KOMFORT EC DW

Suspended heat recovery air handling units

Features

- Air handling units for efficient supply and exhaust ventilation in flats, houses, cottages and other buildings.
- Heat recovery minimises ventilation heat losses.
- Provide controllable air exchange to create the best suitable indoor microclimate.
- Compatible with round ∅ 200 to 400 mm round air ducts.

Air flow:
up to 3800 m³/h
1056 l/s

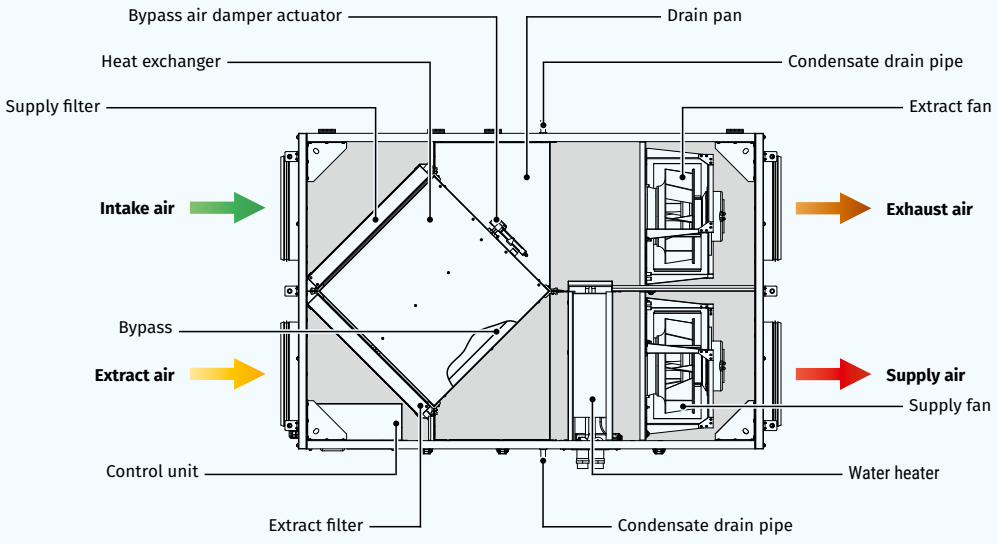
Heat recovery efficiency:
up to 90 %

Design

- The casing is made of double-skinned aluzinc panels, internally filled with 20 or 25 mm mineral wool layer for heat and sound insulation.
- The casing has fixing brackets with vibration absorbing connectors for easy installation.
- The spigots for connection to the air ducts are located at the side of the unit and are rubber sealed for airtight connection to the air ducts.
- The service panel ensures easy access to the internals for cleaning, filter replacement and other maintenance operations.

Fans

- High-efficient external rotor EC motors and centrifugal impellers with backward curved blades are used for air supply and exhaust.
- EC motors have the best power consumption to air flow ratio and meet the latest demands concerning energy saving and high-efficient ventilation.
- EC motors are featured with high performance, low noise level and totally controllable speed range.
- Dynamically balanced impellers.



Heat recovery

- The unit is equipped with a plate counter-flow aluminium heat exchanger for heat recovery. The unit condensate is collected and drained to the drain pan under the heat exchanger.
- The air flows are completely separated in the heat exchanger. Thus smells and contaminants are not transferred from the extract air to the supply air.
- Heat recovery is based on heat and/or humidity transfer through the heat exchanger plates. In the cold season supply air is heated in the heat exchanger by transferring the heat energy of warm and humid extract air to the cold fresh air. Heat recovery minimizes ventilation heat losses and heating costs respectively.
- In the warm season the heat exchanger performs reverse and intake air is cooled in the heat exchanger by the cool extract air. That reduces operation load on air conditioners and saves electricity.

FREEZE PROTECTION

- The electronic frost protection system based on bypass and heater is used to prevent the heat exchanger freezing in cold seasons. The bypass damper is opened and the heater is turned on automatically according to the feedback from the temperature sensor. Cold intake air passes by the heat exchanger and is warmed up to set temperature in the heat exchanger. Synchronously extract air that passes by the heat exchanger is used for its defrosting. After a freezing danger is over the bypass damper is closed, the heater is turned off. The unit reverts to the normal operation mode.

Air heater

- The unit is equipped with a water (glycol) heater for operation at low outside air temperature.
- The integrated water heater is activated to warm up supply air flow if set indoor air temperature may not be reached by means of heat recovery only.
- Heat medium temperature control ensures supply air temperature maintaining.
- The air temperature sensor downstream of the waterheating coils and the return water temperature sensor are used for freezing protection of the water heater.

Air filtration

- The built-in G4 supply filter and G4 extract filter provide air filtration.

Control and automation

- The unit incorporates an integrated control system control panel and a sensor display.
- The standard delivery set includes a 10 m cable for connection of the unit and the control panel.
- **Automation functions:**
  - Activating/deactivating the unit.
  - Setting required speed for the supply and extract fan for the unit air flow control. Each speed is individually adjusted during set-up.
  - Set supply air temperature maintaining by means of the circulating pump and heat medium regulating valve control.
  - Water heater freezing protection on feedback from the temperature sensor downstream of the water heating coils and the return water temperature sensor.
  - Pre-heating cycle prior to the heater start and maintaining set return water temperature during the fan shutoff.
  - Opening/closing the bypass damper for summer ventilation.
  - Setting and maintaining room or duct air temperature.
  - Timer activation/deactivation and set-up.
  - Setting day- and week-scheduled operation of the unit.
  - Operation control on feedback from FS1 duct humidity sensor (to be ordered separately) or on the humidity sensor in the control panel.
  - Filter clogging control.
  - System shutdown on signal from the fire alarm panel.
  - Controlling supply and exhaust air dampers (to be ordered separately).
  - Cooler control (to be ordered separately).

Mounting

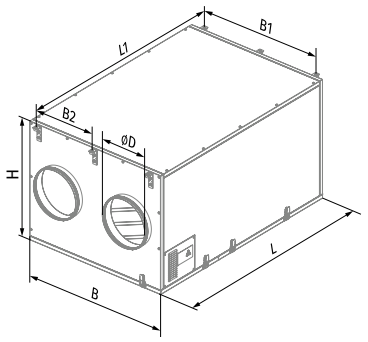
- Mounting to the ceiling with fixing brackets.
- The correct mounted unit must provide free condensate collection and drainage as well as good access for servicing and filter replacement.
- Servicing access on the bottom.

Designation key

Series	Motor type	Mounting type	Heater type	Rated air flow [m³/h]		Number of water coil rows	Service side
KOMFORT	**EC:** electronically commutated motor	**D:** suspended mounting, horizontally directed spigots	**W:** water heater	**2000; 3800**	—	**2**	**R:** right

Overall dimensions [mm]

Model	D	B	B1	B2	H	L	L1
KOMFORT EC DW 2000-2	314	950	915	405	761	1400	1453
KOMFORT EC DW 3800-2	399	1265	1130	563	830	1835	1888

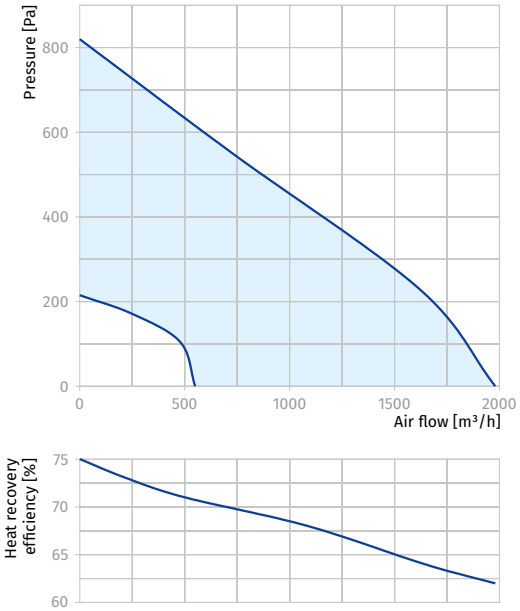


Technical data

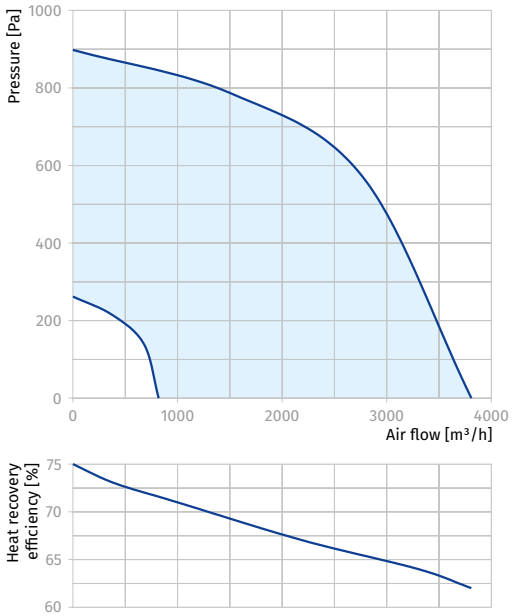
Parameters	KOMFORT EC DW 2000-2 R	KOMFORT EC DW 3800-2 R
Voltage [V / 50 (60) Hz]	1 ~ 230	3 ~ 400
Number of water (glycol) coil rows	2	2
Power [W]	840	1990
Current [A]	5.00	3.40
Maximum air flow [m³/h (l/s)]	1950 (542)	3800 (1056)
RPM [min⁻¹]	2920	2580
Sound pressure level at 3 m [dBA]	58	59
Transported air temperature [°C]	-25...+40	-25...+40
Casing material	aluzinc	aluzinc
Insulation	25 mm mineral wool	25 mm mineral wool
Extract filter	G4	G4
Supply filter	G4	G4
Connected air duct diameter [mm]	315	400
Weight [kg]	194	295
Heat recovery efficiency [%]	up to 75	up to 75
Heat exchanger type	cross-flow	cross-flow
Heat exchanger material	aluminum	aluminum
SEC class	NRVU*	NRVU*
ErP	2016	2016

*Nonresidential Ventilation Unit.

KOMFORT EC DW 2000-2

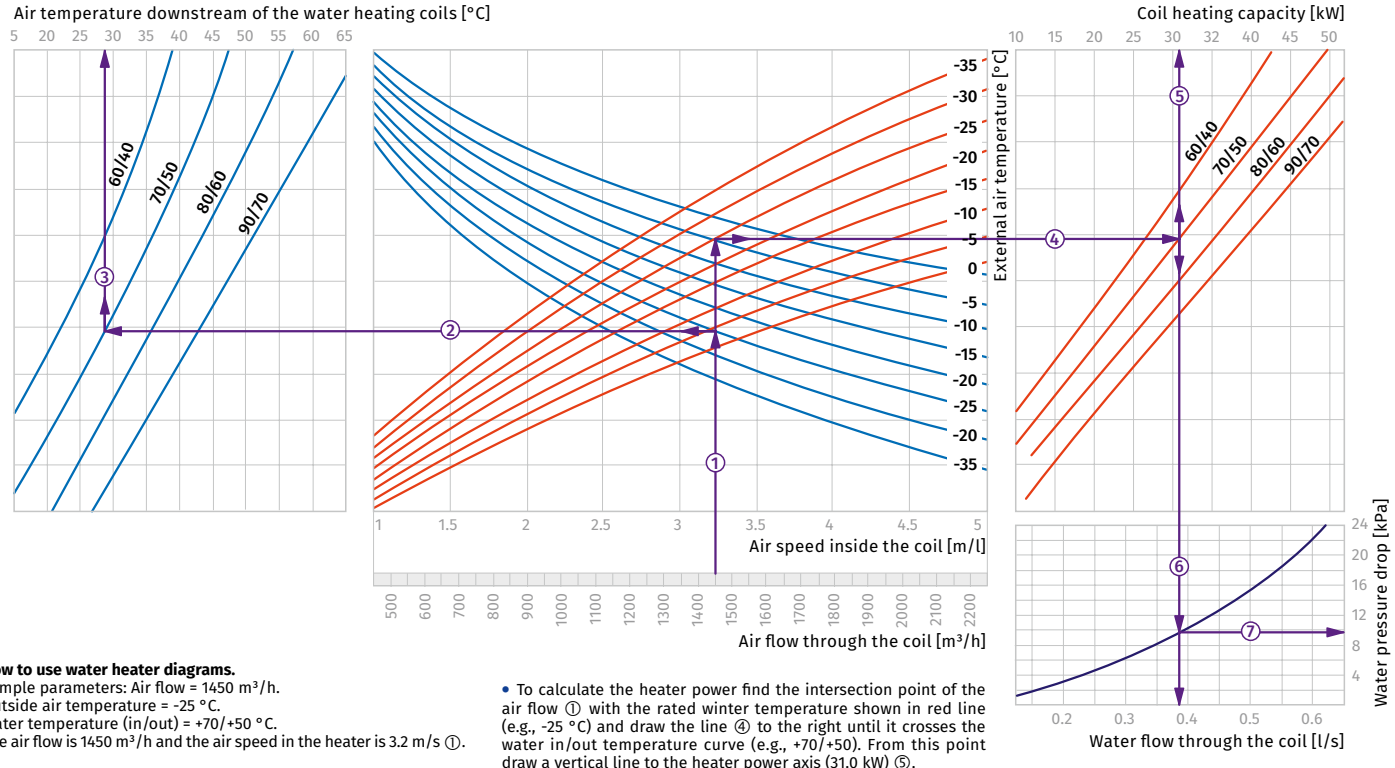


KOMFORT EC DW 3800-2



Hot water coil calculation diagram

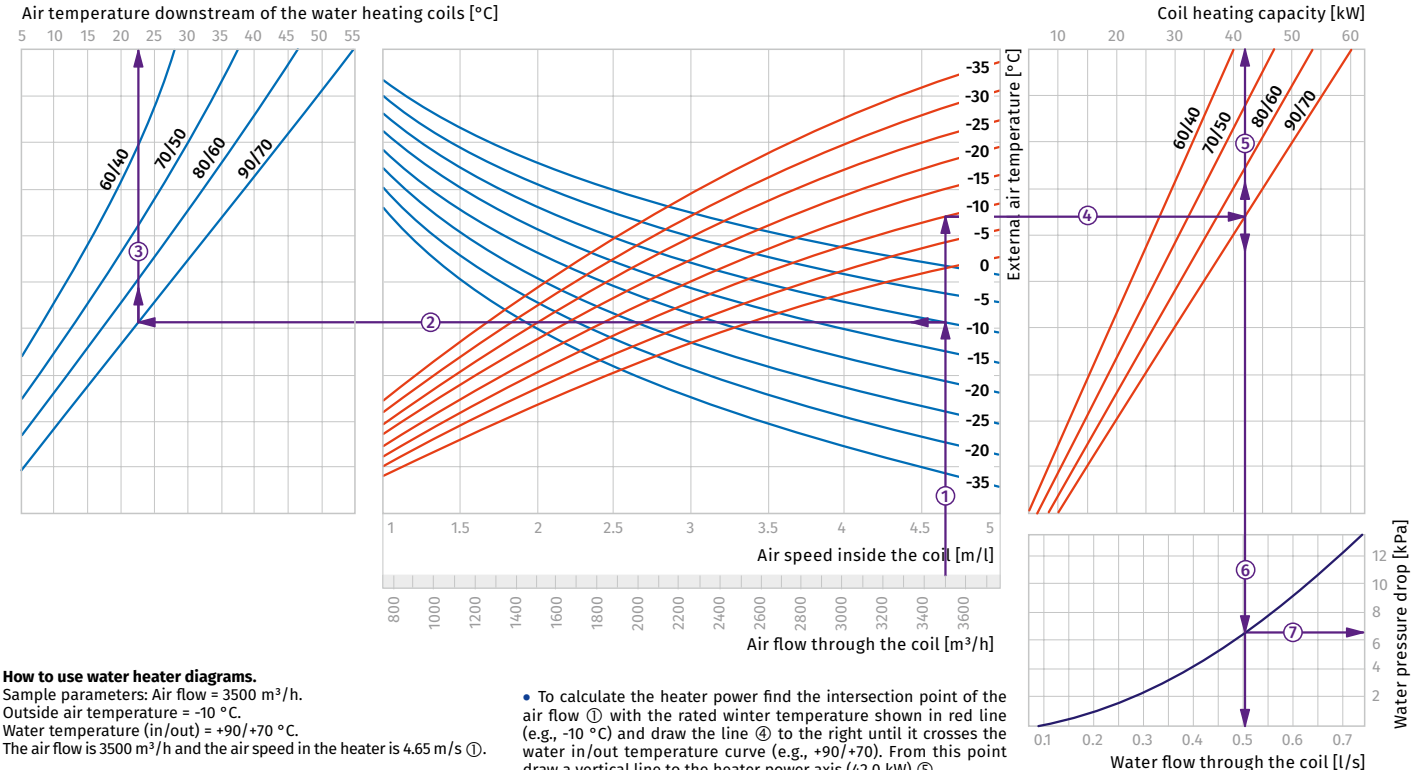
KOMFORT EC DW 2000-2



How to use water heater diagrams.
Sample parameters: Air flow = 1450 m³/h.
Outside air temperature = -25 °C.
Water temperature (in/out) = +70/+50 °C.
The air flow is 1450 m³/h and the air speed in the heater is 3.2 m/s ①.

- To calculate the maximum air temperature find the intersection point of the air flow line ① with the rated outer temperature shown in blue line (e.g., -25 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g., +70/+50). From this point draw a vertical line to the supply air temperature downstream of the heater (+28 °C) ③.
- To calculate the heater power find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -25 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g., +70/+50). From this point draw a vertical line to the heater power axis (31.0 kW) ⑤.
- To calculate the required water flow in the heater prolong this line ⑥ downwards to the water flow axis (0.38 l/s).
- To calculate the water pressure drop in the heater find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (9.8 kPa).

KOMFORT EC DW 3800-2



How to use water heater diagrams.
Sample parameters: Air flow = 3500 m³/h.
Outside air temperature = -10 °C.
Water temperature (in/out) = +90/+70 °C.
The air flow is 3500 m³/h and the air speed in the heater is 4.65 m/s ①.

- To calculate the maximum air temperature find the intersection point of the air flow line ① with the rated outer temperature shown in blue line (e.g., -10 °C) and draw the line ② to the left until it crosses the water in/out temperature curve (e.g., +90/+70). From this point draw a vertical line to the supply air temperature downstream of the heater (+22.5 °C) ③.
- To calculate the heater power find the intersection point of the air flow ① with the rated winter temperature shown in red line (e.g., -10 °C) and draw the line ④ to the right until it crosses the water in/out temperature curve (e.g., +90/+70). From this point draw a vertical line to the heater power axis (42.0 kW) ⑤.
- To calculate the required water flow in the heater prolong this line ⑥ downwards to the water flow axis (0.5 l/s).
- To calculate the water pressure drop in the heater find the intersection point of the line ⑥ with the pressure loss curve and prolong the line ⑦ to the right on the water pressure drop axis (6.5 kPa).

Accessories

		KOMFORT EC DW 2000-2 R	KOMFORT EC DW 3800-2 R
G4 panel filter		FP 708x480x48 G4	FP 827x741x48 G4
Silencer		SD 315	SD 400
Silencer		SDF 315	SDF 400
Backdraft air damper		VRV 315	VRV 400
Air damper		VKA 315	VKA 400
Internal humidity sensor		FS1	FS1
Electric actuator		LF230	LF230
Electric actuator		TF230	TF230
Water mixing unit		WMG	WMG