# BLAUBOX EC MW

## Supply ventilation units

### Features

- Ventilation unit for efficient supply ventilation in various premises.
- Controllable air supply, heating and filtration.
- BMS connection via ModBUS RTU.

**Air flow:**
up to 4950 m³/h
1375 l/s

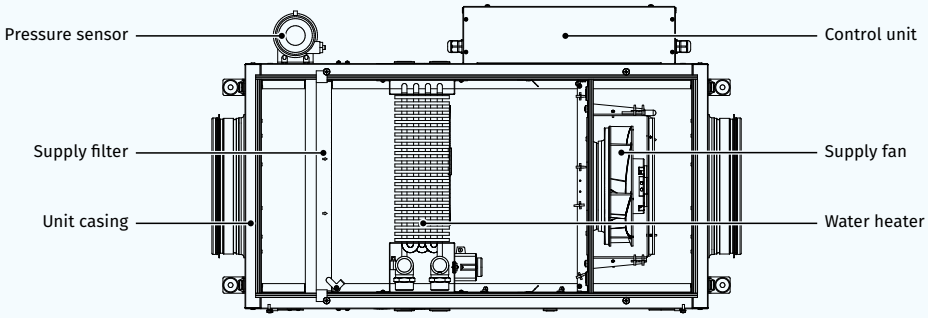
EC motor · ErP 2018 · BMS

### Design

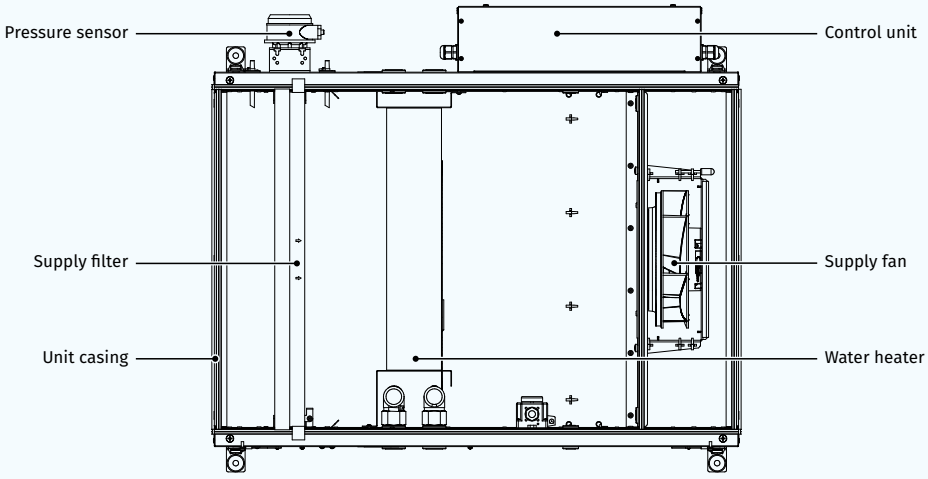
- Steel casing covered with aluzinc coating internally filled with 30 mm heat- and sound-insulating layer made of mineral wool.
- Mounting brackets with anti-vibration rubber. Service panel ensures easy access to the internals.
- **Blaubox EC MW 700** is compatible with round ducts.

**Blaubox EC MW 700**

### Blaubox EC ME 300 ... 700




### Blaubox EC ME 1000 ... 4000



## Fans

- Efficient external rotor EC-motors and centrifugal impellers with backward curved blades.
- EC-motors are featured with high performance, low noise level and totally controllable speed range.
- Dynamically balanced impeller.

## Air filtration

- **Panel Coarse 90% (G4)** filter for supply air purification.
- **Panel ePM10 70% (F7)** filter is available as an option.

## Air heater

- The unit is equipped with a water heater.
- Integrated frost protection.

## Mounting

- The unit is suitable for indoor mounting on the floor, ceiling mounting or wall mounting with fixing brackets in any mounting position, except for the vertical one with air flow downward.
- The correctly mounted unit must provide free access to the service panel.

## Control and automation

- The units are equipped with an **S31** integrated automation control system.
- Remote control panels are not included in the delivery set and ordered separately.

## Automation functions

| Functions | Description |
|---|---|
| **Wired control panel** | S30 |
| **Wired control panel** | S32 |
| **Unit on / off** | + |
| **Fan speed control and setting** | + |
| **Filter clogging indication and control** | Pressure sensor |
| **Week schedule** | + |
| **Electric heater protection with auto restart** | + |
| **Electric heater protection with manual restart** | + |
| **Supply temperature control** | + |
| **Outer temperature sensor** | + |
| **Water heater frost protection** | + |
| **Return temperature sensor** | + |
| **Air damper control** | + |
| **Alarm indication** | + |
| **BMS Connection** | ModBUS (RTU) |
| **Humidity sensor** | 0–10 V or NO |
| **$CO_2$ Sensor** | 0–10 V or NO |
| **Exhaust fan control** | on / off |
| **Three-way valve control** | + |
| **Circulation pump control** | + |
| **Condensing unit control** | 0–10 V |

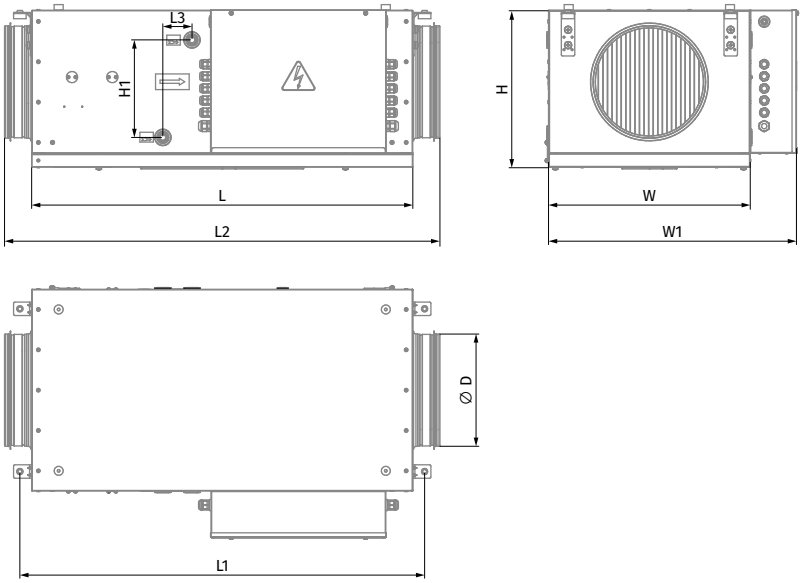


## Designation key

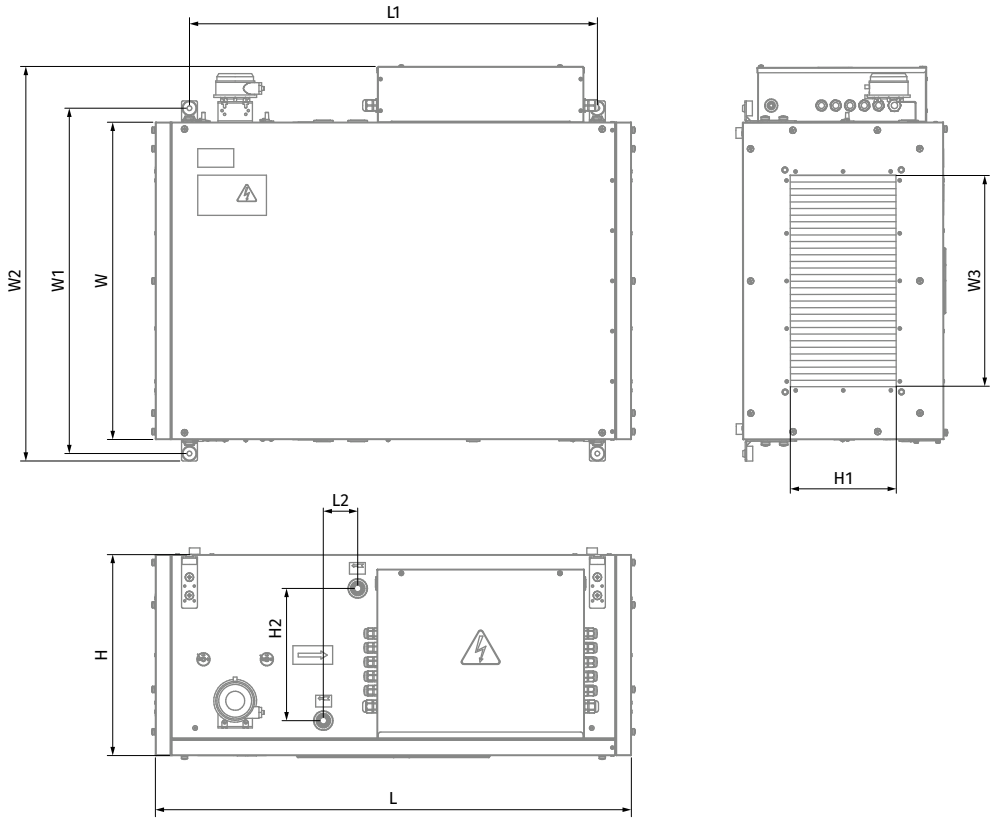
| Series | Motor type | Heater type | Rated air flow [m³/h] | Service side | Control |
|---|---|---|---|---|---|
| **Blaubox:** supply air unit | **EC:** electronically commutated motor | **MW:** water | **300; 400; 700; 1000; 1500; 2000; 3000; 4000** | **L:** left<br>**R:** right | **S31** |

## Dimensions [mm]

| Model | Ø D | H | H1 | H2 | L | L1 | L2 | L3 | W | W1 | W2 | W3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blaubox EC MW 700 S31 | 250 | 350 | 218 | – | 850 | 903 | 972 | 65 | 460 | 565 | – | – |
| Blaubox EC MW 1000 S31 | – | 380 | 200 | 250 | 900 | 770 | 65 | – | 600 | 653 | 746 | 400 |
| Blaubox EC MW 1500 S31 | – | 440 | 250 | 318 | 900 | 770 | 65 | – | 700 | 754 | 847 | 500 |
| Blaubox EC MW 2000 S31 | – | 440 | 300 | 318 | 900 | 770 | 65 | – | 700 | 754 | 847 | 500 |
| Blaubox EC MW 3000 S31 | – | 500 | 300 | 368 | 1200 | 1070 | 65 | – | 800 | 853 | 944 | 600 |
| Blaubox EC MW 4000 S31 | – | 550 | 400 | 380 | 1200 | 1070 | 65 | – | 940 | 993 | 1087 | 700 |




Blaubox EC MW 700

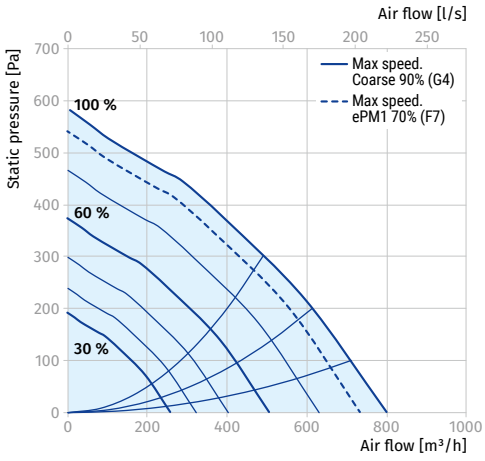


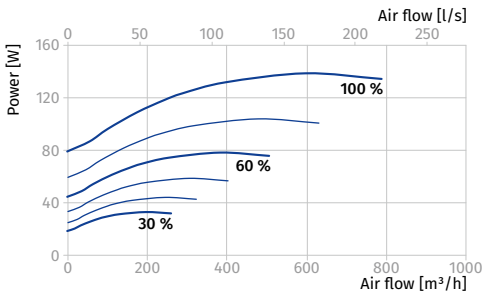

Blaubox EC MW 1000 – Blaubox EC MW 4000

## Technical data

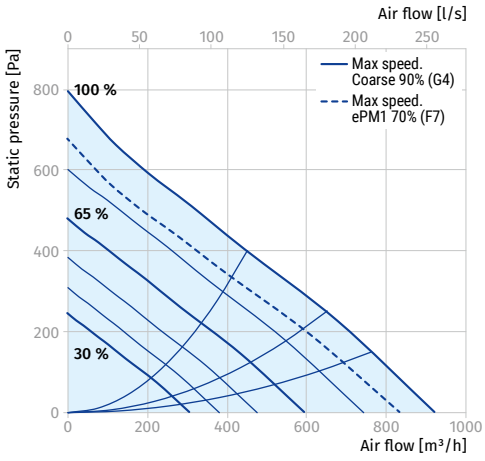
| Parameters | Blaubox EC MW 700 S31 | Blaubox EC MW 1000 S31 |
|---|---|---|
| Supply voltage [V / 50 Hz] | 1 ~ 230 | 1 ~ 230 |
| Number of water coil rows | 4 | 4 |
| Water coil connection diameter [in] | 3/4 | 1 |
| Max. unit power [kW] | 0.139 | 0.165 |
| Max. unit current [A] | 1.05 | 1.23 |
| Maximum airflow [m³/h] | 800 | 920 |
| Max. water temperature [°C] | 150 | 150 |
| Sound pressure level at 3 m [dBA] | 44 | 48 |
| Transported air temperature [°C] | -30...+40 | -30...+40 |
| Casing material | aluzinc | aluzinc |
| Insulation | 30 mm mineral wool | 30 mm mineral wool |
| Filter | Coarse 90% / G4 (option: ePM1 70% / F7) | Coarse 90% / G4 (option: ePM1 70% / F7) |
| Connected air duct diameter [mm] | 250 | 400 × 200 |
| Weight [kg] | 27 | 35 |

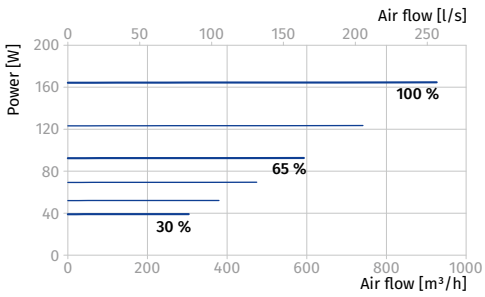
### BLAUBOX EC MW 700 S31



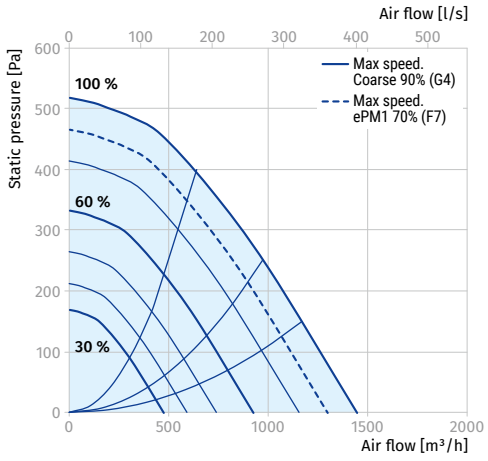

### BLAUBOX EC MW 1000 S31

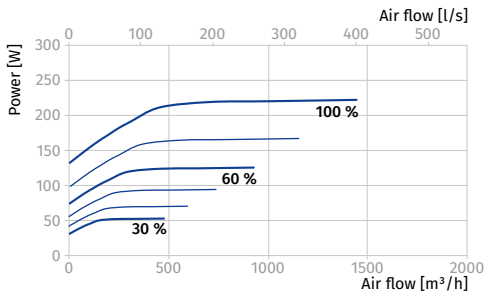


| Parameters | Blaubox EC MW 1500 S31 | Blaubox EC MW 2000 S31 |
|---|---|---|
| Supply voltage [V / 50 Hz] | 1 ~ 230 | 1 ~ 230 |
| Number of water coil rows | 4 | 4 |
| Water coil connection diameter [in] | 1 | 1 |
| Max. unit power [kW] | 0.222 | 0.387 |
| Max. unit current [A] | 1.6 | 1.7 |
| Maximum airflow [m³/h] | 1445 | 2150 |
| Max. water temperature [°C] | 150 | 150 |
| Sound pressure level at 3 m [dBA] | 49 | 53 |
| Transported air temperature [°C] | -30…+40 | -30…+40 |
| Casing material | aluzinc | aluzinc |
| Insulation | 30 mm mineral wool | 30 mm mineral wool |
| Filter | Coarce 90% / G4 (option: ePM1 70% / F7) | Coarce 90% / G4 (option: ePM1 70% / F7) |
| Connected air duct diameter [mm] | 500 × 250 | 500 × 300 |
| Weight [kg] | 49 | 45 |

## BLAUBOX EC MW 1500 S31

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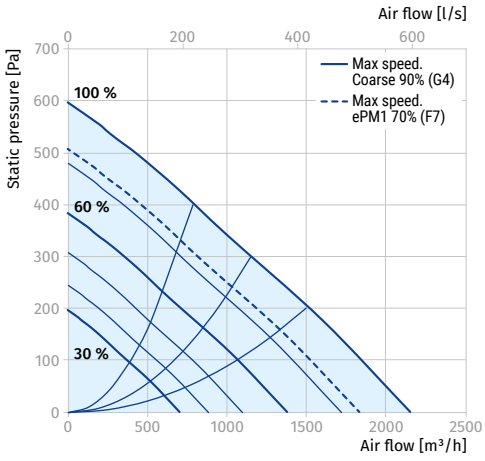
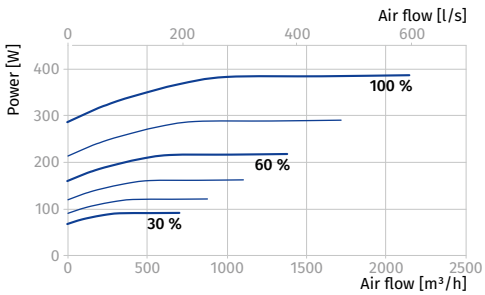
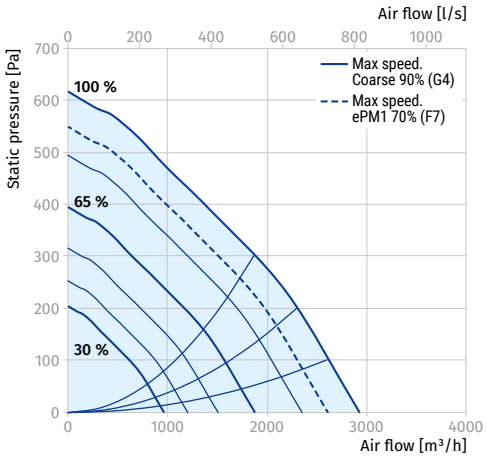
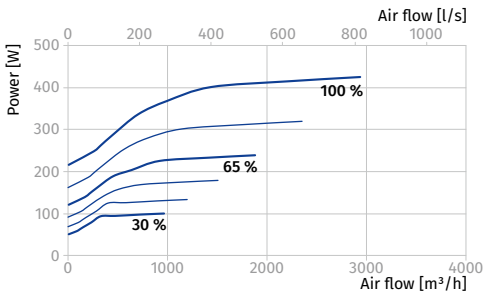


| Parameters | Blaubox EC MW 3000 S31 | Blaubox EC MW 4000 S31 |
|---|---|---|
| Supply voltage [V / 50 Hz] | 1 ~ 230 | 1 ~ 230 |
| Number of water coil rows | 4 | 4 |
| Water coil connection diameter [in] | 1 1/4 | 1 3/8 |
| Max. unit power [kW] | 0.425 | 0.698 |
| Max. unit current [A] | 1.8 | 1.06 |
| Maximum airflow [m³/h] | 2930 | 4950 |
| Max. water temperature [°C] | 150 | 150 |
| Sound pressure level at 3 m [dBA] | 52 | 54 |
| Transported air temperature [°C] | -30...+40 | -30...+40 |
| Casing material | aluzinc | aluzinc |
| Insulation | 30 mm mineral wool | 30 mm mineral wool |
| Filter | Coarce 90% / G4 (option: ePM1 70% / F7) | Coarce 90% / G4 (option: ePM1 70% / F7) |
| Connected air duct diameter [mm] | 600 × 300 | 700 × 400 |
| Weight [kg] | 50 | 58 |

## BLAUBOX EC MW 3000 S31

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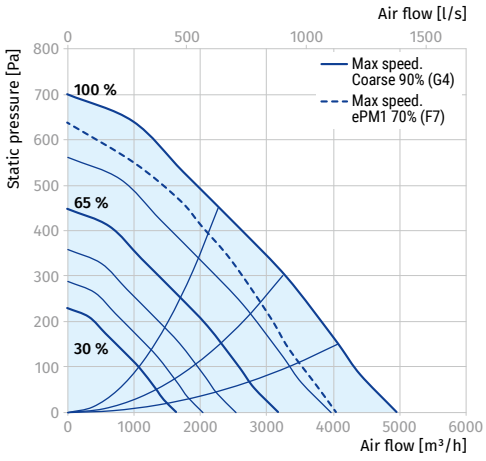
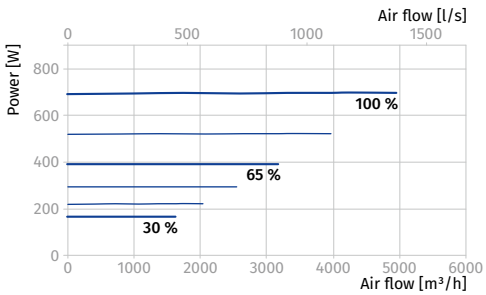
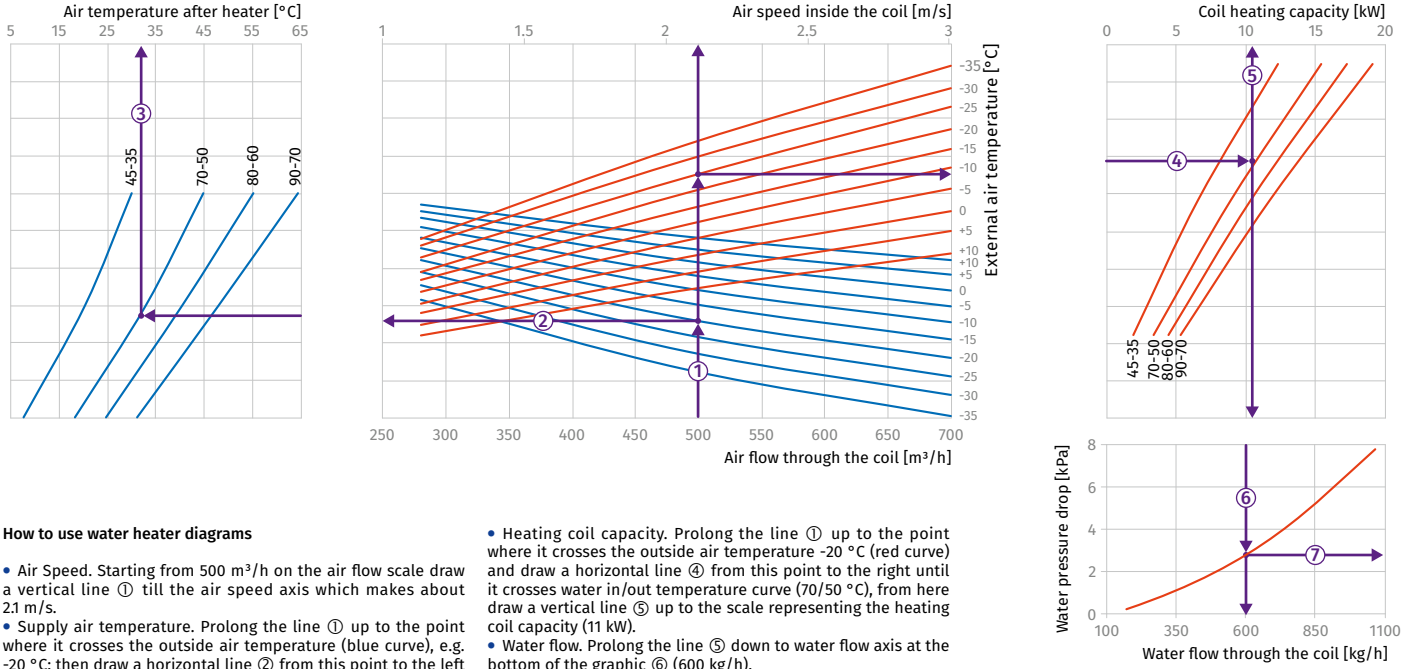


## Hot water coil calculation diagram

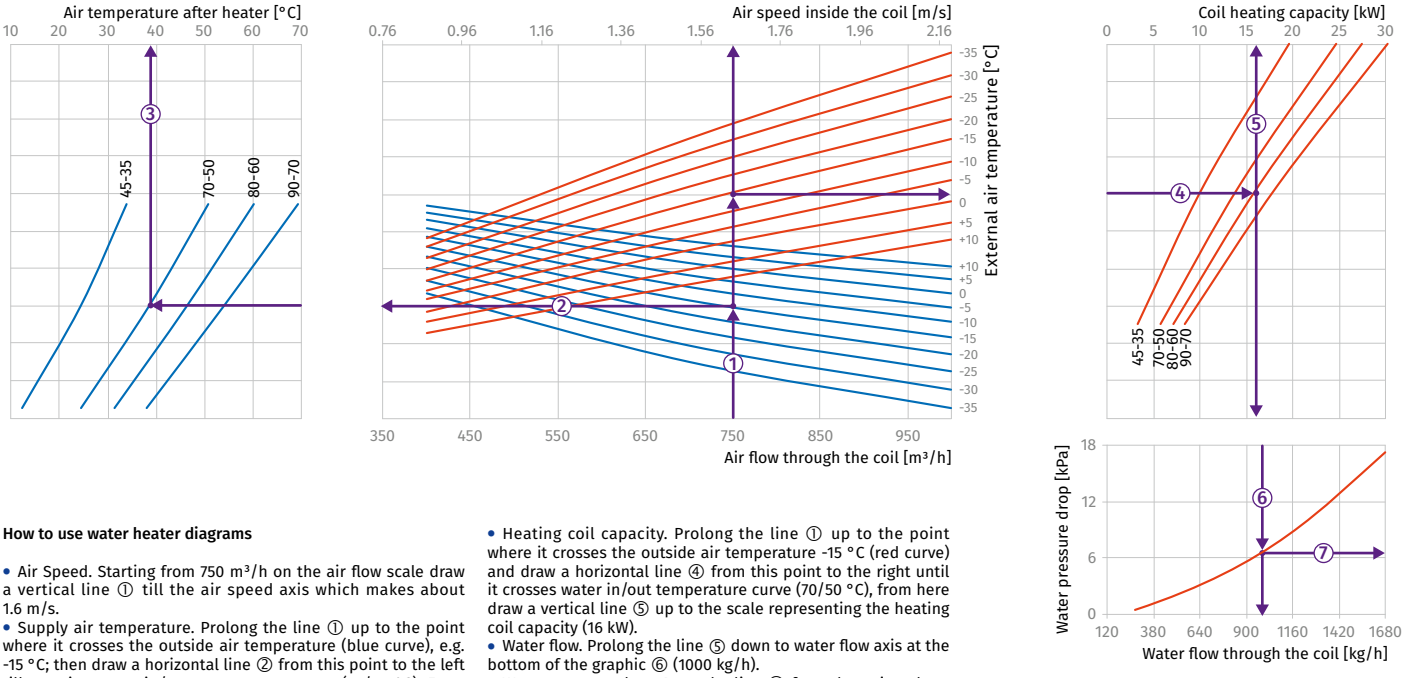
### BLAUBOX EC MW 700 S31




**How to use water heater diagrams**

- Air Speed. Starting from 500 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.1 m/s.
- Supply air temperature. Prolong the line 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 till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+31 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -20 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (11 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (600 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (3 kPa).

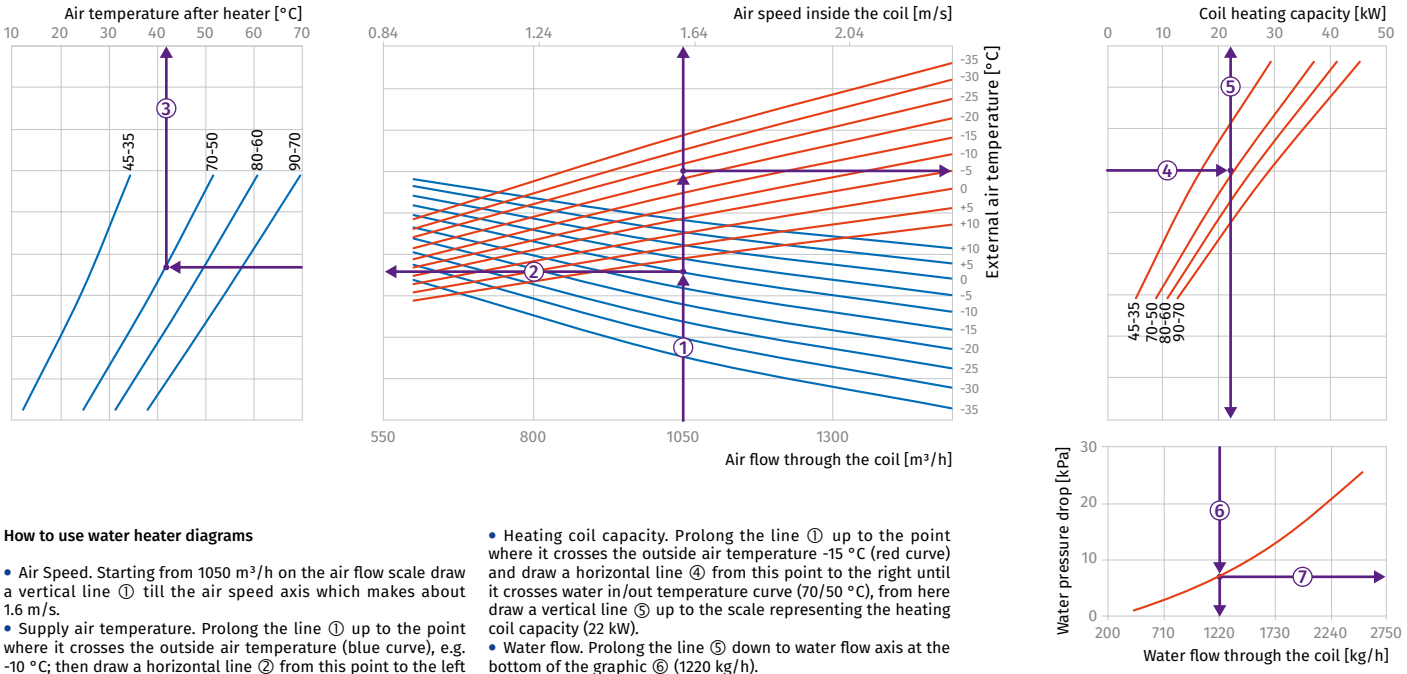
### BLAUBOX EC MW 1000 S31




**How to use water heater diagrams**

- Air Speed. Starting from 750 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 1.6 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 till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+39 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (16 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1000 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (6 kPa).

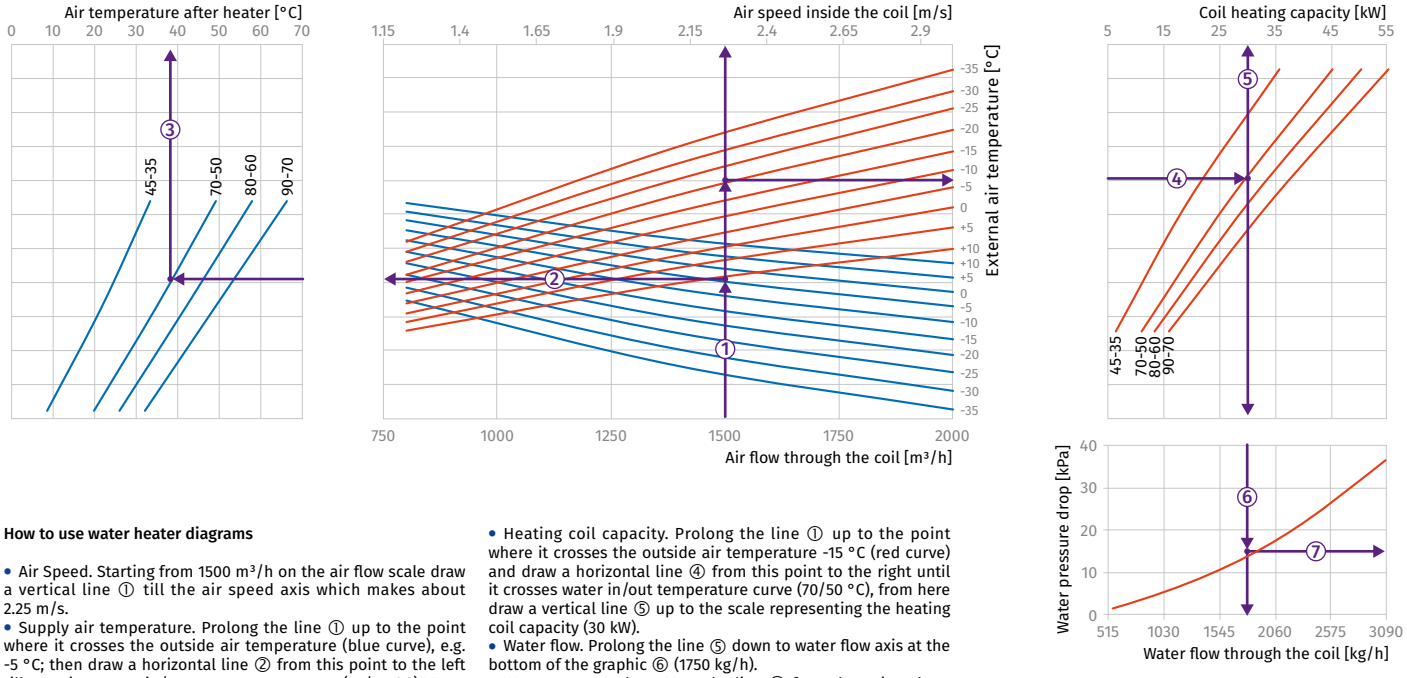
## BLAUBOX EC MW 1500 S31




**How to use water heater diagrams**

- Air Speed. Starting from 1050 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 1.6 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 till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+41 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (22 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1220 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (8.5 kPa).

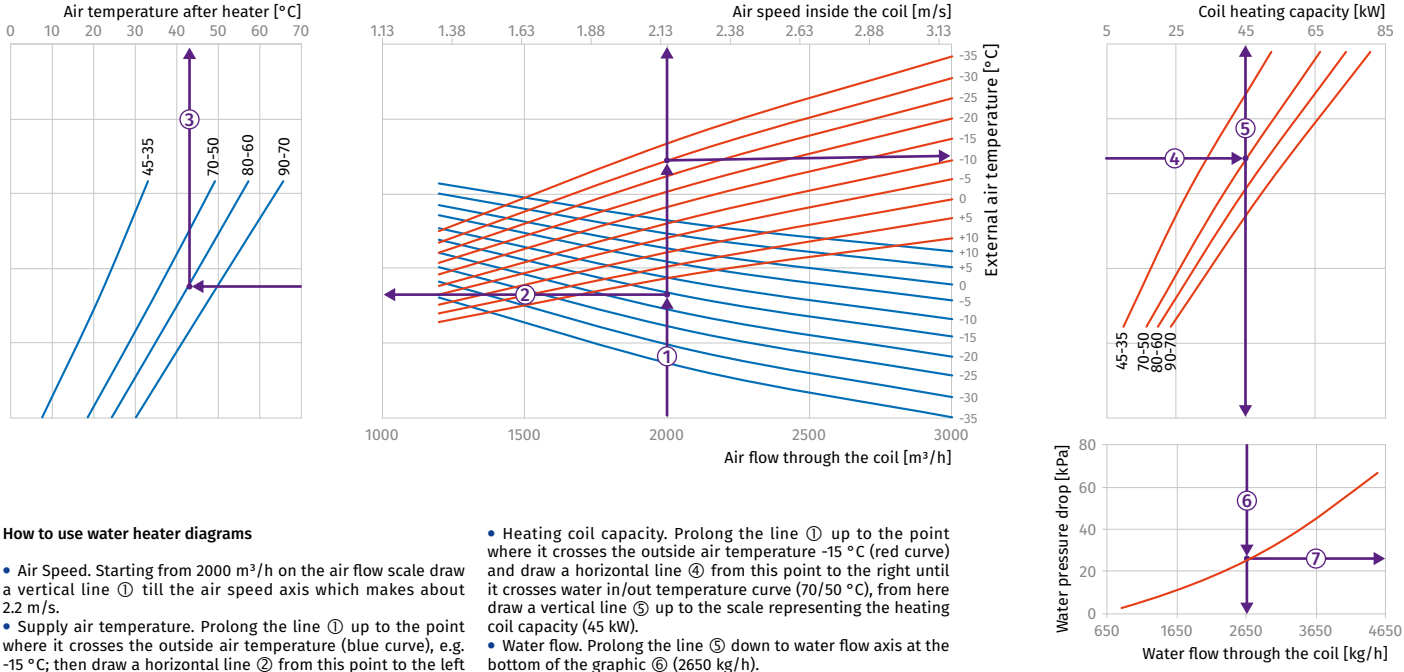
## BLAUBOX EC MW 2000 S31




**How to use water heater diagrams**

- Air Speed. Starting from 1500 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes 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 till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+38 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (30 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1750 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (15 kPa).

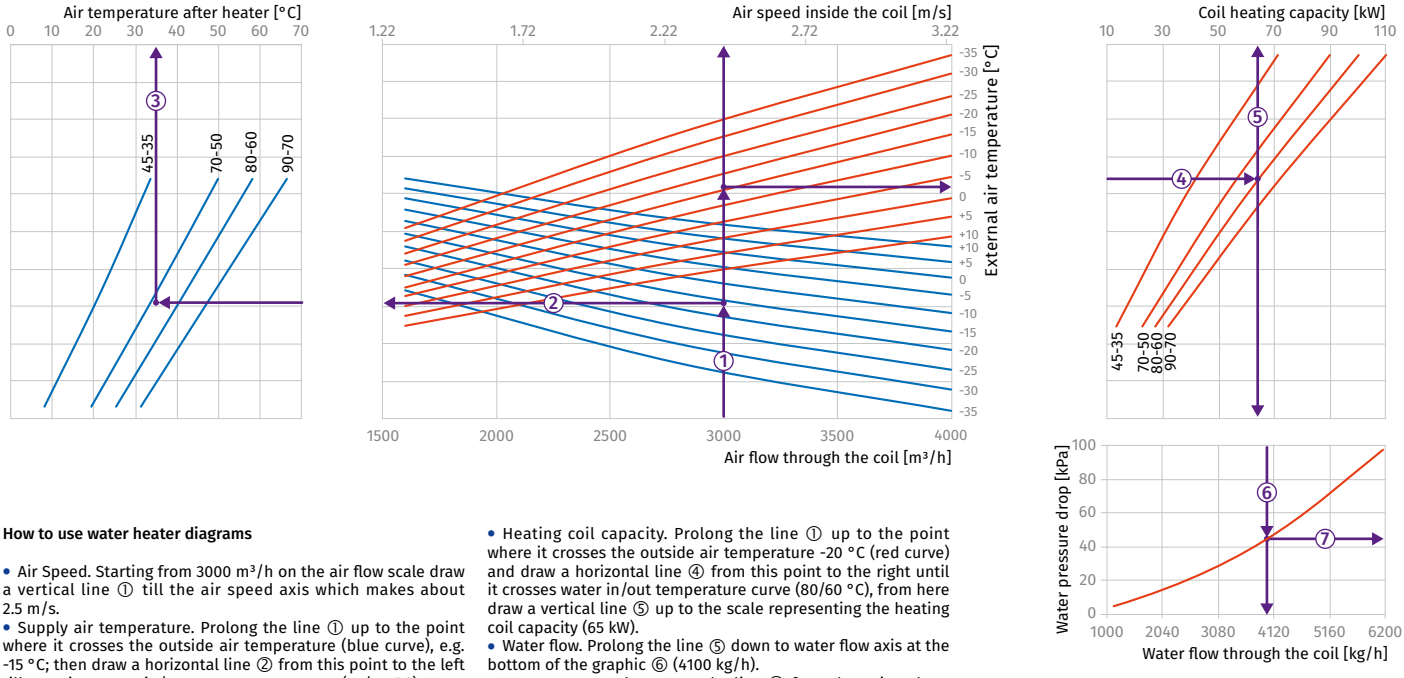
## BLAUBOX EC MW 3000 S31




**How to use water heater diagrams**

- Air Speed. Starting from 2000 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.2 m/s.
- Supply air temperature. Prolong the line ① up to the point where it crosses the outside air temperature (blue curve), e.g. -15 °C; then draw a horizontal line ② from this point to the left till crossing water in/out temperature curve (80/60 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+43 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -15 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (70/50 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (45 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (2650 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (24 kPa).

## BLAUBOX EC MW 4000 S31




**How to use water heater diagrams**

- Air Speed. Starting from 3000 m³/h on the air flow scale draw a vertical line ① till the air speed axis which makes about 2.5 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 till crossing water in/out temperature curve (70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+35 °C).
- Heating coil capacity. Prolong the line ① up to the point where it crosses the outside air temperature -20 °C (red curve) and draw a horizontal line ④ from this point to the right until it crosses water in/out temperature curve (80/60 °C), from here draw a vertical line ⑤ up to the scale representing the heating coil capacity (65 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (4100 kg/h).
- Water pressure drop. Draw the line ⑦ from the point where line ⑥ crosses the black curve to the pressure drop axis. (45 kPa).

## Accessories

| | | Blaubox EC MW 700 | Blaubox EC MW 1000 | Blaubox EC MW 1500 | Blaubox EC MW 2000 | Blaubox EC MW 3000 | Blaubox EC MW 4000 |
|---|---|---|---|---|---|---|---|
| **Panel filter G4** | | FP 384x287x48<br>Coarse 90% / G4 | FP 536x316x48<br>Coarse 90% / G4 | FP 636x376x48<br>Coarse 90% / G4 | FP 636x376x48<br>Coarse 90% / G4 | FP 734x435x80<br>Coarse 90% / G4 | FP 874x485x80<br>Coarse 90% / G4 |
| **Panel filter F7** | | FP 384x287x48<br>ePM1 70% / F7 | FP 536x316x48<br>ePM1 70% / F7 | FP 636x376x48<br>ePM1 70% / F7 | FP 636x376x48<br>ePM1 70% / F7 | FP 734x435x80<br>ePM1 70% / F7 | FP 874x485x80<br>ePM1 70% / F7 |
| **Flexible anti-vibration connector** | | EVA 250 | EVA 40x20 | EVA 50x25 | EVA 50x30 | EVA 60x30 | EVA 70x40 |
| **Silencer** | | SD 250 | SD 40x20 | SD 50x25 | SD 50x30 | SD 60x30 | SD 70x40 |
| **Air damper** | | VKA 250 | SL 40x20 | SL 50x25 | SL 50x30 | SL 60x30 | SL 70x40 |
| **Air damper electric actuator** | | TF230 / TF24 | TF230 / TF24 | TF230 / TF24 | TF230 / TF24 | TF230 / TF24 | TF230 / TF24 |