



OPERATING AND INSTALLATION INSTRUCTIONS

KB100-400L BUFFER

1. General information

The operating instructions are an integral and essential part of the product and will also have to be handed over to the user in the event of transfer of ownership. Please read it carefully and keep it for future reference, as all the notes in it provide important safety instructions for installation, operation and maintenance.

The installation of the device must be carried out in accordance with the applicable standards of the country of destination, according to the manufacturer's instructions and by qualified personnel. Improper installation of the device can cause injury to persons and animals and damage to property for which the manufacturer is not responsible.

The buffer storage tank may only be used for the purpose for which it was expressly intended. Any other use should be considered inappropriate and consequently dangerous. In the event of errors during installation, operation or maintenance work, caused by failure to comply with the applicable legislation, regulations or instructions contained in this instruction (or other instructions provided by the manufacturer), the manufacturer waives any contractual or extra-contractual liability for the damage caused and the warranty relating to the device becomes null and void.

All the more important information contained in the operating instructions is highlighted with signs to draw the user's attention to the dangers that may occur when operating the boiler. The symbols used in the text are explained below:



Danger! Immediate threat to health and life!



Note: Possible danger for the device and the environment!



Tip! Useful information and guidance.

2. Purpose

KB buffer tanks are used to store and transfer the energy contained in the heating medium. The stored energy is then transferred to the heating system. Buffer tanks can be used with various heat sources in central heating systems such as solid fuel boilers, heat pumps, solar systems, etc. KS buffer tanks are designed for the storage of neutral medium only, e.g. demineralised boiler water or glycol.

Kensol buffer tanks enable them to work with virtually any central heating system. Always follow the instructions during installation and operation.



Note:

Buffer tanks are used to store and heat the heating medium. Any inappropriate and unsuitable use is not permitted.

3. Description of construction

KB buffer tanks are made of high-grade sheet steel with an anti-corrosion coating on the outside. The tank insulation is made of polystyrene foam and polyester fibre fleece with high thermal insulation properties. The thermal insulation casing is made of plastic. The tanks take the form of a cylindrical body with a housing. It is equipped with connection stub pipes and temperature sensor stub pipes allowing the sensor to be fitted and the temperature to be measured at different levels in the tank. The number and arrangement of the connections allows the tank to be connected in different variations. The tank allows for the installation of an electric heater.

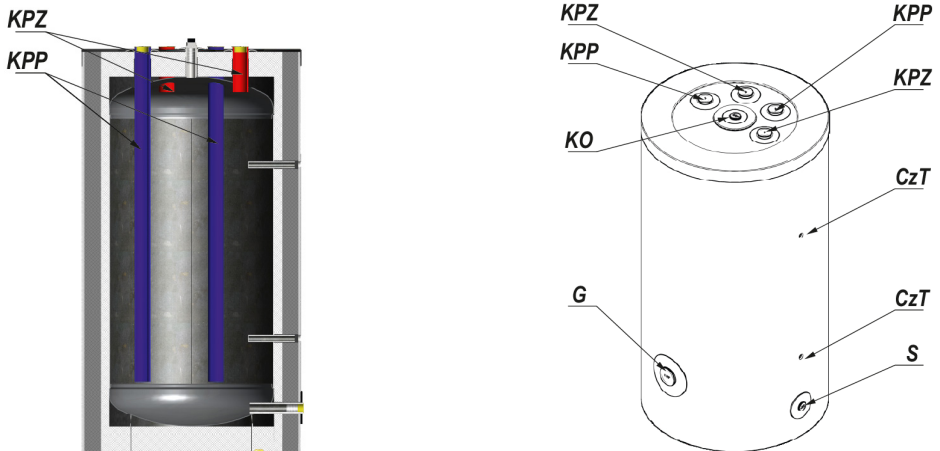


Figure 2. Construction of KB100L buffer tank.

- KPP - return connection stub pipe (1")
- G - connection socket for electrical set (1 1/2")
- KPZ - supply connection stub pipe (1")
- KO - vent stub pipe
- CzT - temperature sensor stub pipe (1/2")
- S - drain stub pipe

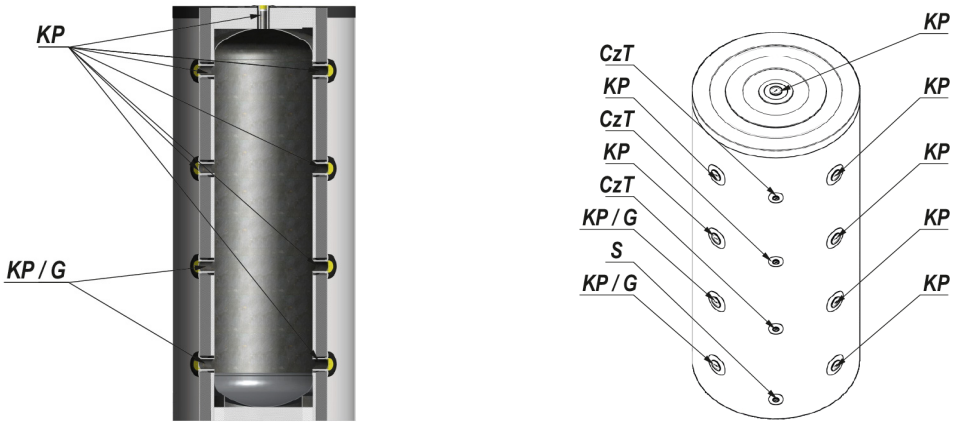


Figure 3. Construction of KB200-400L buffer tanks.

- ▪ KP - connection stub pipe (1 1/2")
- ▪ G - connection socket for electrical set (1 1/2")
- ▪ CzT - temperature sensor stub pipe (1/2")
- ▪ S - drain stub pipe

4. Technical data

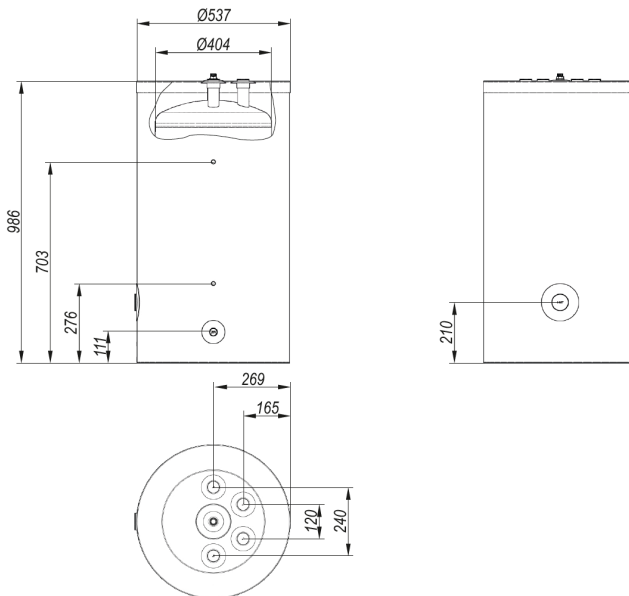


Figure 4. Dimensions of KB100L buffer tank

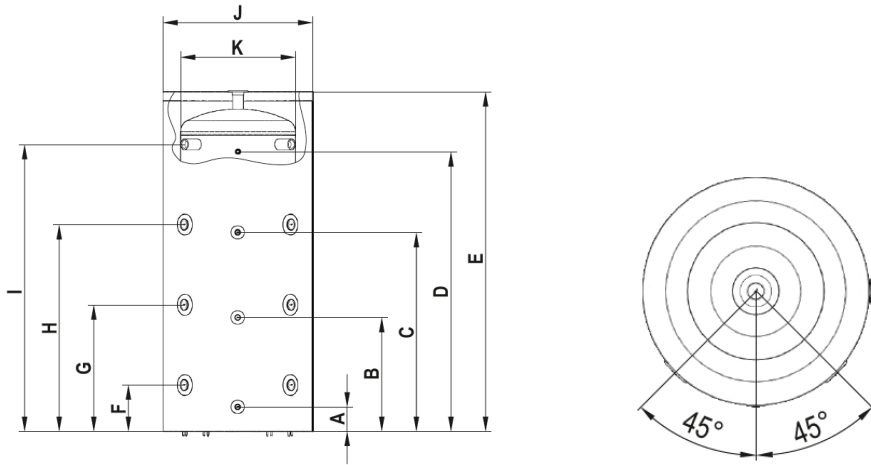


Figure 6. Dimensions of KB200-400L buffer tanks.

Table 2. Dimensions of KB200-400L buffer tanks.

Type/size	A	B	C	D	E	F	G	H	I	J	K
KB200L	125	419	706	969	1262	230	189	149	1009	675	505
KB300L	125	593	1053	1489	1782	230	663	1096	1529	675	505
KB400L	137	518	878	1214	1543	255	588	911	1255	825	642

Table 3. Technical data of the buffer tank.

Specification / type	unit	KB100L	KB200L	KB300L	KB400L
Storage capacity (V)1)	l	100	200	300	400
Standstill loss (S)1)	kg	68,06	84,60	97,20	106,9
Energy efficiency class	W	C	C	C	C
Weight (without water)	-	~32	~58	~80	~86
Max. pressure of central heating circuit	bar	3	3	3	3
Max. working medium temperature	°C	90	90	90	90

1) In accordance with EU Regulation 812/2013, 814/2013.

5. Transport to site

The buffer tanks are supplied fully insulated, assembled on a pallet. It is recommended that, in this condition, the tank is transported as close as possible to the final installation site to minimise the possibility of damage.



Tip!

Transport the buffer tank in an upright position! Secure the tank against tilting during transport.

All packaging residues must be disposed of so that they do not pose a risk to humans or animals. Suitable jacks should be used to raise and lower the buffer tank. Before transporting the buffer tank, it should be secured against shifting and tilting on the vehicle platform, with the use of straps, wedges or wooden blocks.



Note:

During transport and when removing from the pallet, beware of the danger of the tank tilting or overturning.

6. Positioning

The KB series buffer tank must be mounted vertically. The tank must be mounted in a dry room protected from a temperature drop below 0°C, e.g. in a basement, boiler room, etc., so that maintenance and service operations can be carried out without problems.

The tank should be positioned as close as possible to the main heat source to avoid unnecessary heat loss. At the same time, the positioning of the tank should enable the central heating system to be run rationally.

The weight of the filled tank should be taken into account when choosing the installation location - it should be placed on a base with sufficient load-bearing capacity



Note:

The floor in the room where the buffer tank is to be installed should be adequately sized to support the weight of the filled tank.

7. Installation



Tip!

The buffer tank must be installed in accordance with the relevant regulations and standards of the country of destination.



Note:

Installation and initial commissioning of the buffer tank should be carried out by a suitably qualified person. The installer should inform the user about the intended use of the product and provide the necessary information on safe use.



Danger!

It is forbidden to exceed the maximum operating pressure of the buffer tank specified in the operating instructions and on the rating plate.

KB buffer storage tanks may only be used in closed heating systems in accordance with EN 12828. The pressure in the system must not exceed the maximum operating pressure of the appliance (see Table 3. for permissible appliance operating parameters).

The KB buffer tank is designed for connecting different heat sources to the heating system. It allows the connection of one or two sources plus an electric heater. With sufficient capacity, it ensures smooth and efficient operation of the entire installation. It is designed for heat sources such as a heat pump, solid fuel boiler, fireplace (heater) with water jacket.

The connection of the buffer tank must be made in accordance with the installation diagram, bearing in mind the relevant safety fittings. A buffer tank operating in a closed system must in any case be fitted with a suitably sized safety valve (preferably on the heating medium return to the heat source) with an opening pressure no higher than the maximum operating pressure of the unit.

Heating medium may escape from the safety valve even during normal operation, which is why the safety valve must be fitted with a discharge pipe safely led to a drain or sewer grate. The discharge pipe of the safety valve should be installed with a drop, protected against freezing and left open to the atmosphere.

Kensol is not responsible for flooding of the room as a result of the safety valve tripping.

**Note:**

In closed systems, it is necessary to use a safety valve with an opening pressure no higher than the maximum operating pressure of the buffer tank.

**Note:**

Dripping from the safety valve may occur during heating of the heating medium. This is a normal situation and must not be prevented, as blockage of the safety valve can lead to a safety risk for the user.

**Note:**

The installation of any narrowings (e.g. reducers, dirt traps, shut-off valves, etc.) between the safety valve and the buffer tank is not permitted. Only the installation of a tee with a drain valve and a tee with an expansion vessel is permitted.

**Danger!**

Do not use the device if there is an obstruction in the safety valve.

**Note:**

Periodically check the operation of the safety valve as specified by the valve manufacturer to ensure that it is not blocked.

**Tip!**

When the buffer tank is connected to a closed central heating system, an additional or increased capacity of the existing expansion vessel must be installed.

**Tip!**

It is recommended that the stub pipes of the tank should be connected to the relevant pipes of the system with pipe joints that allow the tank to be removed if necessary.

Once the tank has been located and levelled, connect the heat sources to the appropriate stub pipes (see Fig. 1.-3.). Plug unused holes with plugs. Connect the consumer installation, paying particular attention to the markings of stub pipes. A brass sensor cap with a length of at least 150 mm and a drain valve must be screwed into the ½" stub pipes, while unused connections must be plugged (see Fig. 1.-3.).

**Tip!**

Unused connections should be plugged.

8. Commissioning and operation

8.1 Commissioning

Once the buffer has been correctly connected:

- 1) Fill the central heating system with heating medium.
- 2) Check connections for leaks.
- 3) After checking for leaks, thoroughly insulate the pipelines including the tank stub pipes.
- 4) Top up the central heating system with the heating medium, remembering to vent the system.

The buffer tank should be filled directly from the central heating system. After filling the system, the tank and the central heating system should be vented.

**Note:**

Before venting the buffer tank, switch off the heating equipment and wait for the heating medium in the central heating system to cool down completely.

**Note:**

Before the first heating or after a prolonged break in operation, check that the entire central heating system is filled with the heating medium.

Once the above steps have been completed, the installation is ready for operation. Once the heat source is in operation and the required temperature of the heating medium has been reached, the facility's heating system can be used.

**Tip!**

The first heating up of the tank should be carried out in the presence of the installer to check that the installation is working correctly.

8.2 Eksploatacja

The operation of the buffer tank does not require any complicated steps and is reduced to periodically checking that the safety valve is functioning correctly. The check should be carried out at least once a month and before each start-up after shutdown.



Note:

Any repairs to the water system should only be carried out by qualified and authorised persons.

8.3. Thermal insulation of installation

In order to minimise heat loss, all stub pipes, pipelines and temperature sensor covers must be carefully insulated after the device has been installed and leakage tested.

Thermal insulation with the right thickness and appropriate thermal insulation characteristics should be used for this purpose.



Tip!

Lack of thermal insulation, inadequate insulation thickness or insulation made of unsuitable materials will result in a deterioration of the thermal insulation performance of the device and the installation.

9. Decommissioning the buffer tank

If use is interrupted and there is a possibility that the heating medium in the tank may freeze, the tank and the entire associated heating system must be thoroughly emptied.



Note:

To avoid damage to installation systems and environmental pollution, the product should be dismantled and decommissioned by a suitably qualified person.

10. Service operations

Any irregularities in the operation of the tank should be reported to an authorised service centre or directly to the manufacturer: hvac@kensos.pl



Note:

The device must only be repaired or serviced by an authorised service centre, as inappropriate repairs may result in a risk to the user's safety and void the warranty.

11. Recycling and disposal

The buffer tanks have been manufactured from the highest quality materials using the latest technology and environmentally friendly solutions.

Both the reusability of materials (recycling), the possibility of dismantling and separating non-recyclable materials, as well as the risks of disposing of non-recyclable plastics were

taken into account during the choice of materials.



Note:

When the device is decommissioned, ensure that the product and all equipment is disposed of in accordance with current legislation.

12. Notes on use



Danger!

It is imperative that you familiarise yourself with and observe the following rules for safe use.

1. Start installing and operating the buffer tank by reading the operating and installation instructions supplied with the device.
2. Do not operate the tank without a working safety valve (applies to closed system).
3. Bleed the heating system before the start of the heating season.
4. The filling level of the heating system should be checked periodically.
5. It is prohibited to start the heating medium circuit if the buffer tank is not filled with heating medium.
6. It is forbidden to install devices (e.g. shut-off valve, non-return valve etc.) between the tank and the safety valve or open expansion vessel (the only exception is the tee).
7. The temperature controller settings for the heating medium supplied to the buffer tank should be limited to 85 °C.
8. It is forbidden to carry out independent repairs to the tank.
9. It is not permitted to stop water leaking from the safety valve - a constant flow of water from the safety valve may indicate that the pressure in the water supply system is too high or that the safety valve is faulty.
10. The tank casing and thermal insulation are made of flammable materials - do not approach with an open flame - risk of damage to the outer casing as well as the thermal insulation.

11. The tank is not intended to be used by persons with impaired physical/mental fitness or lack of experience and knowledge unless they are supervised or instructed by a person responsible for their safety.
12. It is forbidden for children to operate the device.
13. All maintenance and installation work must be carried out in accordance with current health and safety regulations.

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