BLAUBERG water coolers

Series
OKW

Applications

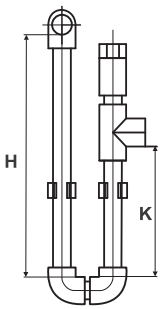
Duct water coil air coolers are designed for cooling of supply air in rectangular ventilation systems and can be applied in supply or supply and exhaust ventilation systems.

Design

The cooler casing is made of galvanized sheet steel, the manifold is made of copper tubes and the heat exchange surface is made of aluminium plates. The cooling coils are available in 3 rows modification and designed for the maximum operating pressure 1,5 MPa (15 bar). The cooling coils are equipped with the drain pan for condensate collecting and draining.

Mounting

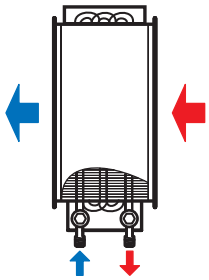
- Mounting is effected by means of flange connection. The water cooling coils can be installed only horizontally to enable the unit deaeration and condensate draining.
- The installation shall be performed in such a way as to enable the uniform air distribution along the entire cross section.
- The air filter shall be installed at the cooler inlet to protect the cooler against dirt and dusting.
- The cooler can be installed both at the fan inlet or outlet. If the cooling coils are located at the fan outlet the air duct between the cooler and the fan shall have the lehgth 1 to 1.5 m to ensure the air flow stabilization.
- The cooling coils shall be connected on the counterflow basis to provide the maximum cooling capacity. All the nomographic charts in the catalogue are valid for such connection.
- If water serves as a cooling agent, the coolers are suitable for indoor installation only in the premises with the indoor temperature not below 0 ^{0}C. For outdoor installation use an antifreeze mixture, i.e.ethylene glycol solution.
- The droplet separator which is ordered separately can be installed at the cooler outlet if the air speed exceeds 2.5 m/s. That prevents the condensate drop penetration into the air duct system.
- Condensate drain from the cooler shall be performed through the U-trap. The U-trap height depends on the total pressure in the fan and can be calculated using the figures and the table below.



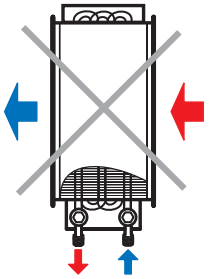
H [mm]	K [mm]	P [Pa]
100	55	600
200	105	1100
260	140	1400

H – U-trap height
K – drain height
P – total pressure in the fan

- To ensure the correct and safe cooler operation use the automation system providing the complex control and automatic regulation of the cooling capacity and air cooling temperature.



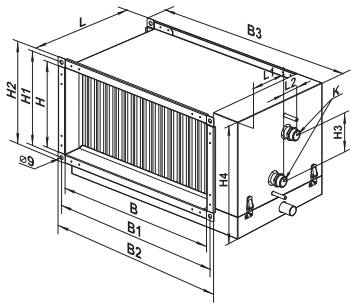
Counterflow connection



Parallel flow connection

Overall dimensions:

Type	Dimensions [mm]												
	B	B1	B2	B3	H	H1	H2	H3	H4	L	L1	L2	K
OKW 400x200-3	400	420	438	528	200	220	238	70	273	395	176	43	G 3/4”
OKW 500x250-3	500	520	538	628	250	270	288	120	323	395	176	43	G 3/4”
OKW 500x300-3	500	520	538	628	300	320	338	175	373	395	176	43	G 3/4”
OKW 600x300-3	600	620	638	728	300	320	338	170	373	395	176	43	G 3/4”
OKW 600x350-3	600	620	638	728	350	370	388	220	423	395	176	43	G 3/4”
OKW 700x400-3	700	720	738	828	400	420	438	250	473	395	170	55	G 3/4”
OKW 800x500-3	800	820	838	928	500	520	538	340	573	395	170	55	G 3/4”
OKW 900x500-3	900	920	938	1028	500	520	538	350	573	395	170	55	G 1”
OKW 1000x500-3	1000	1020	1038	1128	500	520	538	350	573	395	170	55	G 1”

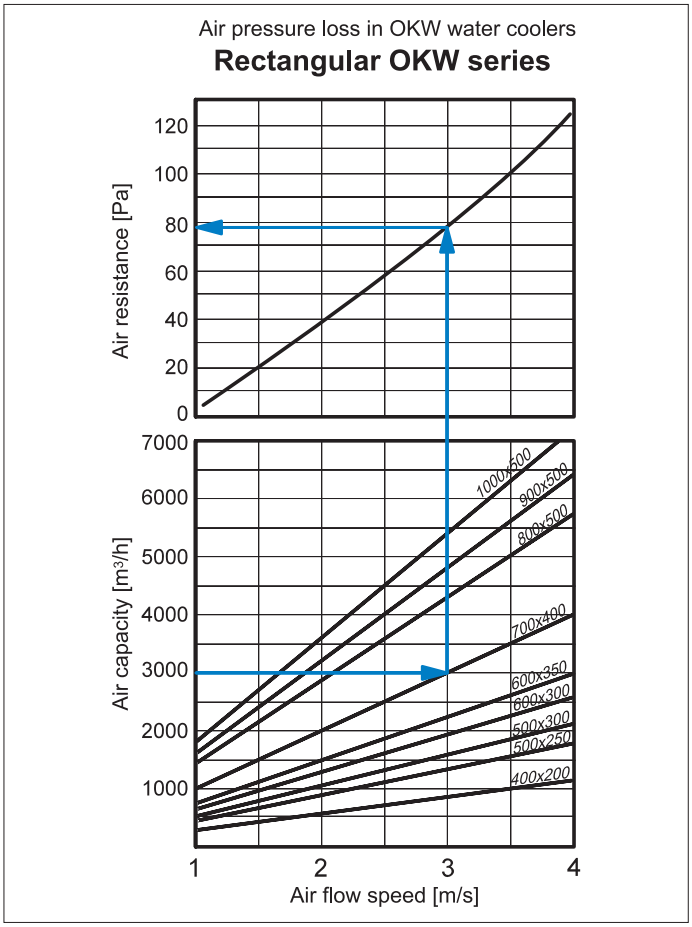


Designation key:

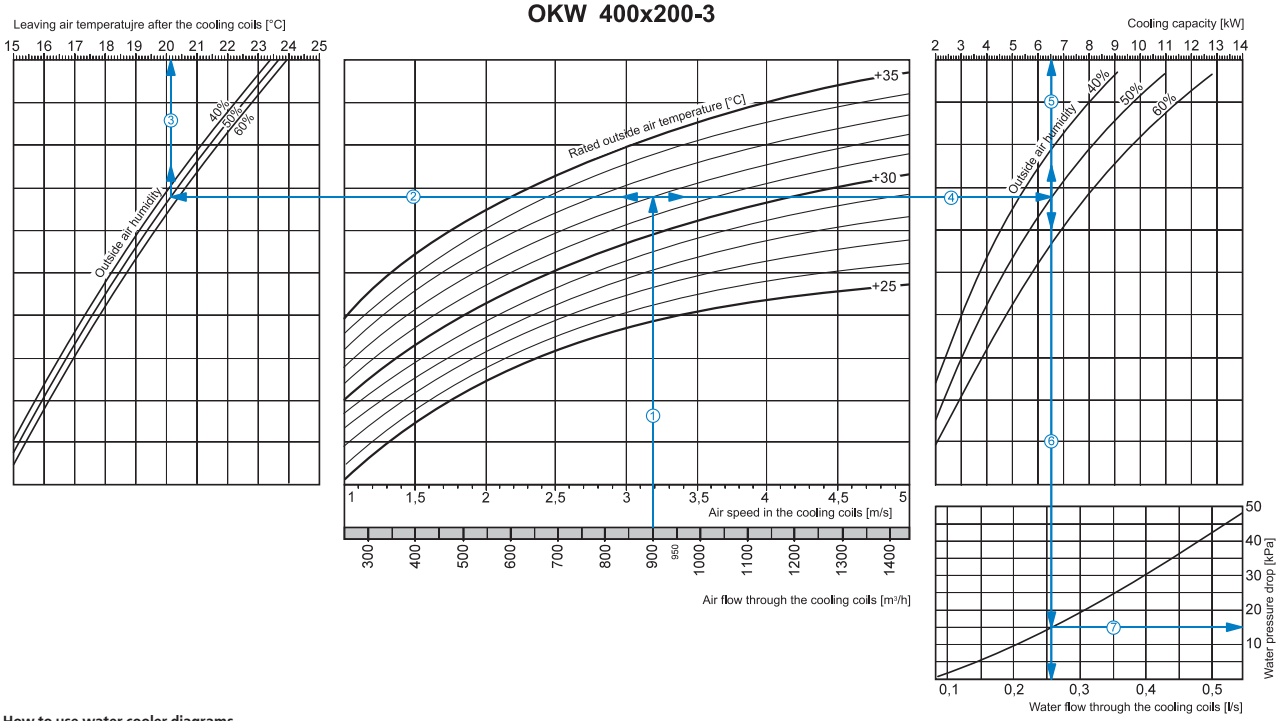
Series	Flange designation (WxH) [mm]	-	Number of cooling coils
OKW	400x200; 500x250; 500x300; 600x300; 600x350; 700x400; 800x500; 900x500; 1000x500		3

Accessories

BLAUBERG water coolers



OKW



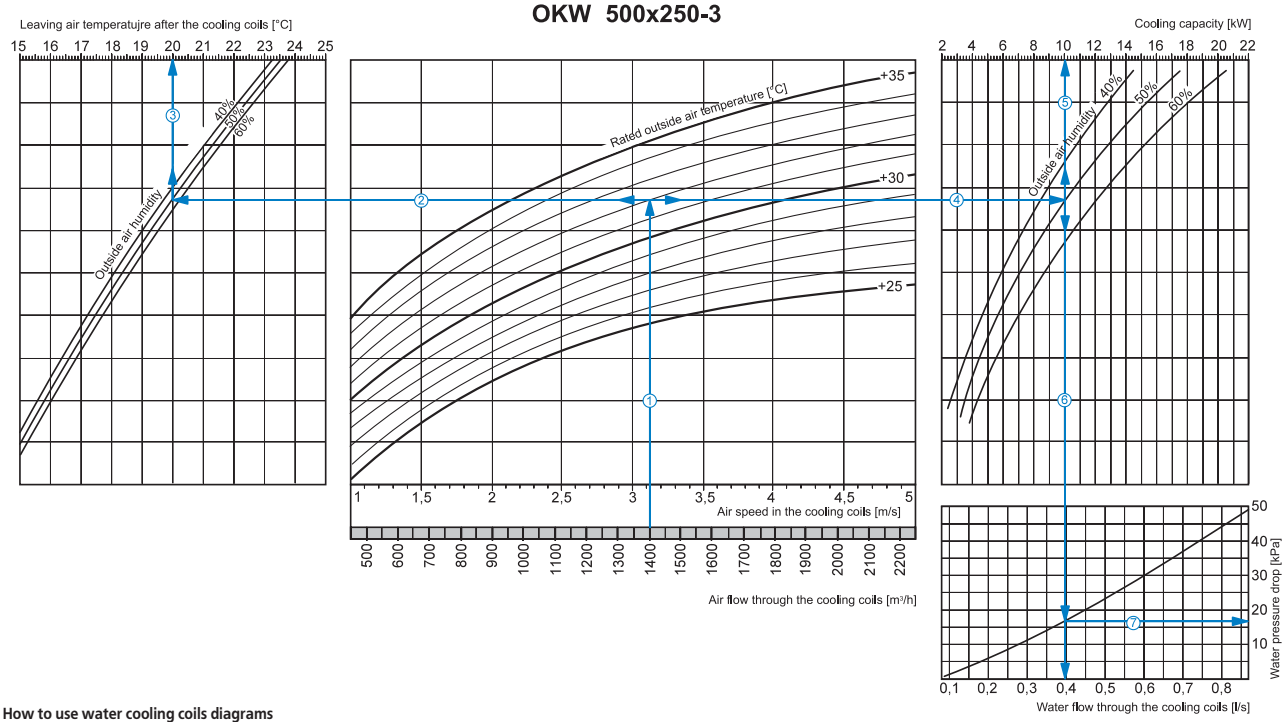
How to use water cooler diagrams

Air Speed. Starting from 900 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 3.2 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+20.1°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooler capacity (6.5 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.26 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. (15.0 kPa).

OKW

OKW 500x250-3



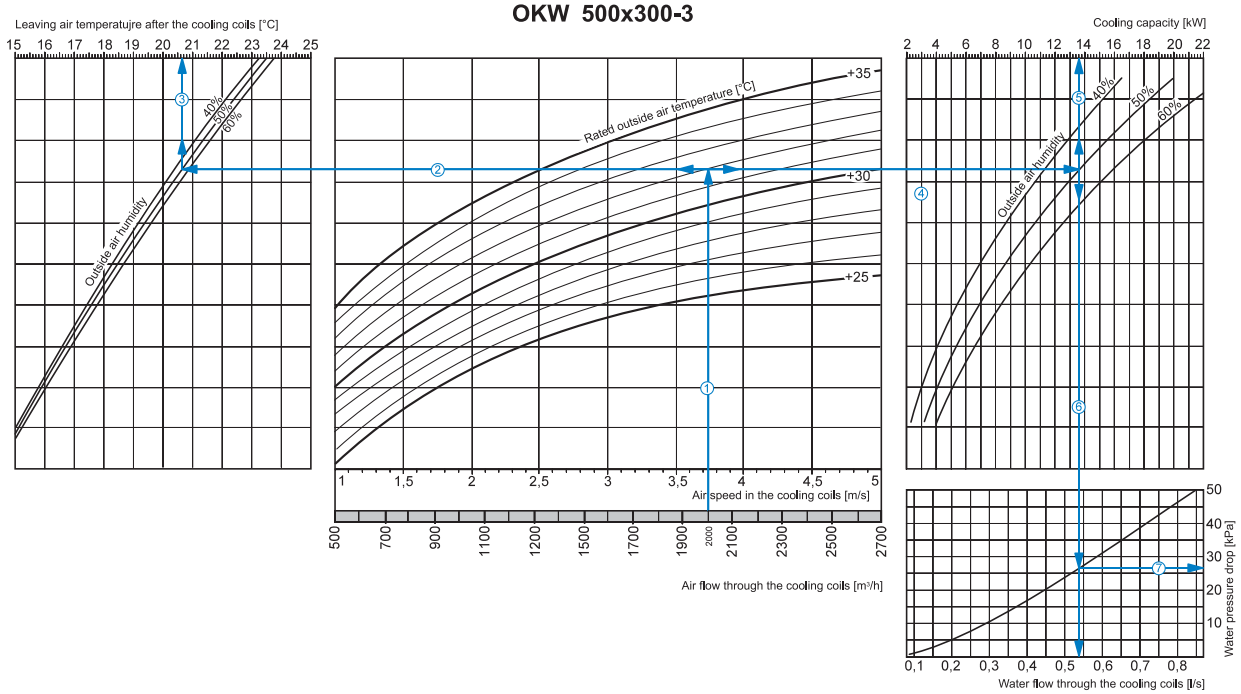
How to use water cooling coils diagrams

Air Speed. Starting from 1400 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 3.1 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+20°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (10.0 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (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. (17.0 kPa).

OKW

OKW 500x300-3



How to use water cooler diagrams

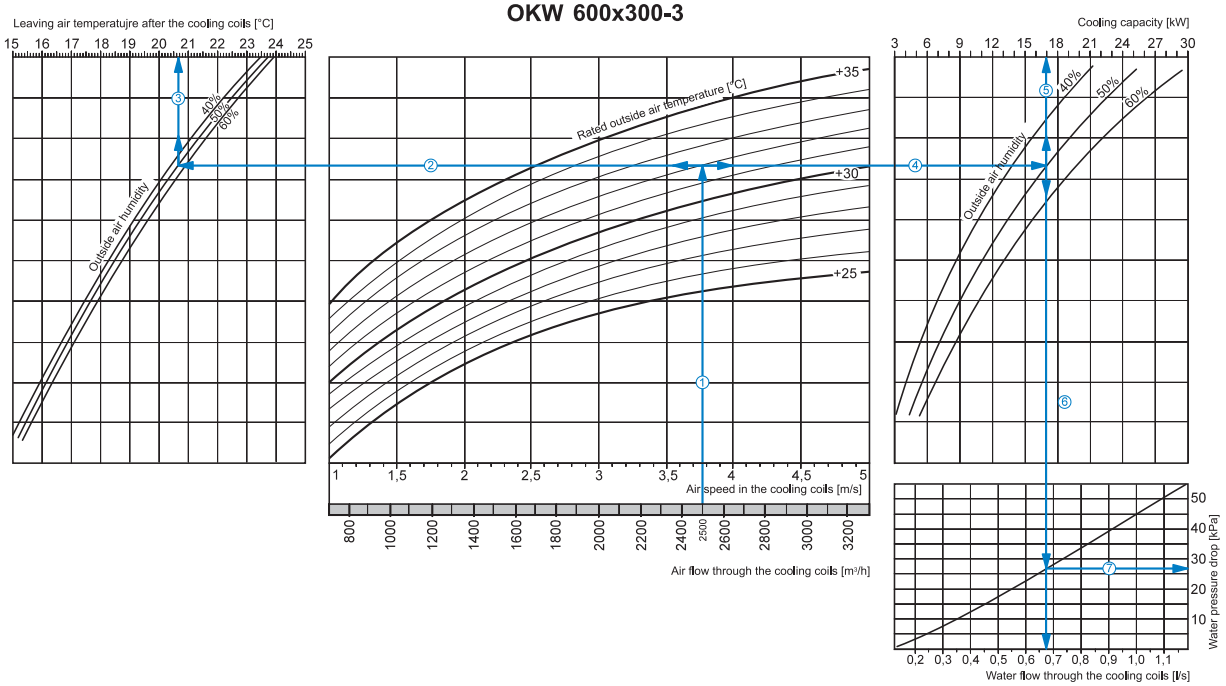
Air Speed. Starting from 2000 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 3.75 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+20.6°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (13.6 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.54 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. (27.0 kPa).

BLAUBERG water coolers

OKW

OKW 600x300-3



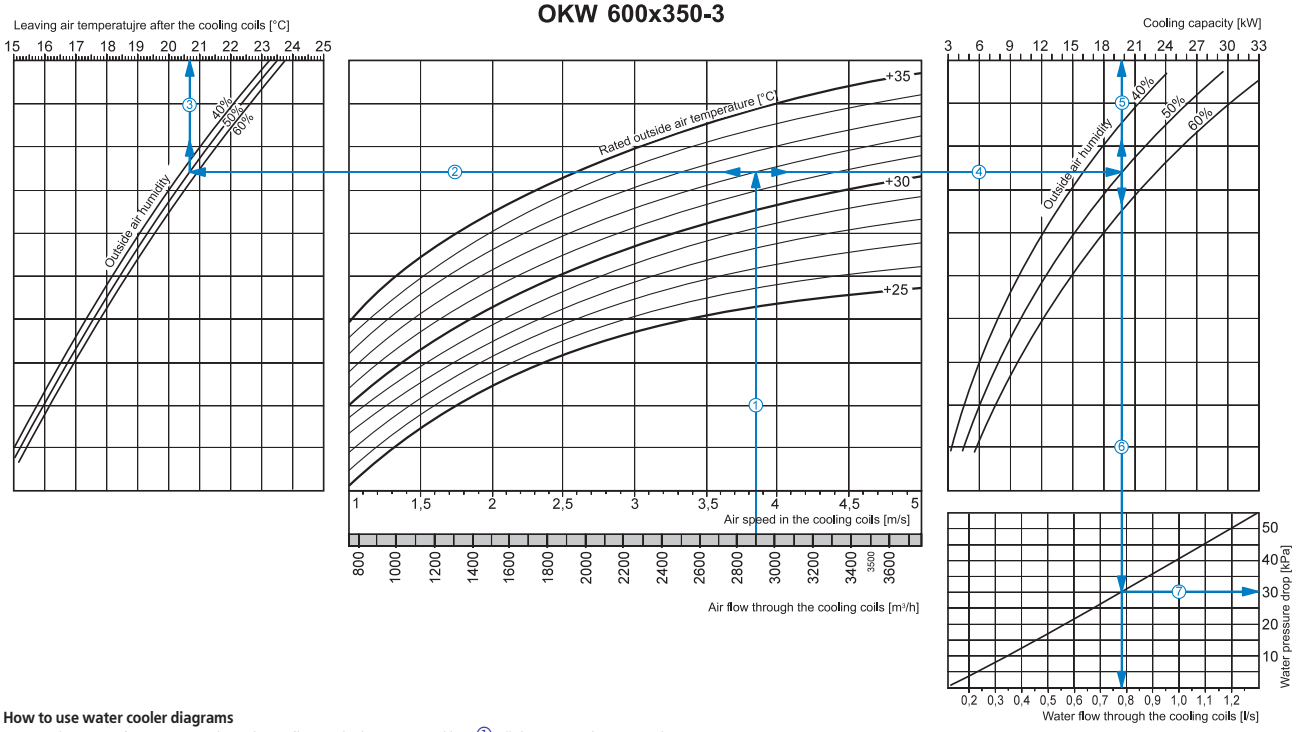
How to use water cooler diagrams

Air Speed. Starting from 2500 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 3.75 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+20.7°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (17.0 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.68 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. (27.0 kPa).

OKW

OKW 600x350-3



How to use water cooler diagrams

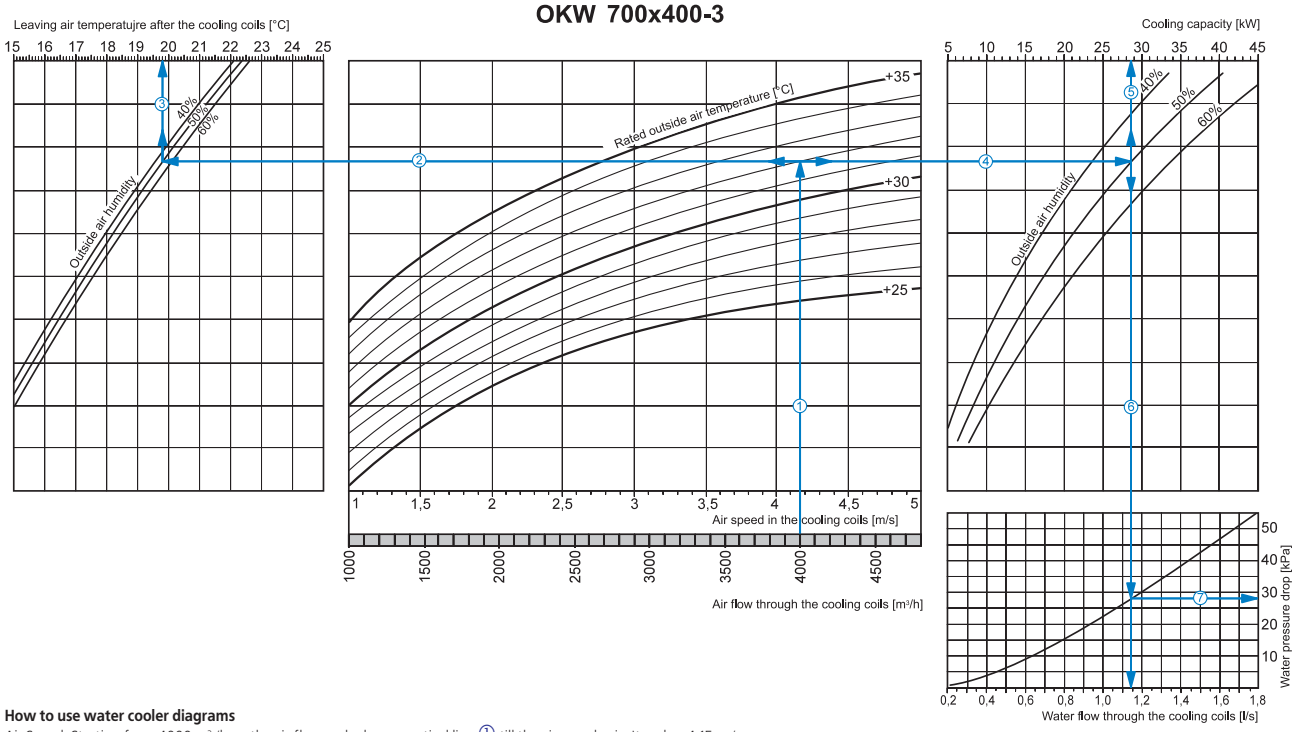
Air Speed. Starting from 2850 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 3.85 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+20.7°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (19.8 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (0.78 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. (30.0 kPa).

BLAUBERG water coolers

OKW

OKW 700x400-3



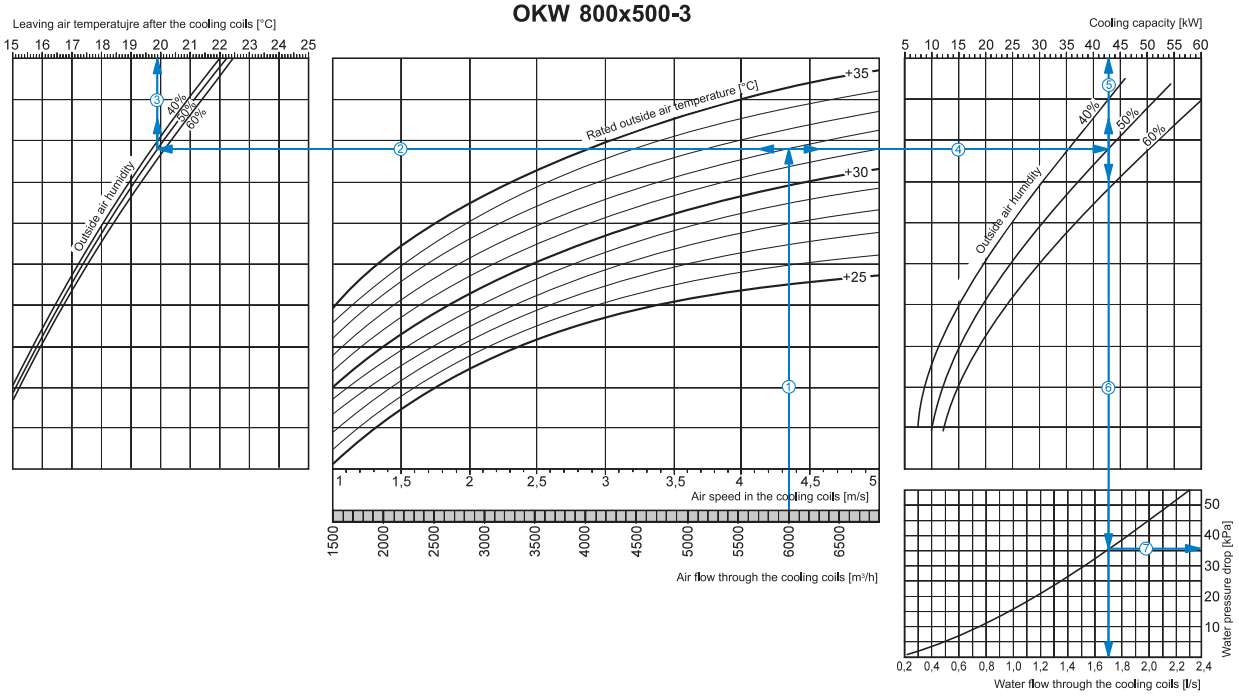
How to use water cooler diagrams

Air Speed. Starting from 4000 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 4.15 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+19.8°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (28.5 kW).
- water flow . Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1.14 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. (28.0 kPa).

OKW

OKW 800x500-3



How to use water cooler diagrams

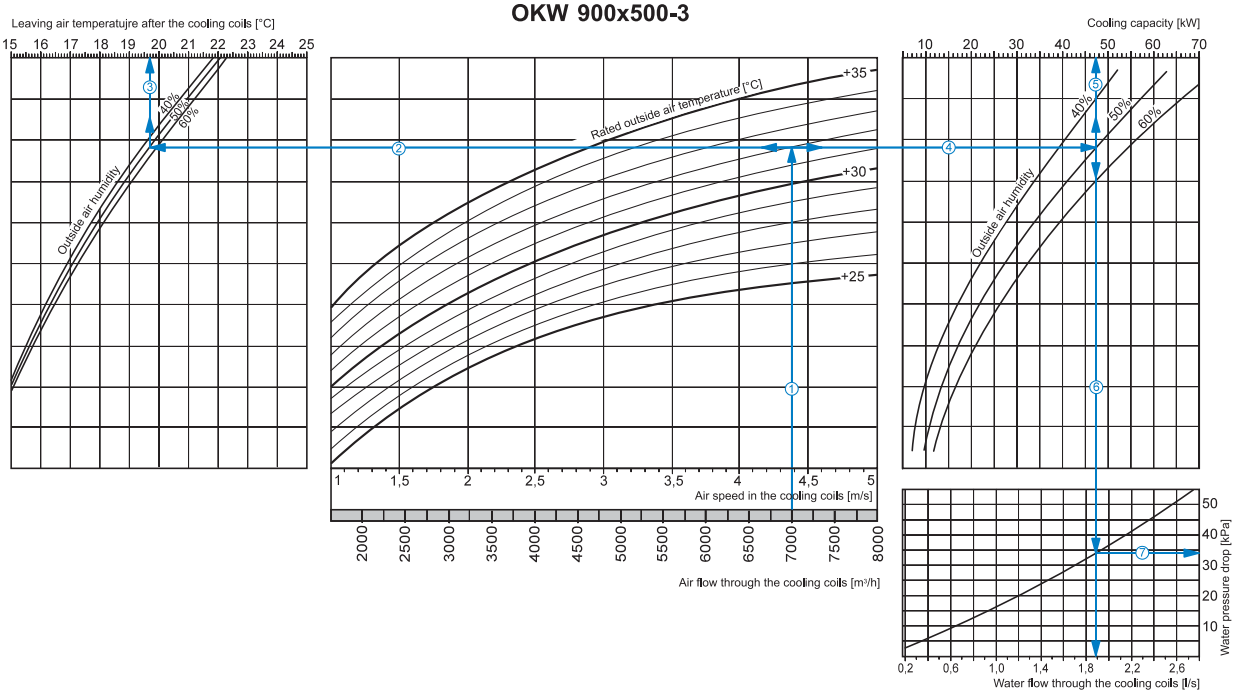
Air Speed. Starting from 6000 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 4.35 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+19.9°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (43 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1.7 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. (36.0 kPa).

BLAUBERG water coolers

OKW

OKW 900x500-3



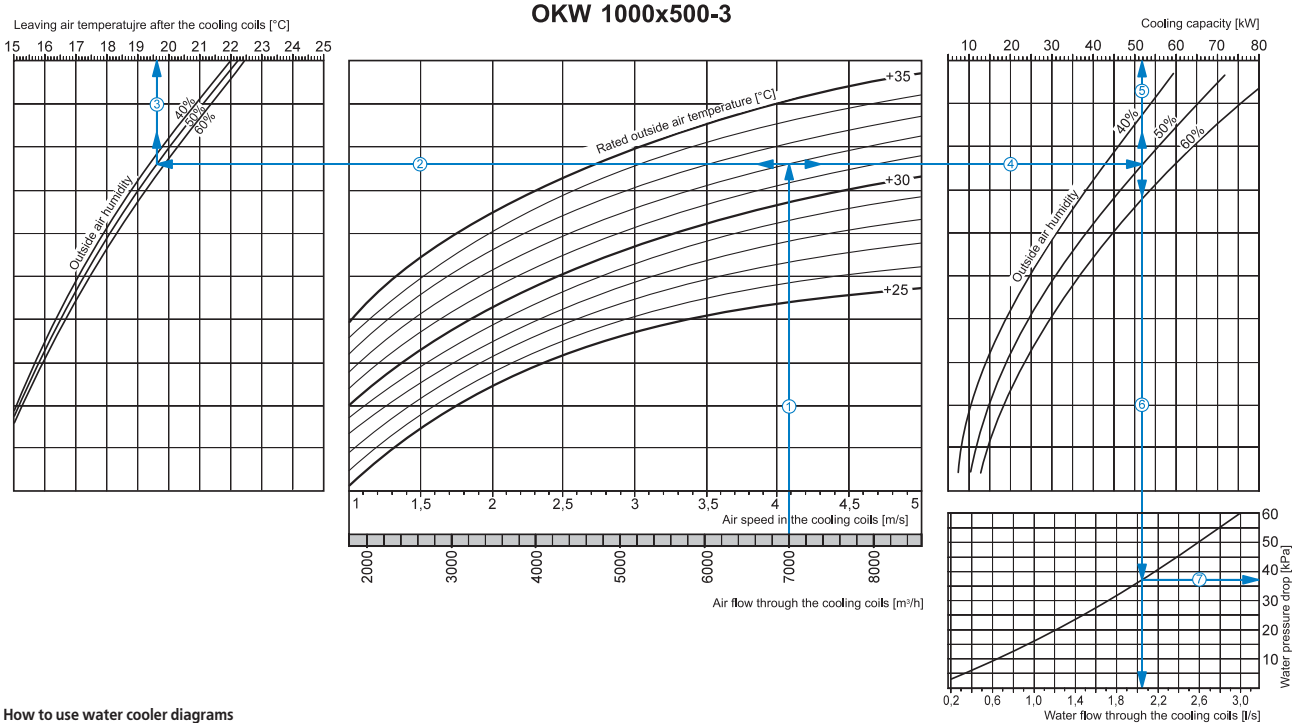
How to use water cooler diagrams

Air Speed. Starting from 7000 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 4.4 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+19.7°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (47.0 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (1.9 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. (34.0 kPa).

OKW

OKW 1000x500-3



How to use water cooler diagrams

Air Speed. Starting from 7000 m³/h on the air flow scale draw a vertical line ① till the air speed axis. It makes 4.1 m/s.

- Supply air temperature. prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C); then draw a horizontal line ② from this point to the left till crossing the outside air humidity (e.g. 50%). From this point draw a vertical line ③ to the supply air temperature at cooler outlet axis on top of the graphic (+19.6°C).
- Cooling capacity. Prolong the line ① up to the point where it crosses the outside air temperature (e.g. +32°C) and draw a horizontal line ④ from this point to the right until it crosses the outside air humidity curve (e.g., 50%), from here draw a vertical line ⑤ up to the scale representing the cooling capacity (52.0 kW).
- Water flow. Prolong the line ⑤ down to water flow axis at the bottom of the graphic ⑥ (2.05 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. (37.0 kPa).