



Duct water heaters

WKH

for rectangular ducts

Use

- For warming up of supply air in ventilation systems installed in various premises.
- Suitable for installation in supply or air handling units to warm up the supply air flow.
- For indoor use only if water serves as a heat carrier.
- For outdoor application use antifreezing mixture (ethylene glycol solution).
- Compatible with 400x200 up to 1000x500 mm rectangular air ducts.

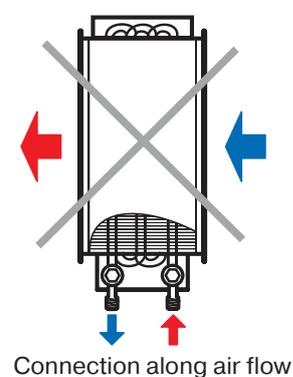
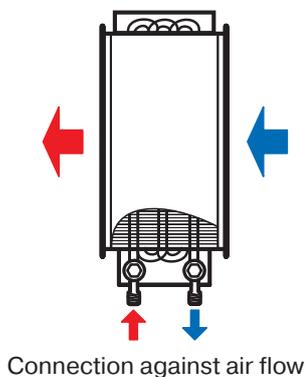
Design

- Galvanized steel case.
- Copper pipe manifold.
- Heat exchange surface made of aluminium plates.
- Equipped with a nipple for the system deaeration.
- Outlet header is equipped with a spigot for installation of an immersion temperature sensor or freezing protection mechanism.
- Available in two, three- or four-row tube modifications.
- Suitable for operation at maximum operating pressure 1.6 MPa (16 bar) and maximum operating temperature +100 °C.

Mounting

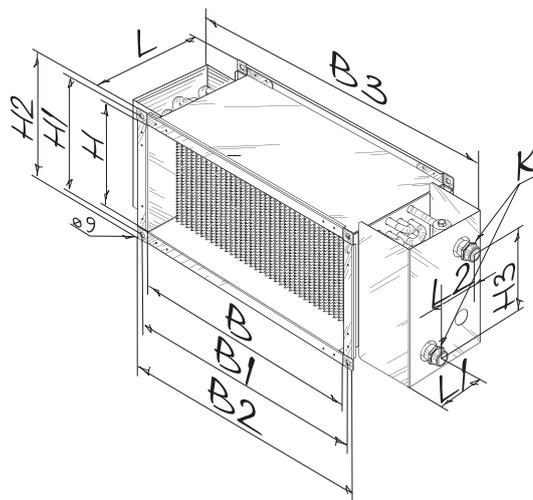
- Fixing to rectangular ducts with flange connection.
- Any mounting position that ensures the heater deaeration.
- Install a filter upstream to the heater to protect heating elements against dirt ingress.

- Install the heater in front or behind the fan. In case of mounting behind the fan ensure the distance no less than 1-1,5 m for air flow stabilization and keep the maximum permissible air temperature inside the fan.
- Connect the heater on counter-flow basis, otherwise its capacity drops by 5-15 %. All the nomographic charts are rated for counter-flow connection.
- For correct and safe heater operation an automatic control and protection system is recommended, including the following functions:
 - regulation of the heating capacity and temperature of the air heated up;
 - filter clogging control by a differential air pressure sensor;
 - ventilation system start-up with pre-heated heater;
 - use of air dampers with a servo actuator with a return spring;
 - fan turning off in case of the heater freezing danger.



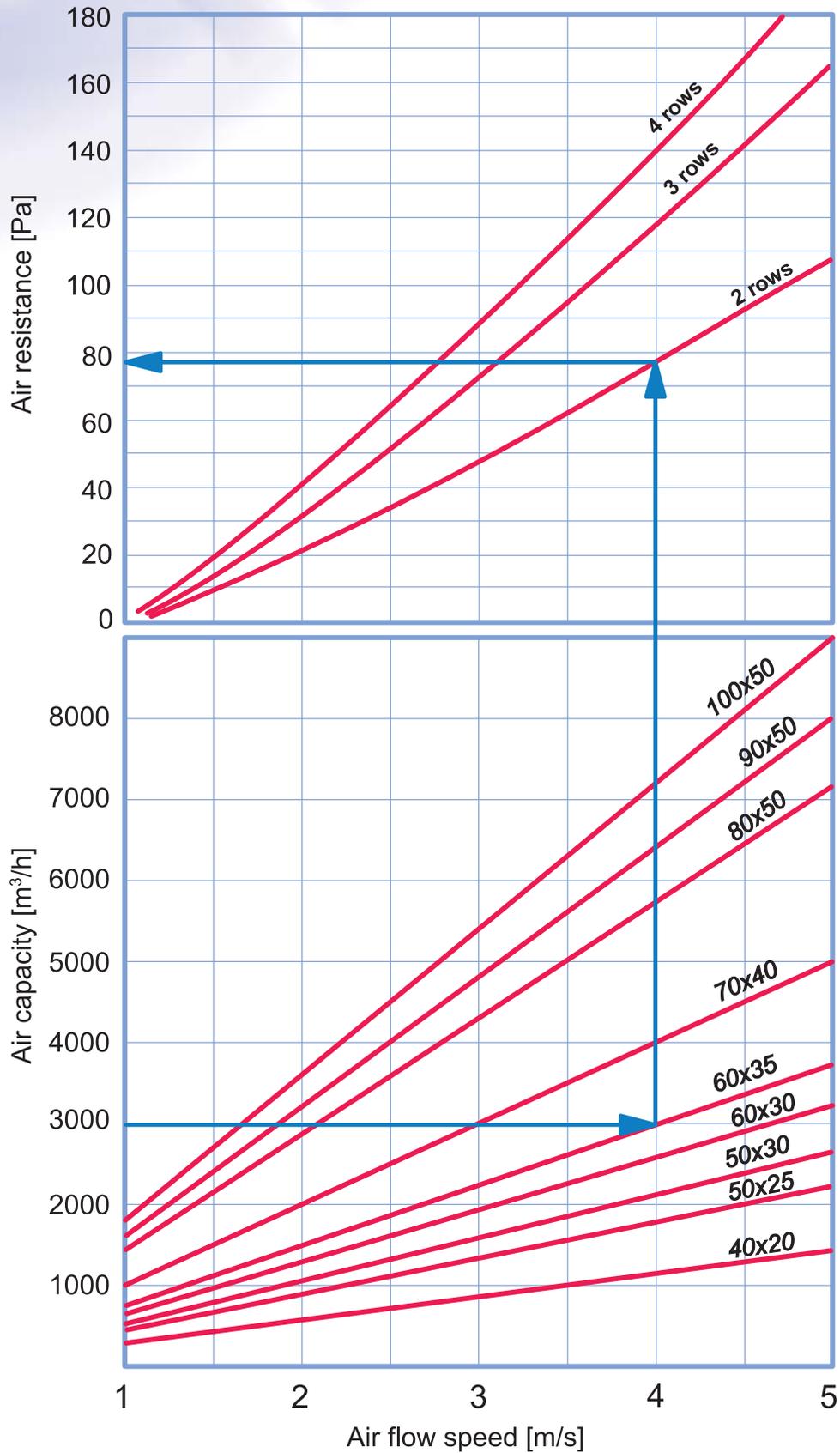
■ Overall dimensions

Type	Dimensions [mm]												Number of water coil rows	Weight [kg]
	B	B1	B2	B3	H	H1	H2	H3	L	L1	L2	K		
WKH 40x20-2	400	420	440	565	200	220	240	150	200	43	43	G 3/4"	2	7.6
WKH 40x20-4	400	420	440	565	200	220	240	150	200	38	65	G 3/4"	4	8.1
WKH 50x25-2	500	520	540	665	250	270	290	200	200	43	43	G 3/4"	2	15.8
WKH 50x25-4	500	520	540	665	250	270	290	200	200	38	65	G 3/4"	4	16.3
WKH 50x30-2	500	520	540	665	300	320	340	250	200	43	43	G 1"	2	11.5
WKH 50x30-4	500	520	540	665	300	320	340	250	200	38	65	G 1"	4	12.0
WKH 60x30-2	600	620	640	765	300	320	340	250	200	43	43	G 1"	2	21.8
WKH 60x30-4	600	620	640	765	300	320	340	250	200	38	65	G 1"	4	22.3
WKH 60x35-2	600	620	640	765	350	370	390	300	200	43	43	G 1"	2	22.4
WKH 60x35-4	600	620	640	765	350	370	390	300	200	38	65	G 1"	4	22.9
WKH 70x40-2	700	720	740	865	400	420	440	350	200	36	47	G 1"	2	27.8
WKH 70x40-3	700	720	740	865	400	420	440	350	200	42	58	G 1"	3	28.4
WKH 80x50-2	800	820	840	965	500	520	540	450	200	36	47	G 1"	2	36.5
WKH 80x50-3	800	820	840	965	500	520	540	450	200	42	58	G 1"	3	37.2
WKH 90x50-2	900	920	940	1065	500	520	540	450	200	36	47	G 1"	2	40.4
WKH 90x50-3	900	920	940	1065	500	520	540	450	200	42	58	G 1"	3	41.2
WKH 100x50-2	1000	1020	1040	1165	500	520	540	450	200	36	47	G 1"	2	44.3
WKH 100x50-3	1000	1020	1040	1165	500	520	540	450	200	42	58	G 1"	3	45.2

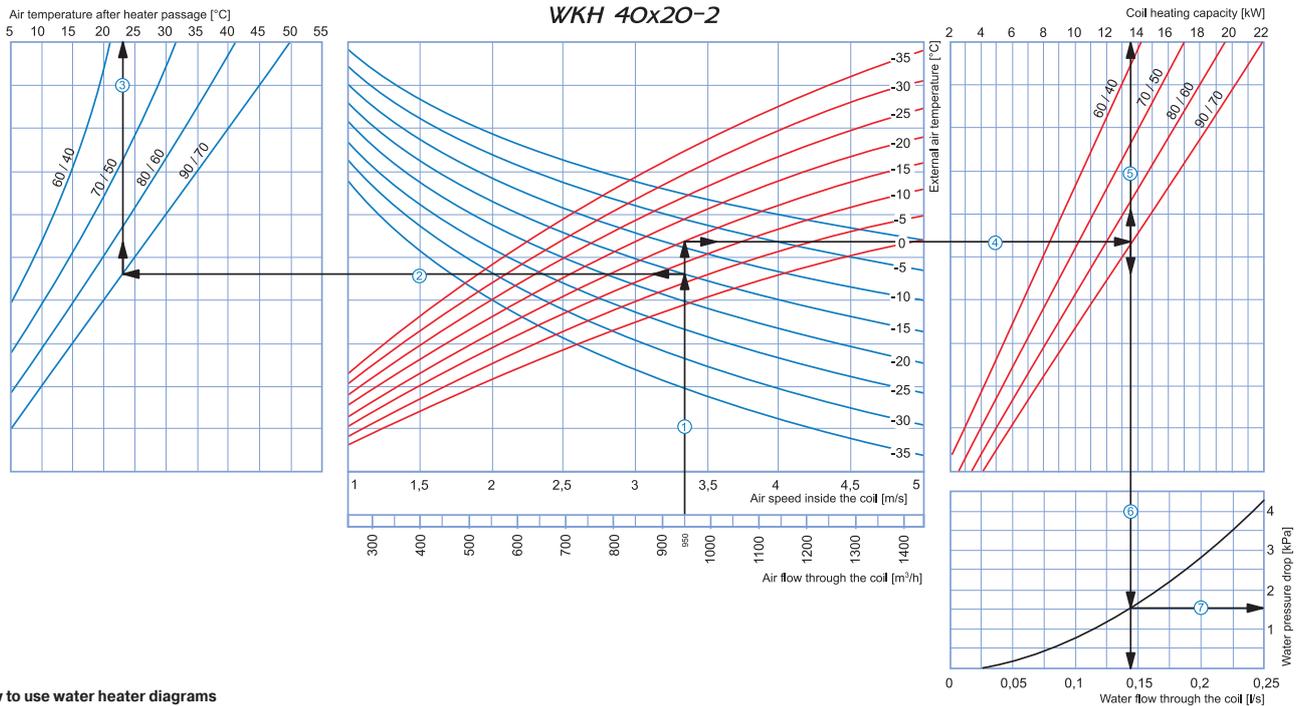


Air pressure loss for water heaters WKH

WKH rectangular heaters



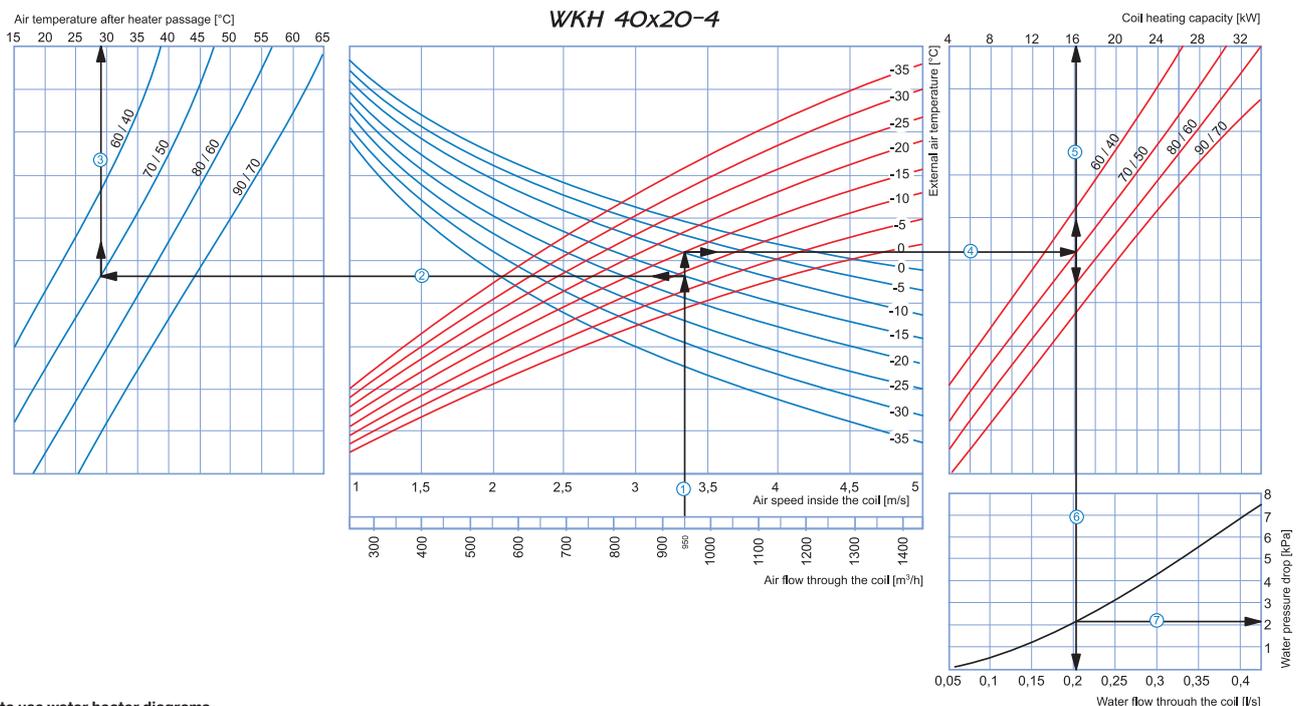
Water heaters calculation diagram



How to use water heater diagrams

System 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).

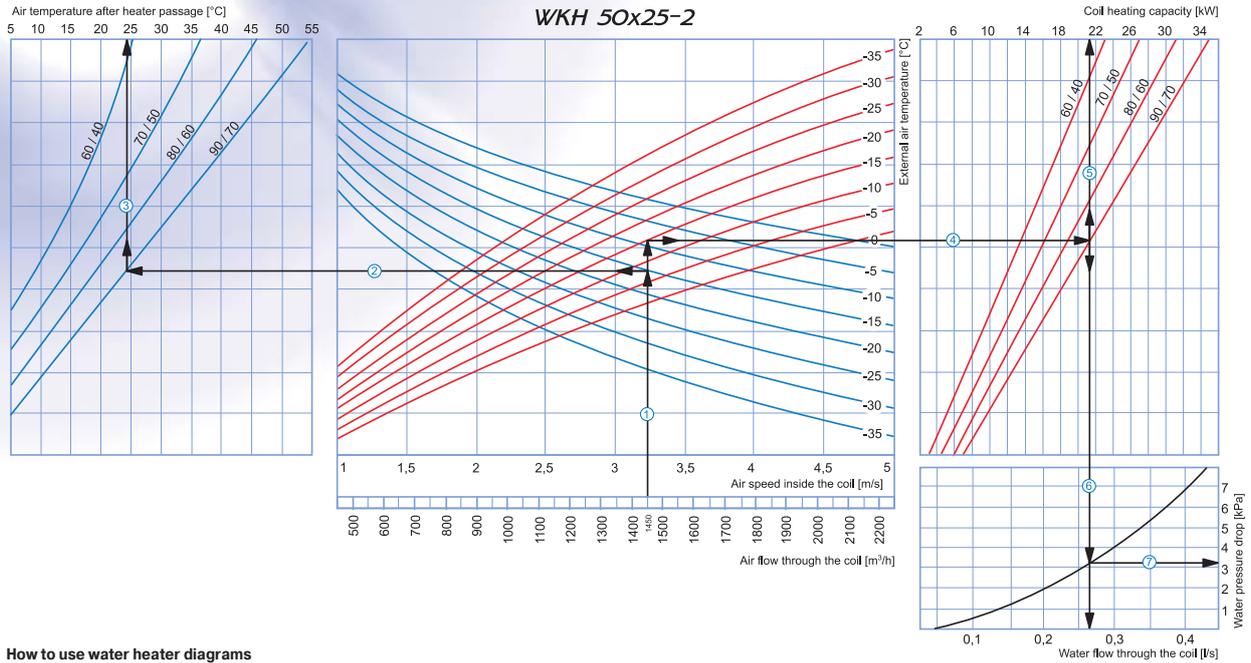


How to use water heater diagrams

System Parameters: Air flow = 950 m³/h. Outside air temperature = -15 °C. Water temperature (in/out) = 70/50 °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. 70/50 °C). From this point draw a vertical line ③ to the supply air temperature axis on top of the graphic (+29 °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., 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 the water flow axis ⑥ at the bottom of the graphic (0.2 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 (2.1 kPa).

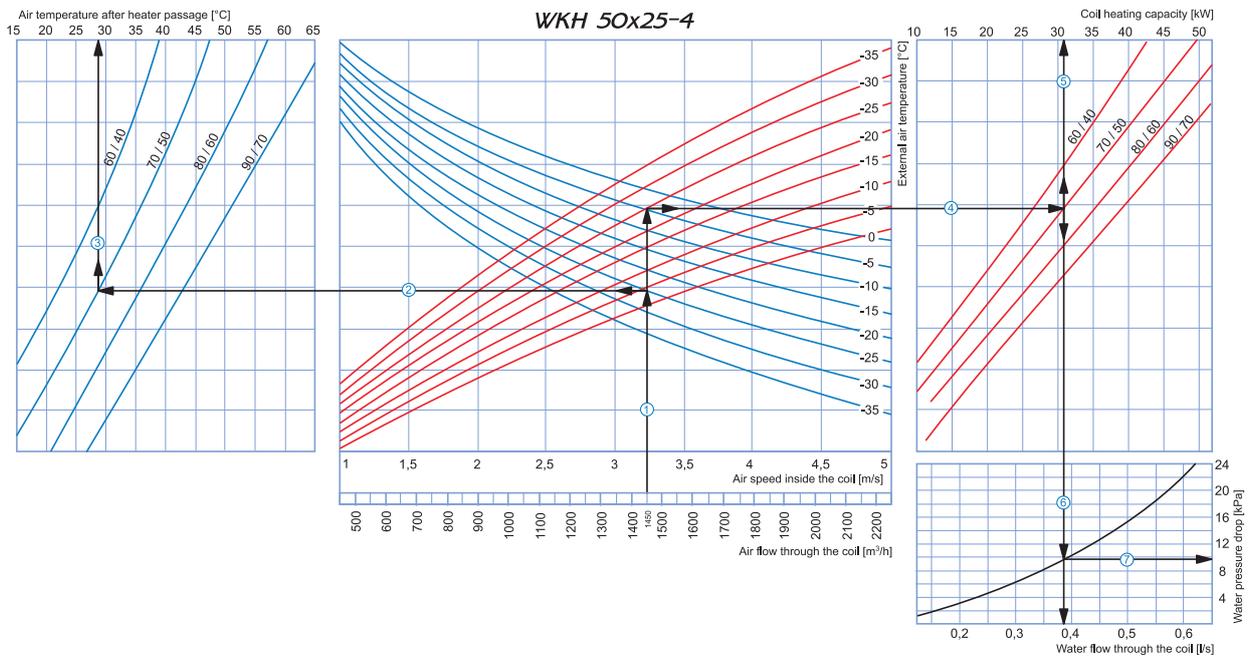
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 1450 m³/h. Outside air temperature = -15 °C. Water temperature (in/out) = 90/70 °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. -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 (+24 °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 (21.5 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.27 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 (3.2 kPa).

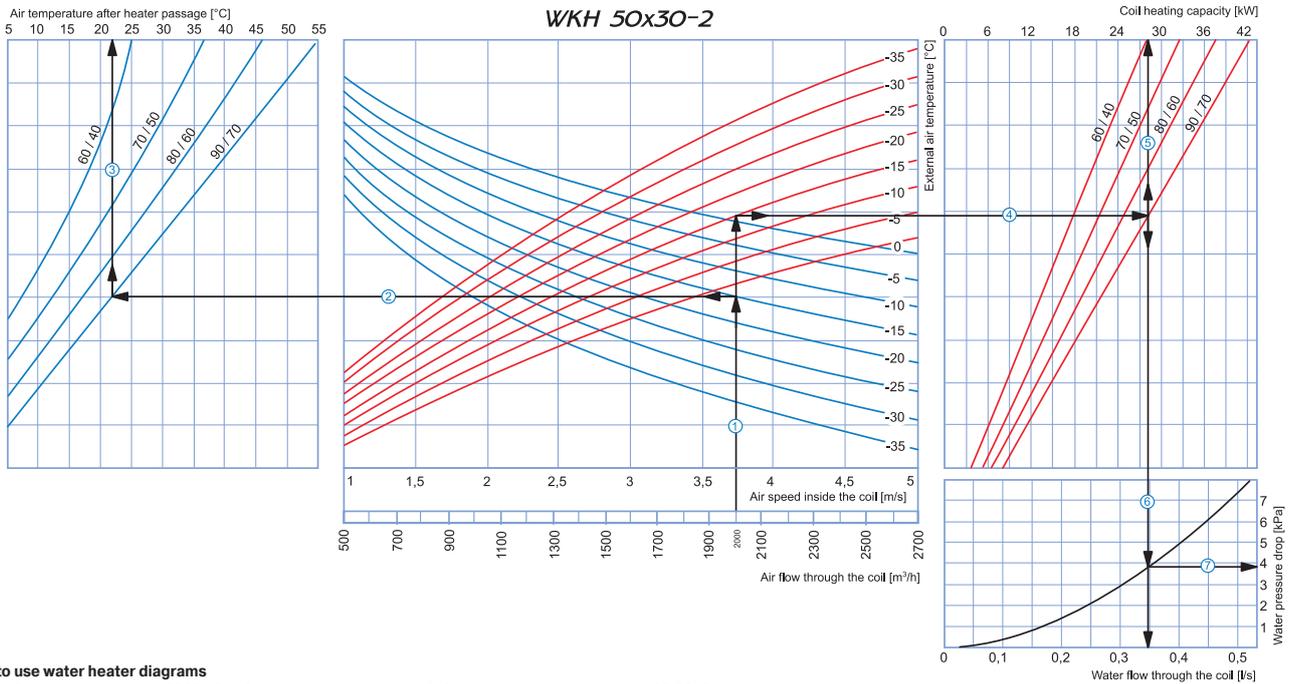


How to use water heater diagrams

System 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 (+27 °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 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).

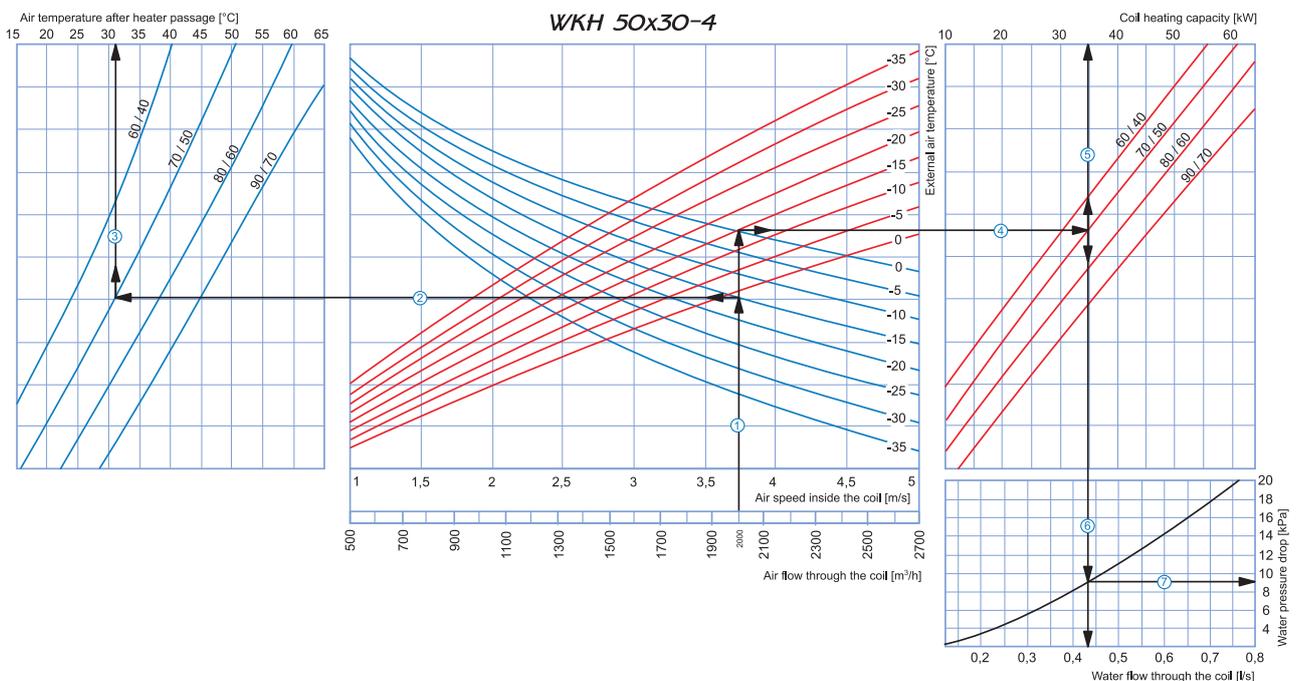
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 2000 m³/h. Outside air temperature = -15 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 2000 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 3.75 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 (+22 °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 (28 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.35 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 (3.8 kPa).

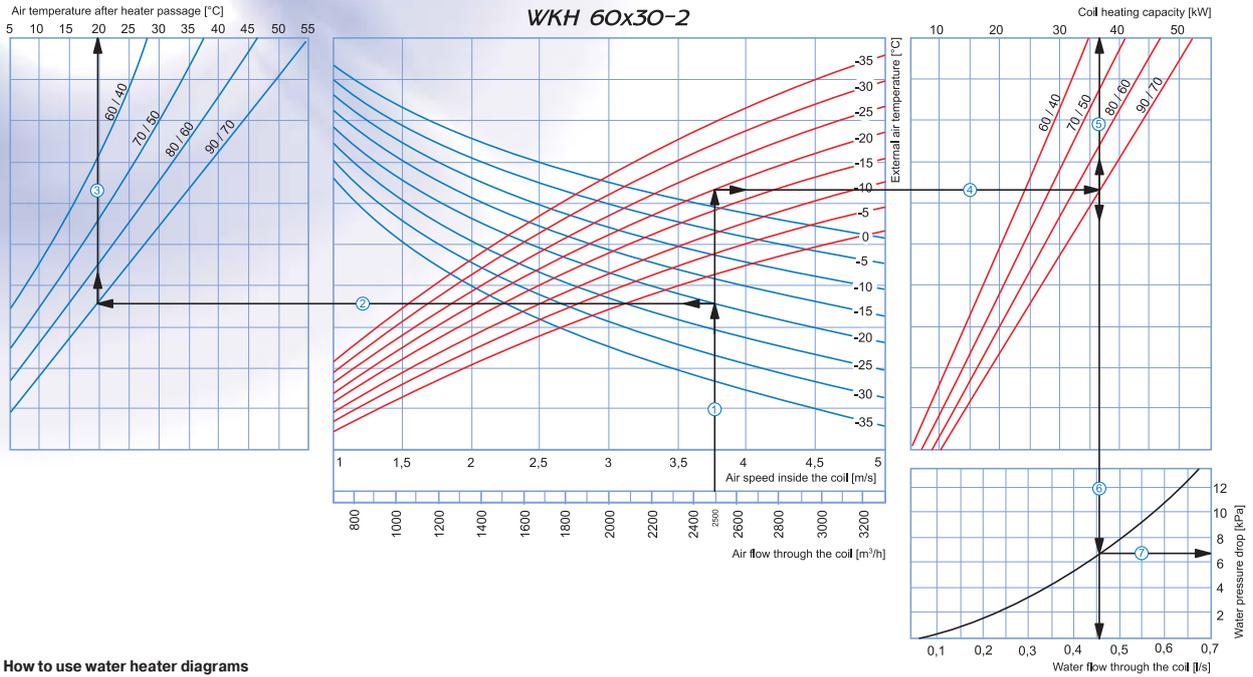


How to use water heater diagrams

System Parameters: Air flow = 2000 m³/h. Outside air temperature = -15 °C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 2000 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 3.75 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. 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 (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., 70/50 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (35 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.43 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 kPa).

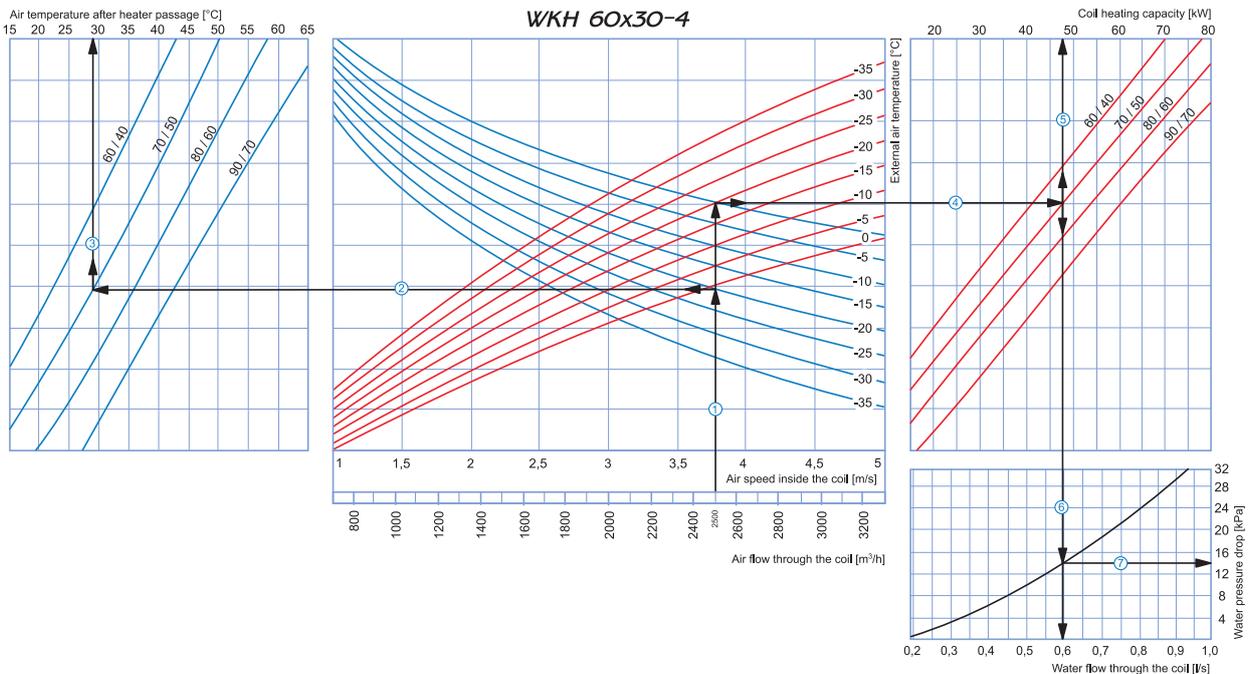
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 2500 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °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 3.75 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 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 (+20 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (37 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.46 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 (6.7 kPa).

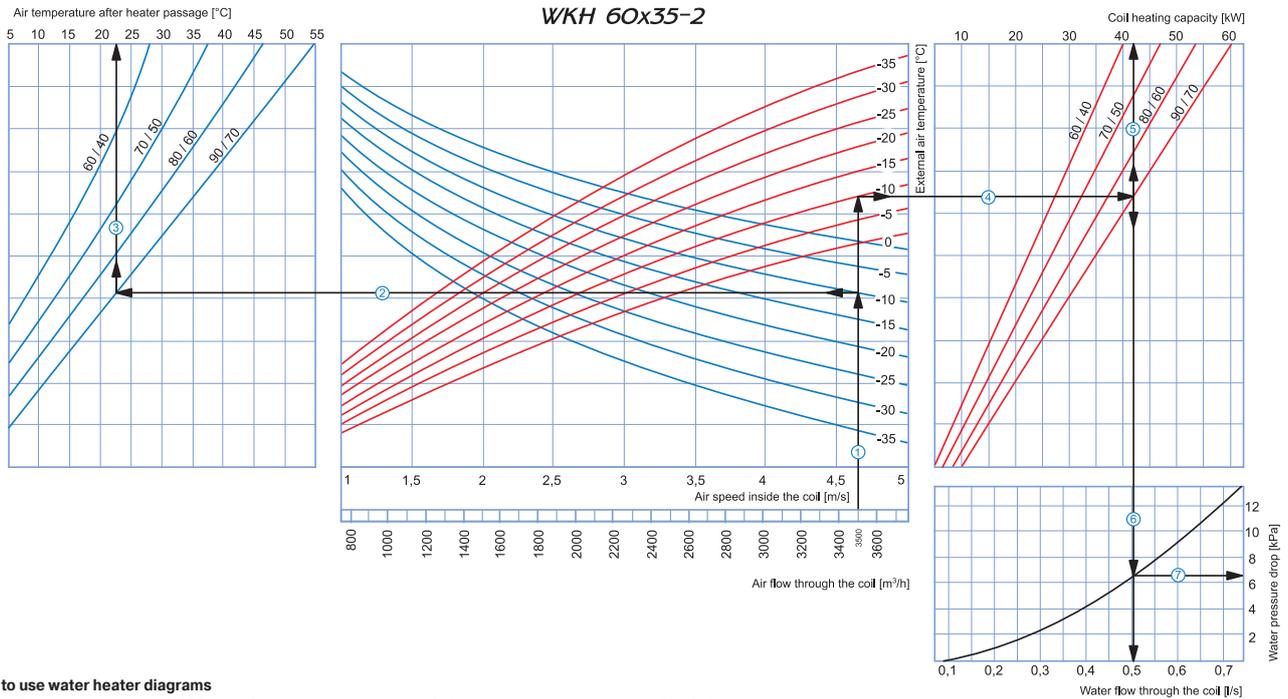


How to use water heater diagrams

System Parameters: Air flow = 2500 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 70/50 °C.

- **Air Speed inside coil:** Starting from 2500 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 3.75 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 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 (+29 °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 (48 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.6 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 (14 kPa).

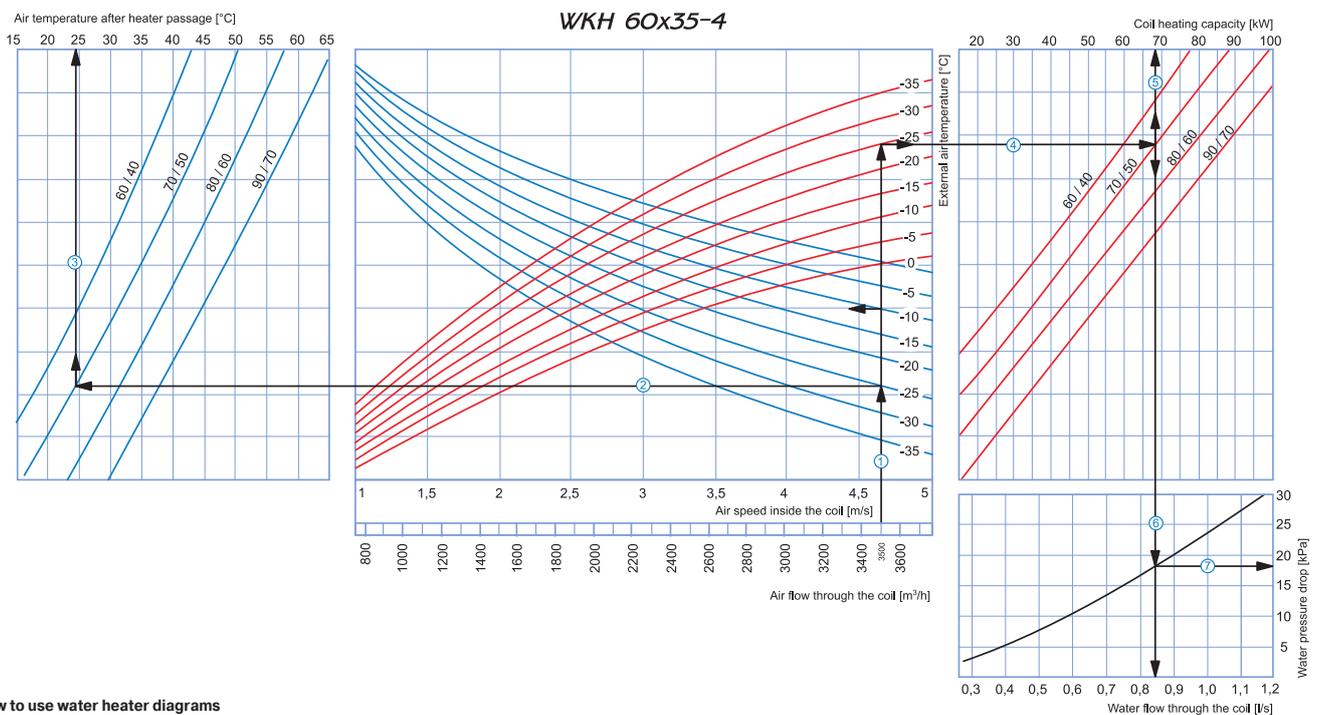
Water heaters calculation diagram



How to use water heater diagrams

System 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 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).

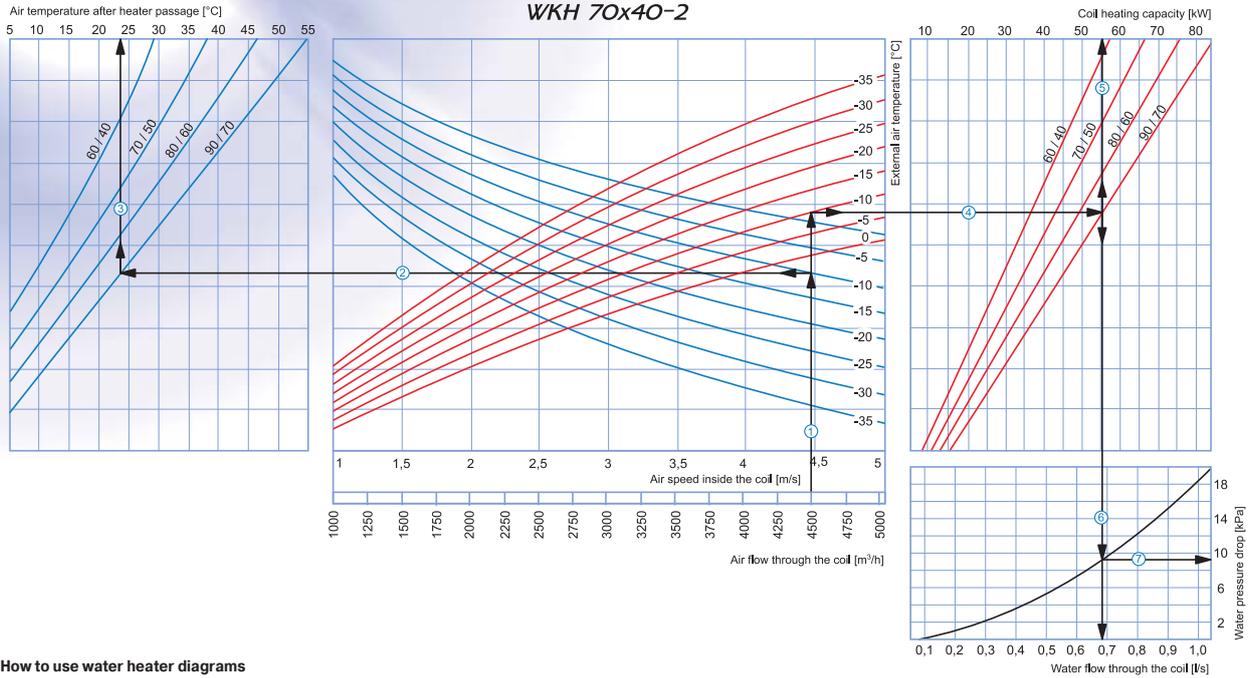


How to use water heater diagrams

System Parameters: Air flow = 3500 m³/h. Outside air temperature = -25 °C. Water temperature (in/out) = 70/50 °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. -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 (+24 °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 (68 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.84 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 (18 kPa).

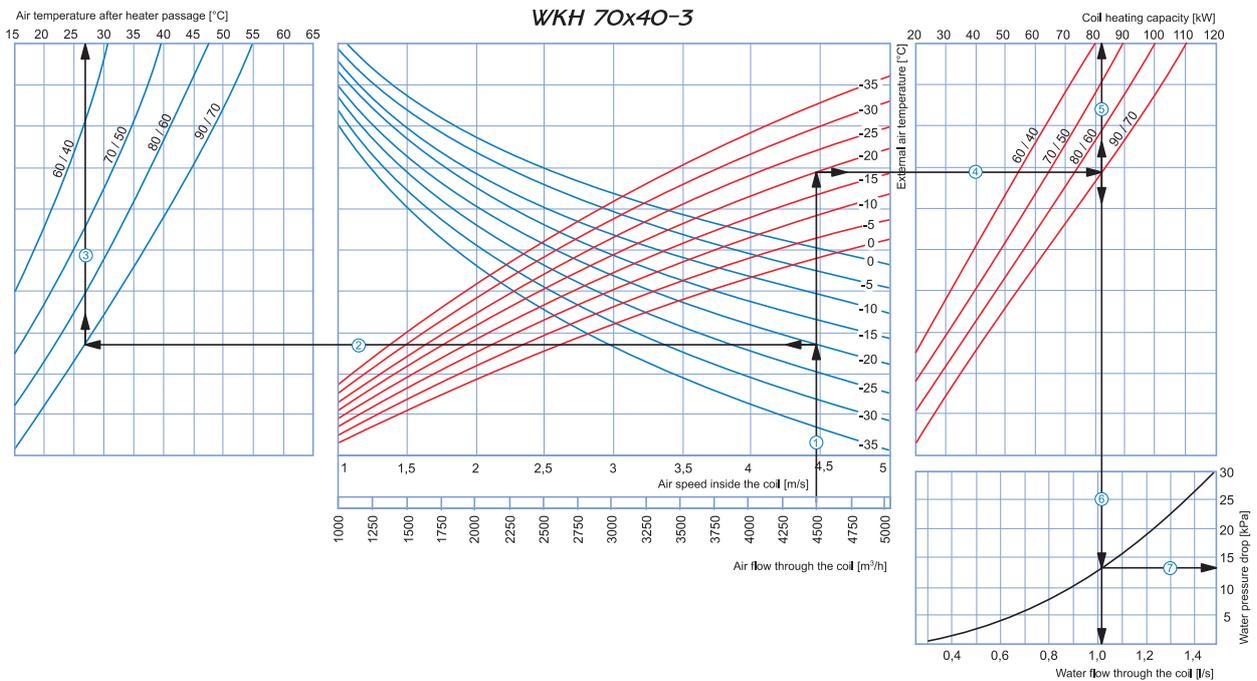
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 4500 m³/h. Outside air temperature = -10 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 4500 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 3.75 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 (+24 °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 (55 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (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 (9.2 kPa).

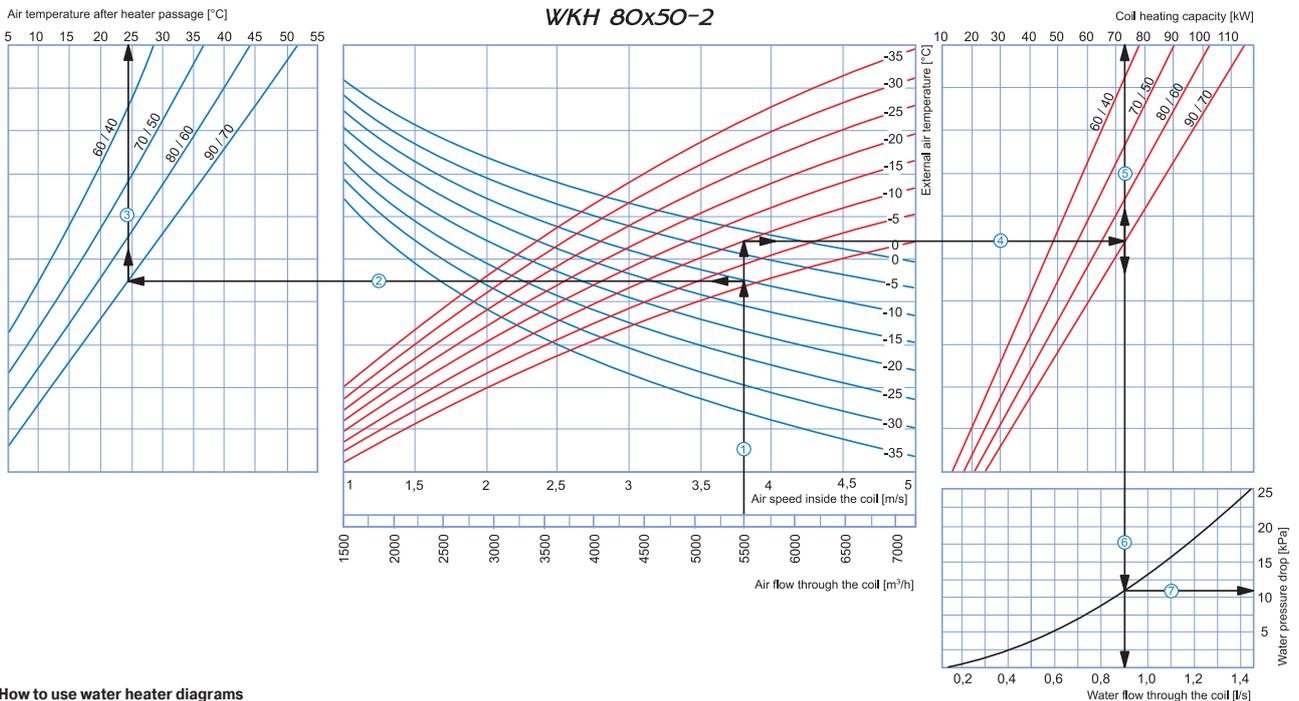


How to use water heater diagrams

System Parameters: Air flow = 4500 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 4500 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 4.45 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 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 (+27 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (82 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (1.02 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 (13 kPa).

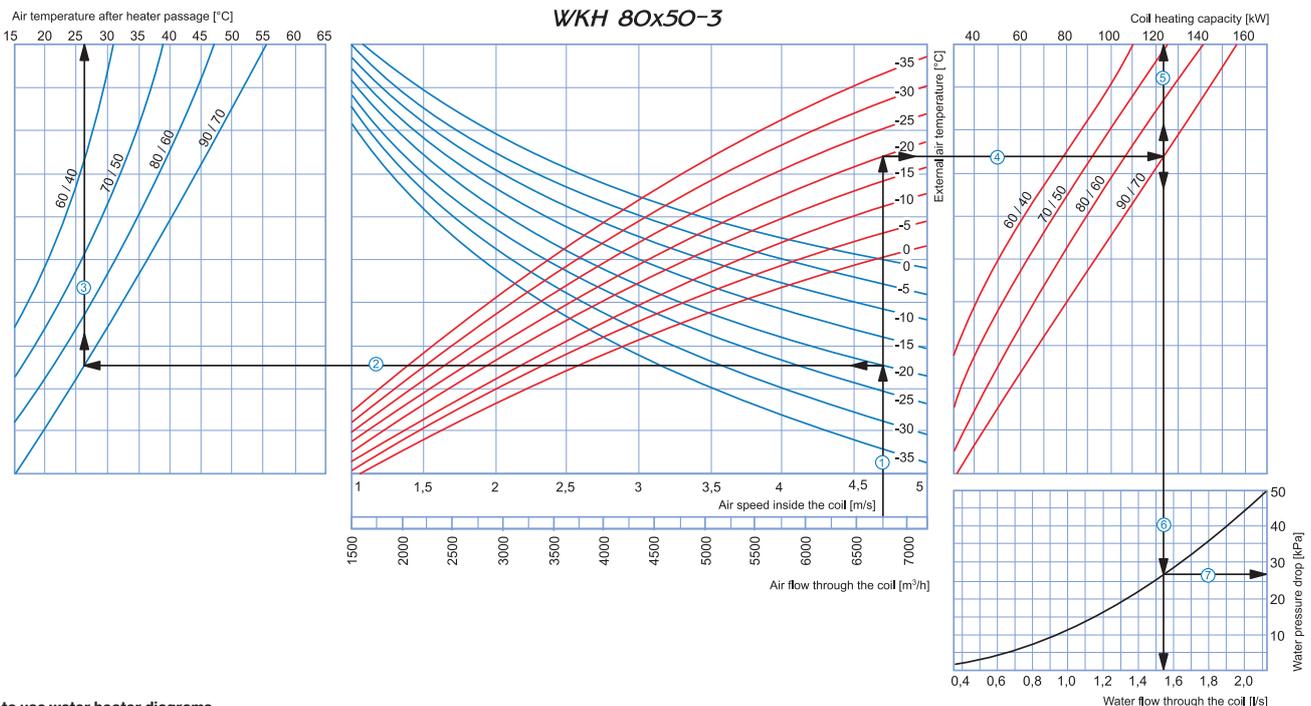
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 5500 m³/h. Outside air temperature = -10 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 5500 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 3.8 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 (+24.5 °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 (73 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (0.9 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 (11 kPa).

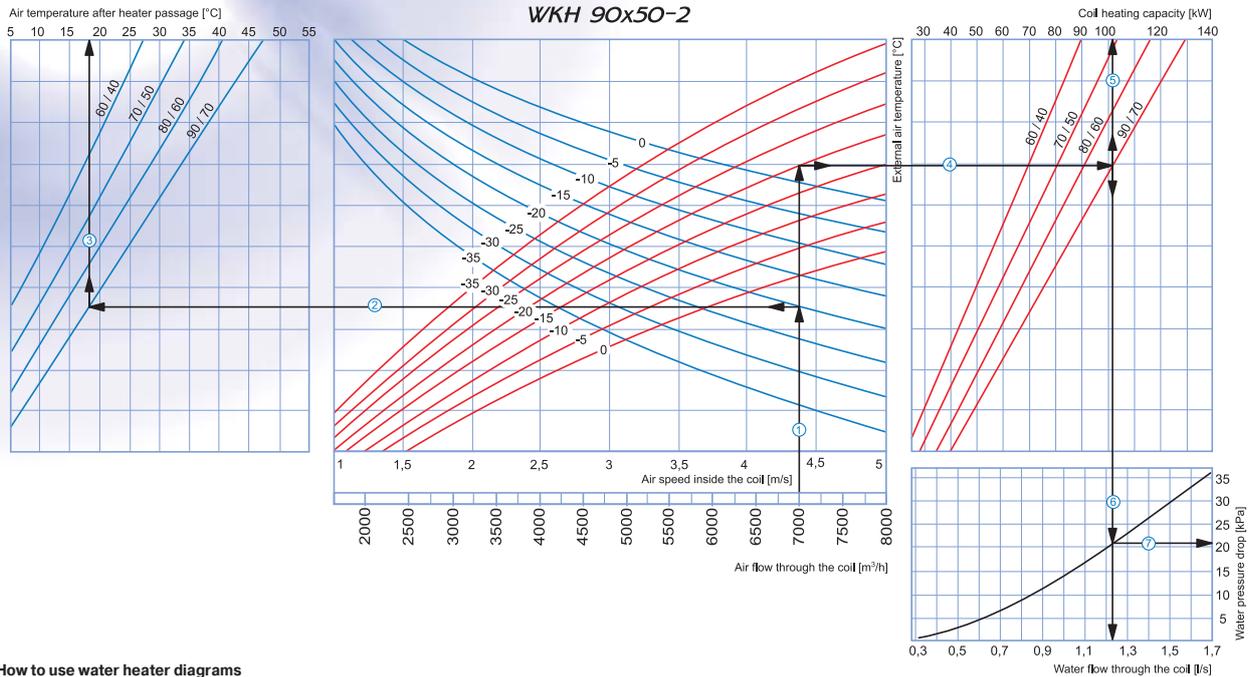


How to use water heater diagrams

System Parameters: Air flow = 6750 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 6750 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 4.7 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 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 (+26 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (123 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (1.54 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 kPa).

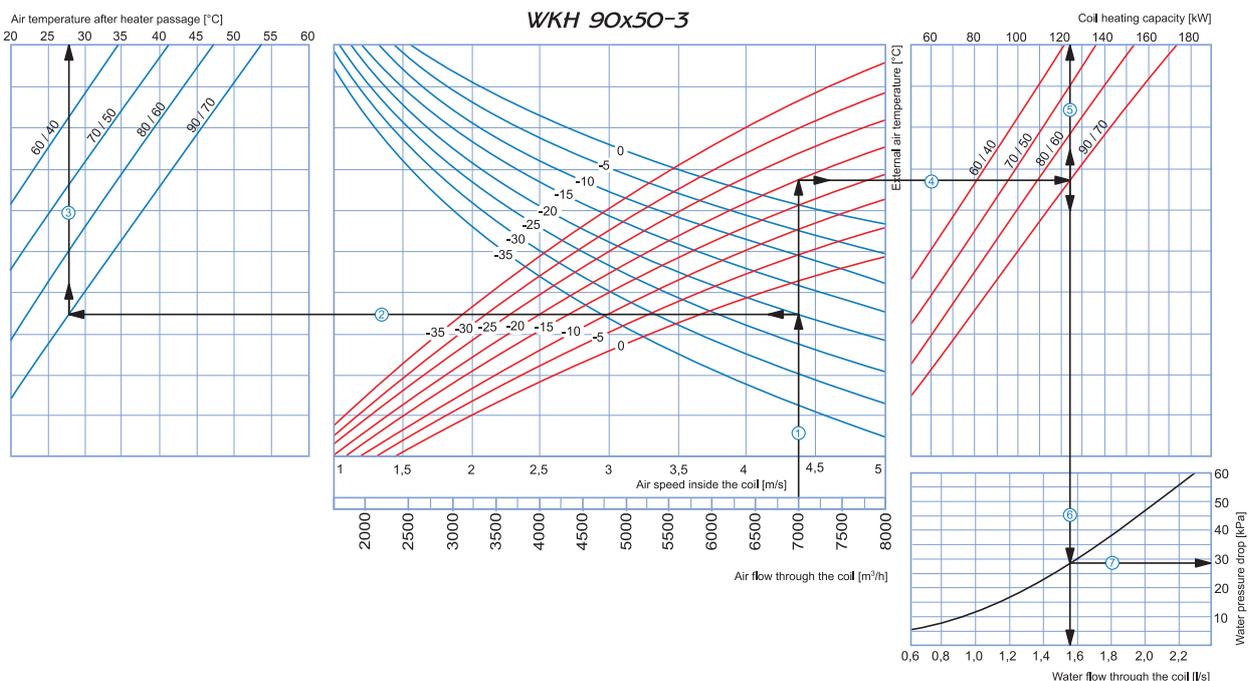
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 7000 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 7000 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 4.4 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 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 (+18 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (102 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (1.23 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 (21 kPa).

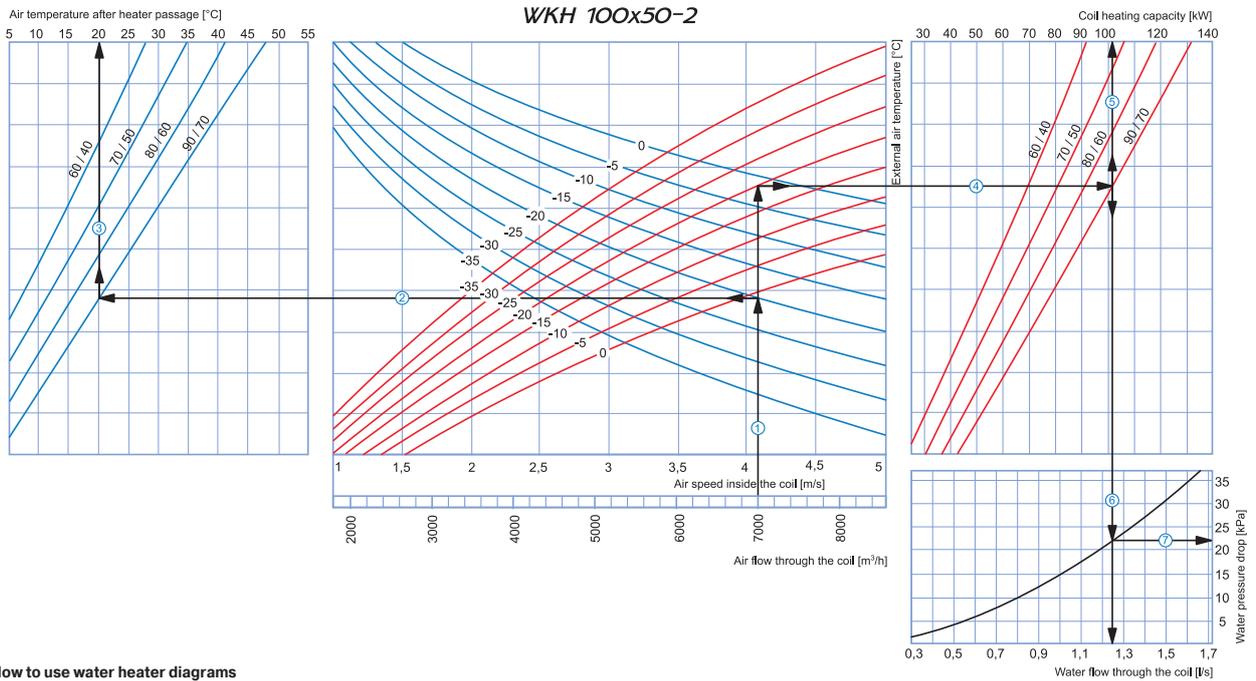


How to use water heater diagrams

System Parameters: Air flow = 7000 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 7000 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 4.4 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 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 (+28 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (124 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (1.55 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 kPa).

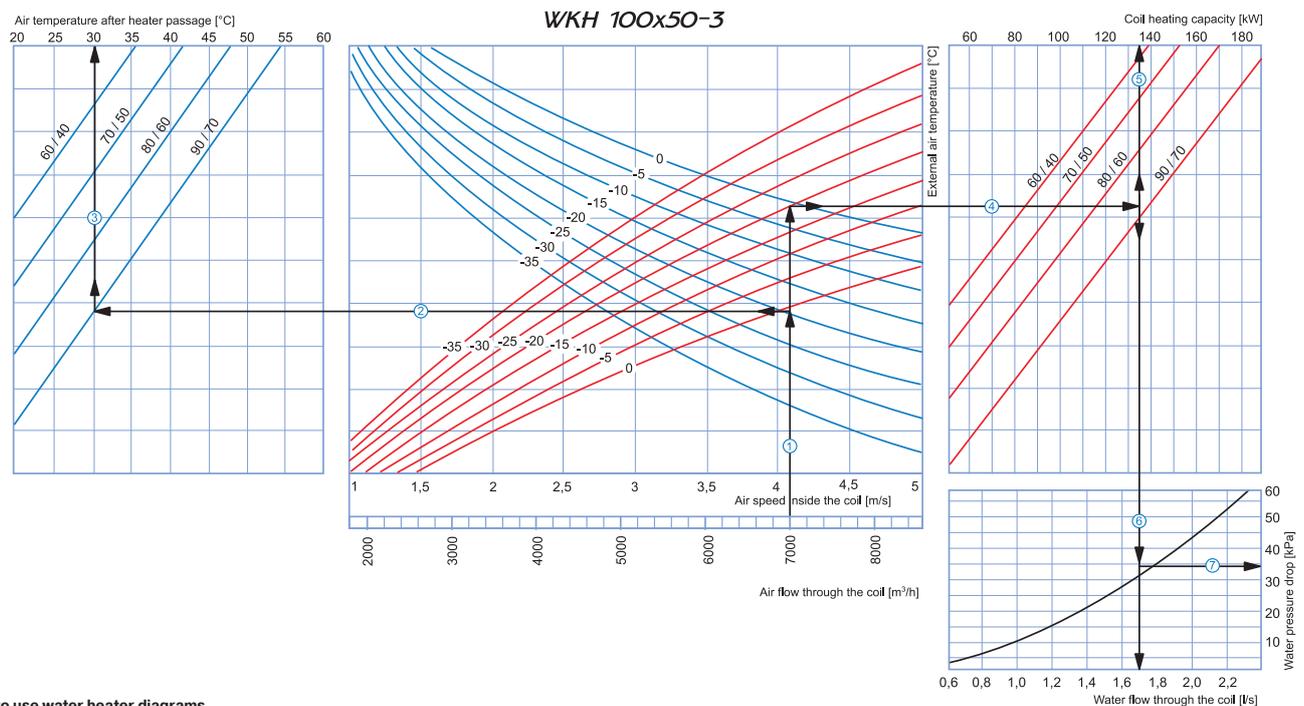
Water heaters calculation diagram



How to use water heater diagrams

System Parameters: Air flow = 7000 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 7000 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 4.1 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 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 (+20 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (101 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (1.25 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 (22 kPa).



How to use water heater diagrams

System Parameters: Air flow = 7000 m³/h. Outside air temperature = -20 °C. Water temperature (in/out) = 90/70 °C.

- **Air Speed inside coil:** Starting from 7000 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 4.1 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 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 (+20 °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., 90/70 °C). From here draw a vertical line ⑤ up to the scale representing the heating coil capacity (135 kW).
- **Water flow:** Prolong the line ⑤ down to the water flow axis ⑥ at the bottom of the graphic (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 (34 kPa).