MOTOR EC

AIR HANDLING UNITS WITH HEAT RECOVERY

KOMFORT EC DW

EN

OPERATION MANUAL

BLAUBERG Ventilatoren

CONTENTS

3	Introduction
3	General
3	Safety rules
3	Transportation and storage rules
3	Manufacturer's warranty
4	Design
5	Operating logic
5	Delivery set
6	Technical data
9	Mounting
11	Condensate drainage
12	Connection to power mains
15	Outdoor temperature sensor mounting and connection
15	Duct humidity sensor mounting and connection
16	Control panel mounting
18	Unit control
27	Error code description
27	Factory settings
28	Technical maintenance
29	Troubleshooting and fault handling
30	Acceptance certificate
30	Connection certificate
30	Warranty card

BLAUBERG Ventilatoren GmbH Company is happy to offer your attention a suspended heat recovery air handling unit **KOMFORT EC DW**.

INTRODUCTION

The present operation manual contains a technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the unit.

Read carefully and understand the operation manual, especially the safety requirements, before the unit mounting and start up.

Keep the operation manual available as long as you use the unit.

GENERAL

The heat recovery air handling unit KOMFORT EC DW is designed for efficient and energy saving ventilation of domestic and public premises.

The unit is not a ready to use product but a component part of central air conditioning and ventilation network.

The unit is designed for suspended mounting.

The unit is rated for indoor application at ambient temperature from +1 °C up to +40 °C and relative humidity not exceeding 80%.

Hazardous parts access and water ingress protection rating:

- ☐ unit motors - IP 44;
- ☐ assembled unit connected to air ducts - IP 22.

The unit design is regularly improved, so some models can slightly differ from those ones described in this service instruction.

SAFETY RULES

All operations related to the unit electrical connections, servicing and repair works are allowed only after the appliance is disconnected from power supply.

The appliance is rated as a Class I electrical appliance.

All mounting and servicing operations are allowed by duly qualified personnel.

Please, follow the safety regulations and working instructions (DIN EN 50 110, IEC 364).

Make sure the impeller and the casing are not damaged before connecting the appliance to power supply. The casing internals must be free of any foreign objects which can damage the impeller blades or the motor.

The appliance maintenance and repair is allowed only after power cut-off and full stop of the rotating parts.

Misuse of the appliance or any unauthorized modification are not allowed.

The appliance is designed for connection to power supply in compliance with the «Technical data» section.

The appliance is rated for permanent operation.

Take steps to prevent ingress of smoke, carbon monoxide and other combustion products into the room through open chimney flues or other fire-protection devices. Sufficient air supply must be provided for proper combustion and exhaust of gases through the chimney of fuel burning equipment to prevent back drafting. The maximum permitted pressure difference per living units is 4 Pa.

The transported air must not contain any dust or other solid impurities, sticky substances or fibrous materials.

The appliance is not rated for operation in a flammable or explosive medium.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the appliance.

TRANSPORTATION AND STORAGE RULES

Transportation of the appliance is allowed by any vehicle provided the appliance is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages of the appliance. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Store the appliance in a dry and cool place in the original packing.

The storage environment must not be subjected to any aggressive and/or chemical evaporations, admixtures, foreign objects that may provoke corrosion and damage connection tightness.

Store the appliance in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations.

Do not expose the appliance to the temperatures below +5 °C and above +40 °C .

Connection of the appliance to power supply is allowed after the appliance has been kept indoor for minimum two hours.

MANUFACTURER'S WARRANTY

The appliance complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the unit complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility, which relate to electrical appliances used in set voltage classes.

The manufacturer hereby warrants normal operation of the unit over the period of two years from the retail sale date provided observance of the installation and operation regulations.

In case of a failure due to a manufacturing fault during the warranty period the consumer has the right to exchange it.

The replacement is offered by the Seller.

If case of no confirmation of the sale date, the warranty period shall be calculated from the manufacturing date.

The MANUFACTURER is not responsible for any damage resulting from any misuse of or gross mechanical interference with the unit.

The MANUFACTURER is not responsible for the damages resulted due to the use of third party equipment or to third party equipment.

WARNING

The unit is not allowed for use by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety.

Supervise the children and do not let them play with the product.

WARNING

Do not dispose in domestic waste.

The unit contains in part materials that can be recycled and in part substances that should not end up as domestic waste.

Dispose of the unit once it has reached the end of its working life according to the regulations valid in your country.

DESIGN

The casing is made of double-skinned aluzinc panels, internally filled with mineral wool layer 20 or 25 mm for heat- and sound-insulation. The casing has mounting brackets with anti-vibration rubber mounts for easy installation. The spigots are located at the sides of the unit and are equipped with rubber seals for airtight connection to the air ducts. The service panel ensures easy access to the unit internals for service works including cleaning, filter replacement, etc.

The unit is equipped with high-efficient external rotor EC motors and centrifugal impellers with backward curved blades.

The KOMFORT EC DW600/1000 models are equipped with high-efficient counter-flow aluminium heat exchangers with a large surface area. The KOMFORT EC DW2000/3800 models are equipped with high-efficient cross-flow plate aluminium heat exchangers with a large surface area. The air flows are fully separated within the heat exchanger. Odours and contaminants contained in the extract air are not transferred to the supply air flow. Heat recovery is based on the utilization of the thermal energy of the extract air for heating up supply air. The process of heat transfer proceeds in the heat exchanger where extract air transfers most of its heat to the intake air flow. This reduces thermal energy losses in cold seasons. In summer heat recovery acts reverse. The cooled extract air transfers part of cold to the warm intake air. This contributes to better performance of the air conditioner in ventilated premises.

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 temperature sensor readings.

Cold intake air passes by the heat exchanger and is warmed up to set temperature in the heater. Synchronously extract air that passes by the heat exchanger is used for its defrosting.

After the freezing danger is over the bypass damper is closed, the heater is turned off, the intake air passes through the heat exchanger again and is warmed. The heat exchanger reverts to the regular operation mode.

The drain pan under the heat exchanger block is used for condensate collection and drainage.

The units are equipped with a water (glycol) heater for operation at low outside temperatures.

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.

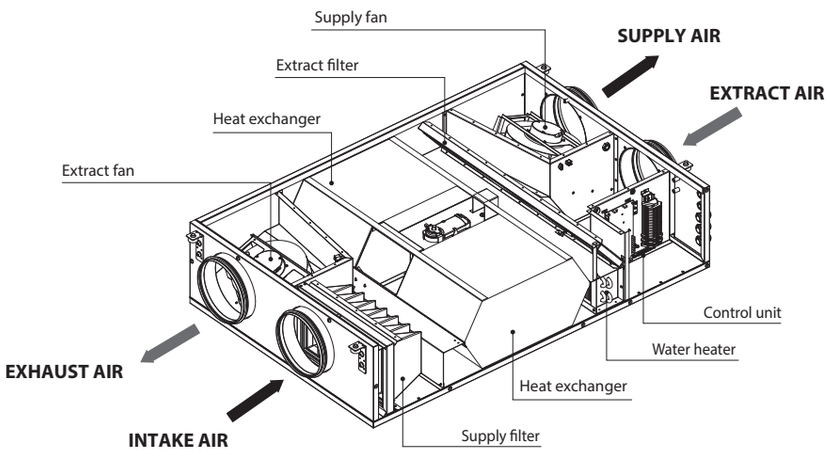
Smooth water heater control ensures automatic control of supply air temperature.

The air temperature sensor downstream of the heater and the return water temperature sensor are used for freezing protection of the water heater.

The KOMFORT EC DW600/1000 models include built-in G4 (optionally F7) pocket supply filters and G4 cassette extract filters. The KOMFORT EC DW2000/3000 models include built-in G4 supply and extract cassette filters.

The unit incorporates an integrated control system with a wall-mounted control panel with a sensor display. The standard delivery set includes a 10 m cable for connection of the unit to the control panel.

KOMFORT EC DW600-2 ... KOMFORT EC DW1000-4



KOMFORT EC DW2000-2 ... KOMFORT EC DW3800-2

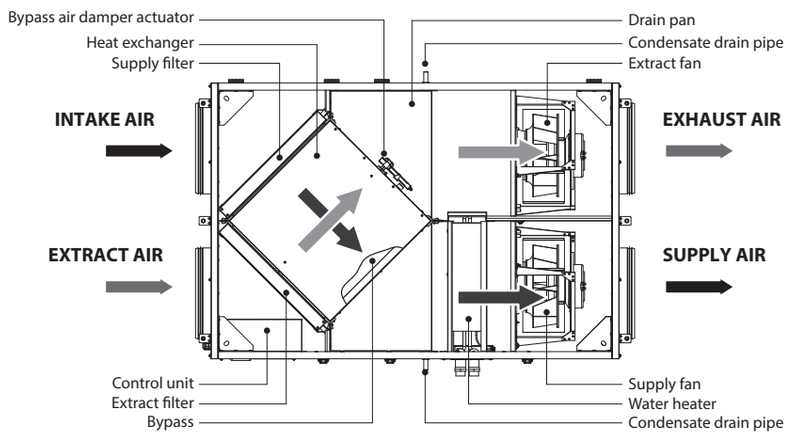


Fig. 1. Unit design and operating logic

For mounting facilitation the KOMFORT EC DW600-2/1000-4 unit is available both in left- and right-handed modifications.

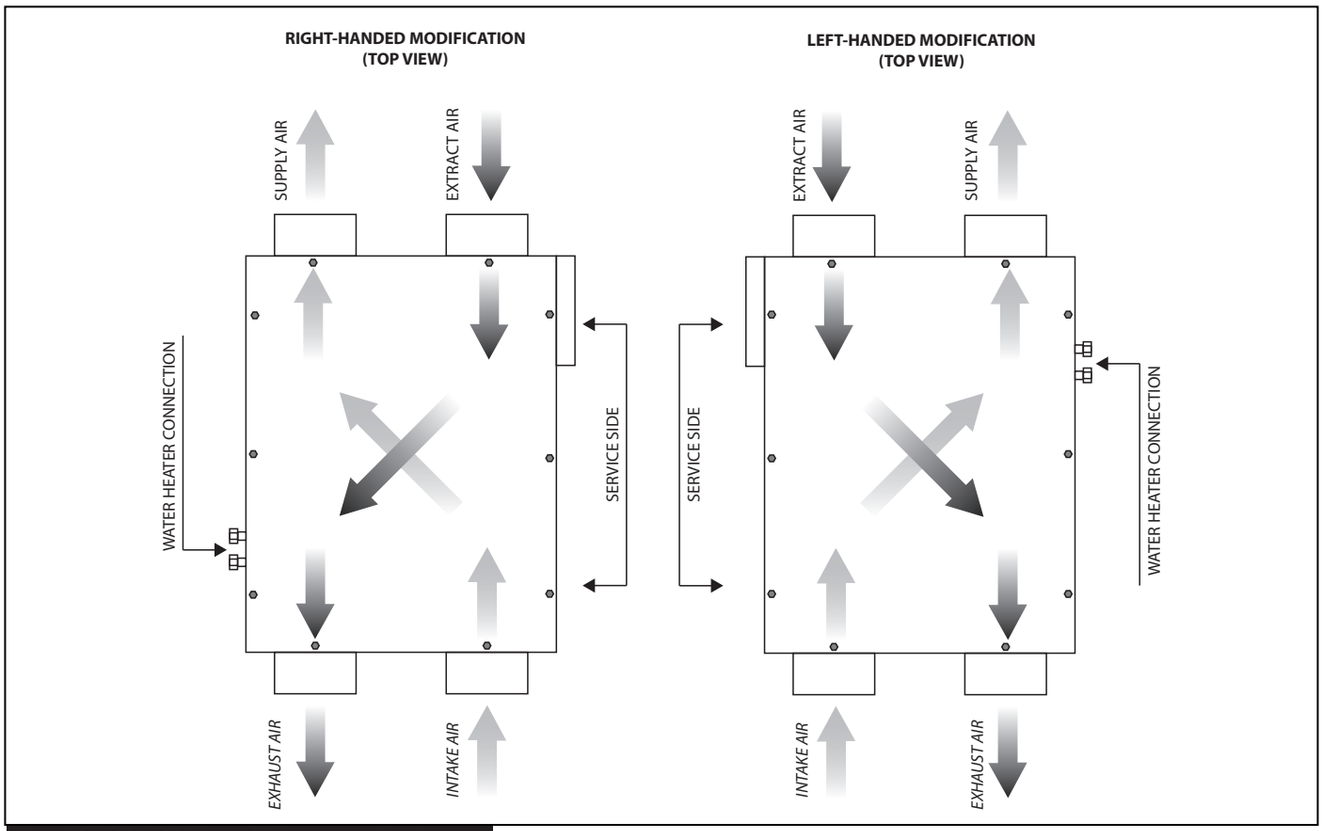


Fig. 2. KOMFORT EC DW600-2/DW1000-4 modifications

OPERATING LOGIC

Cold fresh air from outside flows through the heat exchanger and is moved to the room with the supply fan.

Warm extract air is extracted from the room with the exhaust fan and is moved through the heat exchanger, where it transfers its heat energy to the intake air. After that it is exhausted outside.

Heat energy of warm and humid extract air is transferred to the cold fresh air. The air flows are fully separated while flowing through the heat exchanger.

Heat recovery minimizes heat losses caused by traditional window ventilation and saves energy.

In summer the heat exchanger performs reverse and transfers cold from the cooled extract air to the warm fresh air. This contributes to better performance of the air conditioner in ventilated premises.

DELIVERY SET

- ✓ Air handling unit - 1 item;
- ✓ Operation manual - 1 item;
- ✓ Wall-mounted control panel - 1 item;
- ✓ Packing box - 1 item.

ATTENTION

Make sure the unit has no visible transport damages while accepting the goods. Check the ordered and the delivered goods for compliance.

TECHNICAL DATA

Table 1. Technical data of the unit

Parameters	KOMFORT EC DW600-2	KOMFORT EC DW1000-4	KOMFORT EC DW2000-2	KOMFORT EC DW3800-2
Unit voltage [V /50-60 Hz]	1~ 230			3~ 400
Number of water heater rows	2	4	2	2
Power [kW]	0,27	0,4	0,84	1,99
Current [A]	1,6	2,26	5	3,4
Max. air capacity [m³/h]	600	1000	1950	3800
RPM	3060	2780	2920	2580
Sound pressure level at 3 m distance [dB(A)]	53	52	58	59
Transported air temperature [°C]	-25 up to +60		-25 up to +40	-25 up to +50
Casing material	aluzinc			
Insulation	20 mm mineral wool		25 mm mineral wool	
Extract filter	cassette G4			
Supply filter	pocket G4 (F7)*		cassette G4	
Connected air duct diameter [mm]	200	250	315	400
Weight [kg]	77	98	194	295
Heat recovery efficiency [%]	up to 90		up to 75	
Heat exchanger type	counter-flow		cross-flow	
Heat exchanger material	aluminum			
*option				

Table 2. Accessories

Model	Replaceable G4 pocket filter	Replaceable F7 pocket filter	Replaceable G4 cassette filter	Replaceable G4 cassette filter
KOMFORT EC DW600-2	FPT-EC DW600 G4	FPT-EC DW600 F7	-	FP-EC DW600 G4
KOMFORT EC DW1000-4	FPT-EC DW1000 G4	FPT-EC DW1000 F7	-	FP-EC DW1000 G4
KOMFORT EC DW2000-2	-	-	FP-EC DW2000 G4	
KOMFORT EC DW3800-2	-	-	FP-EC DW3800 G4	

Table 3. Overall dimensions

Model	Dimensions [mm]										Figure no.	Water heater pipe size, inch
	D	B	B1	B2	B3	B4	H	H1	L	L1		
KOMFORT EC DW600-2	199	827	711	-	294	345	283	-	1238	1286	3	G 1/2″
KOMFORT EC DW1000-4	249	1350	1215	607,5	430	655	317	-	1395	1395		G 3/4″
KOMFORT EC DW2000-2	314	950	-	405	225	500	761	367	1400	1453	4	G 1 1/4″
KOMFORT EC DW3800-2	399	1265	-	563	347	570	881	427	1835	1888		G 3/4″

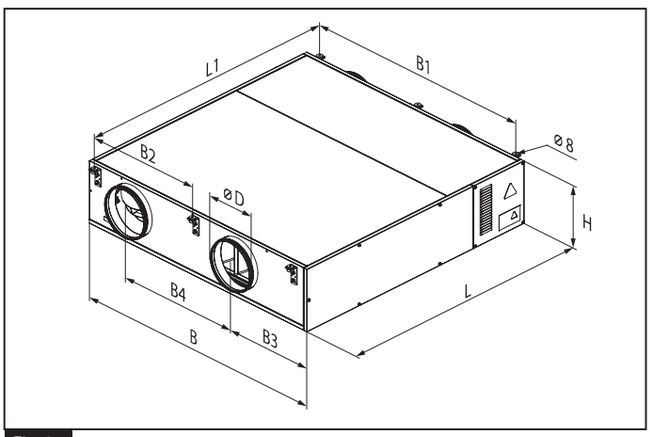


Fig. 3.

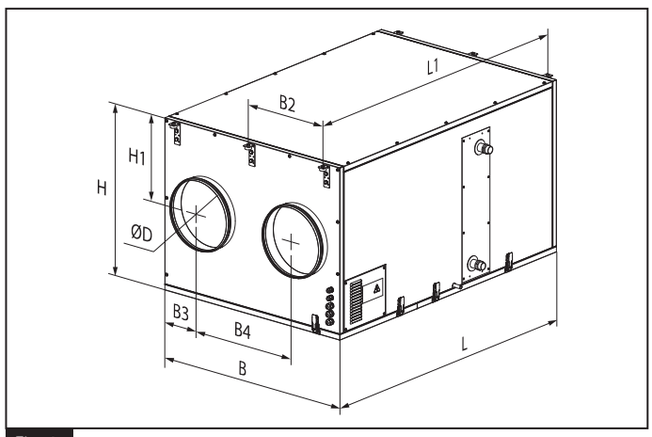
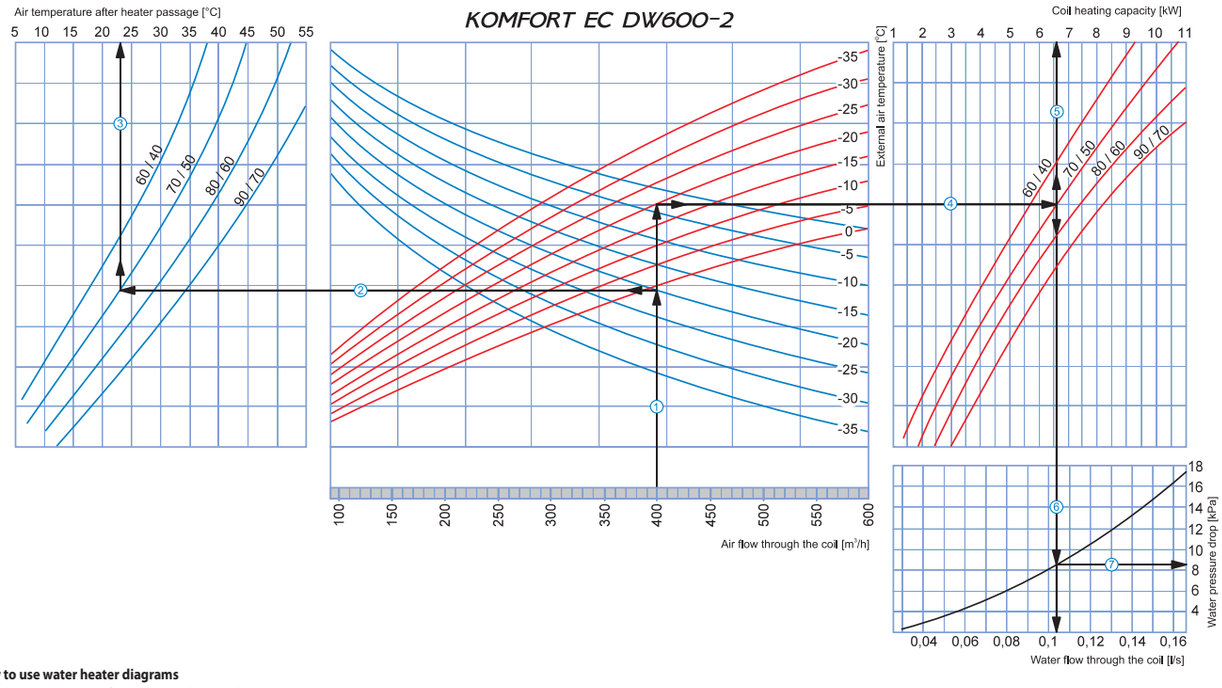


Fig. 4.

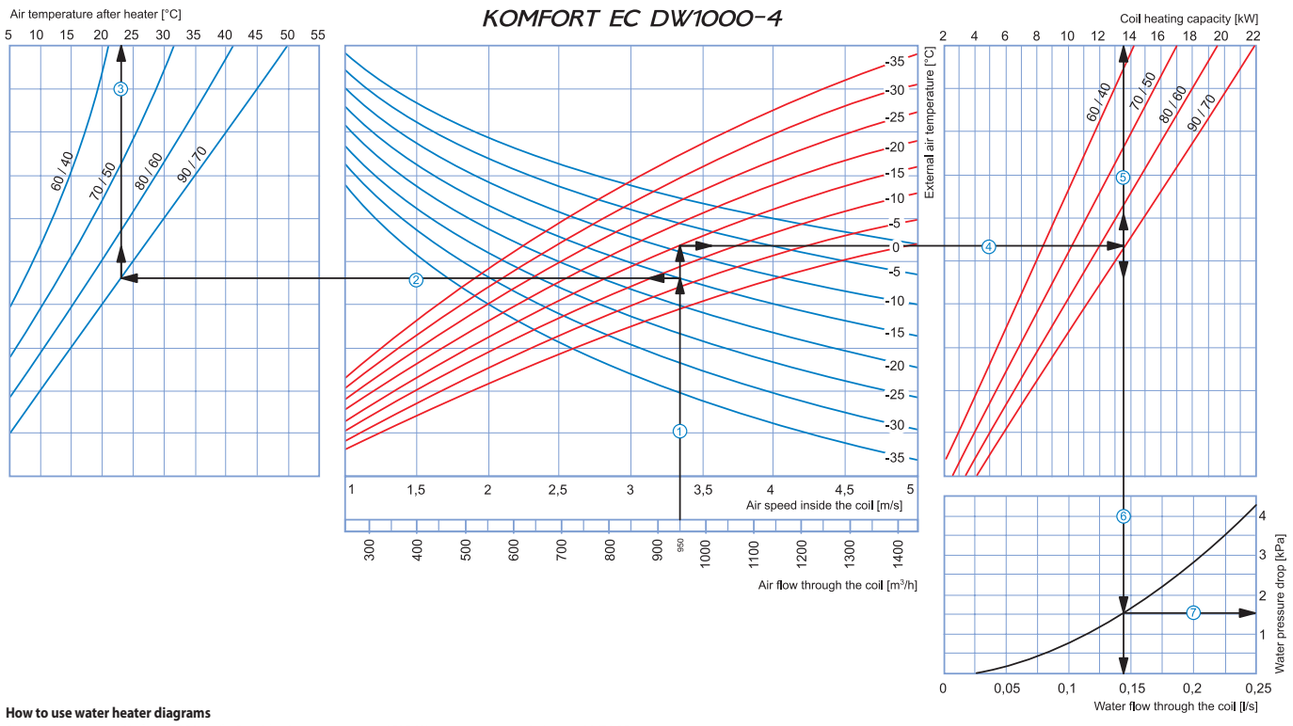


How to use water heater diagrams

Sample parameters: Air flow = 400 m³/h. Outside air temperature =-20°C. Water temperature (in/out) = 70/50 °C.

- **Supply air temperature:** prolong the line of air flow (e.g. 400 m³/h) ① up to the point where it crosses the outside air temperature (blue curve, e.g. -20°C); then draw a horizontal line ② from this point to the left until it crosses the water in/out temperature curve (e.g. 70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+23°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. -20°C, red curve) and draw a horizontal line ④ from this point to the right until it crosses the water in/out temperature curve (e.g., 70/50 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (6.6 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.105 l/s).
- **Water pressure drop:** Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis (8.5 kPa).

Fig. 5. KOMFORT EC DW600-2 hot water coil calculation diagram

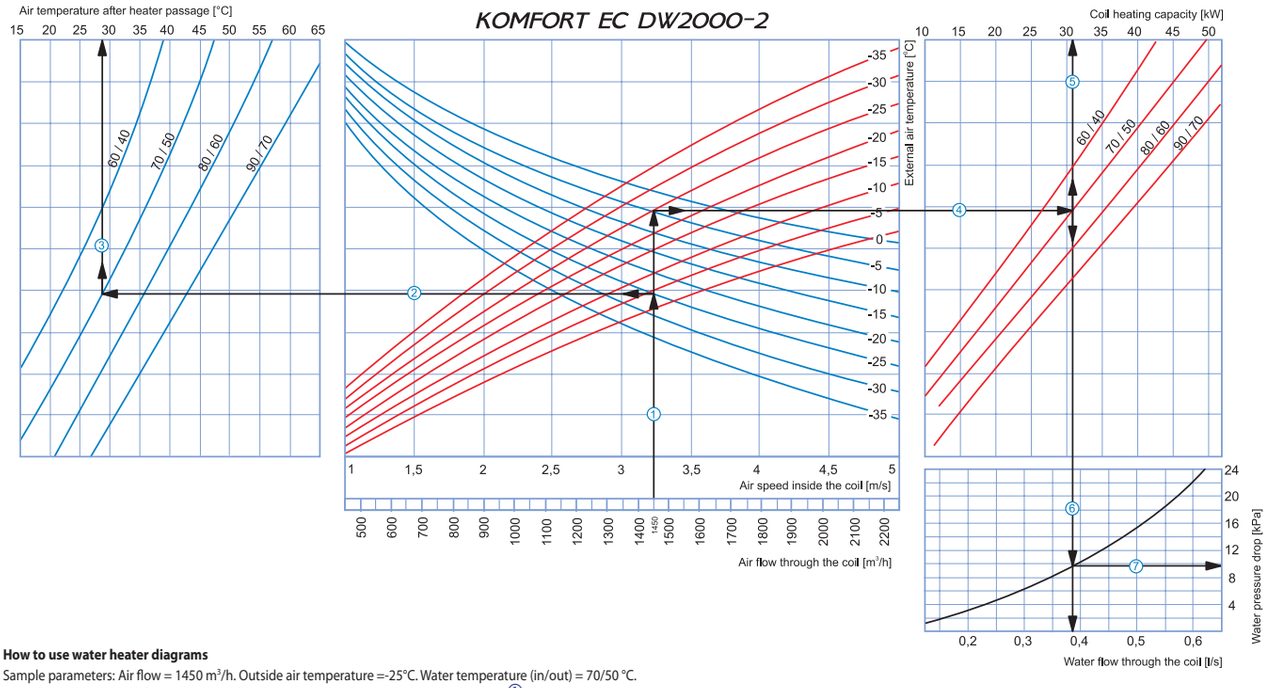


How to use water heater diagrams

Sample parameters: Air flow = 950 m³/h. Outside air temperature =-15°C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 950 m³/h on the air flow scale draw a vertical line ①. This line crosses the air speed axis and shows a value of about 3.35 m/s.
- **Supply air temperature:** prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. -15°C); then draw a horizontal line ② from this point to the left until it crosses the water in/out temperature curve (e.g. 90/70 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+23°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. -15°C, red curve) and draw a horizontal line ④ from this point to the right until it crosses the water in/out temperature curve (e.g., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (13.5 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.14 l/s).
- **Water pressure drop:** Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis (1.5 kPa).

Fig. 6. KOMFORT EC DW1000-4 hot water coil calculation diagram

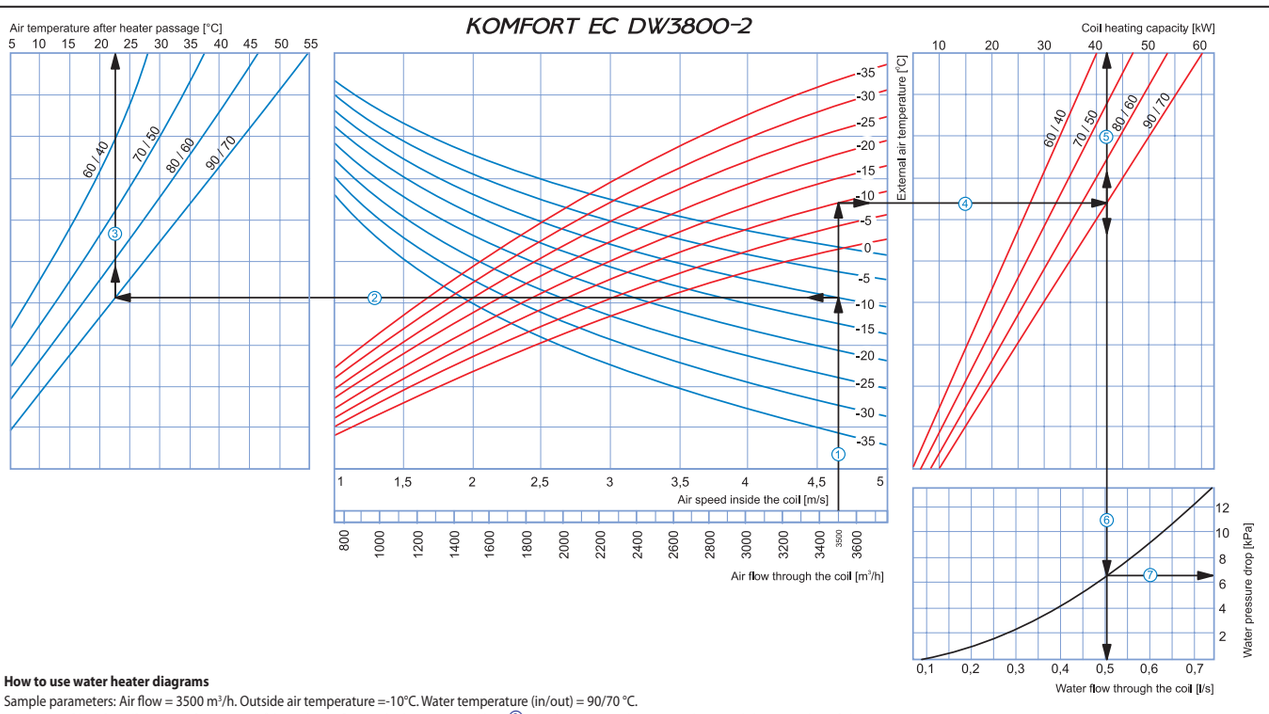


How to use water heater diagrams

Sample parameters: Air flow = 1450 m³/h. Outside air temperature =-25°C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 1450 m³/h on the air flow scale draw a vertical line ①. This line crosses the air speed axis and shows a value of about 3,2 m/s.
- **Supply air temperature:** prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. -25°C); then draw a horizontal line ② from this point to the left until it crosses the water in/out temperature curve (e.g. 70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+28°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. -25°C, red curve) and draw a horizontal line ④ from this point to the right until it crosses the water in/out temperature curve (e.g., 70/50 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (31.0 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.38 l/s).
- **Water pressure drop:** Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis (9.8 kPa).

Fig. 7. KOMFORT EC DW2000-2 hot water coil calculation diagram



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.

- **Air Speed inside coil:** Starting from 3500 m³/h on the air flow scale draw a vertical line ①. This line crosses the air speed axis and shows a value of about 4.65 m/s.
- **Supply air temperature:** prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. -10°C); then draw a horizontal line ② from this point to the left until it crosses the water in/out temperature curve (e.g. 90/70 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+22,5°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. -10°C, red curve) and draw a horizontal line ④ from this point to the right until it crosses the water in/out temperature curve (e.g., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (42.0 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.5 l/s).
- **Water pressure drop:** Draw the line ⑦ from the point where the line ⑥ crosses the black curve to the pressure drop axis (6.5 kPa).

Fig. 8. KOMFORT EC DW3800-2 hot water coil calculation diagram

MOUNTING

WARNING

Safety precautions:

The unit must be mounted to a rigid and stable structure.

The unit must be suspended using anchor bolts. Before starting mounting check that the mounting structure has sufficient loading capacity for the unit weight.

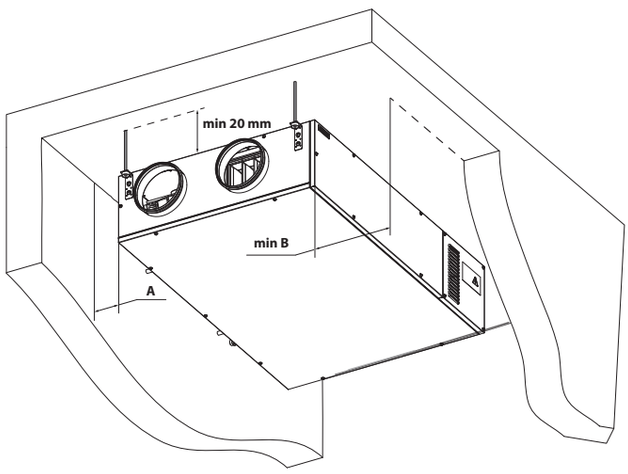
The unit mounting is allowed only after power cut-off and full stop of the rotating parts.

Restrictions:

- *Do not operate the unit beyond the determined temperatures, in aggressive and in explosive medias.*
- *Do not connect the clothes dryer or other similar equipment to the ventilation system.*
- *Do not use the unit for air/dust mixture handling.*

The unit mounting position must provide condensate drainage and access to the terminal box for electric connection and access to the service panel for maintenance and filter replacement (Fig. 9).

KOMFORT EC DW600-2 / KOMFORT EC DW 1000-4

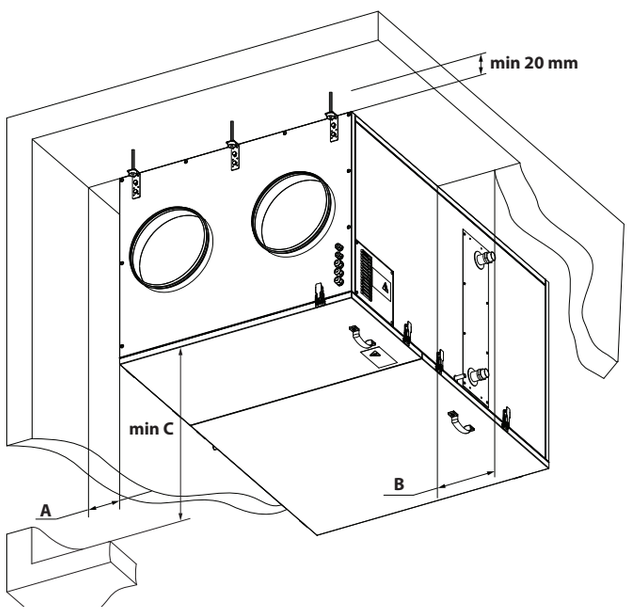


A - minimum required access distance for water heater installation. The distance is selected depending on the installation conditions at the discretion of the installer.

B = min 850 mm for KOMFORT EC DW600-2

B = min 800 mm for KOMFORT EC DW1000-4

KOMFORT EC DW2000-2 / KOMFORT EC DW 3800-2



A - minimum required access distance for condensate drainage. The distance is selected depending on the installation conditions at the discretion of the installer.

B - minimum required access distance for water heater installation and condensate drainage. The distance is selected depending on the installation conditions at the discretion of the installer.

C - minimum required distance from the service panel to the floor.

C = min 1000 mm for KOMFORT EC DW1000-2.

C = min 1300 mm for KOMFORT EC DW3800-2.

Fig. 9. Minimum service access to the unit

The unit is suspended using threaded rods and threaded dowels.

The unit must be mounted to an even surface to avoid the unit casing distortion and operation disturbances. The installation place must have connection to the drain system. While planning the ductwork layout avoid too long air duct sections, numerous bends and reducers because it may reduce air flow. The mounted air ducts must not be deformed. Provide airtight connection of the air ducts to the unit spigots and fittings. Install straight air ducts on both sides of the unit to minimize aerodynamic resistance caused by air flow turbulence, the minimum air duct section length is equal to 1 time air duct diameter on the inlet side and 3 time air duct diameters on the outlet side.

In case of insufficient length or no air ducts cover the unit spigots with a protecting grille or any other protecting device with maximum mesh width 12.5 mm to prevent ingress of foreign objects inside the unit and to prevent contact with fans of the unit.

Prior to starting mounting make sure the mounting surface has sufficient load capacity matching the unit weight. Otherwise reinforce the installation place with beams. Use threaded rods of sufficient length to avoid possible resonance with a mounting surface. If the connection point of the spiral seam air duct to the unit is supposed to be a source of noise generation, replace a spiral seam air duct with a flexible air duct. The flexible anti-vibration connectors (specially ordered accessories) may also be useful.

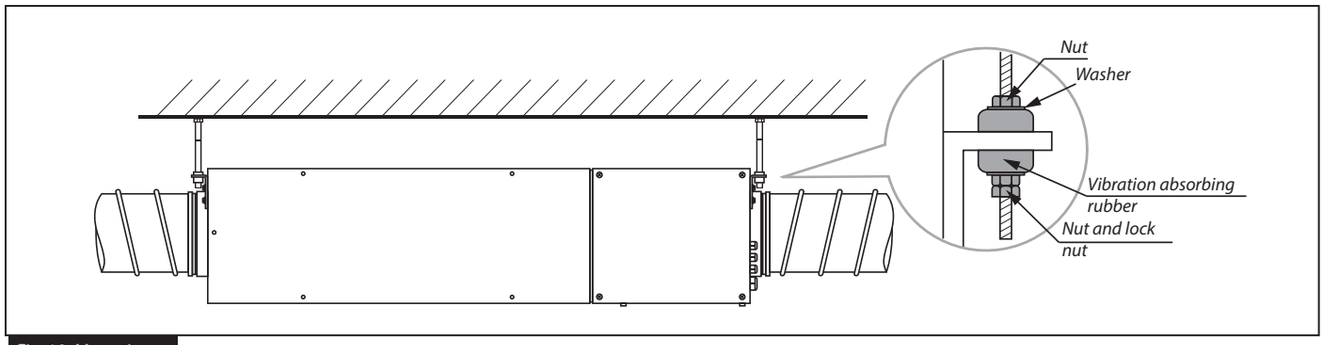


Fig. 10. Mounting

In order to achieve maximum power the water heater should be counter-flow connected (Fig. 11). All calculation diagrams (ref. Fig. 5-8) are valid for the counter-flow connection of the water heater.

In case of the direct-flow basis connection the water heater has lower power but higher frost-resistant properties.

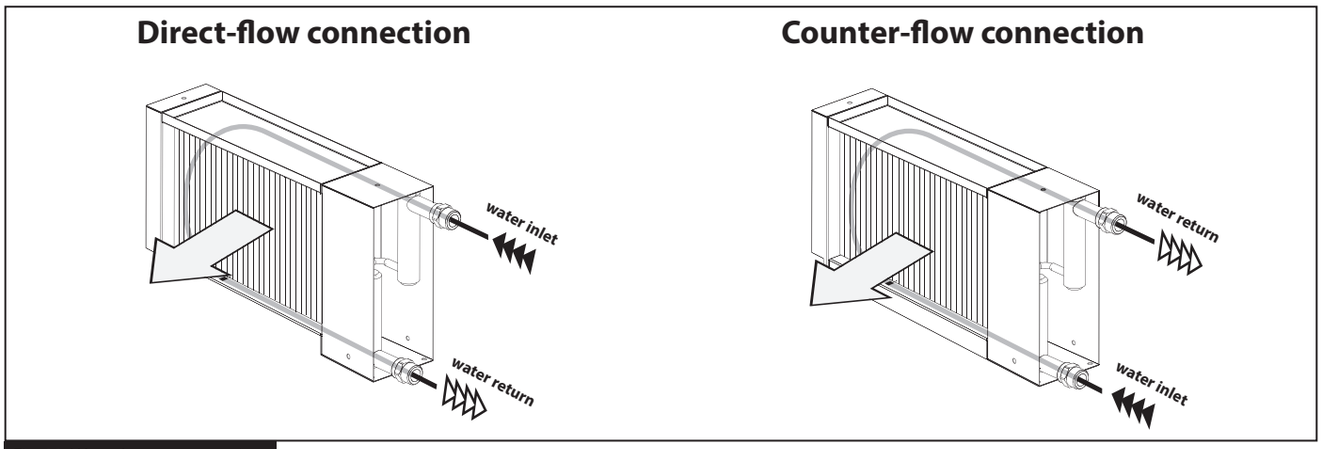


Fig. 11. Water heater connection

ATTENTION!

The unit operates either in Winter or Summer mode. If the outside air temperature is below +10 °C the Winter mode is activated. If the outside temperature accedes +10 °C the unit operates in Summer mode.

In Summer mode the unit operates regardless of the return heat medium temperature in the mixing unit.

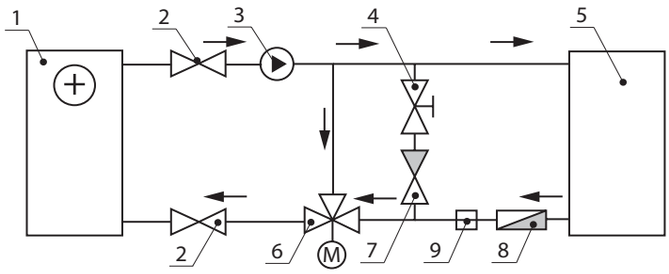
In Winter mode the unit has following temperature limits:

☐ The unit may not be started when the return heat medium temperature is below +40 °C. If the return heat medium temperature is +40 °C and higher the unit will be turned on with a 90 seconds delay.

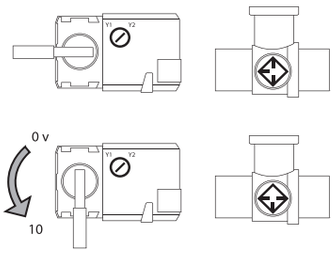
☐ The unit turns off when the return heat medium temperature falls below +20 °C.

Connection diagram for the water heater mixing unit (to be ordered separately) is shown in Fig. 12.

Water mixing unit connection diagram



Regulating heat medium valve actuator



1. Water heater.
2. Stop ball valves.
3. Circulating pump.
4. Bypass damper.
5. Boiler.
6. Heat medium regulating valve with an actuator.
7. Non-return valve.
8. Coarse filter.
9. Water pressure sensor (nc).

Fig. 12. Water mixing unit connection diagram

CONDENSATE DRAINAGE

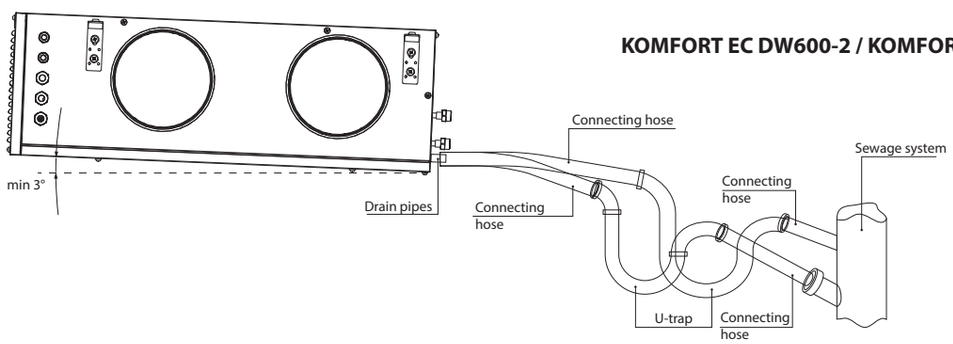
The drain pan is equipped with drain pipes for condensate removal outside the unit.

Connect the drain pipe, the U-trap (not included into the delivery set) and a sewage system with metal, plastic or rubber drain hoses (Fig. 13). While laying the hoses provide the slope downward min. 3%. Fill the system with water prior to connecting it to power supply! The U-trap must always be filled with water. Provide free drainage for the condensed water, otherwise it is accumulated inside the unit which may cause the equipment damage and condensate outflow to the room.

The condensate drain system is suitable for indoor frost-free application with the ambient temperature above 0°C!

If the expected ambient temperature is below 0°C provide heating for the drain system.

KOMFORT EC DW600-2 / KOMFORT EC DW 1000-4



KOMFORT EC DW2000-2 / KOMFORT EC DW 3800-2

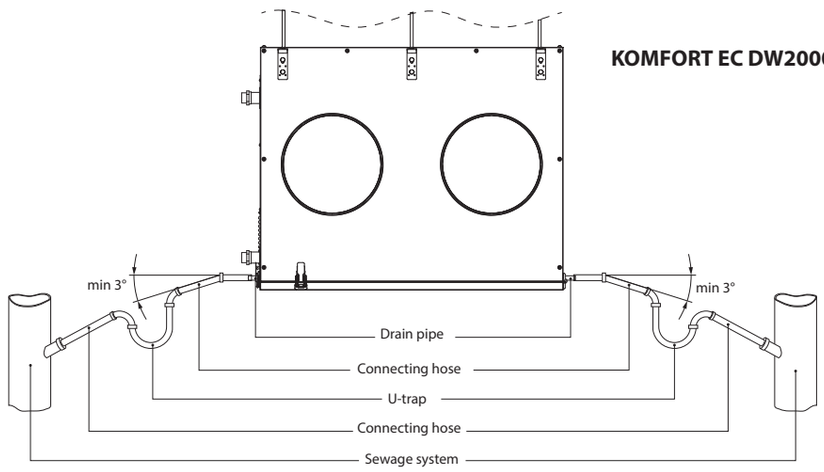


Fig. 13. Condensate drainage

WARNING

In case of several units mounting connect each unit to an individual U-trap. Direct condensate drainage with no connection to the drain system is not allowed.

CONNECTION TO POWER MAINS

WARNING

Read the service instruction prior to any electric installations. Connection of the unit to power mains is allowed by a qualified electrician only.

The rated electrical parameters are stated on the rating plate. No modifications of internal connections are allowed and will result in void warranty.

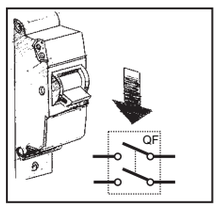
Connect the unit only to power mains with valid electric standards.

Follow the respective electric standards, safety rules (DIN VDE 0100), TAB der EVUs. The house cabling system must be equipped with a magnetic trip automatic switch at the external input. The contact gap on all poles must be at least 3 mm (VDE 0700 T1 7.12.2 / EN 60335-1).

The automatic switch trip current must be not below the rated current consumption (ref. Table 1). Enable quick access to an automatic switch installation place.

Cut power supply to the unit off by turning the automatic electric switch QF to OFF position prior to any operations.

Take steps to prevent activation of the automatic switch before finishing all the operations.



The **KOMFORT EC DW600-2 / EC DW1000-4 / EC DW2000-2** units are rated for connection to single-phase alternating current power mains 230 V / 50-60 Hz via insulated, durable and heat-resistant conductors (cables, wires) with a matching cross section not less than 2.5 mm2. The wiring diagram is shown in Fig. 14. The functional diagram is shown in Fig. 15.

The **KOMFORT EC DW3800-2** unit is rated for connection to three-phase alternating current power mains 400 V / 50-60 Hz via insulated, durable and thermal-resistant cords (cables, wires) with respective cross section not less than 2.5 mm2. The wiring diagram is shown in Fig. 16. The functional diagram is shown in Fig. 17.

The above cross section is for reference only. The applicable cable must be selected in consideration of the maximum wire temperature depending on the wire and insulation type, the maximum current, the lead wire length and its installation method. Use copper wires only.

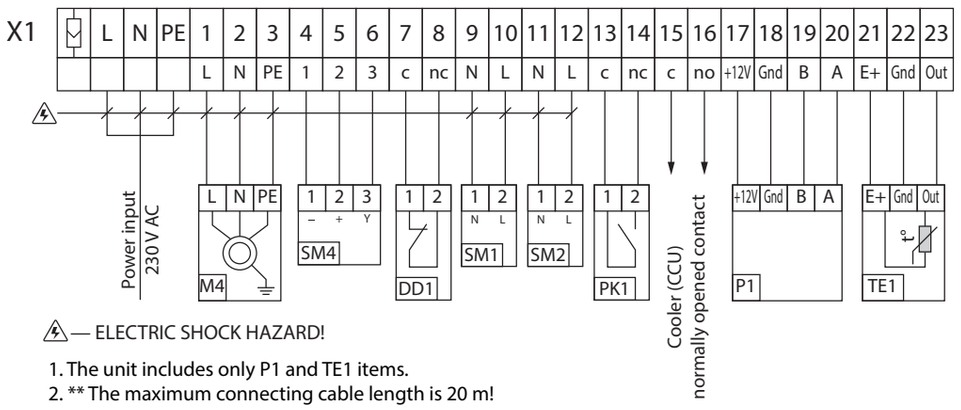
The unit must be grounded in compliance with the valid electrical standards of the user country!

Connect all the control and power conductors in compliance with the terminal marking and polarity!

The rating plate with a terminal designation is placed inside of the terminal box.

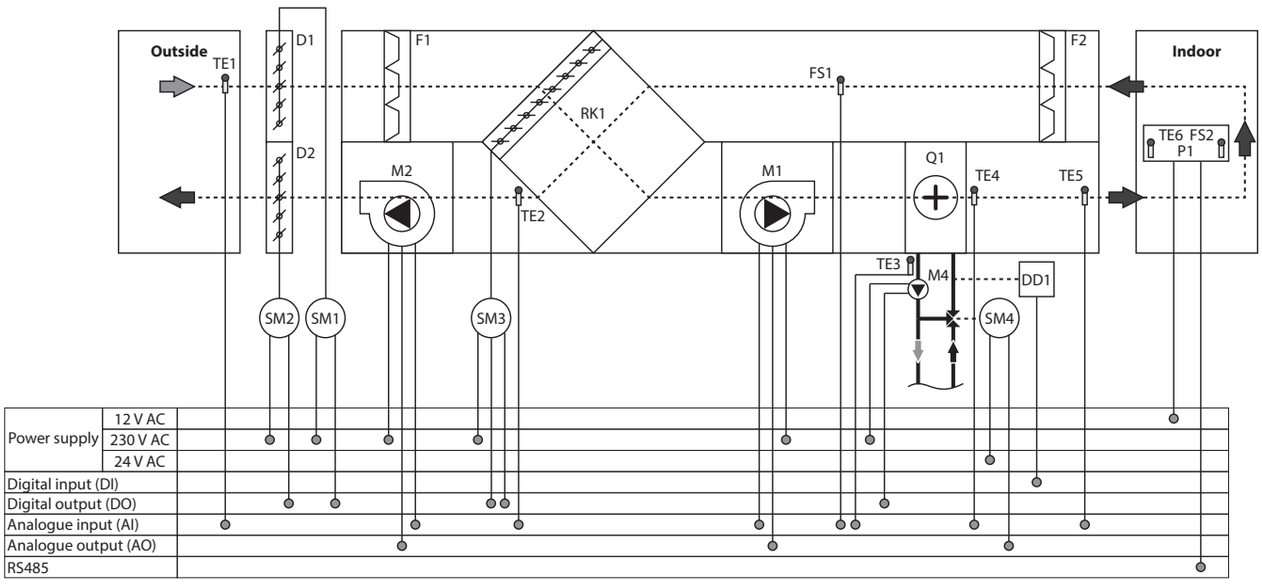
The terminal clamp marking corresponds to the marking on the wiring diagram.

To connect the cables route those through the airtight electric lead-in in the unit casing and connect the cables to the terminal block in the control unit.



Sign	Name	Type	Wire
Cooler	DX-cooler	N0	2x0,75 mm²
DD1	Pump dry run protection relay	NC	2x0,75 mm²
M4	Heater circulating pump	max. 0.3 kW	3x0,75 mm²
SM1	Supply air damper actuator	LF 230	2x0,75 mm²
SM2	Exhaust air damper actuator	LF 230	2x0,75 mm²
SM4	3-way heat medium regulating valve actuator	LR24 SR	3x0,75 mm²
PK1	Contact from fire alarm panel	NO	2x0,75 mm²
P1**	Control panel		4x0,75 mm²
TE1	Outdoor temperature sensor		3x0,75 mm²

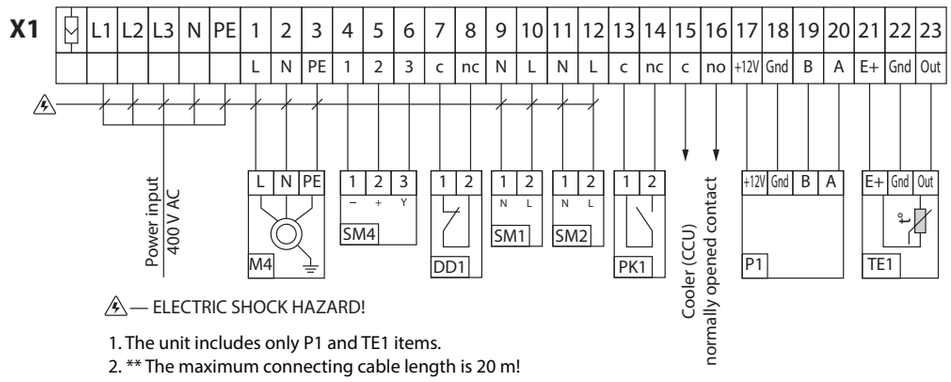
Fig. 14. KOMFORT EC DW600-2 / EC DW1000-4 / EC DW2000-2 wiring diagram



Symbol	Name	Symbol	Name
D1*	Supply air damper	**SM2***	Exhaust air damper actuator
D2*	Exhaust air damper	**SM3**	Bypass air damper actuator
F1	Supply air filter	**SM4***	3-way regulating heat medium valve actuator
F2	Extract air filter	**TE1**	Outdoor temperature sensor
M1	Supply fan	**TE2**	Air temperature sensor downstream of the heat exchanger
M2	Extract fan	**TE3**	Return water temperature sensor
P1	Control panel	**TE4**	Water heater freezing protection sensor
Q1	Water heater	**TE5**	Duct temperature sensor
FS1*	Duct humidity sensor	**TE6**	Indoor temperature sensor integrated into the control panel
FS2	Room humidity sensor	**DD1**	Pump dry run protection relay
RK1	Plate heat exchanger	**M4***	Heater circulating pump
SM1*	Supply air damper actuator		

* Not included in the product, available as specially ordered accessories.

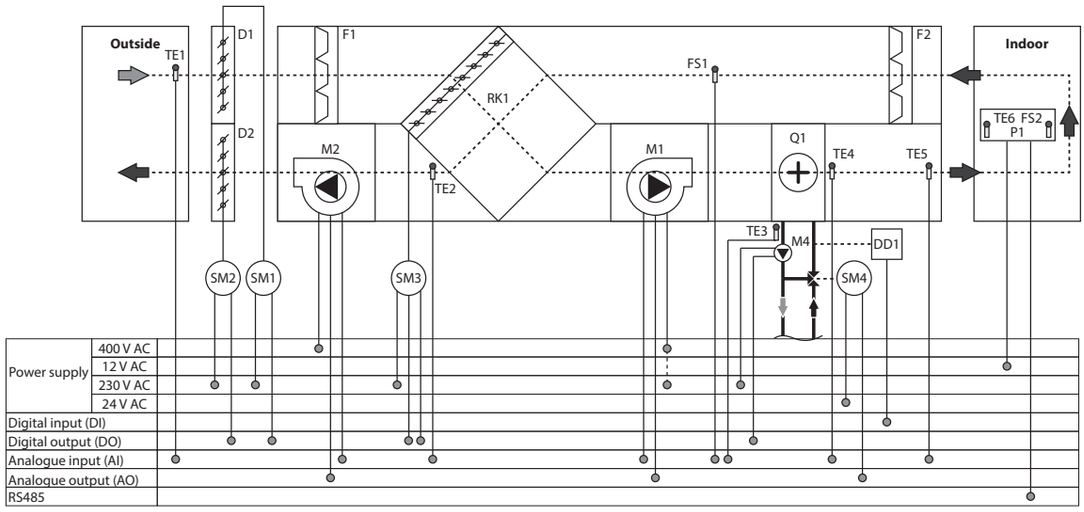
Fig. 15. KOMFORT EC DW600-2 / EC DW1000-4 / EC DW2000-2 functional diagram.



1. The unit includes only P1 and TE1 items.
2. ** The maximum connecting cable length is 20 m!

Sign	Name	Type	Wire
Cooler	DX-cooler	N0	2x0,75 mm²
DD1	Pump dry run protection relay	NC	2x0,75 mm²
M4	Heater circulating pump	max. 0.3 kW	3x0,75 mm²
SM1	Supply air damper actuator	LF 230	2x0,75 mm²
SM2	Exhaust air damper actuator	LF 230	2x0,75 mm²
SM4	3-way heat medium regulating valve actuator	LR24 SR	3x0,75 mm²
PK1	Contact from fire alarm panel	NO	2x0,75 mm²
P1**	Control panel		4x0,75 mm²
TE1	Outdoor temperature sensor		3x0,75 mm²

Fig. 16. KOMFORT EC DW3800-2 wiring diagram



Symbol	Name	Symbol	Name
D1*	Supply air damper	**SM2***	Exhaust air damper actuator
D2*	Exhaust air damper	**SM3**	Bypass air damper actuator
F1	Supply air filter	**SM4***	3-way regulating heat medium valve actuator
F2	Extract air filter	**TE1**	Outdoor temperature sensor
M1	Supply fan	**TE2**	Air temperature sensor downstream of the heat exchanger
M2	Extract fan	**TE3**	Return water temperature sensor
P1	Control panel	**TE4**	Water heater freezing protection sensor
Q1	Water heater	**TE5**	Duct temperature sensor
FS1*	Duct humidity sensor	**TE6**	Indoor temperature sensor integrated into the control panel
FS2	Room humidity sensor	**DD1**	Pump dry run protection relay
RK1	Plate heat exchanger	**M4***	Heater circulating pump
SM1*	Supply air damper actuator		

* Not included in the product, available as specially ordered accessories.

Fig. 17. KOMFORT EC DW3800-2 functional diagram

OUTDOOR TEMPERATURE SENSOR MOUNTING AND CONNECTION

The unit is supplied with an outdoor temperature sensor.
The outdoor temperature sensor mounting is as follows, Fig. 18:
1. Remove two screws that retain the sensor cover.
2. Take off the sensor cover.
3. Install the sensor on the outer wall. The installation place must not be subjected to direct solar light.
4. Install the sensor cover back.
5. Connect the sensor to the X1 terminal block in compliance with the electric wiring diagram, Fig. 14 and Fig. 16.

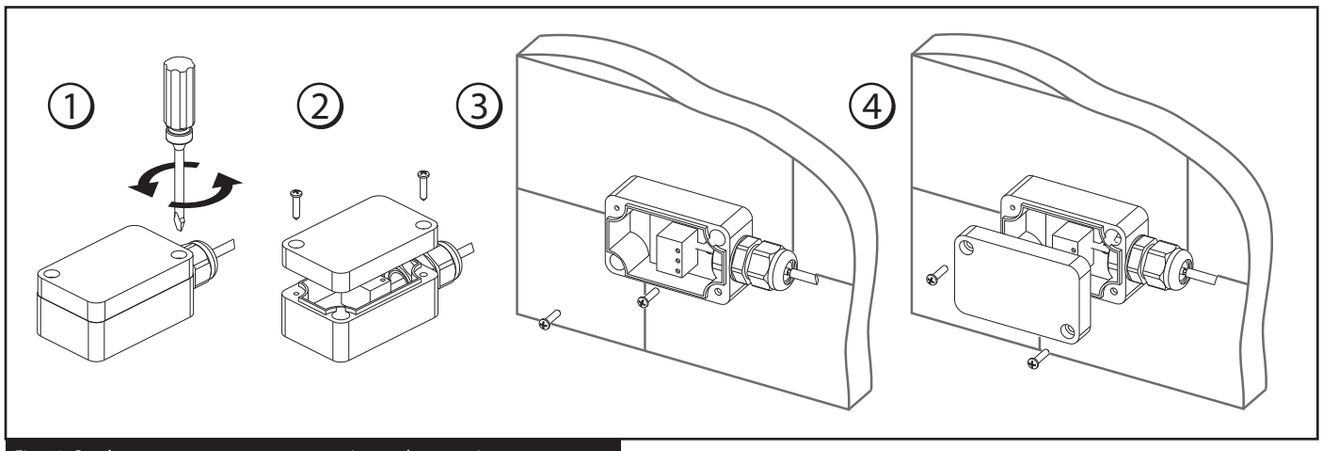
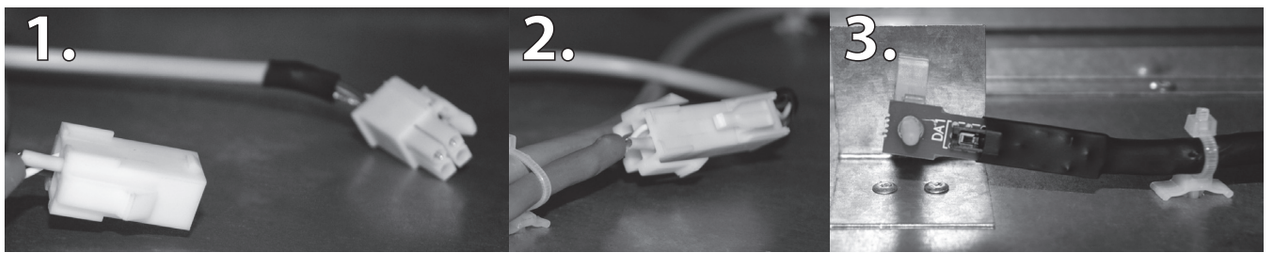


Fig. 18. Outdoor temperature sensor mounting and connection

DUCT HUMIDITY SENSOR MOUNTING AND CONNECTION

The FS1 duct humidity sensor is a specially ordered accessory. Connect the contact socket of the humidity sensor to the contact socket located inside of the heat recovery unit (ref. Fig. 19). After that fix the sensor using the clamp and the holder in the air duct upstream of the heat exchanger.



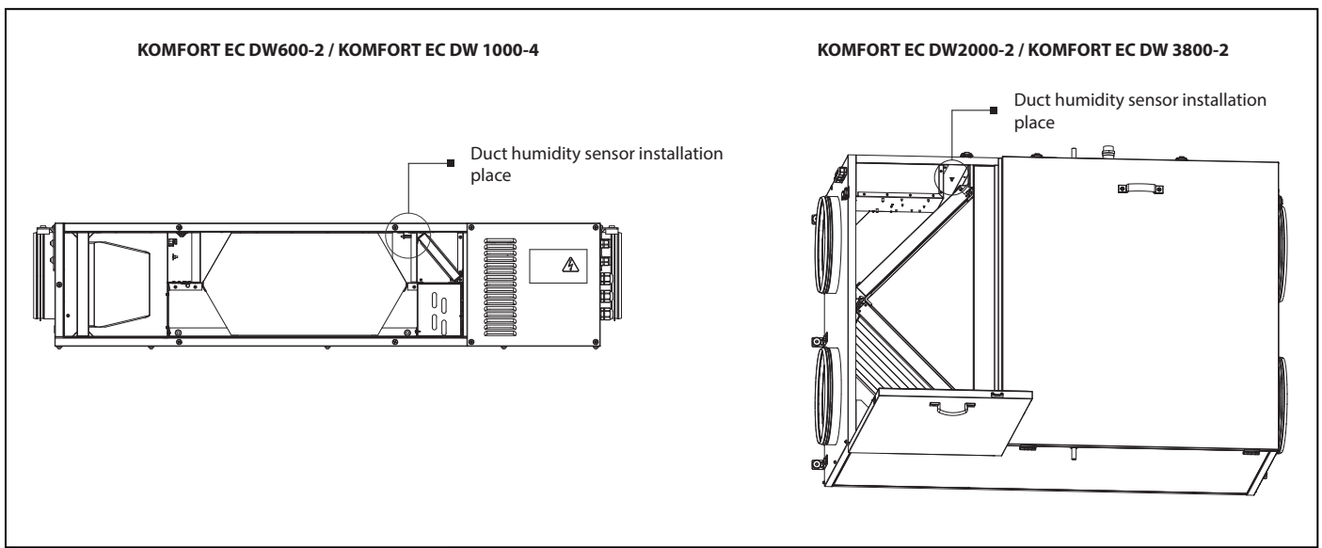


Fig. 19. Duct humidity sensor mounting

CONTROL PANEL MOUNTING

The units have an integrated control system with a wall-mounted control panel with a sensor display. The standard delivery set includes a 10 m cable for connection of the unit and the control panel. The control panel technical data are shown in Table 4.

Table 4. Control panel technical data

Parameter	Value
Ambient temperature [°C]	+5 up to +40
Relative humidity [%]	from 5 up to 80 (no condensation)
Cable cross section [mm2]	from 0.25 up to 0.35
Material	plastic
Cable length [m]	up to 15
Ingress protection rating	IP20

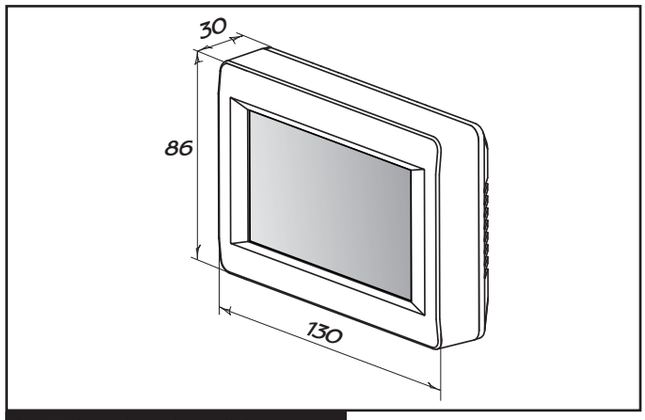


Fig. 20. Control panel overall dimensions

For the control panel wiring diagram refer to Fig. 21. The room temperature sensor is integrated into the control panel, for that reason the control panel must be installed in a temperature balanced place, at least 1 m away from the heating equipment, doors and windows.

Fix the control panel to the wall using the screws and connect it to the air handling unit using a supplied four-wire connecting cable. The recommended cross section of the connecting cable is shown in Table 5. The recommended minimum control panel voltage is 11 V.

The control panel is supplied assembled and pre-wired to the unit. In case of need to re-assemble the control panel, please, follow the assembly order shown in Fig. 21.

WARNING

Do not lay the cable in close proximity parallel to the control panel cable! Do not coil the cable from the control panel in loops while laying it.

Table 5. Recommended cross section of the connecting cable between the control panel and the air handling unit

Parameter	Value	
Cable cross section	≥ 0,12 mm²	≥ 0,25 mm²
Cable length	up to 15 m	up to 50 m

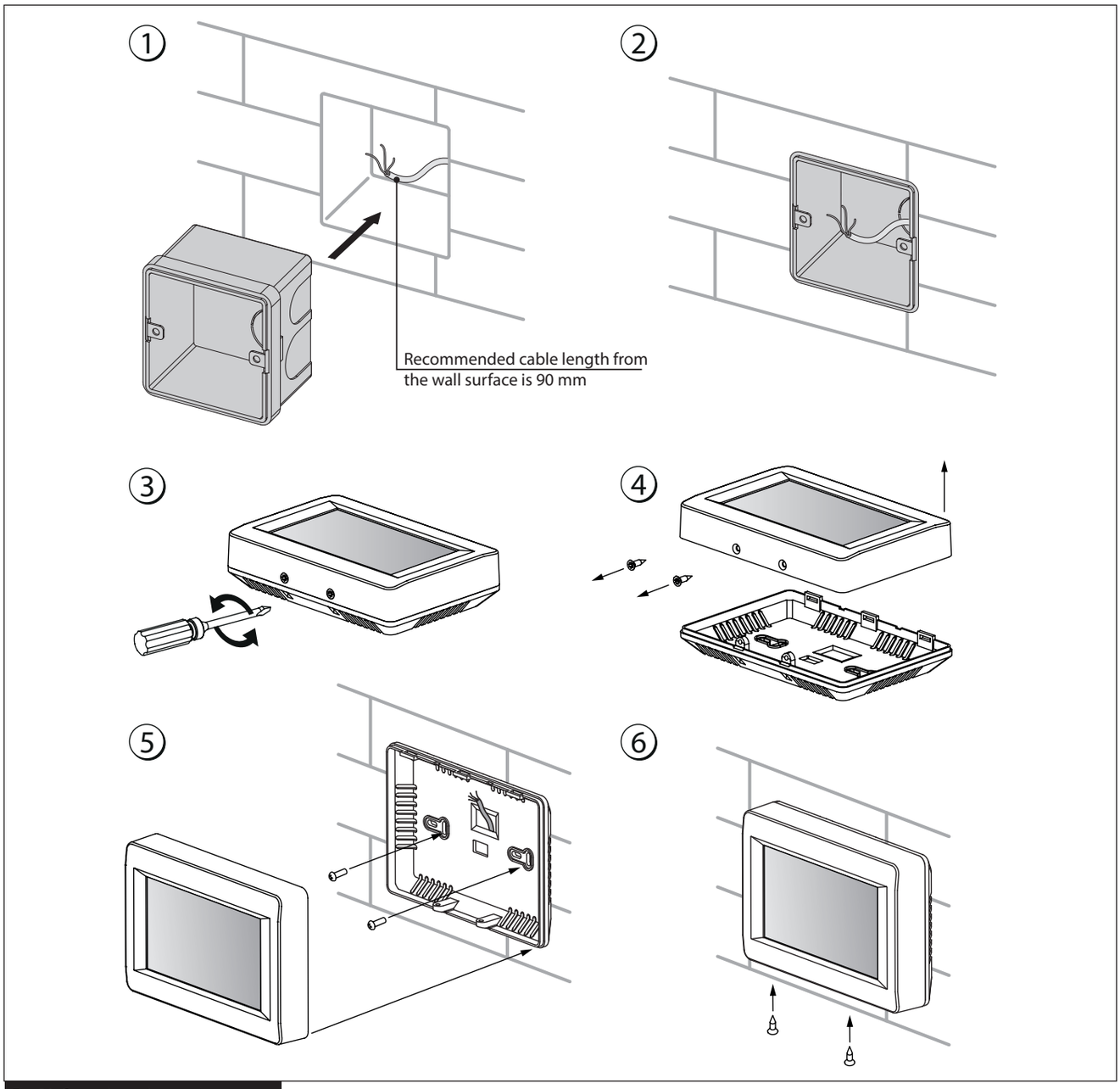


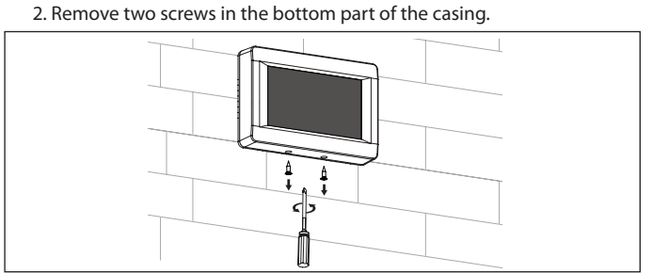
Fig. 21. Control panel mounting

The control panel includes a lithium cell CR1220 with a limited time resource.

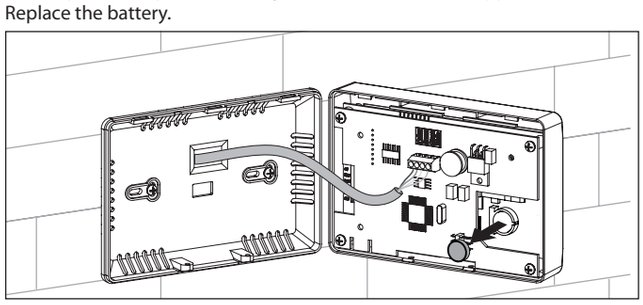
The battery keeps the internal clock running while the unit is disconnected from power supply. If the unit is disconnected from power supply and the battery is low, the clock stops and the day and time settings are reset. This leads to incorrect date and time indication when the unit is on and, as a result, to incorrect scheduled operation of the unit. In this case, the battery should be replaced. To replace the battery use a new battery only.

1. Disconnect the ventilation unit from the power supply.

2. Remove two screws in the bottom part of the casing.



3. Open the top of the casing to allow access to the upper circuit board. Replace the battery.



4. Assemble the control panel in the reverse order. If the terminal block wires on the upper circuit board were unplugged make sure to re-connect them correctly. Failure to re-connect the wires property may knock the equipment out of service.

5. Connect the panel to the power supply and set the current date and time.

UNIT CONTROL

General description of the automatic control system.

The unit is controlled from the wall-mounted control panel with a sensor display, Fig. 22.

Fig. 22. Control panel

Table 6. Operation and parameter setup of the unit

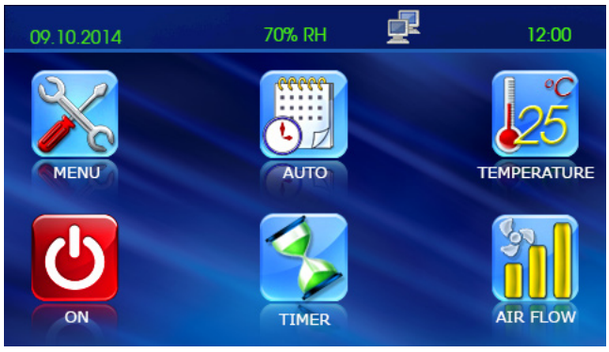
Function	Indication
1 Main Menu	
The Main menu contains the date, current humidity, time, temperature and set air flow. **MENU** - access to the User menu, see clause 5. **AUTO** - scheduled operation activation / deactivation. **TEMPERATURE** - display of the current indoor temperature. After pressing this button the Temperature Setting menu is opened, see clause 4. **ON/OFF** - turning air handling unit ON/ turning air handling unit OFF or Standby mode activation. **TIMER** - turning the timer on / off. **AIR FLOW** - current fan speed display. The Fan Speed Setting menu is accessible through this button, see clause 3. The network connection status indicator is displayed: – the unit is connected to network. – the unit is disconnected from network.	
2 Unit Activation and Deactivation	
The unit is activated with ON button. Press OFF for the unit deactivation or Standby mode activation. The indicator changes its colour from red to green as the unit is turned ON. In the Standby mode the unit operates at the first speed and set temperature, see clause 12.	

Table 6. Operation and parameter setup of the unit (continued)

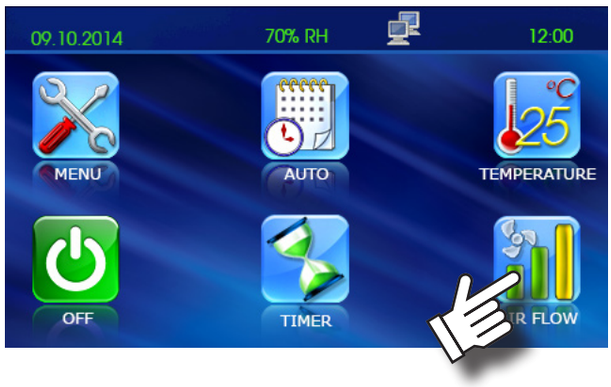
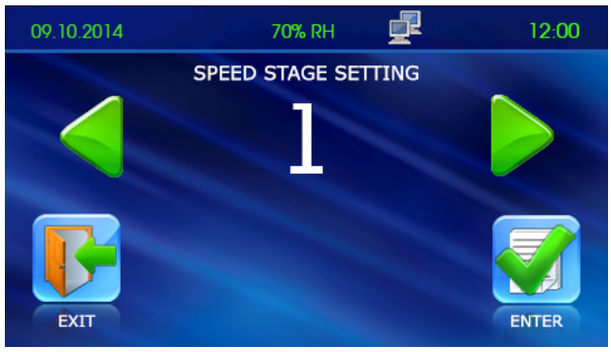
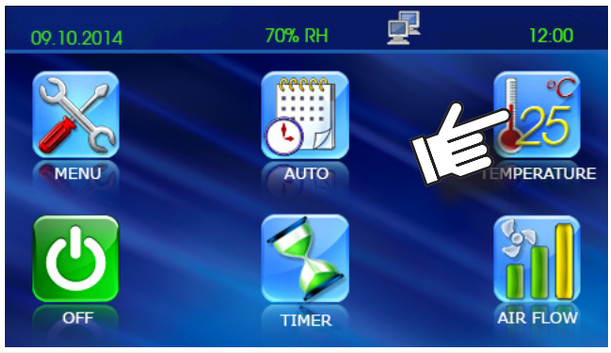
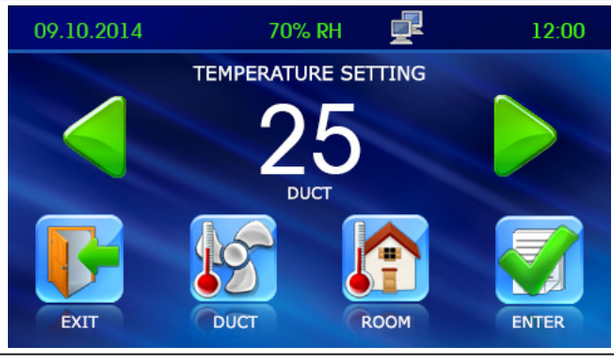
Function	Indication
3 Fan Speed Changeover	
☐ Fan speed setting: Press the **AIR FLOW** button ; The unit has four speed stages: - Speed 1; - Speed 2; - Speed 3; - Humidity Control mode. The fan speed is regulated depending on the humidity setting. The humidity level is set via the Engineering menu, see clause 14. ☐ If the **AUTO** or **TIMER** mode is activated the current air flow value is displayed in real time operation no matter of the set air flow value.	
☐ Set the desired speed using the or buttons. ☐ Then press **ENTER** . ☐ To return to the Main menu without saving changes press **EXIT** .	
4 Temperature Setting	
Temperature setting: ☐ Press the **TEMPERATURE** button . ☐ Select the set temperature type: **DUCT** (temperature in the air duct); **ROOM** (temperature in the room).	
☐ Set the desired temperature using or buttons. ☐ Then press **ENTER** . ☐ To return to the Main menu without saving changes press **EXIT** .	

Table 6. Operation and parameter setup of the unit (continued)

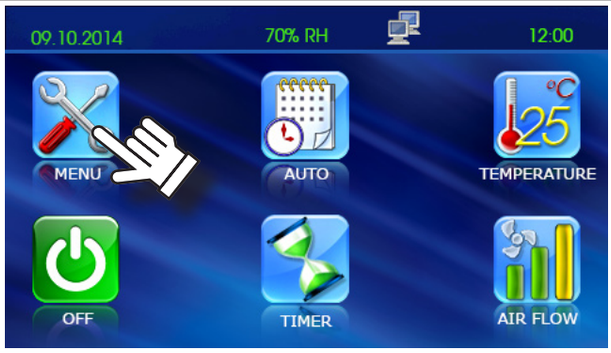
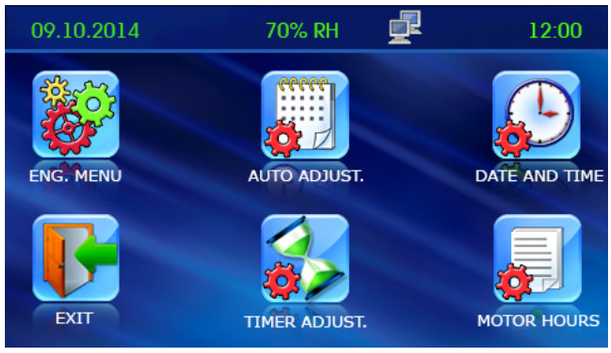
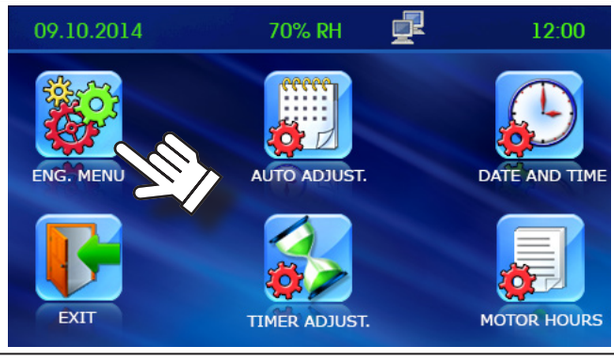
Function	Indication
5 User Menu	
☐ To enter the User menu press **MENU**  in the Main menu.	
☐ The **User menu** contains basic menu items and functions for parameters setting: **ENG. MENU** - access to the Engineering menu. The menu is password-protected. **AUTO ADJUST.** - scheduled operation setting. **DATE/TIME** - date and time setting. **TIMER ADJUST.** - setting time and speed operation on timer basis. **MOTOR HOURS** - setting filter replacement periodicity. **EXIT** - return to the Main menu.	
6 Engineering Menu	
To enter the Engineering menu press **ENG. MENU**  in the User menu.	
☐ To access the **Engineering menu** enter the password. The default setting is 1111. ☐ Press **OK**. ☐ To change the password use the **RESET**  button. Press **RESET** to clear the password field. ☐ To return to the User menu press **EXIT**  . ☐ If you forgot the user-defined password, see clause 11 Password Change, press and hold **RESET**  until you hear a long sound signal (20 clicks, approximately 20 seconds). The default password 1111 is set.	

Table 6. Operation and parameter setup of the unit (continued)

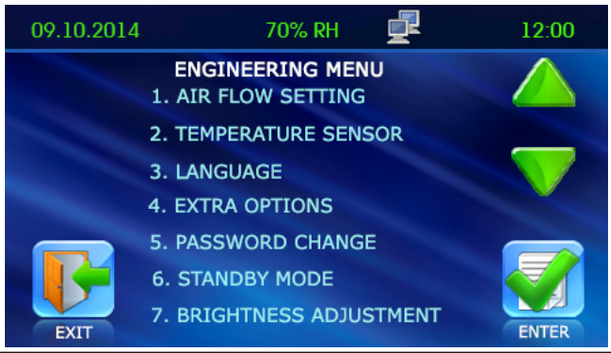
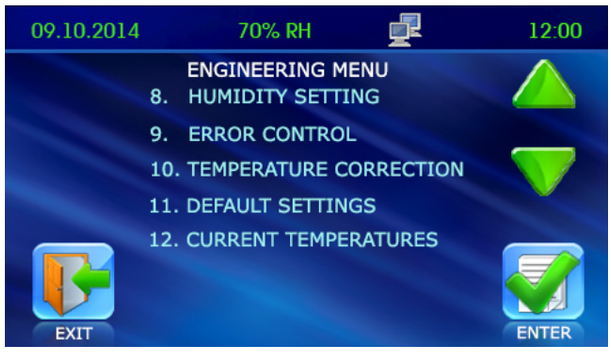
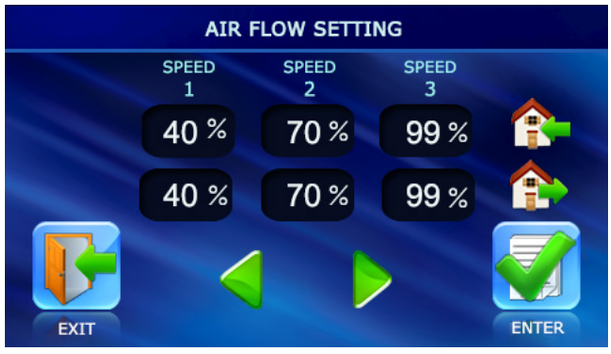
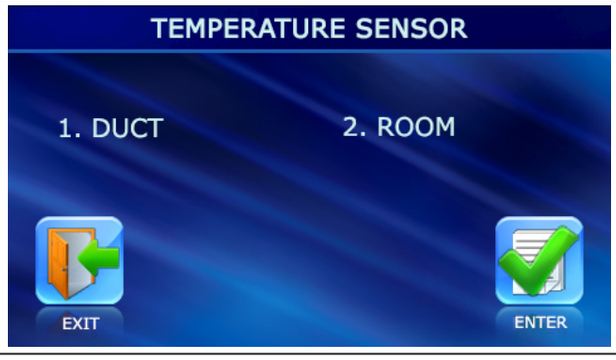
Function	Indication
☐ For navigating in the Engineering menu use the following buttons:  - moving upwards in the list.  - moving downwards in the list.  - elect the value from the parameter list.  - return to the User menu.	 
7 **Air Flow Setting**	
☐ Select the **AIR FLOW SETTING** item from the **Engineering menu** and press **ENTER**  . ☐ Select the edited speed value (the selected value is highlighted with a rectangle). ☐ Use  or  buttons to set the air flow value for each fan speed stage. ☐ The air flow is set as a percentage of the maximum performance of each fan. ☐ To return to the **Engineering menu** without saving changes press **EXIT**  .	
8 **Temperature Sensor**	
☐ To select the heating control sensor from the Engineering menu select the TEMPERATURE SENSOR submenu and press **ENTER**  . ▪ Select a desired temperature sensor type. ▪ Press **ENTER**  to confirm. ▪ To return to the **Engineering menu** without saving changes press **EXIT**  .	

Table 6. Operation and parameter setup of the unit (continued)

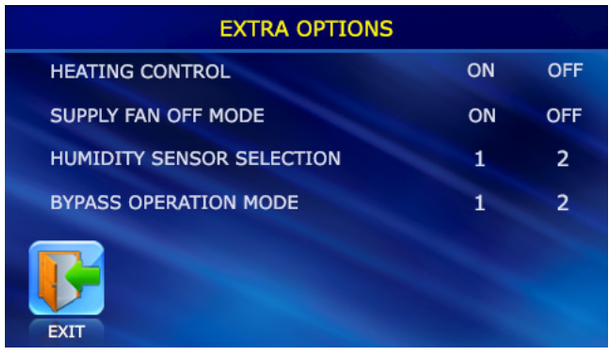
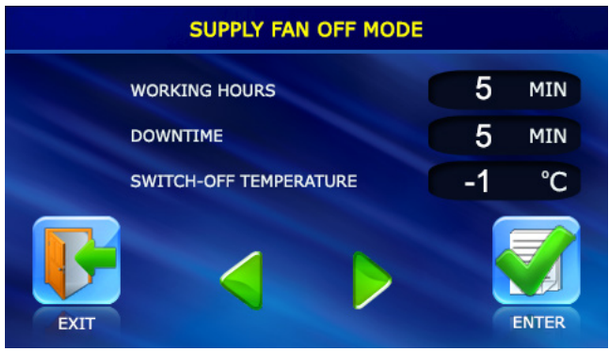
Function	Indication
9 Language Selection	
☐ To select the control panel interface language select the **LANGUAGE** submenu from the Engineering menu and press **ENTER**. ☐ Select the desired language from the list. ☐ Press **ENTER** to confirm. ☐ To return to the Engineering menu without saving changes press **EXIT**.	
10 Extra Options	
☐ Select the **EXTRA OPTIONS** submenu from the Engineering menu and press **ENTER**. ☐ The **SUPPLY FAN OFF** mode helps to prevent heat exchanger freezing and requires disabling of the **HEATING CONTROL** parameter. ☐ To activate the heat exchanger freezing protection function by means of the supply fan deactivation set the H**EATING CONTROL** parameter value to **OFF**. To proceed to the function setup set the **SUPPLY FAN OFF MODE** parameter to **ON**. ☐ To select a humidity sensor type set 1 for the duct sensor or **2** for the room sensor in the **HUMIDITY SENSOR SELECTION** menu item. ☐ For selecting the bypass operation mode set **1** in the **BYPASS OPERATION MODE** to select the regular operation mode, which prevents heat exchanger freezing, or **2** to enable bypass opening in the ventilation mode. ☐ To save the changes and return to the Engineering menu press **EXIT**.	
☐ If the **SUPPLY FAN OFF MODE** parameter is set to **ON** the control panel switches to the **SUPPLY FAN OFF MODE** setting. ☐ Select an item by touching the respective field: **WORKING HOURS**, **DOWNTIME** and **SWITCH-OFF TEMPERATURE** (the temperature is set according to the outdoor temperature sensor readings defined in the range from 0 °C to -30 °C). ☐ Then use or buttons to set the desired value. ☐ Press **ENTER** to confirm the parameters. ☐ To return to the Engineering menu without saving changes press **EXIT**.	
11 Password Change	
☐ Select the **PASSWORD CHANGE** submenu from the Engineering menu and press **ENTER**. ☐ Then enter the new password for accessing the Engineering menu. ☐ Press OK. ☐ To re-enter the password press **RESET**. This operation clears the **ENTER NEW PASSWORD** field. ☐ To return to the Engineering menu press **EXIT**.	

Table 6. Operation and parameter setup of the unit (continued)

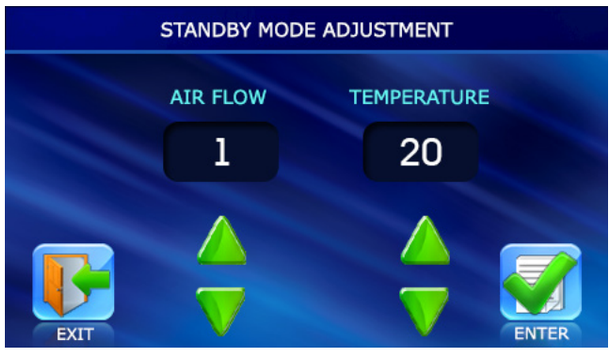
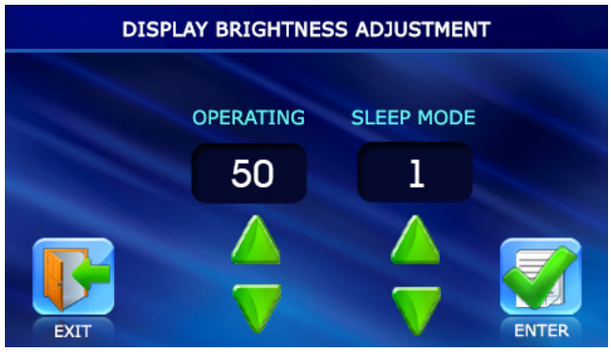
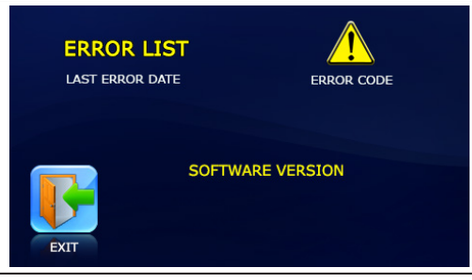
Function	Indication
12 Standby Mode Settings	
☐ Select the **STANDBY MODE** item in the Engineering menu and press **ENTER**. ☐ Use the buttons or to select 0 or 1 in the A**IR FLOW** window: • **0** – deactivation of the unit. • **1** – activation of the Standby mode. In the **Standby** mode the unit operates at the first speed at temperature set by or buttons in **TEMPERATURE** window. ☐ Press **ENTER**. ☐ To return to the Engineering menu without saving changes press **EXIT**.	
13 Display Brightness Adjustment	
☐ Select the **BRIGHTNESS ADJUSTMENT** submenu from the Engineering menu and press **ENTER**. ☐ Then use the or buttons to set the brightness for the Operation and Sleep modes. The panel switches to the Sleep mode 30 seconds after the last screen interaction. ☐ Press **ENTER** to confirm. ☐ To return to the Engineering menu without saving changes press **EXIT**.	
14 Humidity Setting	
Select the **HUMIDITY SETTING** item in the Engineering menu and press **ENTER**. ☐ Select the humidity sensor type used to control the humidity: • **DUCT** (the duct humidity sensor is optional and is not included into the basic delivery set); • **ROOM** (humidity sensor). ☐ Then use or buttons to set the desired humidity level. ☐ Press **ENTER** to confirm. ☐ To return to the **Engineering menu** without saving changes press **EXIT**. ☐ In the **Humidity Control** mode the minimum air flow is equal to the air flow at the low speed.	
15 Error Control	
To receive information regarding the last error select **ERROR CONTROL** submenu from the Engineering menu and press **ENTER**. ☐ The display shows the error date and code. ☐ To return to the **Engineering menu** press **EXIT**. ☐ Errors description is stated in Table 7.	

Table 6. Operation and parameter setup of the unit (continued)

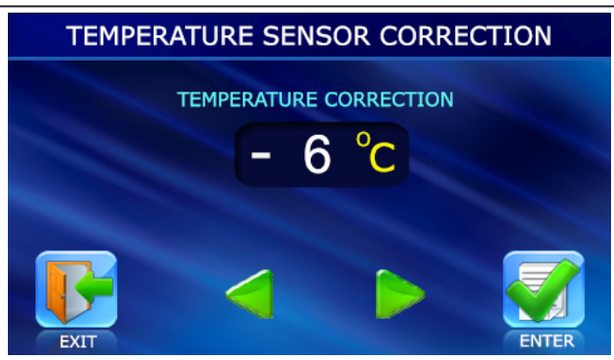
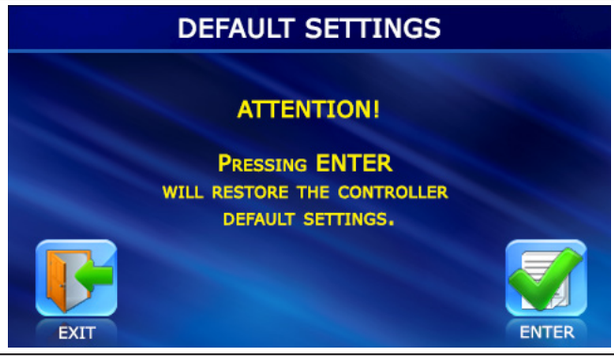
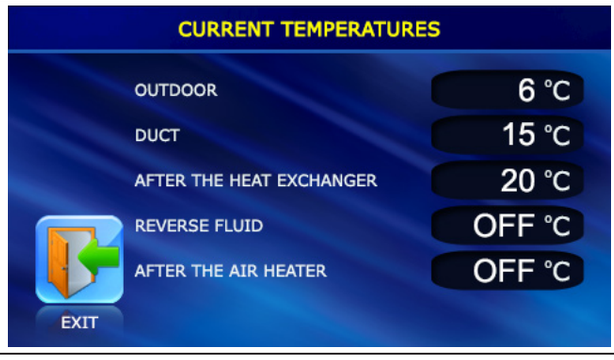
Function	Indication
16 Control Panel Temperature Sensor Correction	
☐ To correct the panel temperature sensor indications select **TEMPERATURE CORRECTION** submenu from the Engineering menu and press **ENTER**. ☐ Then use the or buttons to set the temperature correction for the room temperature sensor installed in the control panel casing. ☐ The default factory setting for the temperature sensor correction is -6°C. ☐ To return to the Engineering menu without saving changes press **EXIT**.	
17 Default Settings	
☐ To reset the controller settings to the factory defaults select **DEFAULT SETTINGS** submenu from the Engineering menu and press **ENTER**. ☐ To confirm the reset press **ENTER**. ☐ To return to the **Engineering menu** without saving changes press **EXIT**. ☐ The default settings are given in Table 8.	
18 Current Temperature Review	
☐ To review the current temperatures select the **CURRENT TEMPERATURES** submenu from the **Engineering menu** and press **ENTER**. ☐ The display shows all the current temperature information. ☐ If any temperature sensor of the ventilation unit is missing its configuration value is displayed as **OFF**. ☐ To return to the Engineering menu press **EXIT**.	
19 AUTO Mode (Scheduled Operation)	
The AUTO mode enables scheduled operation of the ventilation unit. The unit runs at the pre-set speed and temperature during the specified time periods. The unit is in the **Standby mode** between the operating periods. ☐ To activate the **AUTO** mode press **AUTO** in the control panel Main menu. Activation of the **AUTO** mode is confirmed with a tick —.	

Table 6. Operation and parameter setup of the unit (continued)

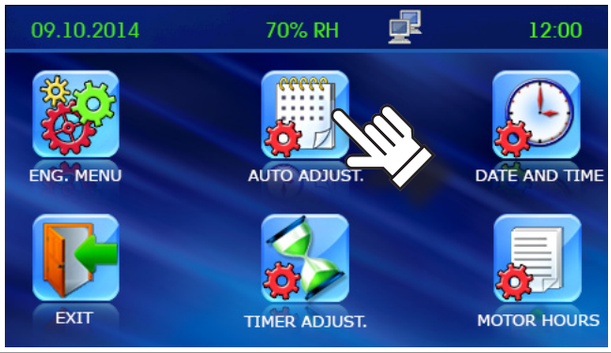
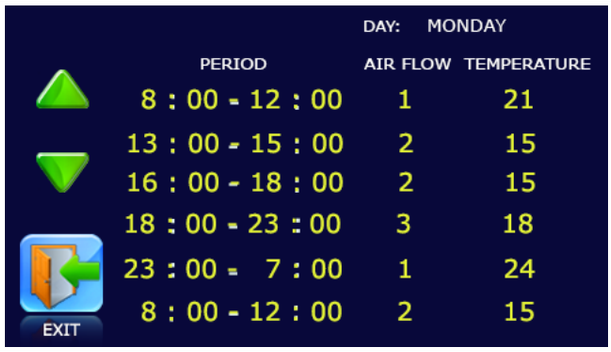
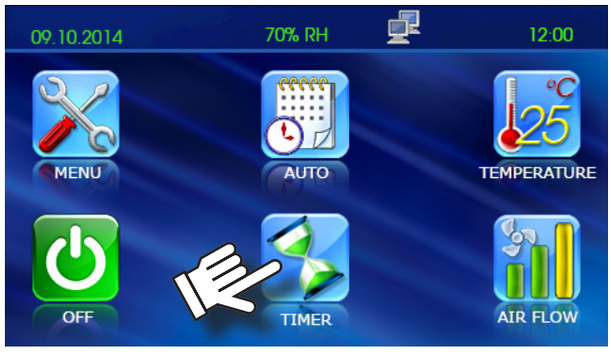
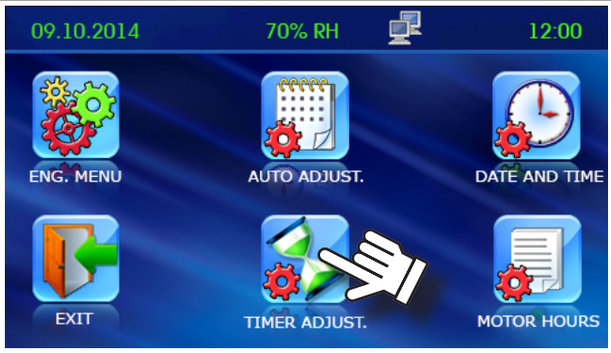
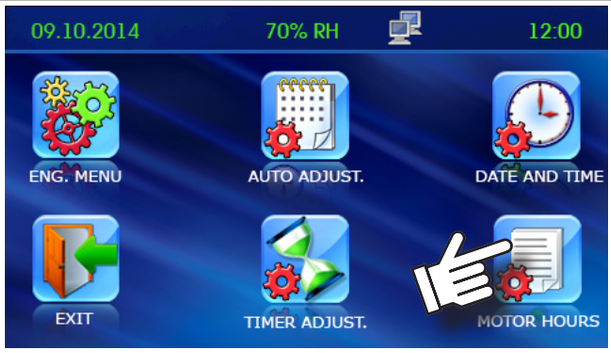
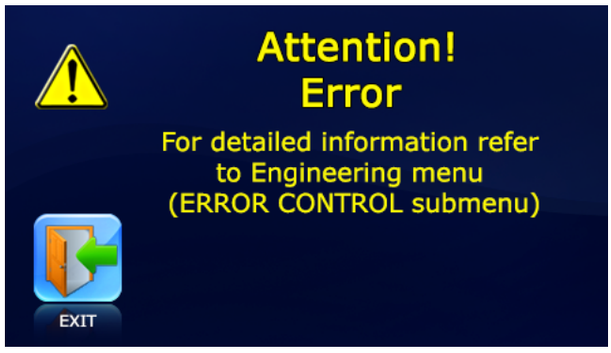
Function	Indication
☐ To set up the **AUTO** mode press the button to enter the User menu and press **AUTO ADJUST.**  . ☐ While the **TIMER** is active the **AUTO** mode is disabled due to a lower priority.	
☐ Select the day to enable the **AUTO** mode. Upon entering the menu the value is set to the current day. To change the day press the **DAY** field. ☐ Then use the  or  buttons to set the time, air flow and temperature for the selected day by pressing the respective parameter field. ☐ Depending on the **Standby mode** settings, the unit remains in the Standby mode or turns off between the operating periods. ☐ To return to the **Engineering menu** and save changes automatically press **EXIT**  .	
20 **Timer**	
☐ To activate the timer press **TIMER**  in the control panel Main menu.	
☐ To set up the timer enter the User menu and press **TIMER ADJUST.**  . Activation of the **TIMER** function is confirmed with a tick  . ☐ If the AUTO and TIMER functions are activated synchronously, **TIMER** function will operate as it supersedes the **AUTO** function. ☐ The timer cannot be activated once the **Humidity Control** mode is on.	
Use  or  buttons to set the time, air flow and air temperature values. ☐ Press **ENTER**  to confirm the set parameters. ☐ To return to the Engineering menu without saving changes press **EXIT**  .	

Table 6. Operation and parameter setup of the unit (continued)

Function	Indication
21 Motor Hours	
The **MOTOR HOURS** function enables the user to set up filter cleaning or replacement periodicity. Upon expiration of the pre-set time the panel displays a filter cleaning or replacement indicator. The indicator is displayed every 24 hours. ☐ To set up the **MOTOR HOURS** function enter the User menu and press **MOTOR HOURS**  .	
	
☐ Then use the  or  buttons to set the filter replacement interval. ☐ The **OPERATING HOURS** window shows the time elapsed from the filter installation. ☐ Press **RESET**  after replacement of the filter.. ☐ To save the changes and return to the Engineering menu press **EXIT**  .	
22 Errors	
The control panel displays the following message in case of any malfunctions in the ventilation unit operation. ☐ To enter the **ERROR LIST** press **EXIT**  . ☐ The **ERROR LIST** can also be accessed from the Engineering menu. ☐ The error code details are stated in Table 7. ☐ The error message appears every 30 seconds until the system emergency cause has been troubleshooted. To reset the error alert restart the unit once the malfunction cause has been eliminated.	

ERROR CODE DESCRIPTION

Table 7. Error code description

Error code	Description
TE1	Outdoor temperature sensor malfunction.
TE2	Malfunction of the temperature sensor for heat exchanger freezing protection.
TE3	Return heat medium temperature sensor malfunction.
TE4	Water heater freeze protection sensor malfunction.
TE5	Duct temperature sensor malfunction.
TE6	Malfunction of the duct humidity sensor.
MIN	Supply fan malfunction.
MEX	Extract fan malfunction.
ERP	Control panel communication error.
DI2	Fire alarm sensor actuation.
D15	Water pressure sensor malfunction.

FACTORY SETTINGS

Table 8. Default settings

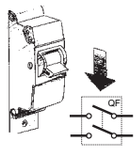
Parameter		Default value
Air Flow (speed)		1
Temperature	Duct	+ 25 °C
	Room	+ 20 °C
Air Flow Setting	Air supply	Speed 1 - 40%, Speed 2- 70%, Speed 3 - 99%
	Air extract	Speed 1 - 40%, Speed 2 -70%, Speed 3 -99%
Temperature sensor		Duct
Extra options	Heating control	Off
	Supply Fan Off mode	Off
	Humidity sensor selection	2
	BYPASS Operation mode	1
Supply Fan Off mode	Working Hours	20 minutes
	Downtime	5 minutes
	Switch-off temperature	+ 3 °C
Standby mode setting	Air flow	1
	Temperature	+ 20 °C
Display brightness adjustment	Operation	50
	Sleep	1
Humidity setting	Duct	50 %
	Room	50 %
Temperature sensor correction		- 6 °C
Timer settings	Hours	01
	Minutes	00
	Air flow	1
	Temperature	+ 20 °C
Motor hours	Setting	3000 hours

TECHNICAL MAINTENANCE

WARNING!

Cut power supply to the unit off by turning the automatic electric switch QF to OFF position prior to any maintenance operations.

Take steps to prevent re-activation of the automatic switch.



Regular technical supervision and maintenance of the unit are required to ensure the product long service life and non-stop operation.

Disconnect the unit from power supply prior to any maintenance operations.

The recommended unit maintenance periodicity is 3-4 times per year. The unit technical maintenance includes regular cleaning and other works:

1. Filter maintenance (3-4 times per year).

Dirty filters increase air resistance and decrease supply air volume. Clean the filters with a vacuum cleaner or flush those with water. After two consecutive cleanings the filter must be replaced. Install dry filters only! Contact a local distributor to purchase the filters stated above in the «Technical data» section.

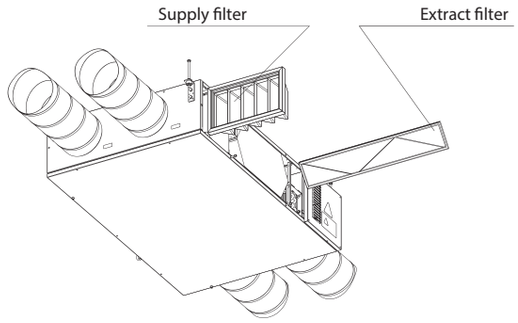
Dirty filters are not considered as a warranty case!

Replace humid and mouldy filters immediately!

Filter removal for **KOMFORT EC DW600-2 / EC DW1000-4**:

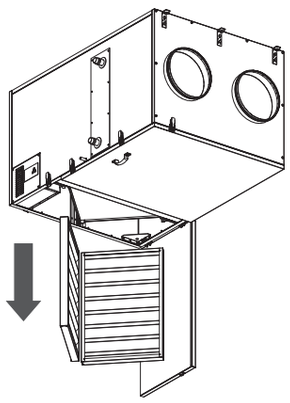
1. Remove the 5 screws and take the side service panel off.
2. Pull the filters until they slide off the guides.

Install the filters in the reverse order.



Filter removal for **KOMFORT EC DW2000-2 / EC DW3800-2**:

1. Lift the service panel latches.
2. Open the service panel carefully, supporting it with the hand.
3. Remove the filters from the unit.



2. Heat exchanger maintenance (once per year).

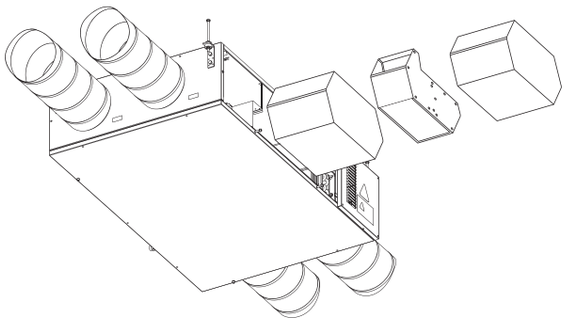
The heat exchanger must be regularly cleaned to maintain high heat recovery efficiency even in case of the regular filter cleaning. Clean the heat exchanger with warm detergent solution. Remove the heat exchanger from the unit and flush it with warm detergent solution. Install the dry heat exchanger back to the unit.

Heat exchanger removal for **KOMFORT EC DW600-2 / EC DW1000-4**:

1. Remove the 5 screws and take the side service panel off.
2. Pull the heat exchanger and remove it from the unit.
3. Disconnect the contact socket on the bypass wall and remove the bypass.
4. Remove the second heat exchanger in the same way.

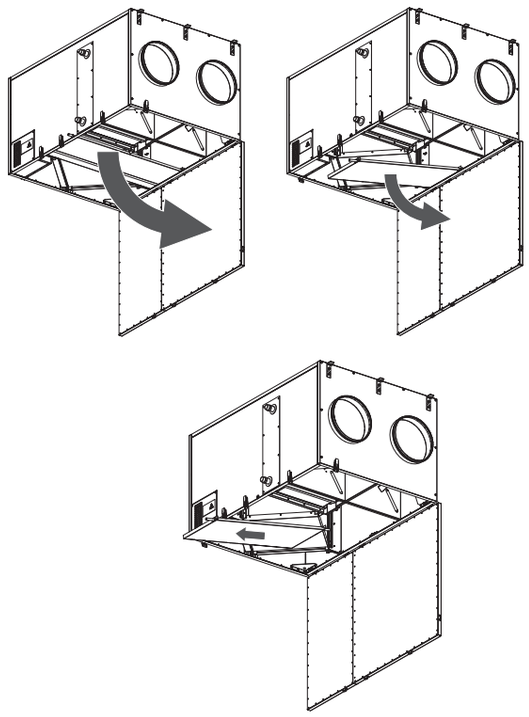
Warning! Consider the unit sharp edges! Fulfil maintenance operations in work gloves!

Assemble the parts in the reverse order.



Heat exchanger removal for **KOMFORT EC DW2000-2 / EC DW3800-2**:

1. Lift the service panel latches.
2. Open the service panels supporting those with the hand. Release the drain pipe from the side of the water heater installation and lower it down. Release the second drain pipe by pulling the drain pan aside. Install the drain pan in the reverse order. The heat exchanger removal for further cleaning should be made by the service department.



3. Fan maintenance (once per year).

The regular filter cleaning may not completely prevent the dust ingress into the unit, which results in the unit performance decrease. Clean the fan with a soft cloth or a brush. Cleaning with water, abrasive detergents, sharp object or chemicals is not allowed.

4. Condensate drain system maintenance (once per year).

Extract air particles may accumulate in the condensate drain system and cause its clogging. Fill a drain pan under the unit with water to check free water flow. Clean the U-trap and the drain system if required.

5. Supply grille maintenance (twice per year).

Check the supply grille and remove foreign objects to maintain free air intake.

6. Air ducts maintenance (once in 5 years).

The regular unit maintenance in compliance with the above rules may not completely prevent dust ingress into the air ducts which may result in air flow decrease. The air duct maintenance involves their periodical cleaning or replacement.

7. Exhaust and intake diffuser maintenance (as required).

Remove the exhaust and the intake diffusers and flush those with warm detergent solution. Check the ductworks connections periodically!

TROUBLESHOOTING AND FAULT HANDLING

Table 9. Alarm list and troubleshooting

Fault	Possible reason	Troubleshooting
The fan(s) does not start when the unit is on	No power supply or wrong connection to power mains.	Connect the unit to power supply. Troubleshoot the connection error.
	The motor is jammed, the impeller blades are soiled.	Remove the motor jam, clean the impeller blades.
Automatic switch tripping	Short circuit in power grid.	Turn the unit off and contact the unit Seller for fault diagnostics.
Low air flow	Too low set speed.	Set the higher speed.
	The filters and the fans are soiled, the heat exchanger is soiled.	Clean or replace the filters, fans and the heat exchanger.
	The air dampers, the supply diffusers or the exhaust grilles are closed or soiled.	Open and clean the air dampers, the supply diffusers, the exhaust grilles to ensure free air flow.
Low supply air temperature	The extract filter is soiled.	Clean or replace the extract filter.
	The heat exchanger is iced.	Check the heat exchanger condition. Shutdown the unit if required and turn it on after the freezing danger is no longer imminent.
	Water heater malfunction.	Contact the Seller.
Noise, vibration	The impeller is soiled.	Clean the impeller.
	The screw connection is loose.	Tighten the screws.
	No flexible anti-vibration connectors.	Install the flexible anti-vibration connectors.
Condensate leakage	The drain system is clogged, damaged or wrong installed.	Clean the condensate drain system. Check the drain hose slope. Make sure the U-trap is filled with water and the drain system is frost-protected.

ACCEPTANCE CERTIFICATE

The air handling unit with heat recovery

KOMFORT EC DW600-2		KOMFORT EC DW2000-2	
KOMFORT EC DW1000-4		KOMFORT EC DW3800-2	

is recognizes as serviceable.

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.
We hereby declare that the following product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This certificate is issued following test carried out on samples of the product referred to above.

Approval mark Manufacturing date _____

CONNECTION CERTIFICATE

The air handling unit with heat recovery

KOMFORT EC DW600-2		KOMFORT EC DW2000-2	
KOMFORT EC DW1000-4		KOMFORT EC DW3800-2	

is connected to power mains in compliance with the operation manual requirements by the professional:

Company: _____

Name_____

Date_____Signature_____

WARRANTY CARD

KOMFORT EC DW600-2		KOMFORT EC DW2000-2	
KOMFORT EC DW1000-4		KOMFORT EC DW3800-2	

SELLER

SALES DATE

REPRESENTATIVE IN EU

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