*Heat recovery air handling units*

# *KOMFORT Roto EC LW*

*Air capacity – up to 1500 m³/h*

*Heat recovery efficiency – up to 95 %*

## Application

- Air handling units for efficient supply and exhaust ventilation in flats, houses, cottages and other buildings.
- For arranging of controlled energy saving ventilation systems.
- Heat recovery minimises ventilation heat losses.
- Controllable air exchange for creating the best suitable indoor microclimate.
- Compatible with round Ø160, 250 and 315 mm air ducts.

## Design

- The casing is made of double-skinned aluzinc panels, internally filled with up to 25 mm mineral wool layer for heat and sound insulation.
- 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 hinged casing side panels ensure easy access to the internals for cleaning, filter replacement and other maintenance operations.

## Fans

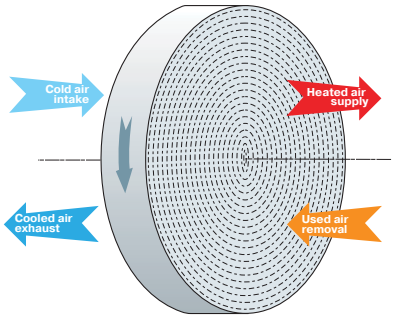
- High-efficient external rotor EC motors and centrifugal impellers with backward curved blades are used for air supply and exhaust.
- EC motors have the best power consumption to air capacity ratio and meet the latest demands concerning energy saving and high-efficient ventilation.
- EC motors are featured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

## Heat recovery

- The unit is equipped with an aluminium rotor heat exchanger with high heat recovery efficiency.

As compared to plate heat exchangers, the rotor heat exchangers are distinguished with higher heat recovery efficiency, ability to maintain comfortable air humidity and extremely low freezing danger that is nearly excluded in rated temperature and humidity conditions.

- Heat recovery is based on utilization of heat energy contained in the extract air stream for heating up of supply air stream. Extract air transfers most of its heat to the intake air flow. Heat recovery reduces heat energy losses in cold seasons.
- In summer the heat exchanger performs reverse and intake air is cooled in the heat exchanger by the cool extract air. This contributes to better performance of the air conditioner in ventilated premises.




Rotor heat exchanger operating logic

## 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.
- Smooth water heater power control ensures automatic 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.
- The water heaters are rated for maximum operating pressure 1.0 MPa (10 bar) and maximum heat medium temperature +95 °C.
- The water heater spigots are located on service side, leftwards along supply air flow.

## Air filtration

- The built-in G4 pocket supply filter and G4 cassette extract filter provide efficient air filtration. Optionally, an F7 supply filter may be used.

## Control and automation

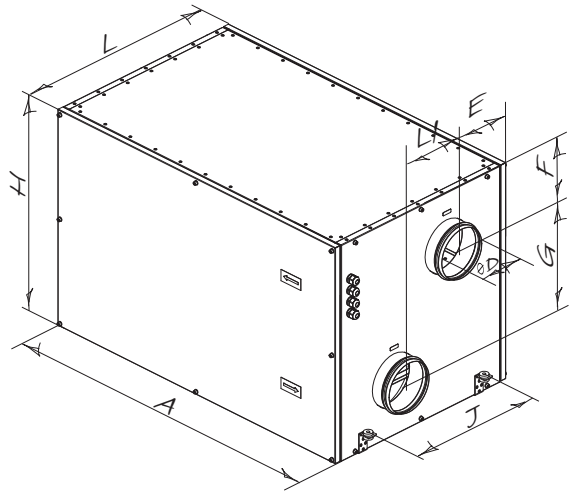
❑ The unit incorporates an integrated control system with a wall-mounted control panel and a sensor LCD display.
❑ The standard delivery set includes a 10 m cable for connection of the unit and the control panel.
❑ Automation functions:
• Activating/deactivating the unit.
• Setting required speed for the supply and extract fan for the unit air flow control. Each speed is individually adjusted during set-up.
• Setting week-scheduled operation of the unit.
• Set supply air temperature maintaining by means of the heat medium regulating valve.
• 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.
• Automatic rotor activation/deactivation.
• System shutdown on signal from a fire alarm panel.
• Controlling external servo-driven air dampers with a return spring (to be ordered separately).
• Cooler control (available separately).

## Mounting

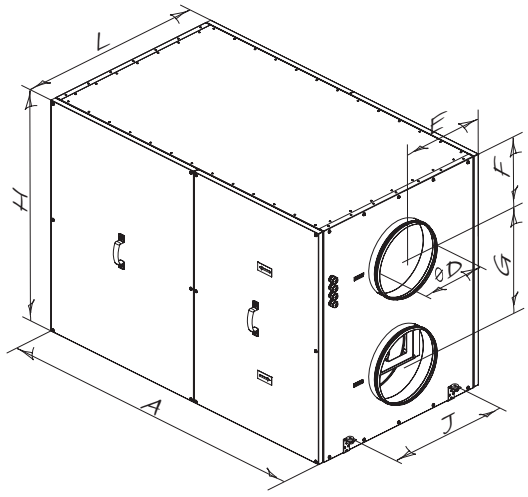
❑ The unit is suitable for floor, ceiling or wall mounting.
❑ The correct mounted unit must provide free condensate collection and drainage as well as good access for servicing and filter replacement.
❑ The service access is on service panel side, leftwards along supply air flow.

## Overall dimensions

| Model | Dimensions [mm] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ØD | A | E | F | G | L1 | H | J | L |
| KOMFORT Roto EC LW400-2 | 159 | 1050 | 225 | 167 | 333 | 200 | 670 | 440 | 648 |
| KOMFORT Roto EC LW700-2 | 249 | 1210 | 243 | 180 | 340 | 250 | 700 | 580 | 745 |
| KOMFORT Roto EC LW1000-2 | 249 | 1210 | 243 | 180 | 340 | 250 | 700 | 580 | 745 |
| KOMFORT Roto EC LW1200-2 | 314 | 1335 | 373 | 220 | 438 | – | 880 | 460 | 745 |
| KOMFORT Roto EC LW1500-2 | 314 | 1430 | 427 | 275 | 460 | – | 1010 | 560 | 855 |




**KOMFORT Roto EC LW400-2 / Roto EC LW700-2 / Roto EC LW1000-2**




**KOMFORT Roto EC LW1200-2 / Roto EC LW1500-2**

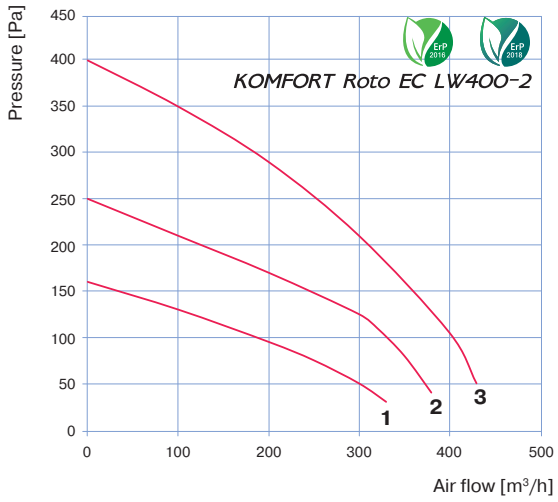
## Accessories

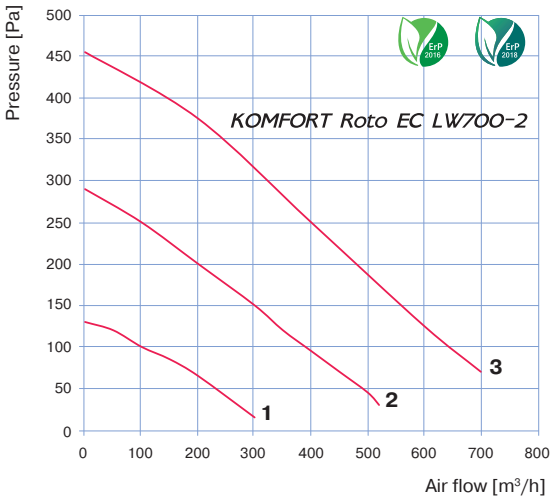
| Model | Replaceable filter G4 (cassette type) | Replaceable filter G4 (pocket type) | Replaceable filter F7 (pocket type) |
|---|---|---|---|
| KOMFORT Roto EC LW400-2 | FP-Roto EC LE/LW400 G4 | FPT-Roto EC LE/LW400 G4 | FPT-Roto EC LE/LW400 F7 |
| KOMFORT Roto EC LW700-2 | FP-Roto EC LE/LW700-1000 G4 | FPT-Roto EC LE/LW700-1000 G4 | FPT-Roto EC LE/LW700-1000 F7 |
| KOMFORT Roto EC LW1000-2 | | | |
| KOMFORT Roto EC LW1200-2 | FP-Roto EC LE/LW1200 G4 | FPT-Roto EC LE/LW1200 G4 | FPT-Roto EC LE/LW1200 F7 |
| KOMFORT Roto EC LW1500-2 | FP-Roto EC LE/LW1500 G4 | FPT-Roto EC LE/LW1500 G4 | FPT-Roto EC LE/LW1500 F7 |

## Technical data

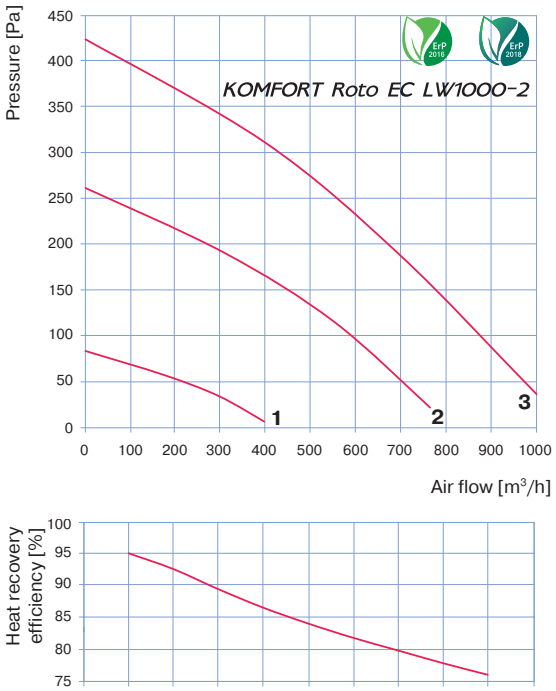
| Parameters | KOMFORT Roto EC LW400-2 | KOMFORT Roto EC LW700-2 | KOMFORT Roto EC LW1000-2 | KOMFORT Roto EC LW1200-2 | KOMFORT Roto EC LW1500-2 |
|---|---|---|---|---|---|
| Voltage [V / 50-60 Hz] | 1 ~ 230 | | | | |
| Number of water (glycol) coil rows | 2 | | | | |
| Power [kW] | 0.29 | 0.315 | 0.44 | 0.57 | 0.75 |
| Current [A] | 1.2 | 1.4 | 1.9 | 2.5 | 3.2 |
| Maximum air capacity [m³/h] | 430 | 700 | 1000 | 1200 | 1500 |
| RPM | 3060 | 2760 | 2780 | 1930 | 2000 |
| Sound pressure level at 3 m [dBA] | 45 | 52 | 58 | 60 | 62 |
| Transported air temperature [°C] | -25 up to +60 | | | | |
| Casing material | aluzinc | | | | |
| Insulation | 20 mm mineral wool | | | | 25 mm mineral wool |
| Extract filter | cassette G4 | | | | |
| Supply filter | pocket G4 (F7)* | | | | |
| Connected air duct diameter [mm] | 160 | 250 | | 315 | |
| Weight [kg] | 112 | 128 | 130 | 165 | 175 |
| Heat recovery efficiency [%]** | 80 up to 95 | 77 up to 95 | 72 up to 95 | 73 up to 95 | 72 up to 95 |
| Heat exchanger type | rotor heat exchanger | | | | |
| SEC class*** | A | | | - | - |
| Heat exchanger material | aluminium | | | | |

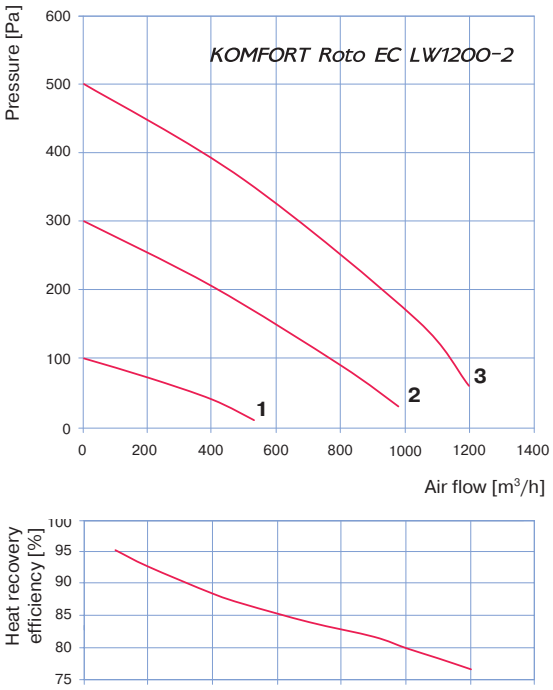
* Option.
** Heat recovery efficiency is specified in compliance with the EN308 EU norms.
*** The EC norm 1254/2014 does not apply if maximum air capacity is >1000 m³/h

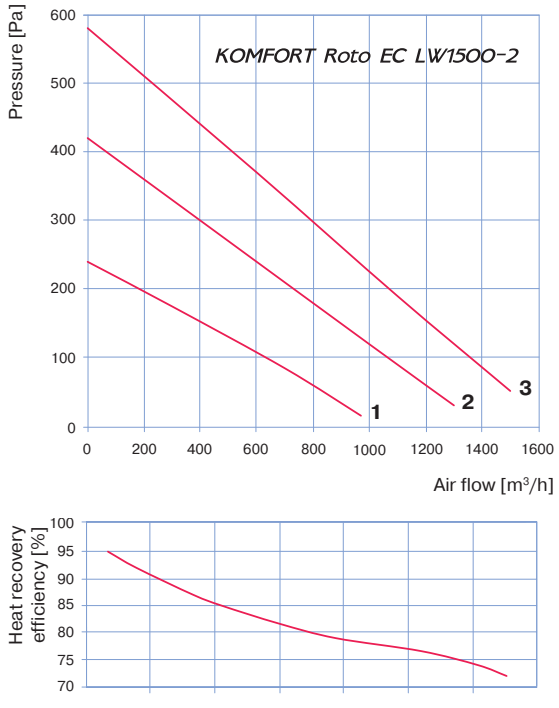




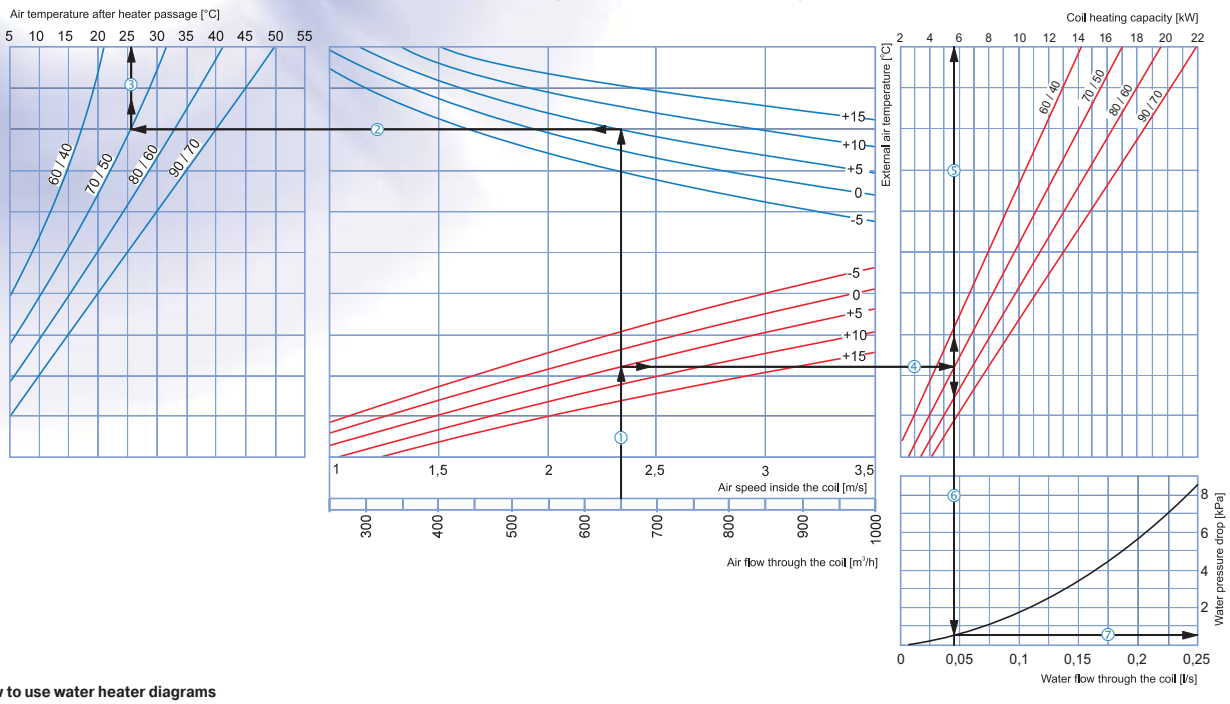

KOMFORT Roto EC LW1000-2
Pressure [Pa]
Air flow [m³/h]
Heat recovery efficiency [%]
1
2
3


KOMFORT Roto EC LW1200-2
Pressure [Pa]
Air flow [m³/h]
Heat recovery efficiency [%]
1
2
3


KOMFORT Roto EC LW1500-2
Pressure [Pa]
Air flow [m³/h]
Heat recovery efficiency [%]
1
2
3

## Hot water coil calculation diagram

### KOMFORT Roto EC LW400-2 / Roto EC LW700-2 / Roto EC LW1000-2

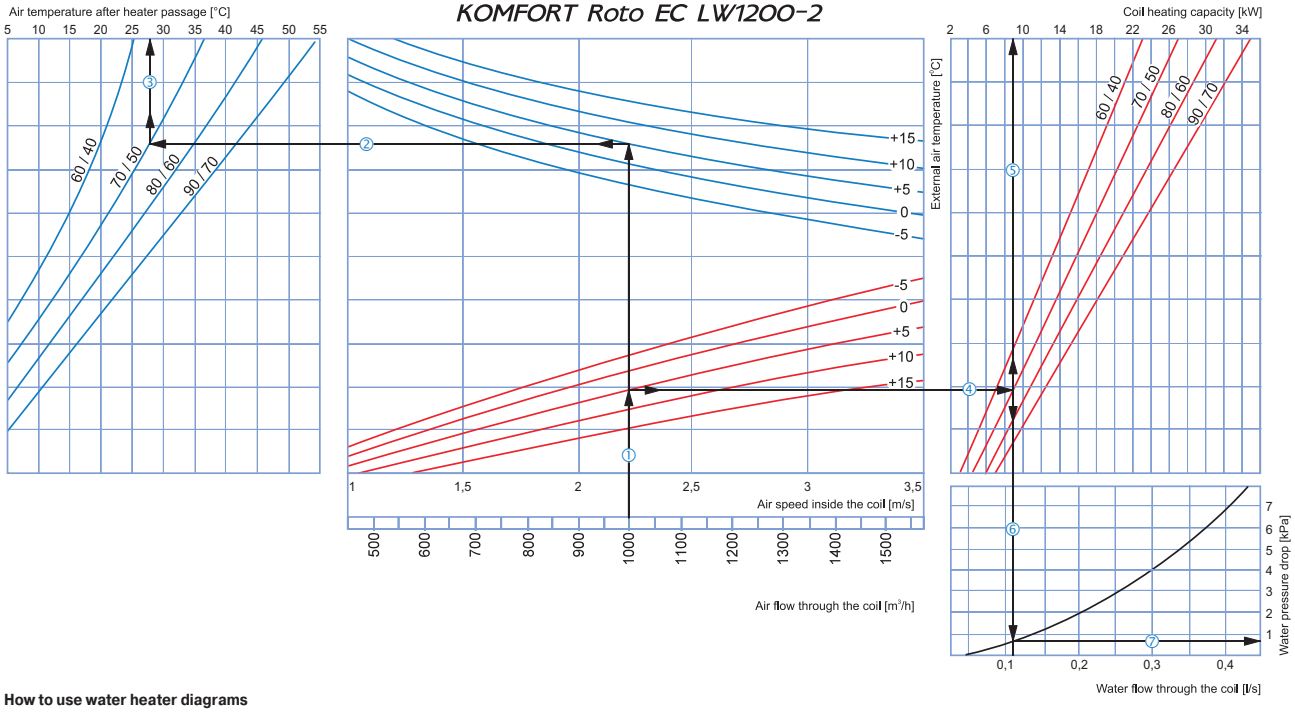



**How to use water heater diagrams**

Sample parameters: Air flow = 650 m³/h. Outside air temperature =+5°C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 650 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 2.35 m/s.
- **Supply air temperature:** Prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. +5°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 (+26°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +5°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 (5.8 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.4 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 (0.5 kPa).

### KOMFORT Roto EC LW1200-2

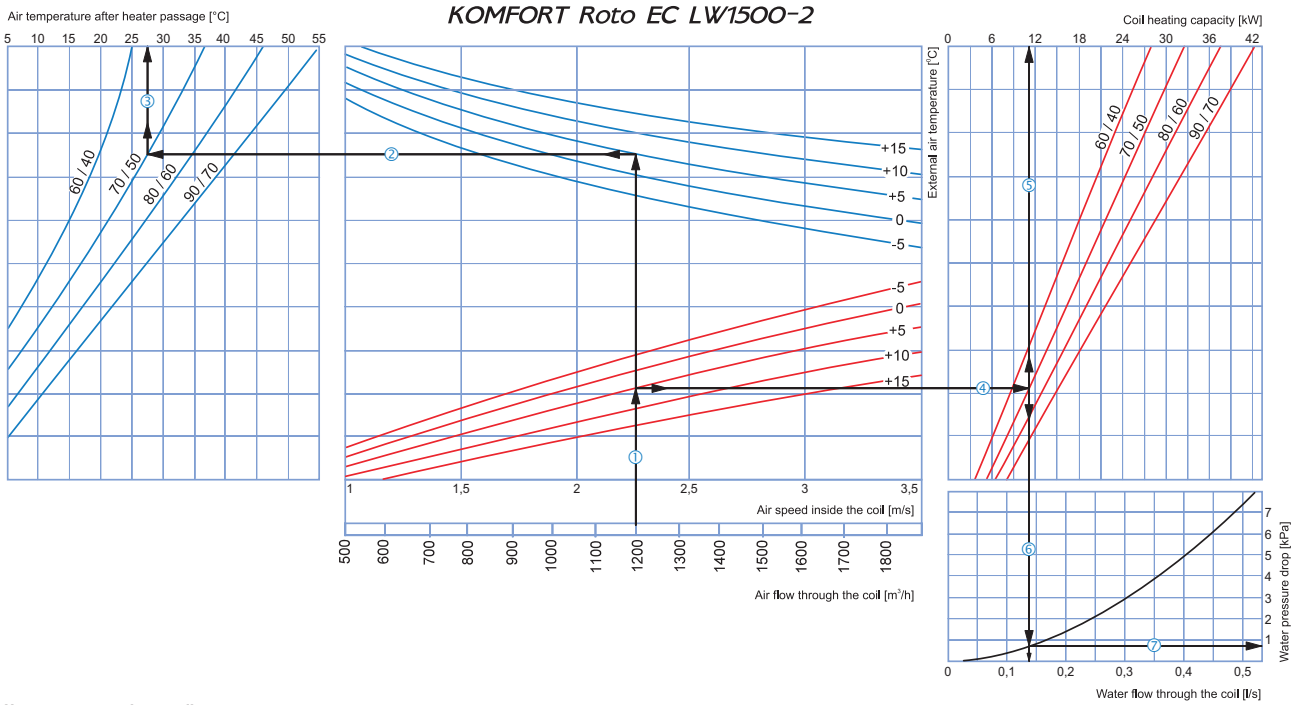



**How to use water heater diagrams**

Sample parameters: Air flow = 1000 m³/h. Outside air temperature =+5°C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 1000 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 2.22 m/s.
- **Supply air temperature:** Prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. +5°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. +5°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 (9.0 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.11 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 (0.8 kPa).

## Hot water coil calculation diagram




**How to use water heater diagrams**

Sample parameters: Air flow = 1200 m³/h. Outside air temperature =+5°C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 1200 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 2.25 m/s.
- **Supply air temperature:** Prolong the line ① up to the point where it crosses the outside air temperature (blue curve, e.g. +5°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 (+27°C).
- **Heating coil capacity:** Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +5°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 (11.0 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.13 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 (0.8 kPa).