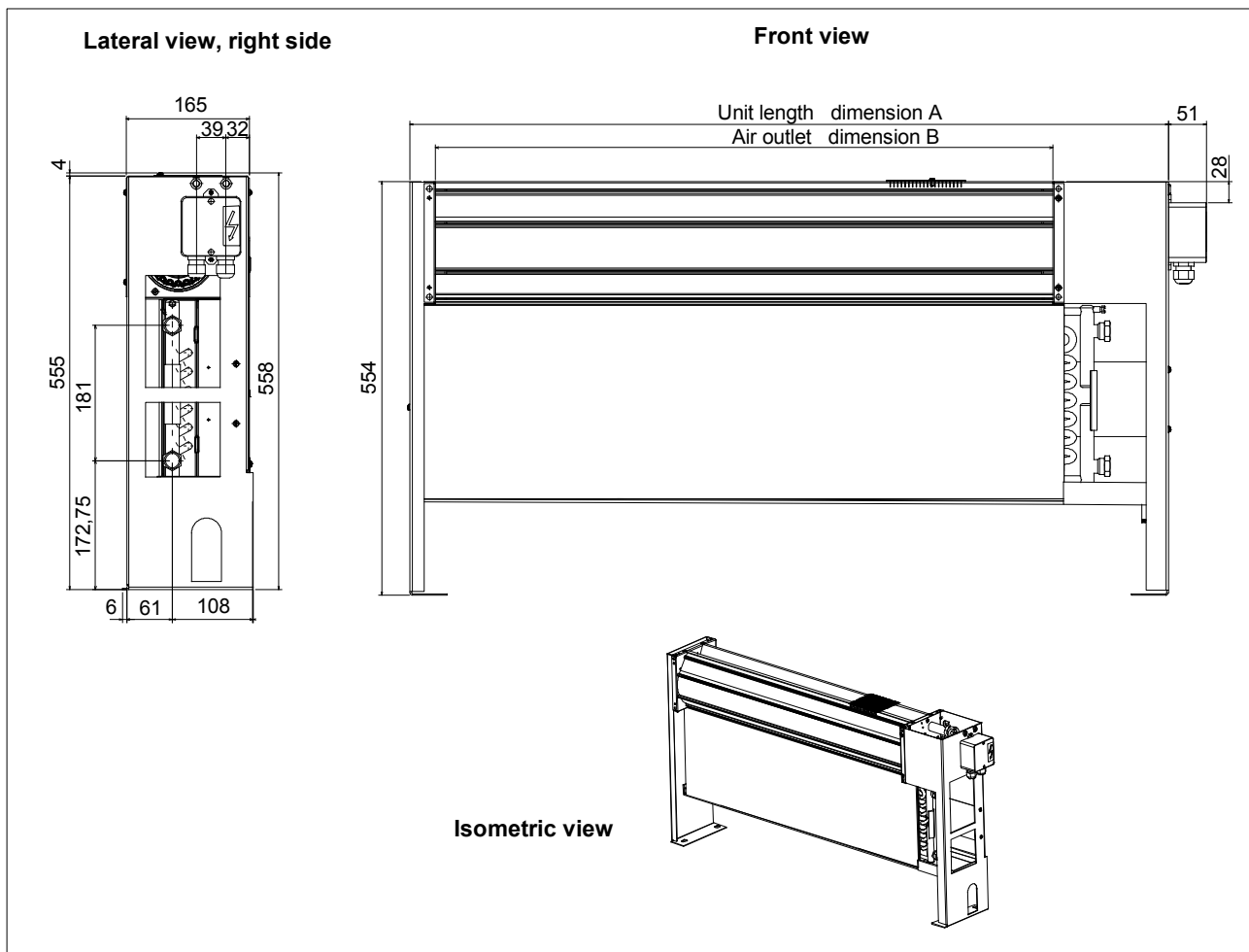
## Fan coil units for perimeter installation, Type VFC-4/S and VFC-2/S, upright units with solid floor fixation

### Specification

With base for fixation to the ground.

### Dimensions, weights

Size	A	B	Weight [kg]
	[mm]		
630	786	597	19
800	1016	827	23
1000	1216	1027	27
1250	1416	1227	32



Shown: Type VFC-2 630 (2-pipe system), without casing

### Technical data

See standard units VFC-4/F (page 7), VFC-2/F (page 9).

## Fan coil units for perimeter installation Casing type VK for upright units

### Specification

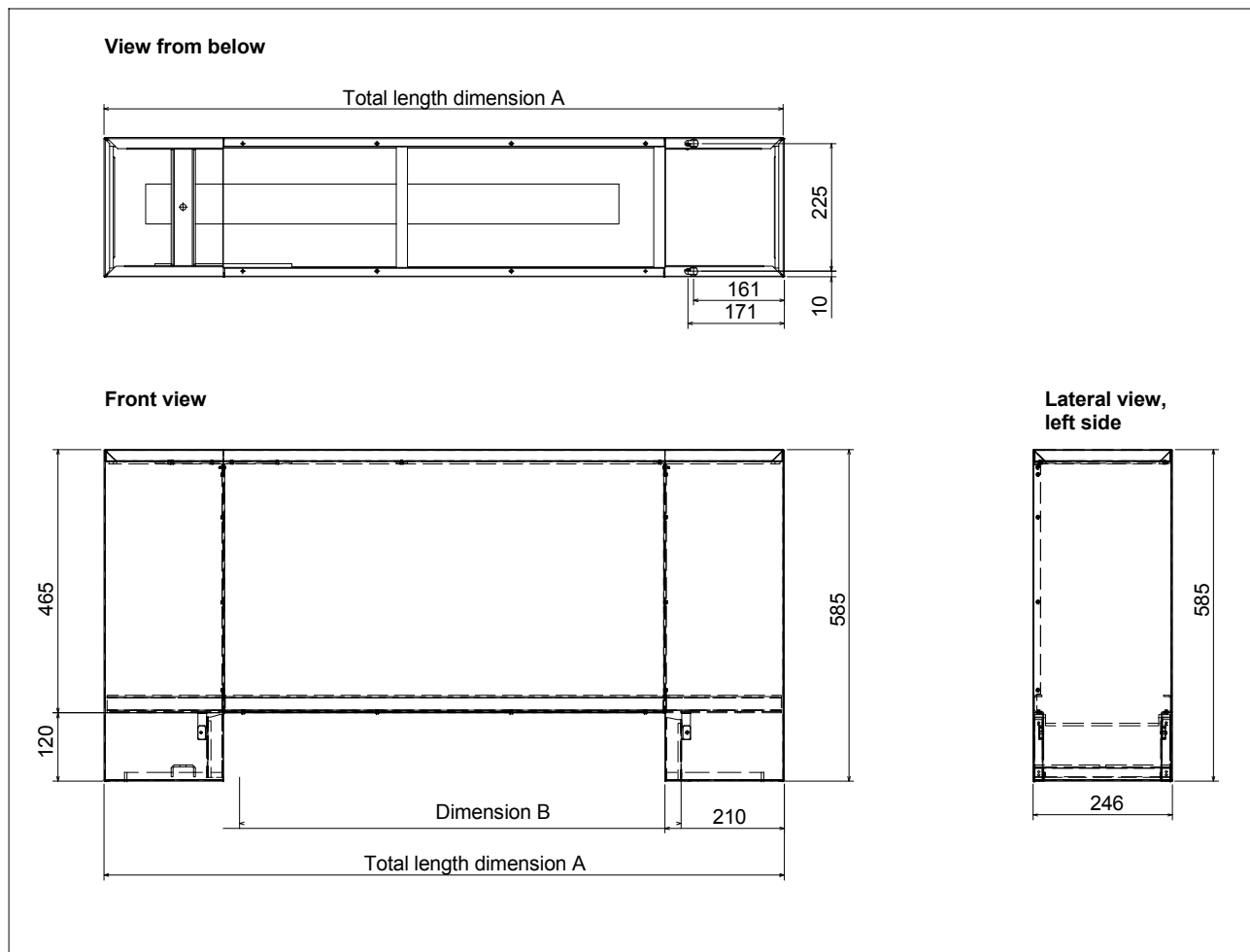
Casing (4 sides) of galvanized electrogalvanized sheet metal for HF and VF units. Consisting of a supporting structure of multi-bevelled U-sections, rear cover panel, angled panel, side parts, and air outlet grille type LDC (aluminum). All visible surfaces high-quality powder coated similar to RAL, layer thickness 60 µm.

All VF units are fixed to the casing using brackets.

Dimensions see chart. Special lengths on request.

### Dimensions, weights

Size	A	B	Weight [kg]
	[mm]		
630	970	605	16
800	1200	835	18
1000	1400	1035	21
1250	1600	1235	24





# Fan coil units for perimeter installation Type VFC-4/F/EC

## Specification

Fan coil unit with one heat exchanger with two separate water circuits for cooling and heating.  
 Water-side control by valves.  
 With EC motor for all variants.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving installation in sills.

For extremely low inlet temperatures an insulated drain tray is available (see page 10).

Vertical installation, water connection on the right or left.

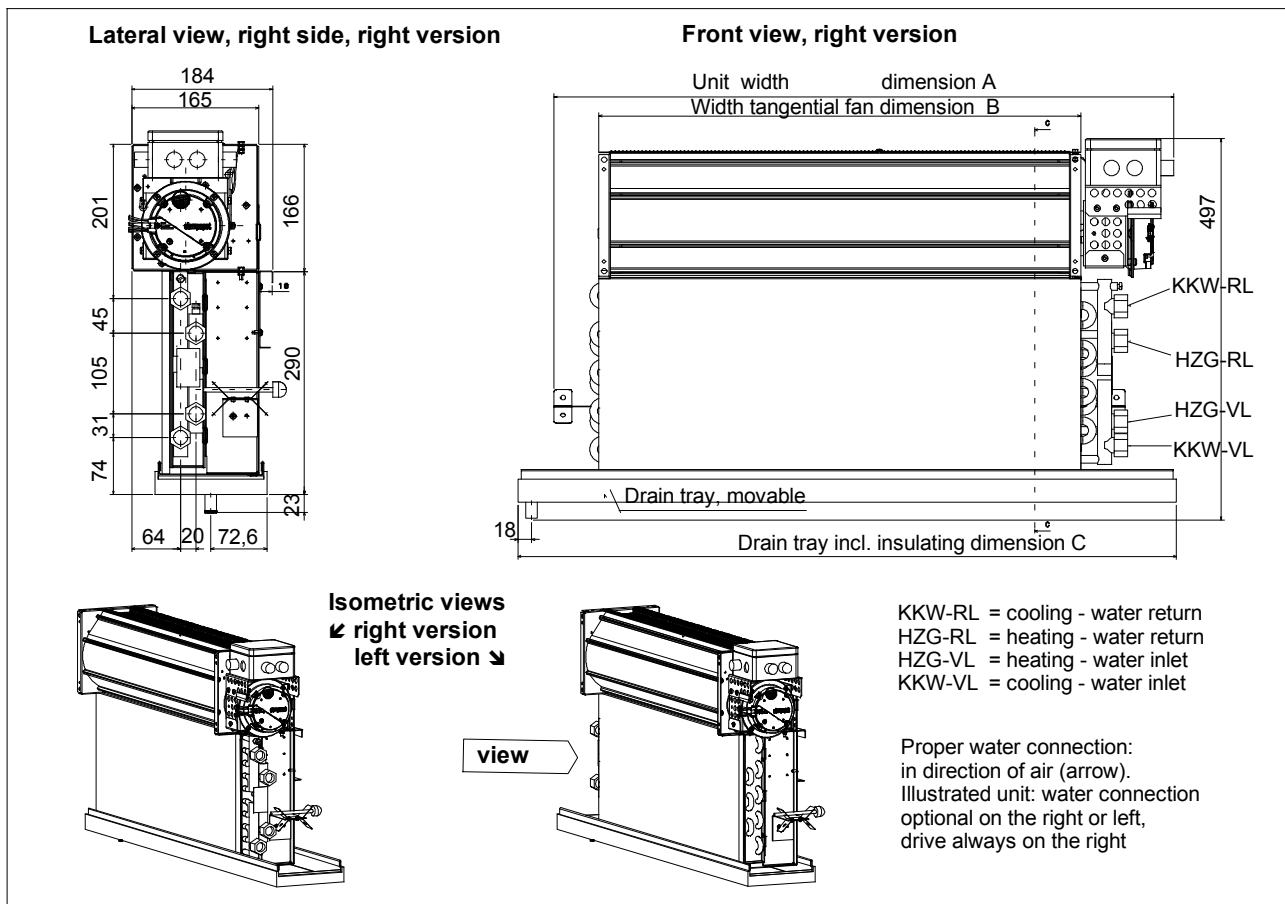
Support options (please state with your order):

- Suspension from above (to hook in the sill)
- Wall installation, mounting on rear side (see brochure Accessories for LTG A/C Units)

## Dimensions, weights, caloric data

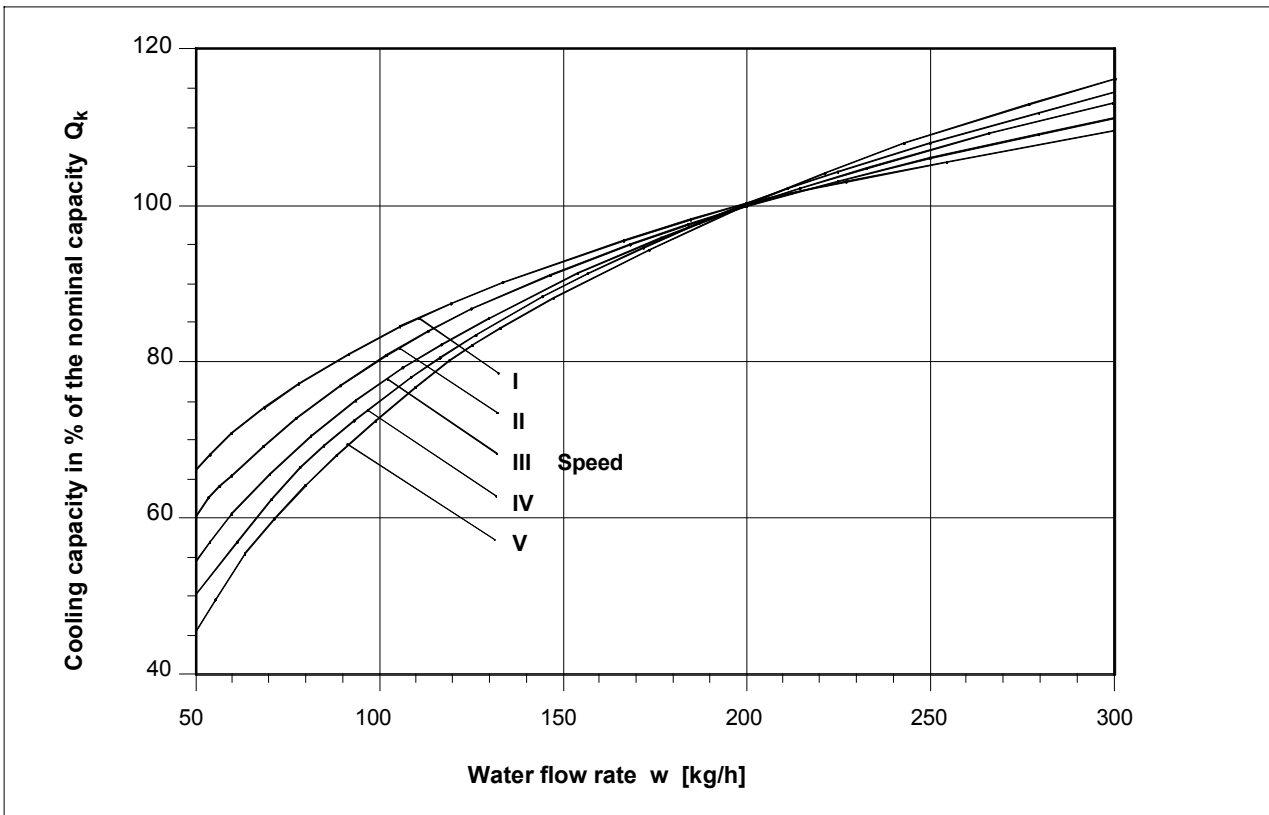
Size	A	B [mm]	C	Weight* [kg]	Voltage	L <sub>A18</sub> [dB(A)]	L <sub>WA</sub>	P <sub>el</sub> [W]
500	677	497	757	15	2,3	23	29	5
					3,0	29	35	6
					3,7	35	41	9
					4,3	41	46	11
					5,5	45	51	17
630	807	627	857	18	as size 500			
800	977	797	1087	23	as size 500			
1000	1177	997	1287	28	2,3	24	30	6
					3,0	29	35	8
					3,7	35	41	11
					4,3	41	47	16
					5,5	47	53	26
1250	1427	1247	1487	33	as size 1000			

\* approx. values, depending on execution

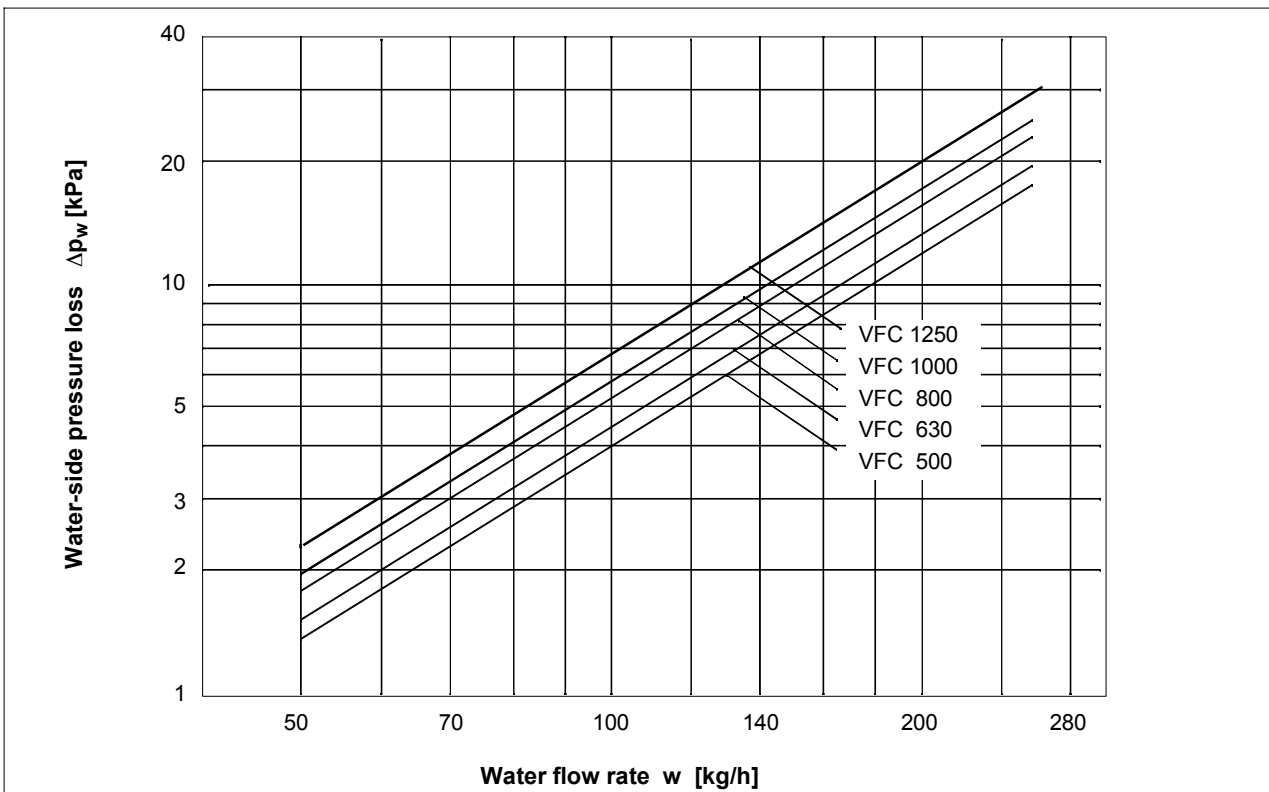


## Fan coil units for perimeter installation Type VFC-4

### Cooling capacity for different water flow rates

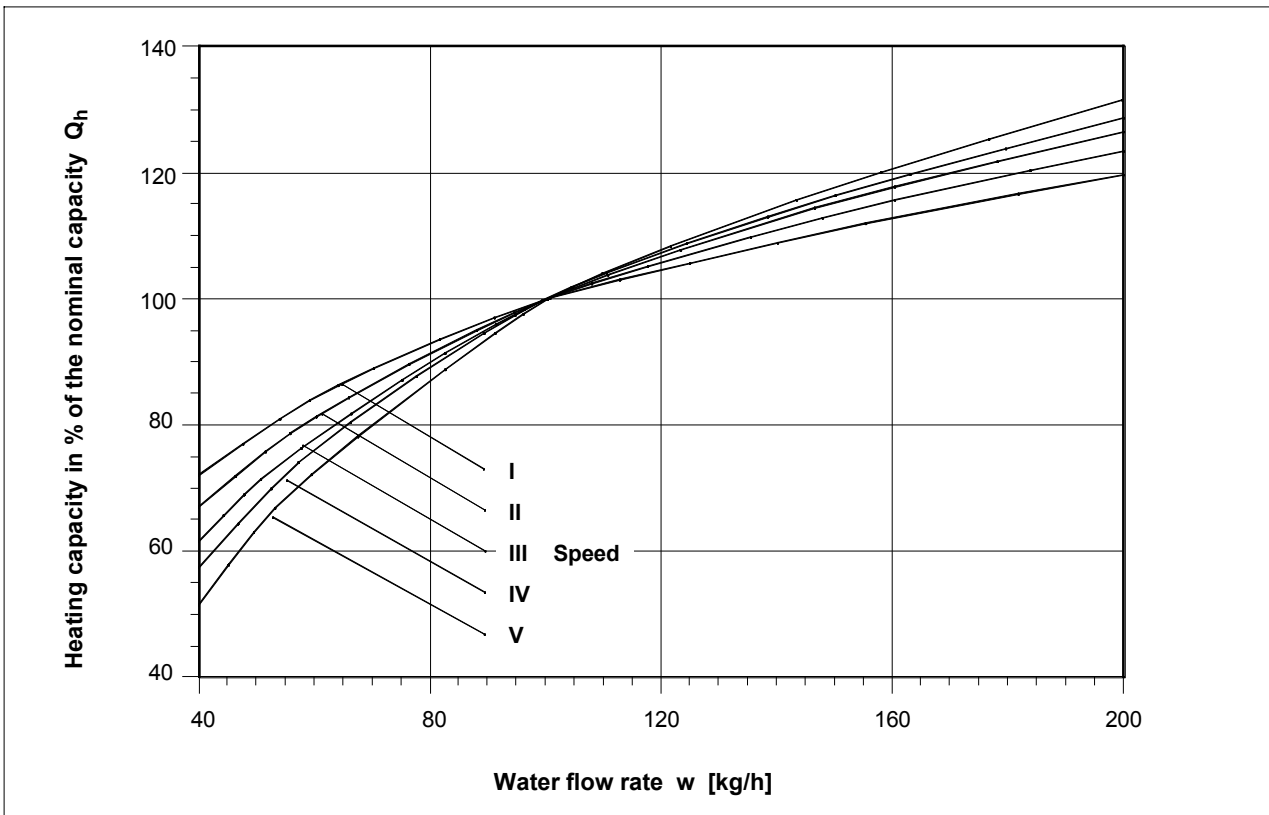


### Water-side pressure loss of the cooler for different water flow rates

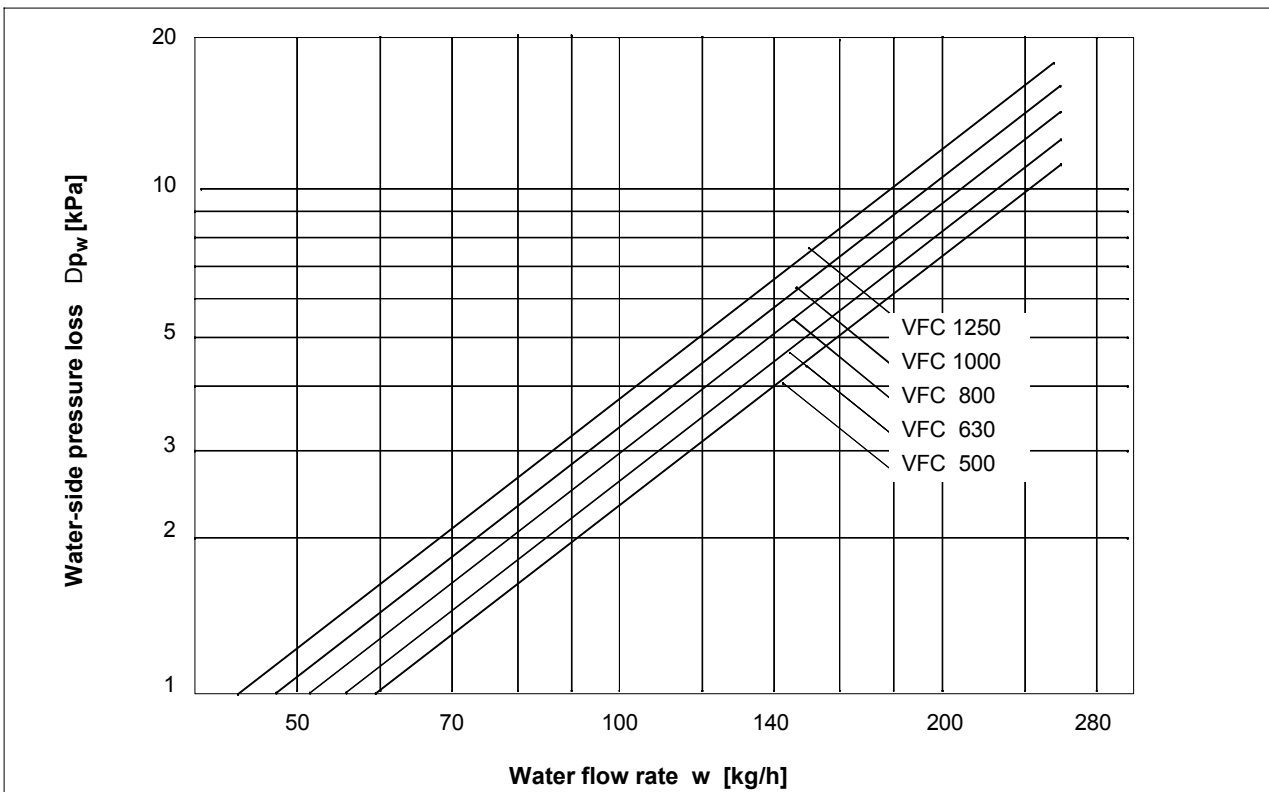


## Fan coil units for perimeter installation Type VFC-4

### Heating capacity for different water flow rates

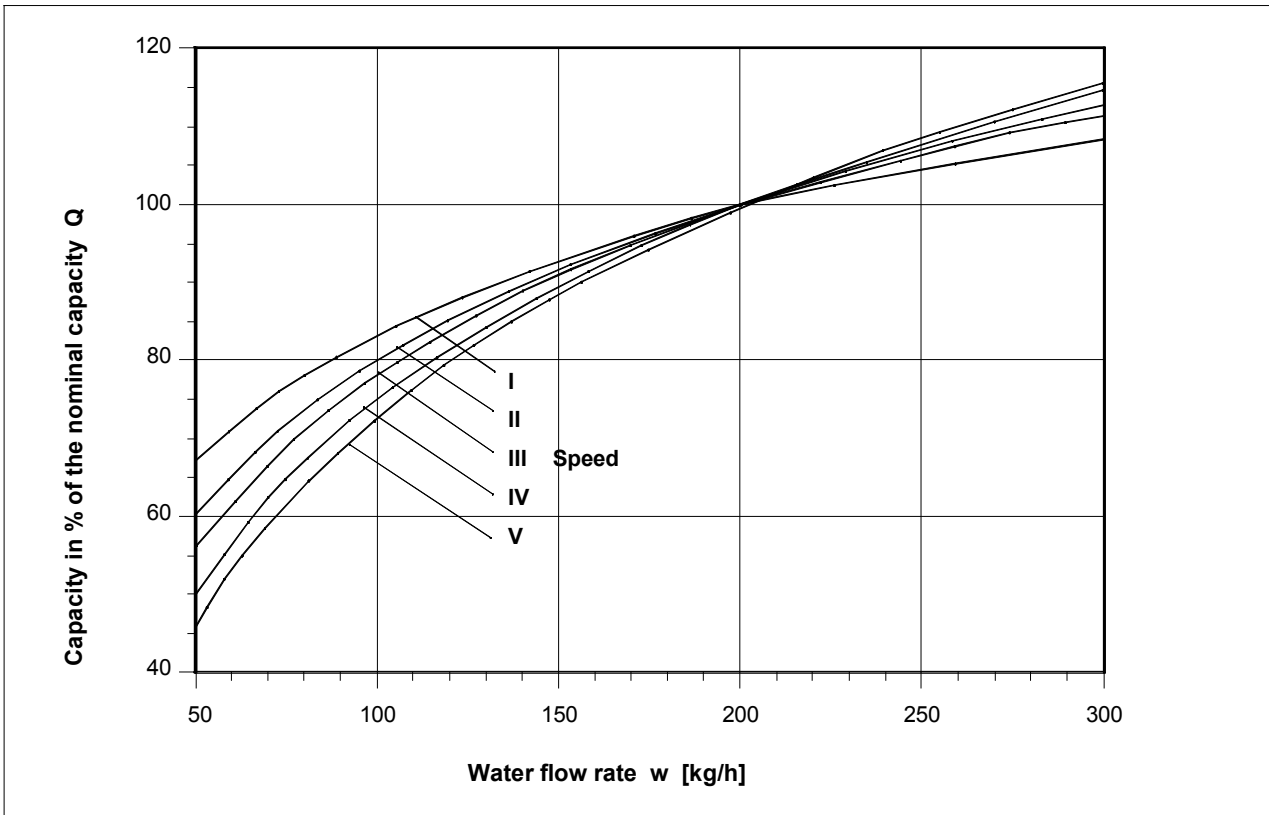


### Water-side pressure loss of the heater for different water flow rates

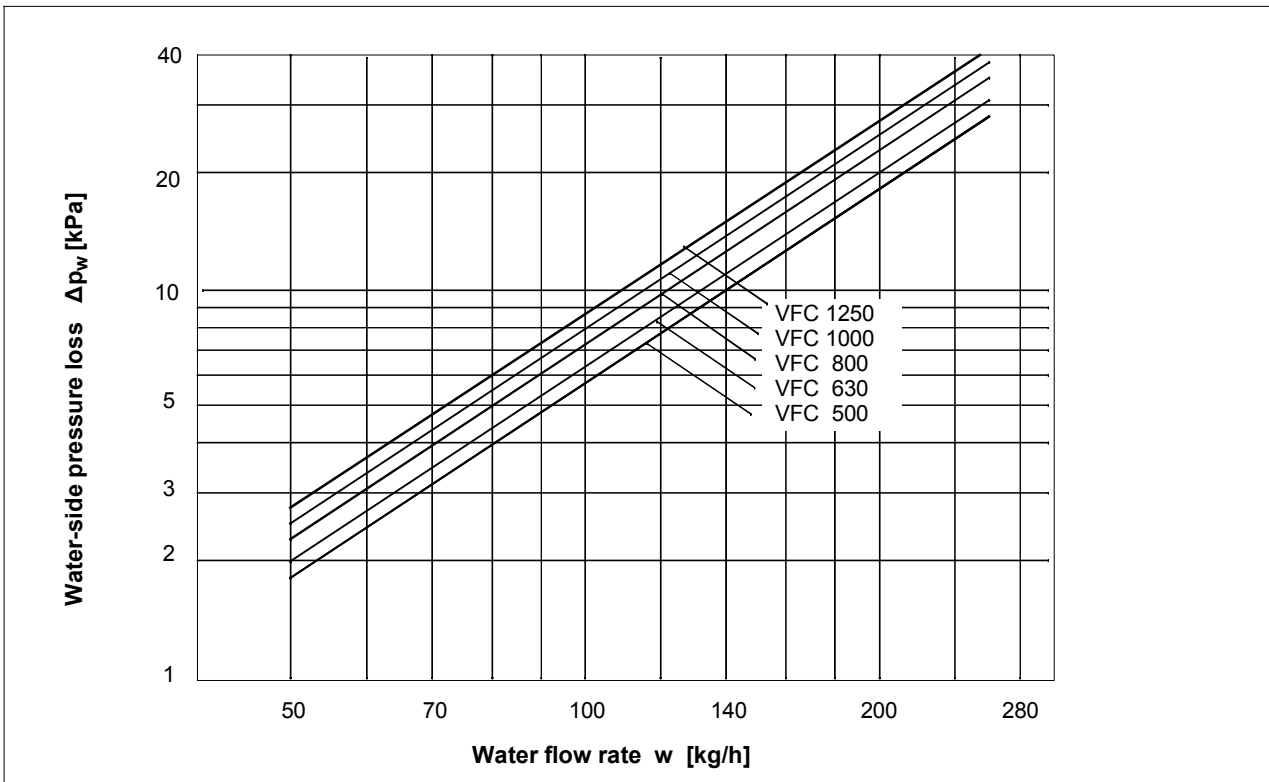


## Fan coil units for perimeter installation Type VFC-2

### Capacity with different flow rates



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



# Fan coil units for perimeter installation

## Series VFC

### Nomenclature

**VFC - 2 800 / F / EC / F / L / - - - / - - - / O / D**

2-pipe unit	<b>2</b>																			
4-pipe unit (valve-controlled)	<b>4</b>																			
size	<b>500</b> <b>630</b> <b>800</b> <b>1000</b> <b>1250</b>																			
ceiling installation		<b>D</b>																		
perimeter installation		<b>F</b>																		
floor mounted		<b>B</b>																		
upright unit		<b>S</b>																		
with EC-motor			<b>EC</b>																	
with AC-motor			<b>AC</b>																	
without filter				<b>-</b>																
with filter				<b>F</b>																
water connection on the left					<b>L</b>															
water connection on the right					<b>R</b>															
without fresh air connection						<b>- - -</b>														
with fresh air connection LDB						<b>PL</b>														
with fresh air connection box						<b>PK</b>														
with additional insulated drain dray							<b>Z</b>													
without additional insulated drain drain tray							<b>- - -</b>													
top suspension								<b>O</b>												
rear suspension								<b>H</b>												
straight-way 3-point valve									<b>D</b>											
3-way 3-point valve									<b>3</b>											
straight-way valve, thermal									<b>T</b>											

## Fan coil units for perimeter installation Series VFN

### Unit views



Fan coil unit for perimeter installation type VFN

### Application

The fan coil unit type VFN has been specifically designed for hotels and office buildings with strict acoustic requirements. It offers versatile possibilities for design of air distribution systems.

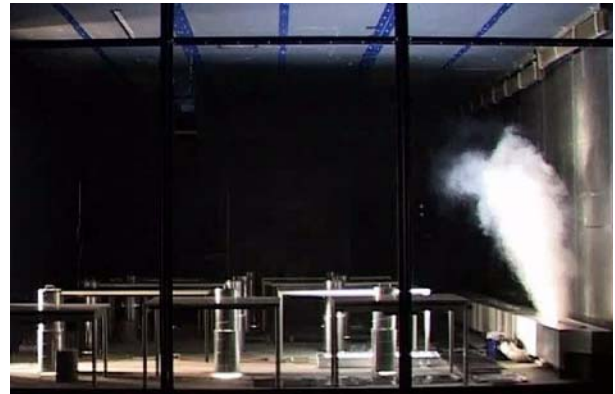
### Advantages

- Low installation depth of only 280 mm
- Highly efficient EC and AC motors with low energy consumption (SFP 200 W/(m<sup>3</sup>/s))
- Excellent aerodynamic integration of fan and large-area heat exchanger for high caloric output 30 - 75 W<sub>th</sub>/W<sub>el</sub> with low sound level
- Very smooth running and low sound level thanks to vibration isolated tangential fan and low-noise slide bearing
- Heat exchanger for efficient room heating via natural convection
- Fan with maintenance-free, low-noise slide bearings for long service life
- Air guiding elements for patented, optimized LTG mixed displacement air ventilation, adjustable to a variety of room geometries (optional)

### Operation principle

The tangential fan of the VFN draws in room air at the unit's bottom side. This air passes through a heat exchanger (cooling or heating) and is then returned into the room.

Output control is water-side using valves.



Example of room air flow:  
 VFN with special fan insert for mixed air/displacement air

### Design

- 2-pipe system for cooling only or heating only (VFN-2)
- 4-pipe system for cooling and heating (VFN-4)

# Fan coil units for perimeter installation Series VFN

## Specification

Fan coil unit with one heat exchanger for cooling or heating the ambient air. Water-side control by valves.

Particularly small built-in depth and height, therefore especially appropriate for a room-saving installation in sills.

Non-condensing operation.

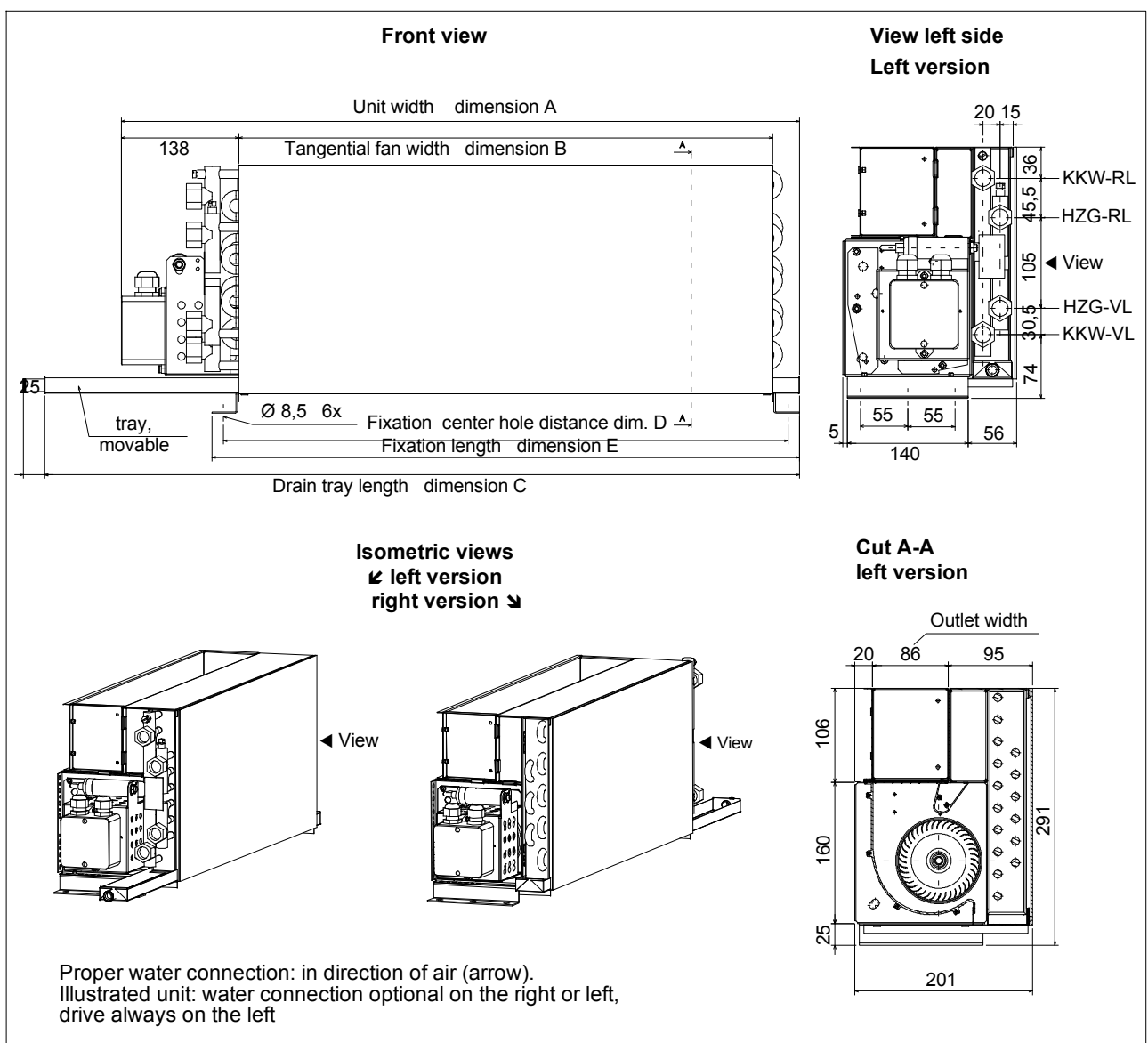
Vertical installation.

Water connection on the right or left.

## Dimensions, weights

Size	A	B	C	D	E	Weight *
500	667	497	586	533	560	15
630	797	627	731	663	690	18
800	967	797	886	833	860	23
1000	1167	997	1086	1033	1060	28
1250	1417	1247	1336	1283	1310	33

\* approx. values, depending on execution



Shown: type VFN-4 (4-pipe system)

- KKW-VL = cooling - water inlet
- KKW-RL = cooling - water return
- HZG-VL = heating - water inlet
- HZG-RL = heating - water return



# Fan Coil Units for Perimeter Installation Type VFN-./E condensing

## Specification

Fan coil unit with one heat exchanger for cooling or heating the ambient air. Water-side control by valves.

Particularly small built-in depth and height, therefore appropriate for a room-saving installation in sills.

Condensing operation.

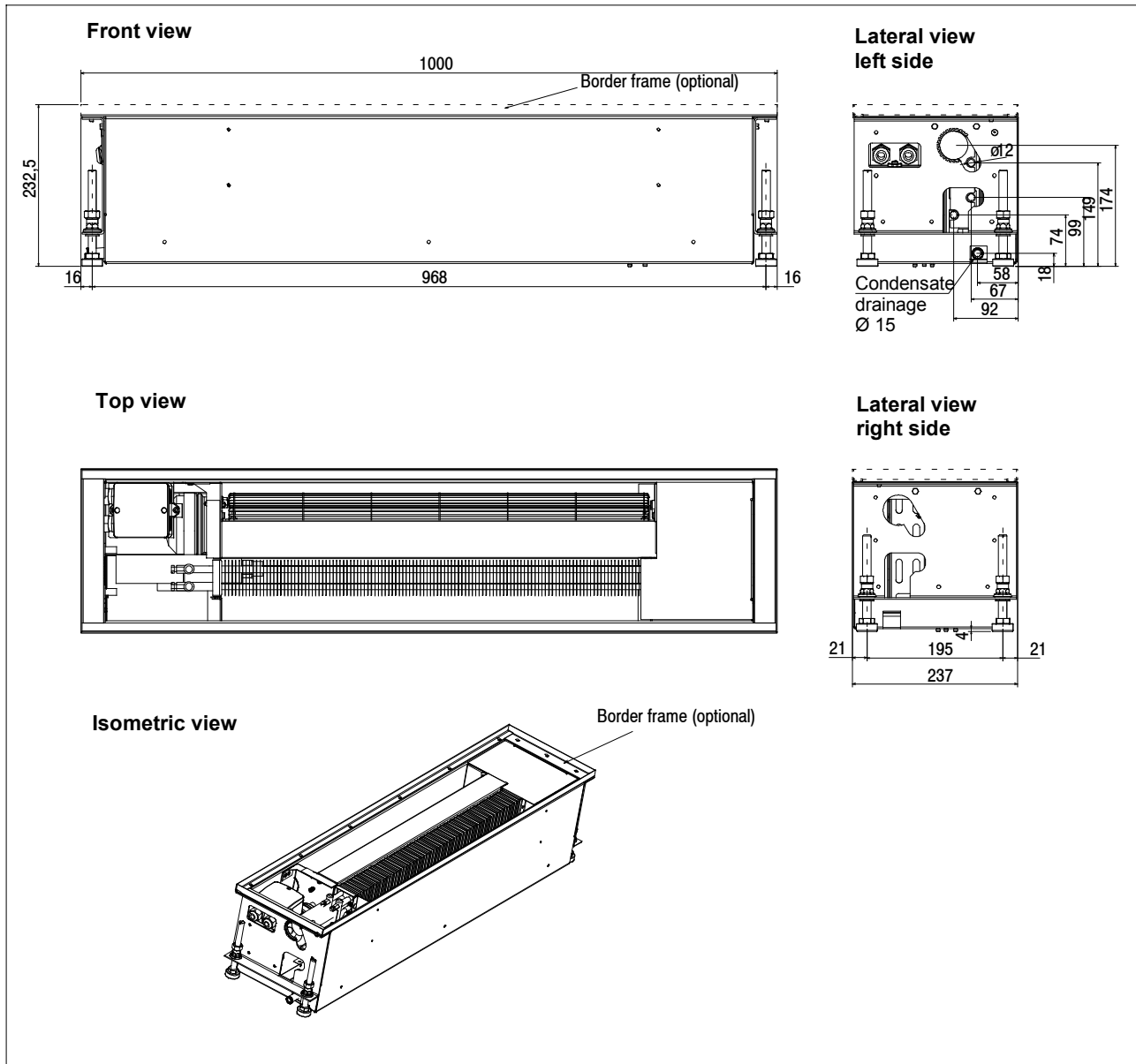
Vertical installation.

Water connection on the left side.

## Dimensions, weights

Size	A	B	C	D	E	Weight *
630	797	627	731	663	690	18

\* approx. values, depending on execution



## Fan coil units for perimeter installation Series VFN

### Technical data VFN-4 800 – 4-pipe-system – cooling and heating

n [-]	V [m <sup>3</sup> /h]	L <sub>wA mF</sub> <sup>2)</sup> [dB(A)]	Q <sub>k oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>k mF</sub> /Δt <sup>2)</sup> [W/K]	Q <sub>h oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>h mF</sub> /Δt <sup>2)</sup> [W/K]	w <sub>ok</sub> /Δp <sub>w</sub> [kg/h]	w <sub>oh</sub> /Δp <sub>w</sub> [kg/h]	P <sub>el</sub> [W]
I	220	30	49	43	36	33	200/16	100/3,1	16
II	260	32	55	50	40	37			20
III	290	34	62	57	43	41			23
IV	340	38	67	64	46	44			25
V	380	43	74	70	50	47			31

1) Values apply to the unit with air outlet grille, without filter

2) Values apply to the unit with air outlet grille, with filter

Values may vary when units are installed.

### Technical data VFN-./E 630 condensing – 4-pipe-system – cooling and heating

n [-]	V [m <sup>3</sup> /h]	L <sub>wA mF</sub> <sup>2)</sup> [dB(A)]	Q <sub>k oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>k mF</sub> /Δt <sup>2)</sup> [W/K]	Q <sub>h oF</sub> /Δt <sup>1)</sup> [W/K]	Q <sub>h mF</sub> /Δt <sup>2)</sup> [W/K]	w <sub>ok</sub> /Δp <sub>w</sub> [kg/h]	w <sub>oh</sub> /Δp <sub>w</sub> [kg/h]	P <sub>el</sub> [W]
I	180	31	39	34	29	26	200/14	100/2,7	16
II	210	33	45	40	32	29			20
III	235	36	50	46	35	33			23
IV	275	40	54	52	37	36			25
V	310	45	60	56	40	38			31

1) Values apply to the unit with air outlet grille, without filter

2) Values apply to the unit with air outlet grille, with filter

Values may vary when units are installed.

#### Legend

n - speed

V - flow rate (tolerance ±10%)

L<sub>wA</sub> - sound power level ±3 dB(A) (without casing)

Q<sub>k oF</sub> - cooling capacity (without filter)

Q<sub>k mF</sub> - cooling capacity (with filter)

Q<sub>h oF</sub> - heating capacity (without filter)

Q<sub>h mF</sub> - heating capacity (with filter)

w<sub>ok</sub> - standard water flow rate at cooling capacity\*

w<sub>oh</sub> - standard water flow rate at heating capacity\*

P<sub>el</sub> - electric power consumption (± 20%)

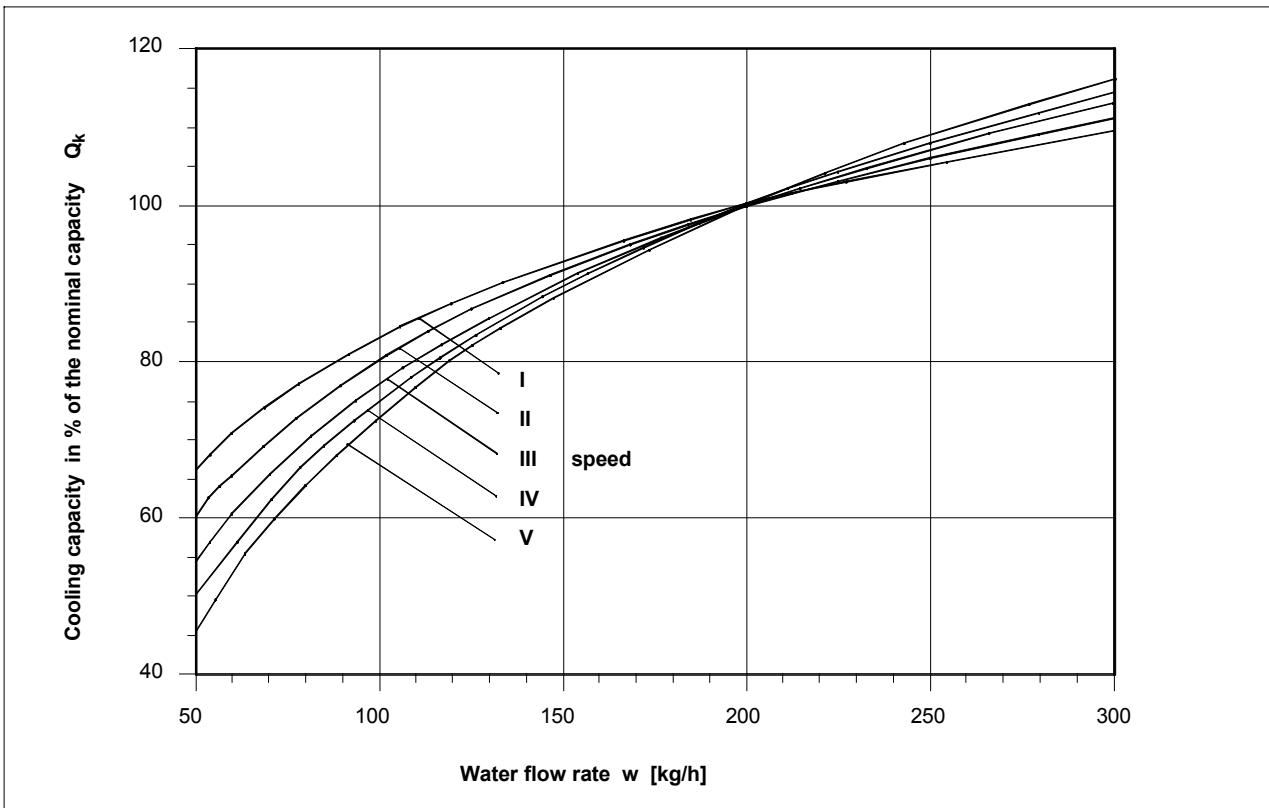
\* Correction for other flow rates see page 25 et seq.

#### Speed control wiring diagram

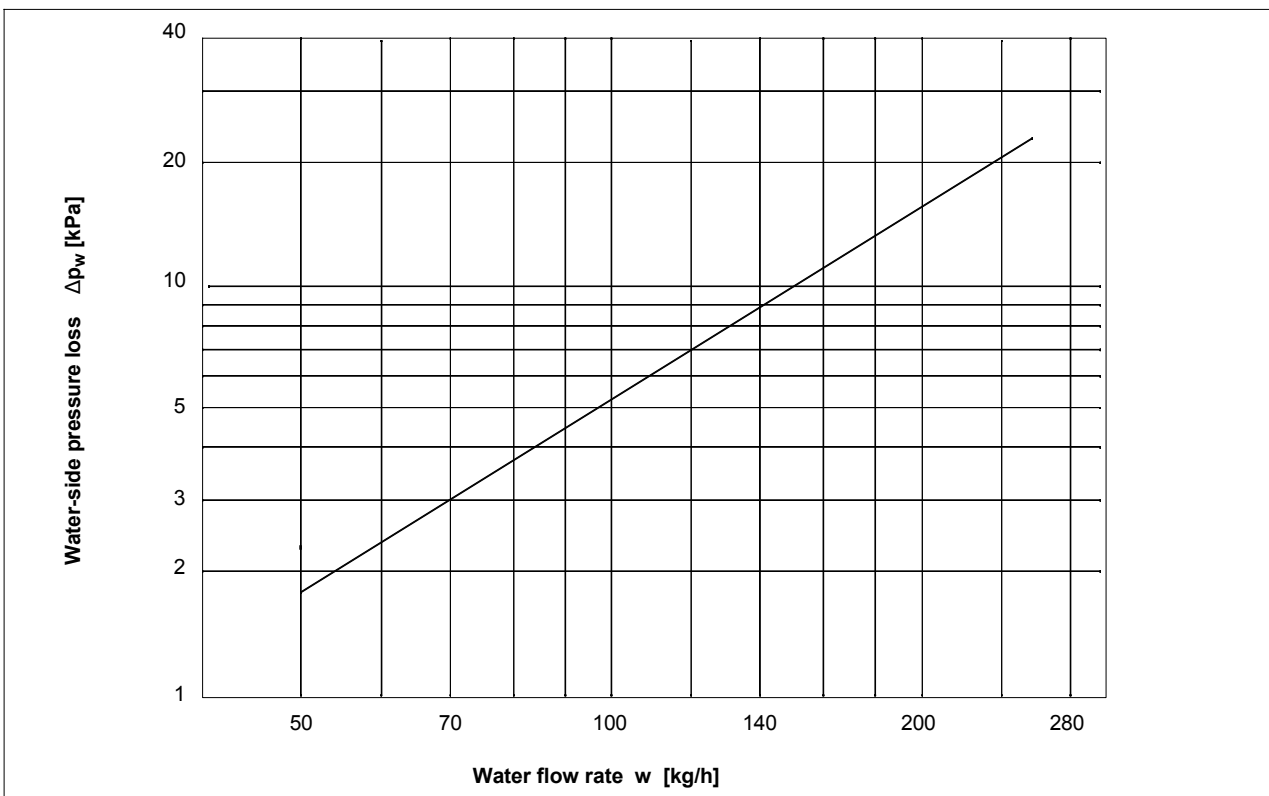
See page 38.

## Fan coil units for perimeter installation Type VFN-4 800

### Cooling capacity for different water flow rates

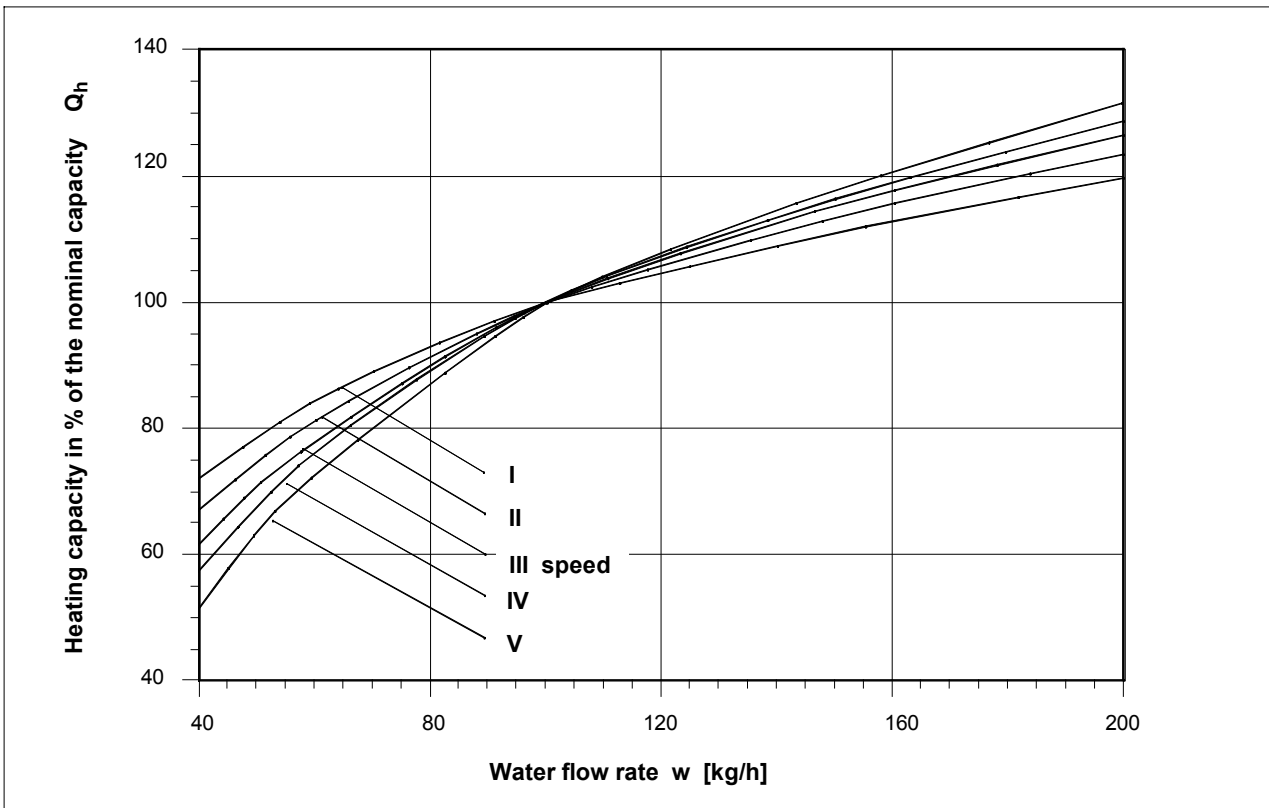


### Water-side pressure loss of the cooler for different water flow rates

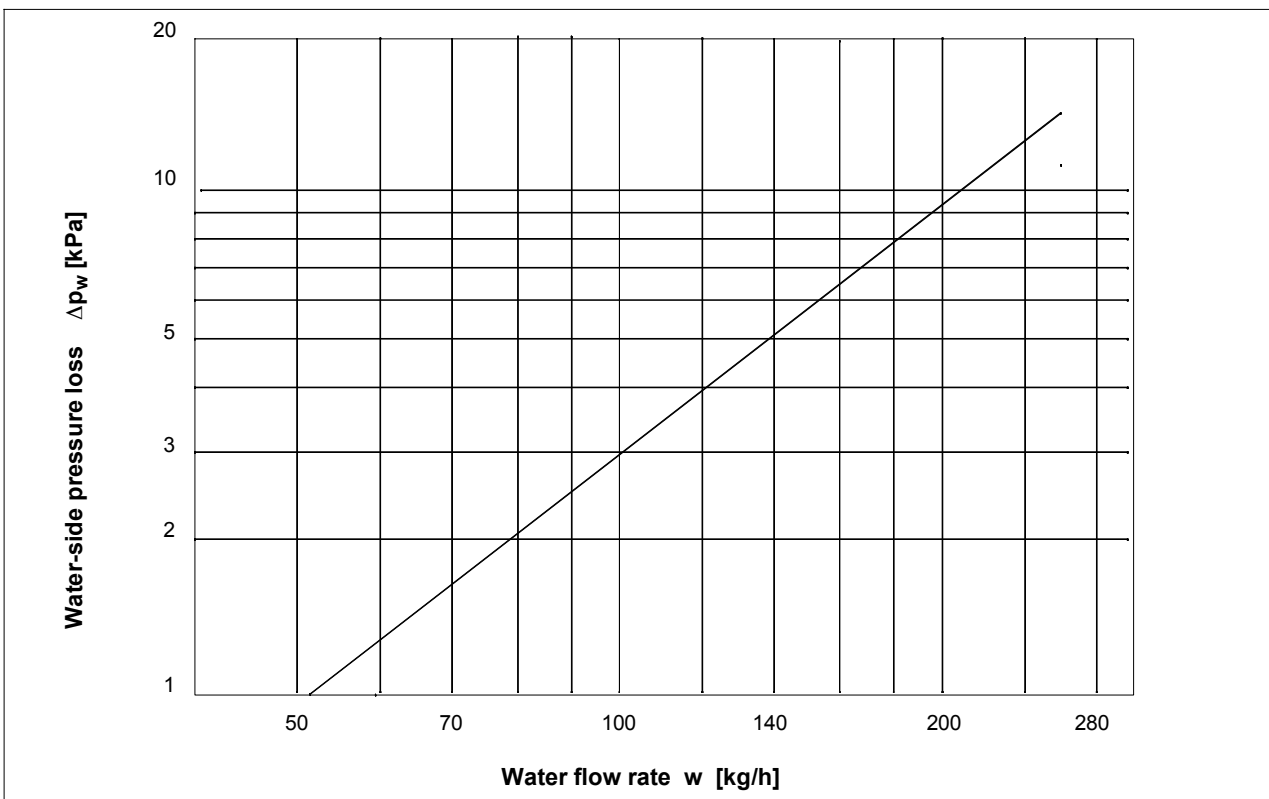


## Fan coil units for perimeter installation Type VFN-4 800

### Heating capacity for different water flow rates

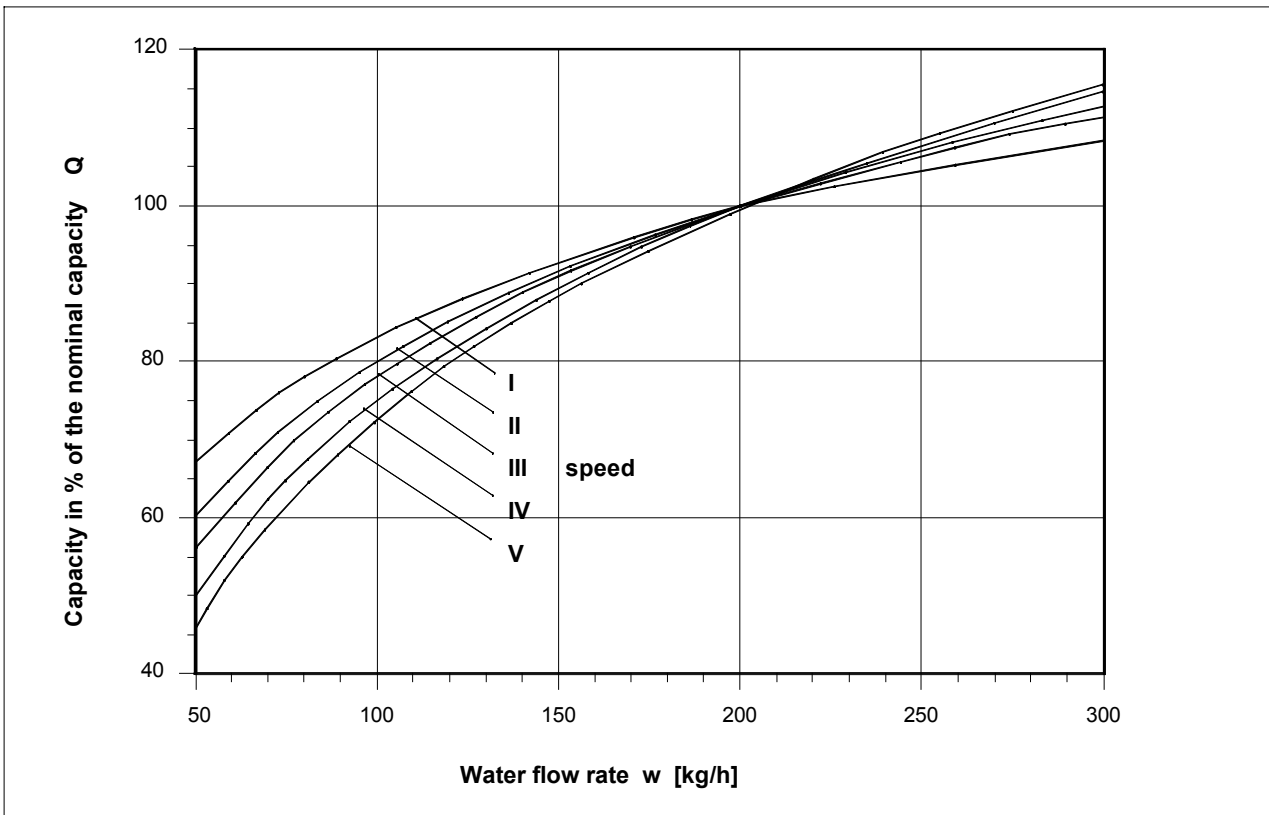


### Water-side pressure loss of the heater for different water flow rates

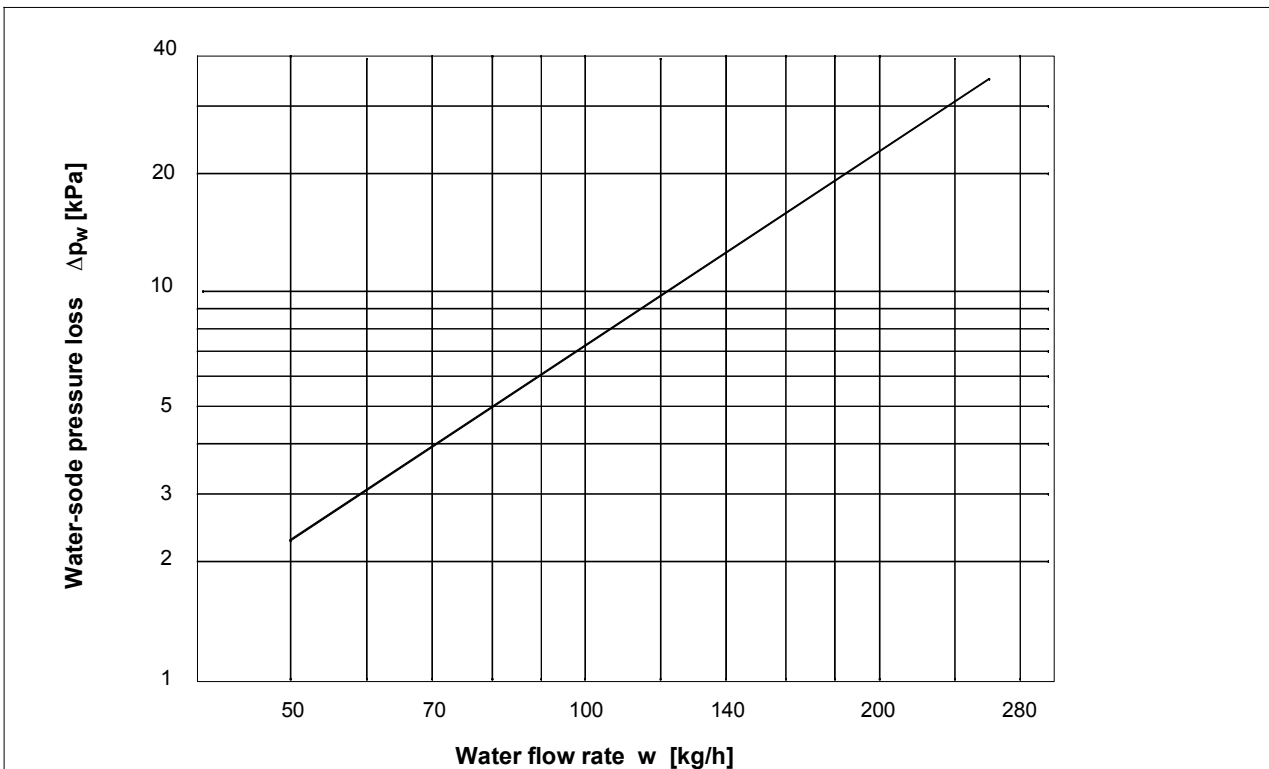


## Fan coil units for perimeter installation Type VFN-2 800

### Capacity for different water flow rates



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



## Fan coil units for perimeter installation Series VFN

### Nomenclature

**VFN - 2 - E - 800 / F / EC / F / L / - - - / - - - / O / D**

2-pipe-unit	2																		
4-pipe-unit (valve-controlled)	4																		
non-condensing	-																		
condensing	E																		
size		500																	
		630																	
		800																	
		1000																	
		1250																	
Ceiling installation			D																
perimeter installation			F																
floor-mounted			B																
standard unit			S																
with EC-motor			EC																
with AC-motor			AC																
without filter			-																
with filter			F																
water connection left side				L															
water connection right side				R															
without fresh air connection									- - -										
with fresh air connection LDB									PL										
with fresh air connection box									PK										
with additional insulated drain tray										Z									
without additional insulated drain tray										- - -									
top suspension											O								
rear suspension											H								
straight-way 3-point valve												D							
3-way 3-point valve													3						
straight-way valve, thermal														T					

## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### View of unit



#### Application

The valve-controlled four-pipe perimeter displacement fan coil unit type QVC is particularly suitable for cooling or heating whenever highest standards of comfort are required. It may be used as a simple recirculating air system where the room is supplied with fresh air using an independent ventilation system or when an air exchange is ensured through openable windows.

In this way, the room climate can be manipulated by the user according to individual requirements.

Due to the displacement operation (low-impulse, horizontal discharge of the air) a short-circuit between the discharge and suction openings is caused in the heating mode. Therefore, the specific heating capacity is significantly lower than the cooling capacity which limits the QVC to applications in rooms with modest heating loads.

#### Installation, placement

When designing the sill the notes (see page 21) will have to be considered to ensure a trouble free operation of the ventilation system. The LTG Engineer Services is at your disposal to discuss any technical details.

#### Functionality

A cross-flow fan draws in the ambient air through the heat exchanger. Depending on the water temperature in the heat exchanger, the air is either cooled or heated. The cooled or heated air then enters the distribution box which is equipped with a displacement distributor.

A uniform discharge along the entire outlet height and width is guaranteed by specially arranged guide vanes inside the discharge duct. Thanks to the special arrangement of the discharge openings, an additional induction effect is achieved resulting in a quick reduction of temperature differences.

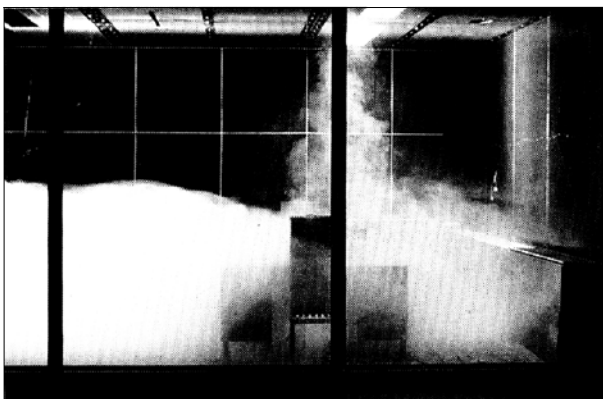
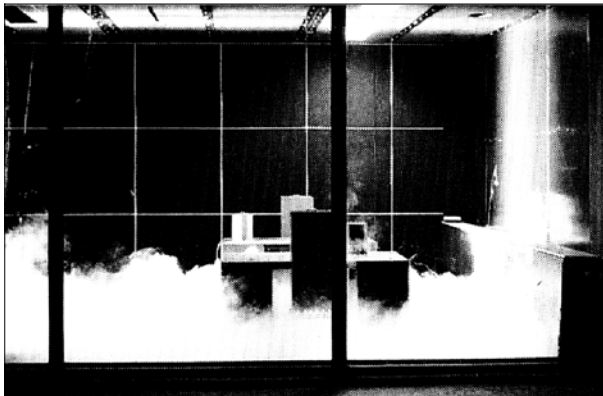
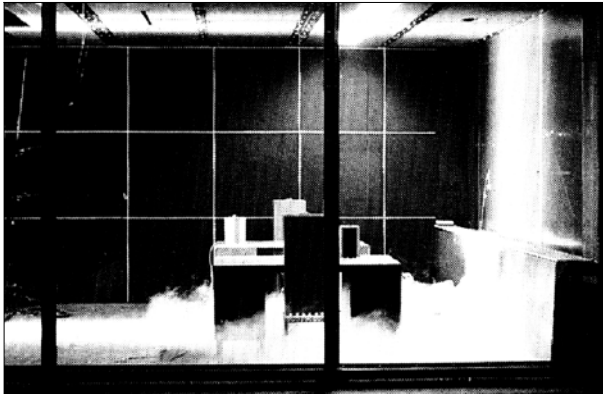
#### Advantages

- **Comfort**
  - Excellent room climate due to perimeter displacement effect.
  - Improved indoor air quality as airborne particles are removed from the occupied zone by ascending convection currents.
  - Quick reduction of temperature differences.
  - Low-noise.
- **Cost-effectiveness**
  - Saving of cooling energy by directing the air flow from the floor upwards.
  - Heating and cooling with the same unit.
  - Easy installation.
  - Factory-assembled units.
  - Low energy consumption cross-flow fan.
- **Flexibility**
  - Unrestricted sill casing design by the architect or builder.
  - Individual control.
  - Single or multiple unit control.
  - Outlet adaptable to suit different casing heights and widths.
  - Almost invisible, black painted air outlet.
- **Design**
  - Units are designed by LTG using special computer programs.



## Fan coil units for perimeter installation Perimeter displacement fan coil units series QVC

### Room air flow



*Perimeter displacement when installed in a sill casing  
 (visualization in three time intervals, using a smoke generator).*

### Specification

Torsion-resistant casing of galvanized sheet steel. Heat exchanger designed for high capacity, consisting of copper tubing with press-fitted aluminum fins. Maximum operating pressure of the standard version: 10 bar.

Lateral connection for hot and cold water as well as condensate drainage.

The drain tray is made of galvanized sheet steel and may be supplied with a 15 mm diameter drainage socket.

If required, self-extinguishing secondary air filter of polyamide fibers bonded with plastic.

The perimeter displacement outlet offers a low pressure loss and may be detached very easily.

The integrated guide vanes divert the air flow and ensure a uniform discharge and an additional inductive effect.

The outlet may be adjusted to the sill height and width.

Low-noise cross-flow fan with capacitor motor (max. 5 speeds). The customer must provide a switch for each unit meeting the required power stages. Wiring on site.

### Product range

The perimeter displacement fan coil unit type QVC is available in the following sizes:

Size:	630	800	1000	1250
Outlet width:	1000	1200	1400	1600

The above mentioned outlet widths are standard and may be adjusted to the sill detail, if required.

### Accessories, special versions

- Fresh air supply
- On request as a two-pipe unit, for heating only or cooling only
- Drainage socket for drain tray
- Easy-to-replace, self-extinguishing secondary air filter
- Straight-way valve with three-position actuator (24 V)
- Three-step switch Off/3/2/1
- Straight-way valve with thermal actuator

# Fan coil units for perimeter installation

## Perimeter displacement fan coil units series QVC

### Dimensions without fresh air supply

View for arrangement right/left

total length, dim. A  
 ca. 211  
 unit suspension, dim. B  
 ca. 40  
 3 x 8.5 mm  
 dim. C

length drain tray (removable) dim. D, without drainage spigot  
 standard length, air distribution box, dim. B

Size	A	B	C	D	E	Weight [kg] *
630	1046	663	41	885	1000	18
800	1261	893	56	1035	1200	22
1000	1461	1093	56	1335	1400	27
1250	1661	1293	56	1535	1600	31

The free area of the casing must at least be 50 %.

Illustration: QVC, water connection on the right  
 Heat exchanger connection 12 mm pipe (standard)  
 If water connection is on the left - cooling circuit adjacent to fan  
 If water connection on the right - heating circuit adjacent to fan  
 Motor always on the tangential fan's left (view to outlet)

Dimensions in [mm], based on standard outlet length. Outlet is arranged in the middle. \* approx. values, depending on execution

KVL = cooling - water inlet  
 KRL = cooling - water return  
 HVL = heating - water inlet  
 HRL = heating - water return

### Dimensions with fresh air supply

View for arrangement right/left

total length, dim. A  
 ca. 211  
 unit suspension, dim. B  
 ca. 40  
 3 x 8.5 mm  
 dim. C

length drain tray (removable) dim. D, without drainage spigot  
 standard length, air distribution box, dim. B

connection fresh air

Size	A	B	C	D	E	Weight [kg] *
630	1046	663	41	885	1000	18
800	1261	893	56	1035	1200	22
1000	1461	1093	56	1335	1400	27
1250	1661	1293	56	1535	1600	31

The free area of the casing must at least be 50%.

Illustration: QVC, water connection on the right  
 Heat exchanger connection 12 mm pipe (standard)  
 If water connection is on the left - cooling circuit adjacent to fan  
 If water connection on the right - heating circuit adjacent to fan  
 Motor always on the tangential fan's left (view to outlet)

Dimensions in [mm], based on standard outlet length. Outlet is arranged in the middle. \* approx. values, depending on execution.

KVL = cooling - water inlet  
 KRL = cooling - water return  
 HVL = heating - water inlet  
 HRL = heating - water return

## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Technical data size 630

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>kmF</sub> /Δt [W/K]	Q <sub>hmF</sub> /Δt [W/K]	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]	I <sub>max</sub> [mA]
I	160	28	34	42	26	200 / 14	100 / 2.7	17	90
II	210	32	38	48	29			20	
III	250	39	45	55	32			22	
IV	290	43	49	59	34			24	
V	340	46	52	62	35			27	

#### Technical data size 800

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>kmF</sub> /Δt [W/K]	Q <sub>hmF</sub> /Δt [W/K]	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]	I <sub>max</sub> [mA]
I	230	27	33	51	31	200 / 16	100 / 3.1	17	90
II	260	32	38	57	34			20	
III	310	36	42	65	37			22	
IV	350	38	44	69	40			24	
V	400	41	47	73	41			27	

#### Technical data size 1000

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>kmF</sub> /Δt [W/K]	Q <sub>hmF</sub> /Δt [W/K]	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]	I <sub>max</sub> [mA]
I	260	28	34	57	36	200 / 18	100 / 3.4	17	130
II	320	30	36	65	38			20	
III	400	36	42	77	44			24	
IV	500	41	47	87	49			27	
V	650	48	54	103	57			32	

#### Technical data size 1250

n [-]	V [m <sup>3</sup> /h]	L <sub>A18</sub> [dB(A)]	L <sub>wA</sub> [dB(A)]	Q <sub>kmF</sub> /Δt [W/K]	Q <sub>hmF</sub> /Δt [W/K]	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]	I <sub>max</sub> [mA]
I	275	26	32	66	41	200 / 20	100 / 3.6	17	130
II	340	30	36	73	43			20	
III	440	36	42	84	50			24	
IV	550	41	47	96	56			27	
V	725	48	54	108	67			32	

#### Legend

- n - speed
- V - flow rate (approx. values, tolerance ±10%)
- L<sub>A18</sub> - sound pressure level
- L<sub>wA</sub> - sound power level ±3 dB(A) (without casing)
- Q<sub>kmF</sub> - cooling capacity (with filter)
- Q<sub>hmF</sub> - heating capacity (with filter)
- Δt - temperature difference between suction air temperature before entering the heat exchanger and water supply

- w<sub>ok</sub> - standard flow rate at cooling capacity\*
- w<sub>oh</sub> - standard flow rate at heating capacity\*
- Δp<sub>w</sub> - water-side pressure loss
- P<sub>el</sub> - electric power consumption (± 20%)
- I<sub>max</sub> - maximum current input at speed V

\* Correction for other flow rates see page 34 et seq.

#### Speed control wiring diagram

See page 38.

## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Sound power $L_{wA}$ for size 630 with fresh air supply

n [-]	$V_P = 40 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 50 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 60 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 70 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 80 \text{ m}^3/\text{h}$ [dB(A)]
I	34	34	36	38	42
II	38	38	38	41	42
III	45	45	45	45	45
IV	49	49	49	49	49
V	52	52	52	52	52

#### Sound power $L_{wA}$ for size 800 with fresh air supply

n [-]	$V_P = 60 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 70 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 80 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 90 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 100 \text{ m}^3/\text{h}$ [dB(A)]
I	33	35	37	40	42
II	38	38	39	40	42
III	42	42	42	43	45
IV	44	44	44	44	45
V	47	47	47	47	47

#### Sound power $L_{wA}$ for size 1000 with fresh air supply

n [-]	$V_P = 70 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 80 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 90 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 100 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 120 \text{ m}^3/\text{h}$ [dB(A)]
I	34	35	37	39	41
II	37	38	38	39	41
III	43	41	41	41	44
IV	48	47	47	47	47
V	54	54	54	54	54

#### Sound power $L_{wA}$ for size 1250 with fresh air supply

n [-]	$V_P = 80 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 90 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 100 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 120 \text{ m}^3/\text{h}$ [dB(A)]	$V_P = 140 \text{ m}^3/\text{h}$ [dB(A)]
I	34	34	36	40	42
II	37	34	36	40	42
III	43	39	39	43	43
IV	48	45	45	45	46
V	53	53	53	53	53

#### Legend

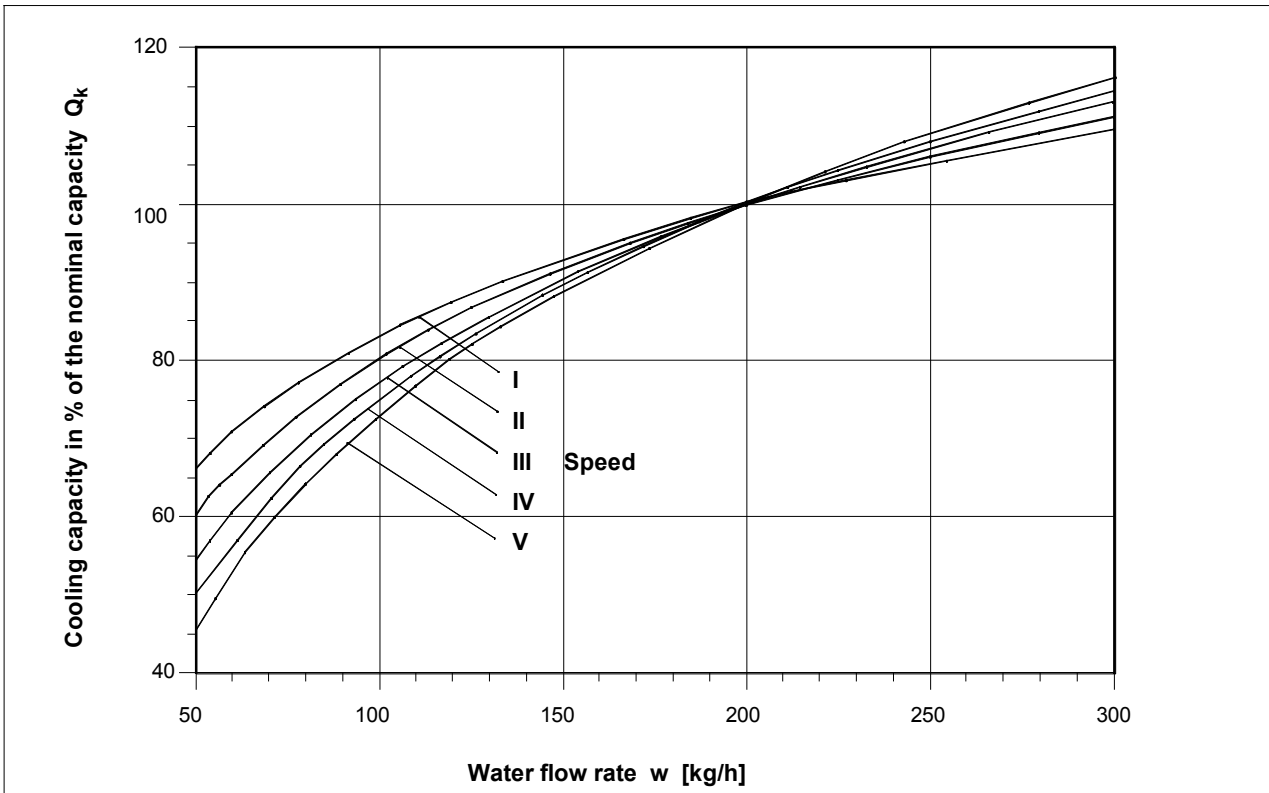
n - speed

$V_P$  - primary air flow

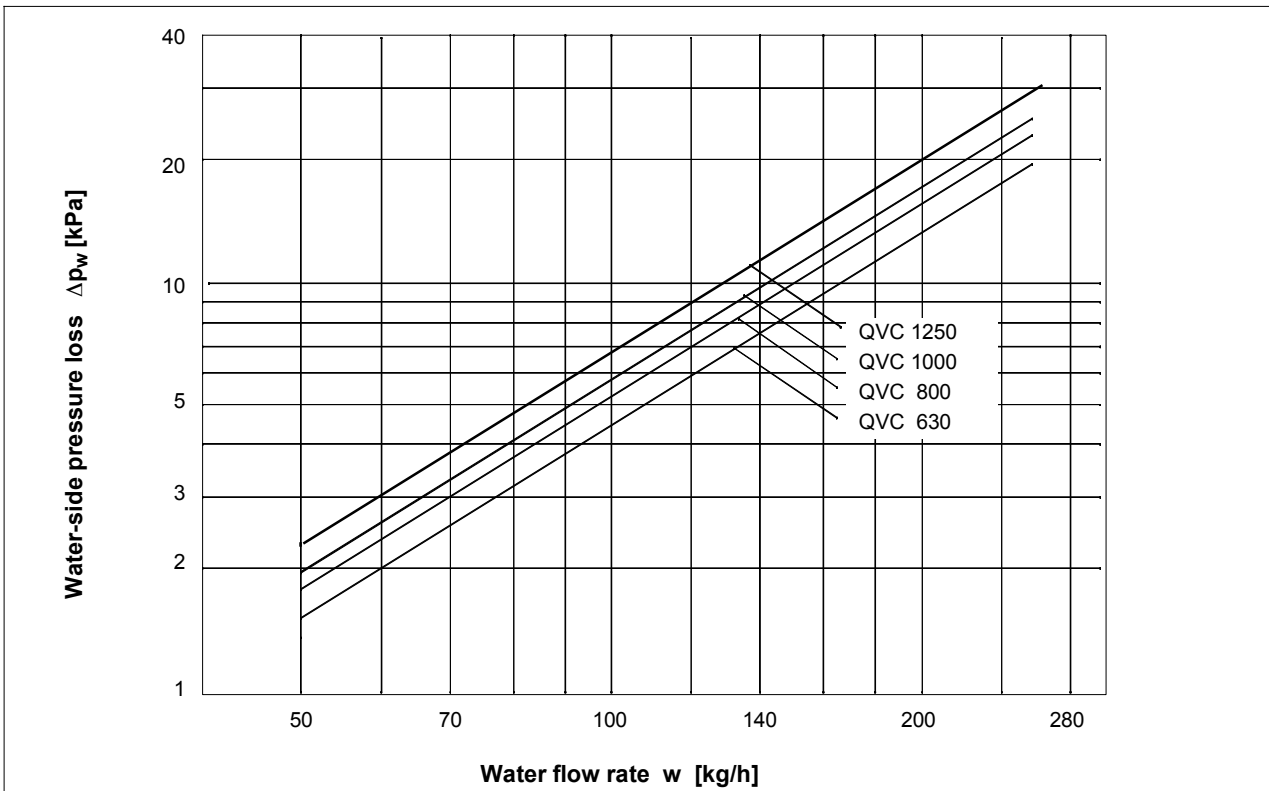
## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Cooling capacity for different water flow rates



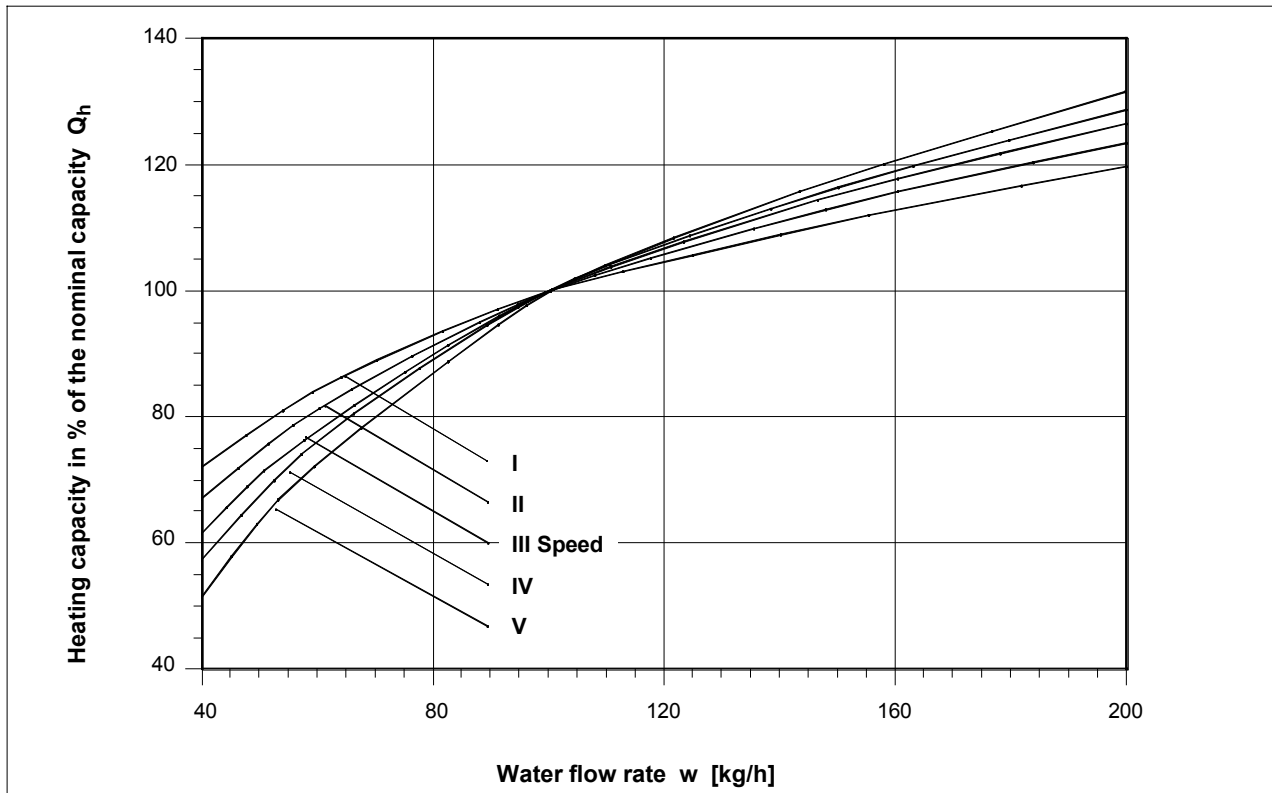
#### Water-side pressure loss of the cooler for different water flow rates



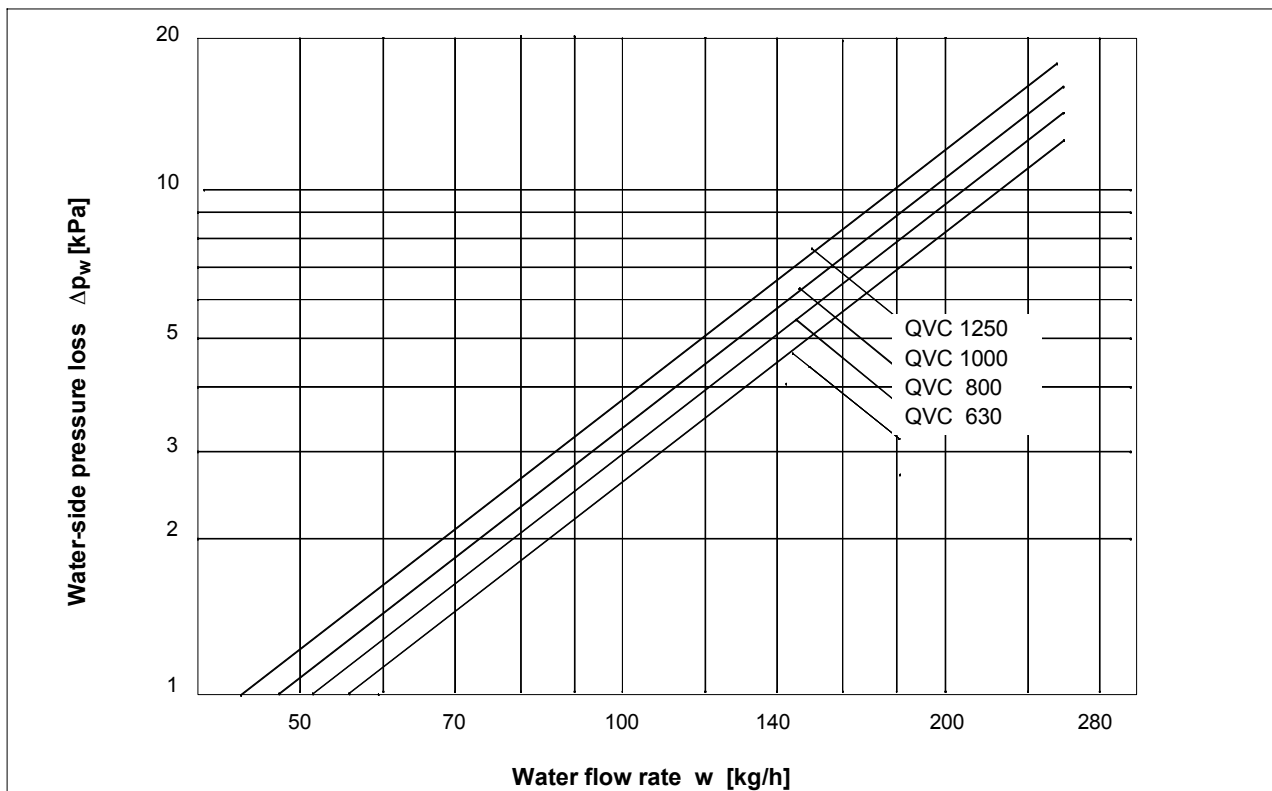
## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Heating capacity for different water flow rates



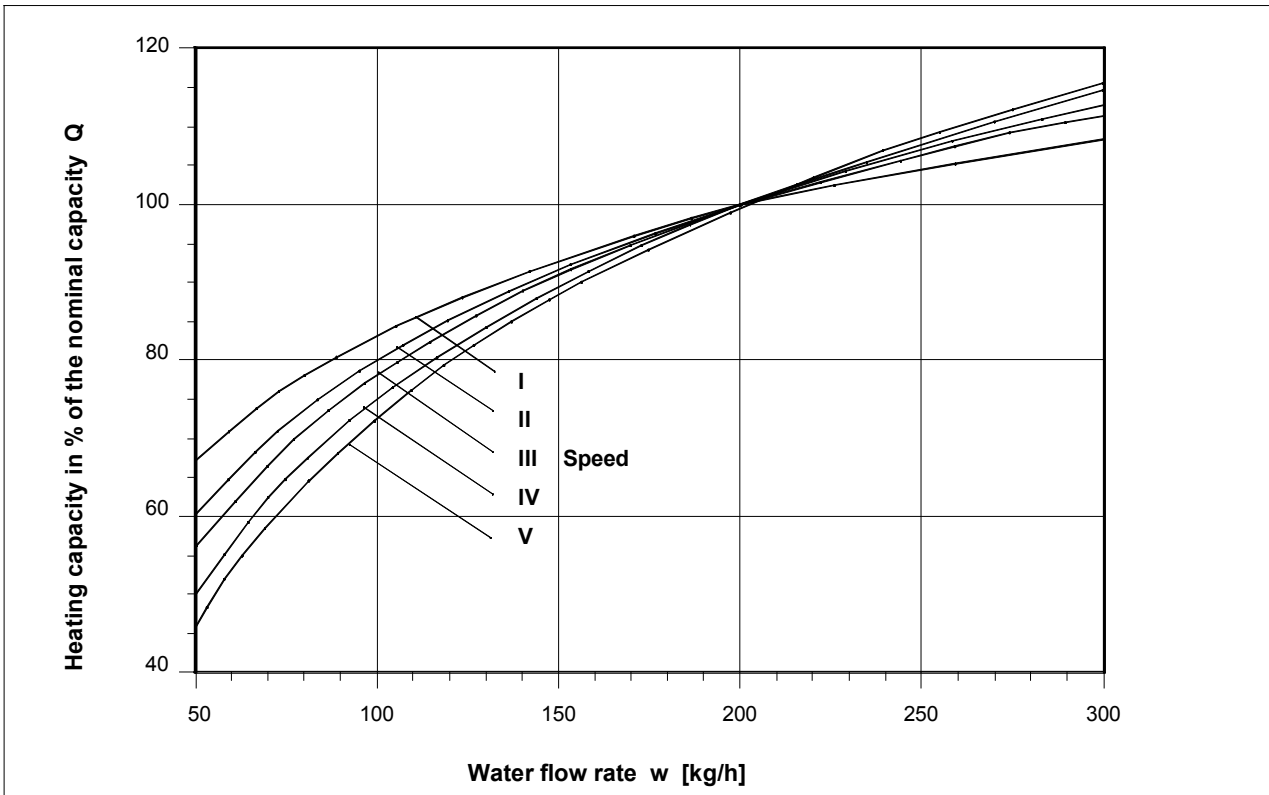
#### Water-side pressure loss of the heater for different water flow rates



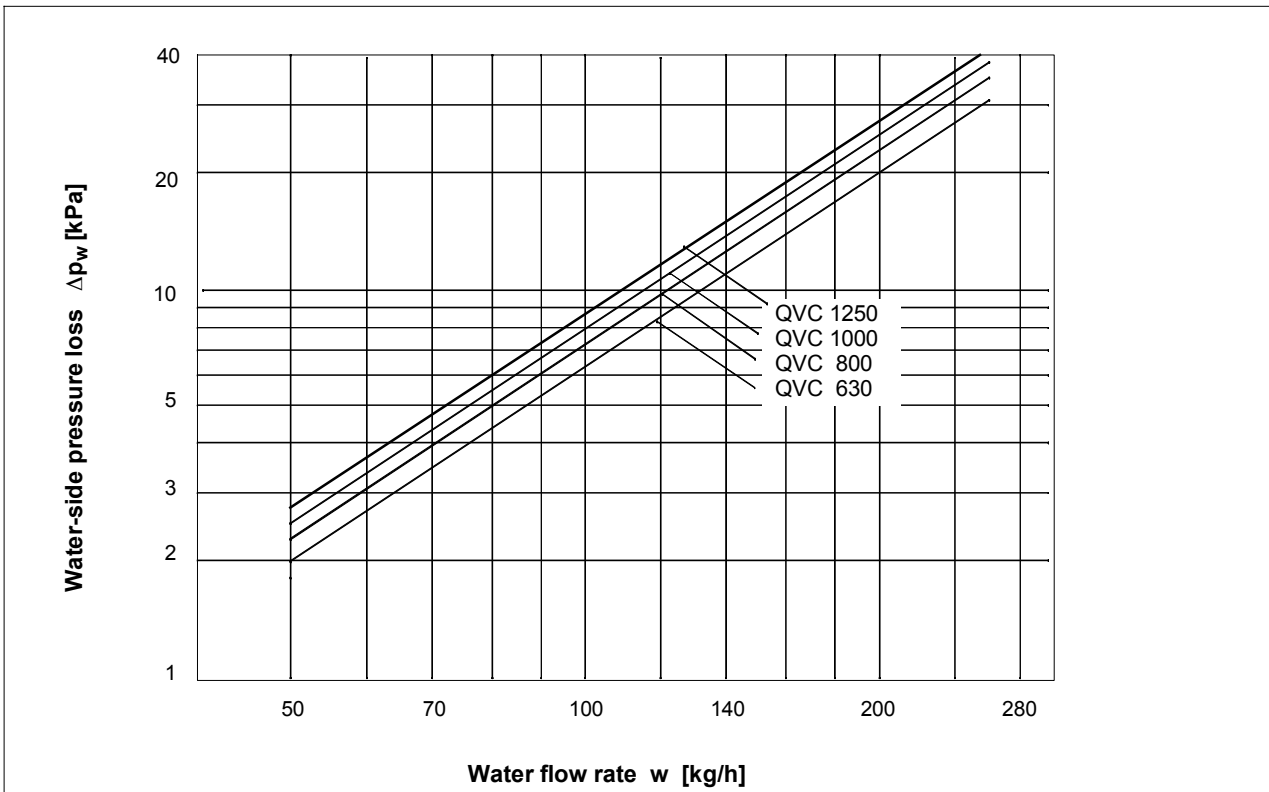
## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Capacity for different water flow rates



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



## Fan coil units for perimeter installation

### Perimeter displacement fan coil units series QVC

#### Nomenclature

**QVC - 2 800 / F / R / 1200 / 420 / - - - / D**

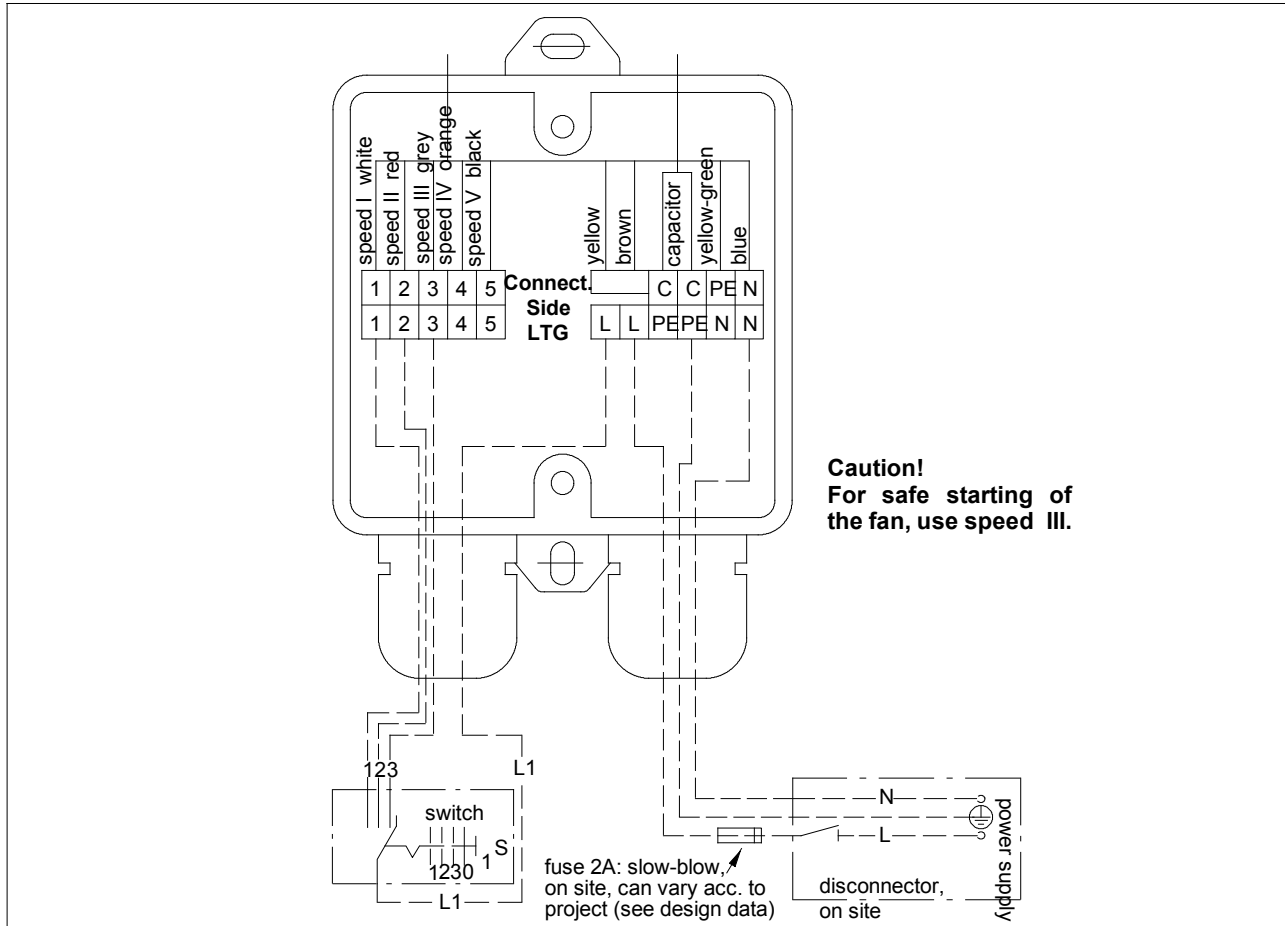
2-pipe unit	2								
4-pipe unit (valve-controlled)	4								
size	630 800 1000 1250								
without filter		-							
with filter		F							
water connection on the left			L						
water connection on the right			R						
width of casing (mm), standard				1000 1200 1400 1600					
height of casing (mm), standard					420				
						without fresh air connection	- - -		
						with fresh air connection	P . .		
						straight-way 3-point valve	D		
						3-way 3-point valve	3		
						straight-way valve, thermal	T		



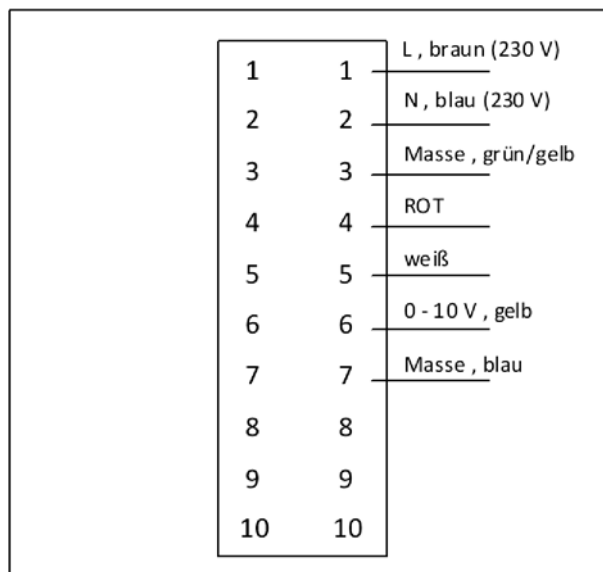
## Fan coil units for perimeter installation Series VFC, VFN, QVC

### Speed control wiring diagram

- Note:**
- Capacitor motor with 5 tapings.
  - Multiple unit triggering possible through relays
  - The technical data contain details about the current consumption and the corresponding electrical power.



### Speed control wiring diagram for EC motor 0-10 V

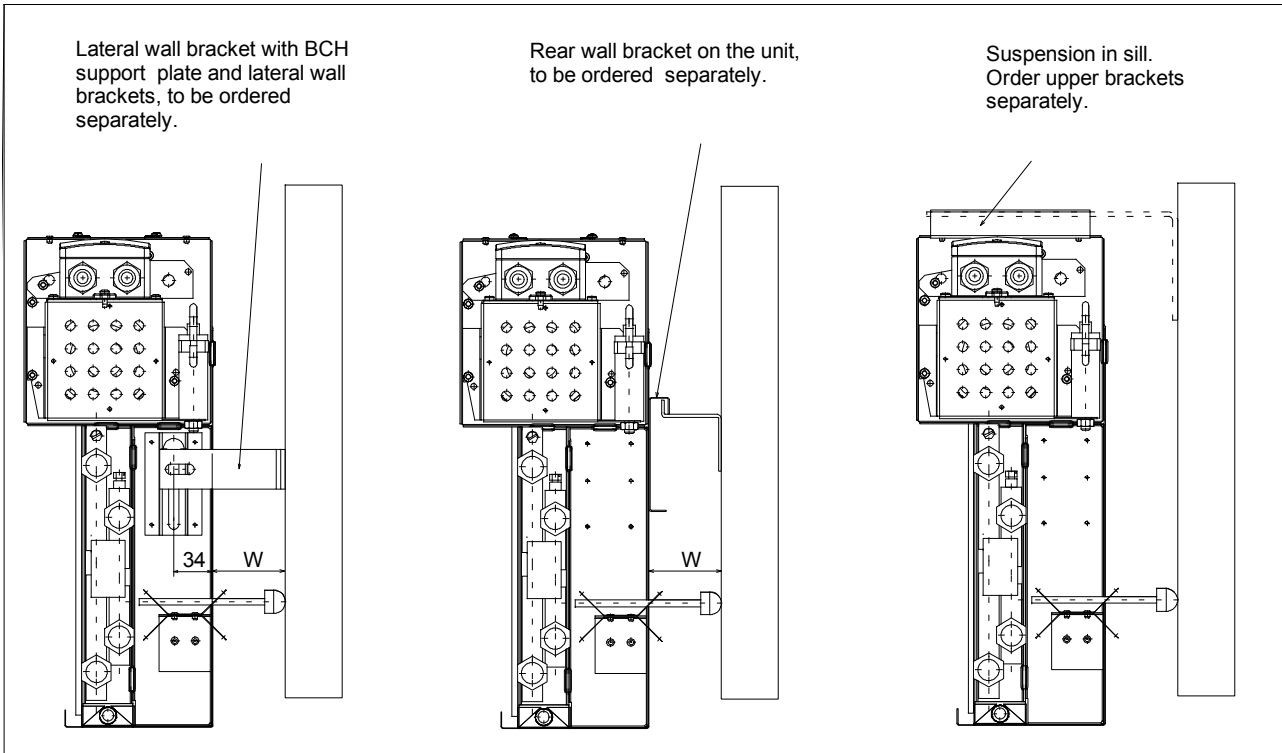


#### Configuration

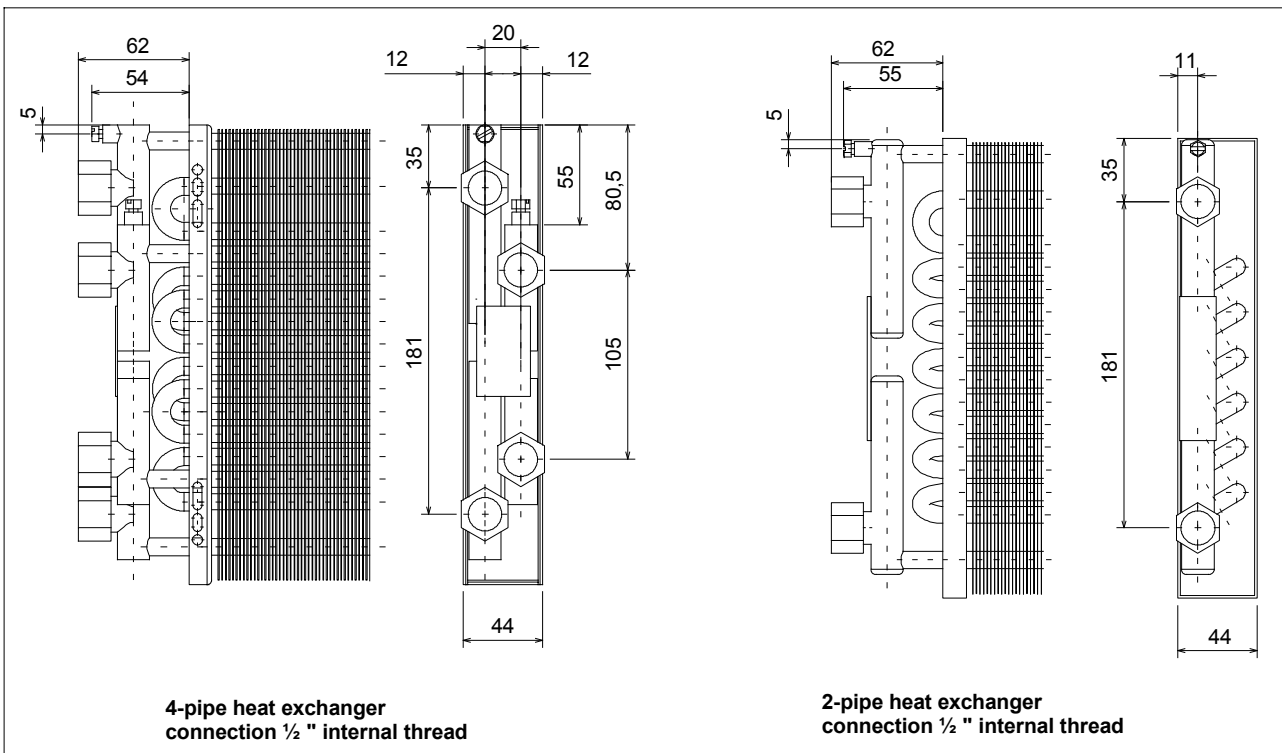
- |   |                   |                     |
|---|-------------------|---------------------|
| 1 | Phase L           | 230 Volt (brown)    |
| 2 | Neutral N         | 230 Volt (blue)     |
| 3 | Earth             | (green/yellow)      |
| 4 | Red               | voltage output 10 V |
| 5 | White             | speed monitor       |
| 6 | 0 - 10 Volt input | (yellow)            |
| 7 | Earth             | (blue)              |

# Fan Coil Units for Perimeter Installation Series VFC

## Assembly, brackets



## Water connections



## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-4

Edition 8.2.2011, page 1 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b>Fan coil unit type VFC-4 for 4-pipe systems (cooling and heating), for water-side control by valves.</b></p> <p>Fan coil unit with one heat exchanger with separate water circuits for cooling and heating, with a high natural convection capacity in the heating mode. For low sill heights and depths. Output control via valve with electric actuator (separate accessory). Suspension using the rear or top bracket for insertion in the sill.</p> <p><u>Unit consisting of:</u></p> <ul style="list-style-type: none"> <li>- Torsion-resistant <u>housing</u> of galvanized sheet steel.</li> <li>- Low-noise, extensive <u>tangential fan</u> with low-maintenance, low-noise slide bearing, large impeller diameter to convey high air flow rates, uniform air outlet over the entire unit width for agreeable room air flow. Direct drive by 5-speed capacitor motor, 230 V ~/50 Hz. Energy-saving operation thanks to vibration isolated engine with low energy consumption, max. 31 - 42 W for AC motor and 17 - 26 W for EC motor. Integrated thermal circuit breaker for motor protection. Completely wired on terminal strip, ready-to-connect. Electrical connections always on the right (view from the room).</li> <li>- <u>Heat exchanger</u> for a high caloric output at low water flow rates, on the suction side to ensure easy maintenance, made of copper tubing with press-fitted aluminum fins for a maximum operating pressure of 10 bar. Water connections ½" internal thread, on the right or left as required.</li> <li>- <u>Drain tray</u> of galvanized steel without drainage socket.</li> <li>- Easy-to-replace, self-extinguishing <u>secondary air filter</u> of polyamide fibers, synthetic resin bonded.</li> <li>- Air outlet with galvanized <u>dirt-trap grille</u>, mesh width 5 mm.</li> </ul> <p>Exterior dimensions: (height x depth) : 431 x 165 mm</p> <p>Size   o 500          o 630          o 800          o 1000          o 1250</p> <p><b>Manufacturer: LTG Aktiengesellschaft</b> <b>Series: Fan Coil Units</b> <b>Type: VFC-4</b></p>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-4

Edition 8.2.2011, page 2 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Accessories, special versions</u></b> (optional, at extra charge):</p> <ul style="list-style-type: none"> <li>o With EC-Motor, 0 – 10 V activation</li> <li>o <u>Flexible hose, oxygen diffusion tight</u> version (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u> up to supply temperatures of +50 °C, operating pressure 10 bar</li> <li>o <u>Flexible hose, oxygen diffusion tight</u> version (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> </ul> <p>or standard hose:</p> <ul style="list-style-type: none"> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u></li> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) two-way valve</li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) three-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) two-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) three-way valve</li> <li>o Rear wall suspension including spacer</li> <li>o Support bases</li> <li>o Ventilation grille of aluminum, 85 % free section, rounded edges, deflection by blade, finished natural anodized</li> </ul> <p>Length _____ mm,      Width _____ mm</p> <ul style="list-style-type: none"> <li>o type LDC</li> <li>o type LDH</li> <li>o Air outlet border frame for ventilation grille</li> <li>o Grille/frame painted or power coated similar to RAL. _____</li> </ul>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-4

Edition 8.2.2011, page 3 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Variants</u></b></p> <ul style="list-style-type: none"> <li>o <u>Upright unit with additional insulated drain tray</u> for insertion, for low supply water temperatures, drain tray of galvanized sheet steel with drainage socket, 2 mm neoprene insulation. Overall height of the unit including the additional drain tray: 480 mm</li>   <li>o <u>Upright unit with additional 1-row linear diffuser LDB 20/8/1/55</u> for fresh air supply (installation depth increased by 31 mm, if connected from the front). Adjustable linear diffuser for constant or variable flow rate, direction of diffusion adjustable by 180°, subsequent adjustment possible.</li>   <li>Diffuser includes: <ul style="list-style-type: none"> <li>- aluminum extrusion profile, natural color anodized</li> <li>- cylindrical black plastic slot nozzle</li> <li>- slim galvanized sheet steel air distribution box with socket of galvanized sheet steel, front or back,</li> </ul> </li>   <li>Length in mm _____</li>   <li>o <u>Upright unit with additional primary air box</u> (left, opposite to motor) for fresh air supply in extension to the recirculating air outlet, with connecting socket 100 mm.</li>   <li>o <u>Upright unit with solid floor fixation</u> for supportless positioning and floor installation.</li> </ul>		

# Specification and Schedule of Prices

## Fan coil unit for perimeter installation type VFC-4

Edition 8.2.2011, page 4 of 4

### Technical data

#### Cooling mode

Induction air temperature	[°C]			
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Cooling capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			

#### Heating mode

Induction air temperature	[°C]			
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Heating capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-2

Edition 8.2.2011, page 1 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b>Fan coil unit type VFC-2, for 2-pipe systems (cooling or heating), for water-side control by valves.</b></p> <p>Fan coil unit with one heat exchanger for cooling or heating, with a high natural convection capacity in the heating mode. For low sill heights and depths. Output control via valve with electric actuator (separate accessory). Suspension using the rear or top bracket for insertion in the sill.</p> <p><u>Unit consisting of:</u></p> <ul style="list-style-type: none"> <li>- Torsion-resistant <u>housing</u> of galvanized sheet steel.</li> <li>- Low-noise, extensive <u>tangential fan</u> with low-maintenance, low-noise slide bearing, large impeller diameter to convey high air flow rates, uniform air outlet over the entire unit width for agreeable room air flow. Direct drive by 5-speed capacitor motor, 230 V ~/50 Hz. Energy-saving operation thanks to vibration isolated engine with low energy consumption, max. 31 - 42 W for AC motor and 17 - 26 W for EC motor. Integrated thermal circuit breaker for motor protection. Completely wired on terminal strip, ready-to-connect. Electrical connections always on the right (view from the room).</li> <li>- <u>Heat exchanger</u> for a high caloric output at low water flow rates, on the suction side to ensure easy maintenance, made of copper tubing with press-fitted aluminum fins for a maximum operating pressure of 10 bar. Water connections ½" internal thread, on the right or left as required.</li> <li>- <u>Drain tray</u> of galvanized steel without drainage socket.</li> <li>- Easy-to-replace, self-extinguishing <u>secondary air filter</u> of polyamide fibers, synthetic resin bonded.</li> <li>- Air outlet with galvanized <u>dirt-trap grille</u>, mesh width 5 mm.</li> </ul> <p>Exterior dimensions: (height x depth) : 431 x 165 mm</p> <p>Size:   o 500           o 630           o 800           o 1000           o 1250</p> <p><b>Manufacturer:   LTG Aktiengesellschaft</b> <b>Series:           Fan Coil Units</b> <b>Type:             VFC-2</b></p>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-2

Edition 8.2.2011, page 2 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Accessories, special versions</u></b> (optional, at extra charge)</p> <ul style="list-style-type: none"> <li>o With <u>EC motor</u>, 0 – 10 V activation</li> <li>o <u>Flexible hose, oxygen diffusion tight</u> version (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u> up to supply temperatures of 50 °C, operating pressure 10 bar</li> <li>o <u>Flexible hose, oxygen diffusion tight</u> version (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> </ul> <p>or standard hose:</p> <ul style="list-style-type: none"> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u></li> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> <li>o Electro-thermal actuator for water-side on/off control (2-step action) two-way valve</li> <li>o Electro-thermal actuator for water-side on/off control (2-step action) three-way valve</li> <li>o Reversible motor drive for continuous water-side control (3-step action) two-way valve</li> <li>o Reversible motor drive for continuous water-side control (3-step action) three-way valve</li> <li>o Rear wall suspension including spacer</li> <li>o Support bases</li> <li>o Ventilation grille of aluminium, 85 % free section, rounded edges, deflection by blade, finished natural anodized</li> </ul> <p>Length _____ mm,      Width _____ mm</p> <ul style="list-style-type: none"> <li>o type LDC</li> <li>o type LDH</li> <li>o Air outlet border frame for ventilation grille</li> <li>o Grille/frame painted or powder coated similar to RAL _____</li> </ul>		



## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFC-2

Edition 8.2.2011, page 3 of 4

Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Variants</u></b></p> <ul style="list-style-type: none"> <li>o <u>Upright unit with additional insulated drain tray</u> for insertion, for low supply water temperatures drain tray of galvanized sheet steel with drainage socket, 2 mm neoprene insulation. Overall height of the unit including the additional drain tray: 480 mm</li>   <li>o <u>Upright unit with additional 1-row linear diffuser LDB 20/8/1/55</u> for fresh air supply (installation depth increased by 31 mm, if connected from the front). Adjustable linear diffuser for constant or variable flow rate, direction of diffusion adjustable by 180°, subsequent adjustment possible.</li>   <li>Diffuser includes: <ul style="list-style-type: none"> <li>- aluminum extrusion profile, natural color anodized</li> <li>- cylindrical black plastic slot nozzle</li> <li>- slim galvanized sheet steel air distribution box</li> <li>- with socket of galvanized sheet steel, front or back,</li> </ul> </li>   <li>Length in mm: _____</li>   <li>o <u>Upright unit with additional primary air box</u> (left, opposite to motor) for fresh air supply in extension to the recirculating air outlet, with connecting socket 100 mm.</li>   <li>o <u>Upright unit with solid floor fixation</u> for supportless positioning and floor installation.</li> </ul>		

# Specification and Schedule of Prices

## Fan coil unit for perimeter installation type VFC-2

Edition 8.2.2011, page 4 of 4

### Technical data

#### Cooling mode

Induction air temperature	[°C]	<table border="1" style="width: 100px; height: 20px; margin: 0 auto;"> <tr><td style="width: 50%; height: 10px;"></td><td style="width: 50%; height: 10px;"></td></tr> <tr><td style="width: 50%; height: 10px;"></td><td style="width: 50%; height: 10px;"></td></tr> </table>						
Water supply temperature	[°C]							
		Speed I	Speed II	Speed III				
Flow rate	[m <sup>3</sup> /h]							
Cooling capacity	[W]							
Sound power level $L_{WA}$	[dB(A)]							
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]							
Electric power consumption	[W]							

#### Heating mode

Induction air temperature	[°C]	<table border="1" style="width: 100px; height: 20px; margin: 0 auto;"> <tr><td style="width: 50%; height: 10px;"></td><td style="width: 50%; height: 10px;"></td></tr> <tr><td style="width: 50%; height: 10px;"></td><td style="width: 50%; height: 10px;"></td></tr> </table>						
Water supply temperature	[°C]							
		Speed I	Speed II	Speed III				
Flow rate	[m <sup>3</sup> /h]							
Heating capacity	[W]							
Sound power level $L_{WA}$	[dB(A)]							
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]							
Electric power consumption	[W]							

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type QVC-4

Edition 8.2.2011, page 1 of 3

Qty.	Description	Unit price in €	Total price in €
	<p><b>Displacement air fan coil unit type QVC-4, for 4-pipe systems (cooling and heating), for water-side control by valves.</b></p> <p>Displacement air fan coil unit with one two-row heat exchanger with separate water circuits for cooling and heating. With a variable, easy-to-detach air distribution box including displacement air diffuser, painted black, wedge-shaped for a uniform air discharge, with rectifying blades and low pressure loss to allow adaptation to varying sill geometries. Output control via valve with electric actuator (separate accessory).</p> <p><u>Unit consisting of:</u></p> <ul style="list-style-type: none"> <li>- Torsion-resistant <u>housing</u> of galvanized sheet steel.</li> <li>- Low-noise, extensive <u>tangential fan</u> with low-maintenance, low-noise slide bearing, large impeller diameter to convey high air flow rates, uniform air outlet over the entire unit width for agreeable room air flow. Direct drive by 5-speed capacitor motor, 230 V ~/50 Hz. Energy-saving operation thanks to vibration isolated engine with low energy consumption, max. 31 - 42 W for AC motor and 17 - 26 W for EC motor. Integrated thermal circuit breaker for motor protection. Completely wired on terminal strip, ready-to-connect. Electrical connections always on the right (view from the room).</li> <li>- <u>Heat exchanger</u> for cooling, for a high caloric output, made of copper tubing with press-fitted aluminium fins for a maximum operating pressure of 10 bar in standard version, connection to a cold water cycle. Water connections ½" internal thread, on the right or left as required.</li> <li>- <u>Drain tray</u> of galvanized steel.</li> <li>- Easy-to-replace, self-extinguishing <u>secondary air filter</u> of polyamide fibers, synthetic resin bonded.</li> </ul> <p>Exterior dimensions (height x depth) : 596 mm x 197 mm</p> <p>Size / outlet width / outlet height</p> <p>o 500 / _____ mm / _____ mm</p> <p>o 630 / _____ mm / _____ mm</p> <p>o 800 / _____ mm / _____ mm</p> <p>o 1000 / _____ mm / _____ mm</p> <p>o 1250 / _____ mm / _____ mm</p> <p><b>Manufacturer: LTG Aktiengesellschaft</b> <b>Series: Fan Coil Units</b> <b>Type: QVC-4</b></p>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type QVC-4

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Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Accessories, special versions</u></b> (optional, at extra charge):</p> <ul style="list-style-type: none"> <li>o With EC motor, 0 – 10 V activation</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u> up to supply temperatures of +50 °C, operating pressure 10 bar</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> </ul> <p>or standard hose:</p> <ul style="list-style-type: none"> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u></li> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) two-way valve</li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) three-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) two-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) three-way valve</li> <li>o With primary air, socket diameter 100 mm (optional)</li> </ul>		

# Specification and Schedule of Prices

## Fan coil unit for perimeter installation type QVC-4

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### Technical data

#### Cooling mode

Induction air temperature	[°C]	[ ]		
Water supply temperature	[°C]	[ ]		
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]	[ ]	[ ]	[ ]
Cooling capacity	[W]	[ ]	[ ]	[ ]
Sound power level $L_{WA}$	[dB(A)]	[ ]	[ ]	[ ]
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]	[ ]	[ ]	[ ]
Electric power consumption	[W]	[ ]	[ ]	[ ]

#### Heating mode

Induction air temperature	[°C]	[ ]		
Water supply temperature	[°C]	[ ]		
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]	[ ]	[ ]	[ ]
Heating capacity	[W]	[ ]	[ ]	[ ]
Sound power level $L_{WA}$	[dB(A)]	[ ]	[ ]	[ ]
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]	[ ]	[ ]	[ ]
Electric power consumption	[W]	[ ]	[ ]	[ ]

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type QVC-2

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Qty.	Description	Unit price in €	Total price in €
	<p><b>Displacement air fan coil unit type QVC-2, for 2-pipe systems (cooling or heating), for water-side control by valves.</b></p> <p>Displacement air fan coil unit with one two-row heat exchanger for cooling or heating. With a variable, easy-to-detach air distribution box including displacement air diffuser, painted black, wedge-shaped for a uniform air discharge, with rectifying blades and low pressure loss to allow adaptation to varying sill geometries. Output control via valve with electric actuator (separate accessory).</p> <p><u>Unit consisting of:</u></p> <ul style="list-style-type: none"> <li>- Torsion-resistant <u>housing</u> of galvanized sheet steel.</li> <li>- Low-noise, extensive <u>tangential fan</u> with low-maintenance, low-noise slide bearing, large impeller diameter to convey high air flow rates, uniform air outlet over the entire unit width for agreeable room air flow. Direct drive by 5-speed capacitor motor, 230 V ~/50 Hz. Energy-saving operation thanks to vibration isolated engine with low energy consumption, max. 31 - 42 W for AC motor and 17 - 26 W for EC motor. Integrated thermal circuit breaker for motor protection. Completely wired on terminal strip, ready-to-connect. Electrical connections always on the right (view from the room).</li> <li>- <u>Heat exchanger</u> for cooling for a high caloric output, made of copper tubing with press-fitted aluminum fins for a maximum operating pressure of 10 bar in standard version, connection to a cold water cycle. Water connections ½" internal thread, on the right or left as required.</li> <li>- <u>Drain tray</u> of galvanized steel.</li> <li>- Easy-to-replace, self-extinguishing <u>secondary air filter</u> of polyamide fibers, synthetic resin bonded.</li> </ul> <p>Exterior dimensions: (height x depth) : 596 mm x 197 mm</p> <p>Size:     / outlet width         / outlet height</p> <p>o 500 / _____ mm / _____ mm</p> <p>o 630 / _____ mm / _____ mm</p> <p>o 800 / _____ mm / _____ mm</p> <p>o 1000 / _____ mm / _____ mm</p> <p>o 1250 / _____ mm / _____ mm</p> <p><b>Manufacturer: LTG Aktiengesellschaft</b> <b>Series: Fan Coil Units</b> <b>Type: QVC-2</b></p>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type QVC-2

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Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Accessories, special versions</u></b> (optional, at extra charge)</p> <ul style="list-style-type: none"> <li>o With EC motor, 0 – 10 V activation</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u> up to supply temperatures of +50 °C, operating pressure 10 bar</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> </ul> <p>or standard hose:</p> <ul style="list-style-type: none"> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u></li> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) two-way valve</li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) three-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) two-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) three-way valve</li> <li>o With primary air, socket diameter 100 mm (optional)</li> </ul>		

# Specification and Schedule of Prices

## Fan coil unit for perimeter installation type QVC-2

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### Technical data

#### Cooling mode

Induction air temperature	[°C]	<input style="width: 100px; height: 20px;" type="text"/> <input style="width: 100px; height: 20px;" type="text"/>		
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Cooling capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			

#### Heating mode

Induction air temperature	[°C]	<input style="width: 100px; height: 20px;" type="text"/> <input style="width: 100px; height: 20px;" type="text"/>		
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Heating capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			



## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFN-4

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Qty.	Description	Unit price in €	Total price in €
	<p><b>Fan coil unit type VFN-4, for 4-pipe systems (cooling and heating), for water-side control by valves.</b></p> <p>Fan coil unit with one heat exchanger with separate water circuits for cooling and heating, with a high natural convection capacity in the heating mode. For low sill heights and depths. Output control via valve with electric actuator (separate accessory). Installation via two lateral suspension brackets for fixation to the floor.</p> <p><u>Unit consisting of:</u></p> <ul style="list-style-type: none"> <li>- Torsion-resistant <u>housing</u> of galvanized sheet steel.</li> <li>- Low-noise, extensive <u>tangential fan</u> with low-maintenance, low-noise slide bearing, large impeller diameter to convey high air flow rates, uniform air outlet over the entire unit width for agreeable room air flow. Direct drive by 5-speed capacitor motor, 230 V ~/50 Hz. Energy-saving operation thanks to vibration isolated engine with low energy consumption, max. 31 - 42 W for AC motor and 17 - 26 W for EC motor. Integrated thermal circuit breaker for motor protection. Completely wired on terminal strip, ready-to-connect. Electrical connections always on the right (view from the room).</li> <li>- <u>Heat exchanger</u> for a high caloric output at low water flow rates, on the suction side to ensure easy maintenance, made of copper tubing with press-fitted aluminum fins for a maximum operating pressure of 10 bar. Water connections ½" internal thread, on the right or left as required.</li> <li>- <u>Drain tray</u> of galvanized steel without drainage socket.</li> <li>- Easy-to-replace, self-extinguishing <u>secondary air filter</u> of polyamide fibers, synthetic resin bonded.</li> <li>- Air outlet with galvanized <u>dirt-trap grille</u>, mesh width 5 mm.</li> </ul> <p>Exterior dimensions: (height x depth) : 280 x 200 mm</p> <p>Size   o 630          o 800          o 1000          o 1250</p> <p><b>Manufacturer: LTG Aktiengesellschaft</b> <b>Series: Fan Coil Units</b> <b>Type: VFN-4</b></p>		

## Specification and Schedule of Prices

### Fan coil unit for perimeter installation type VFN-4

Edition 19.8.2011, page 2 of 3

Qty.	Description	Unit price in €	Total price in €
	<p><b><u>Accessories, special versions</u></b> (optional, at extra charge):</p> <ul style="list-style-type: none"> <li>o With EC motor, 0 – 10 V activation</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u> up to supply temperatures of +50 °C, operating pressure 10 bar</li> <li>o <u>Flexible hose, oxygen diffusion tight version</u> (Oxiblock, PE), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> </ul> <p>or standard hose:</p> <ul style="list-style-type: none"> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>without insulation for hot water</u></li> <li>o Flexible hose, (EPDM-core), with stainless steel braiding, quick release coupling on one side, other side optional, length: 500 mm, <u>with insulation for cold water</u></li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) two-way valve</li> <li>o 2 x Electro-thermal actuator for water-side on/off control (2-step action) three-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) two-way valve</li> <li>o 2 x Reversible motor drive for continuous water-side control (3-step action) three-way valve</li> </ul>		

# Specification and Schedule of Prices

## Fan coil unit for perimeter installation type VFN-4

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### Technical data

#### Cooling mode


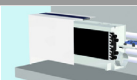
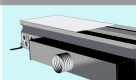
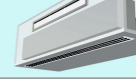
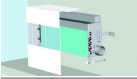
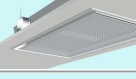


Induction air temperature	[°C]			
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Cooling capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			

#### Heating mode


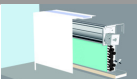
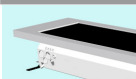
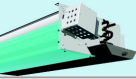

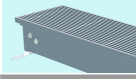
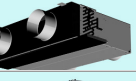
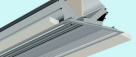
Induction air temperature	[°C]			
Water supply temperature	[°C]			
		Speed I	Speed II	Speed III
Flow rate	[m <sup>3</sup> /h]			
Heating capacity	[W]			
Sound power level $L_{WA}$	[dB(A)]			
Sound pressure level at 18 m <sup>2</sup> Sabine $L_{pA}$	[dB(A)]			
Electric power consumption	[W]			

## Product Overview LTG Air-Water Systems

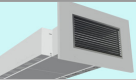

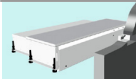
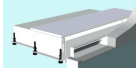
### LTG Induction – Induction Units

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		

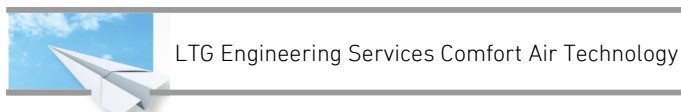
### LTG FanPower– Fan Coil Units

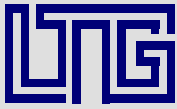
Ceiling Installation	Sill Installation	Floor Installation
 LVC System Indivent®	 VFC	 VKB
 VKH	 QVC	 SKB
 VKE		
 KFA cool wave®		

### LTG Decentral – Decentralised Ventilation Units

Ceiling Installation	Sill Installation	Floor Installation
 FVS Univent	 FVM	 FVD
		 FVP <i>pulse</i> System PulseVentilation

### 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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