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Installation and operation manual

Buffer tank ABT 50



- + Read the manual before using the device
- + Pay attention to all information regarding safety
- + Keep the instruction manual

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1 Explanations to the installation and operation manual

Installation and operation manual is an important part of the scope of delivery. That is why we recommend:

- ▶ Read the installation and operating instruction before installing the device.
- ▶ Keep the installation and operating instruction for the entire life of the device.
- ▶ Hand over the installation and operating instructions to any subsequent owner or user of the device.

1.1 Safety messages and hazard categories

DANGER

Specifies the type and source of a threat



- ▶ Describes what to do to avoid a hazard.

Threats have 3 levels:

Danger	Importance
DANGER	DANGER indicates a hazardous situation, which, if not avoided, will result in death or serious injury.
WARNING	WARNING indicates a potentially hazardous situation, which, if not avoided, can result in serious injury or equipment damage.
NOTICE	NOTICE indicates a hazardous situation, which, if not avoided, can result in equipment damage.

2 Information on safety

2.1 Intended use of the device

The ABT 50 buffer tank is intended for use in a closed heating or cooling system in accordance with EN 12828. The ABT 50 buffer tank is designed for combining various heat/cooling sources with a heating/cooling system. It enables the combination of one or two sources and an electric heater.

In the installation with heat pump, buffer guarantees an adequate fluid flow through the heat exchanger. With air source heat pumps, it also ensures that there is sufficient capacity for defrosting the external unit when required. Any use other than that indicated in point. 2.1 is forbidden.



2.2 Quality control

Construction of buffer tank ABT 50 complies with the current state of the technical standards regarding safety. Each device is checked for safety before shipment.

- ▶ The product should only be used if it is in a qualified technical condition. Read the instructions for assembly and use as well as observe the relevant safety regulations.

2.3 Qualification of personnel

The device may only be installed, commissioned, shut down and disassembled by suitably qualified and trained personnel. To avoid errors in installation, operation and accidents during exploitation, ensure that all persons are familiar with its operation and with Chapter 2 of this manual.

2.4 Personal protective equipment

Always wear the required personal protective equipment. When working with the product, it must also be considered that other hazards may occur at the place of use which do not result directly from the product.

2.5 Modifications to the product

Changes and modifications carried out by unauthorized persons may cause hazards and are prohibited for safety reasons.

2.6 Using additional parts and accessories

Improper additional parts and accessories may damage the device.

- ▶ Use only original spare parts and accessories from the manufacturer.

2.7 Liability

The manufacturer is not responsible for direct damages or their consequences resulting from inaccurate reading of assembly and usage instructions and recommendations.

The manufacturer and the company selling the device are not responsible for damages and costs incurred by the user or third parties using the device, in particular for damage resulting from improper use indicated in chapter 2.1 of assembly and use instructions, improper or faulty connection or maintenance and noncompliant operation with manufacturer's recommendations. AFRISO Sp. z o.o. makes every effort to ensure that the information



materials do not contain errors. If errors or inaccuracies are found in the following installation and operation instructions, please contact: zok@afriso.pl, tel. +48 32 330 33 55.

3 Product description

The ABT 50 buffer tank is a heat or cold storage tank without a coil. It consists of a rectangular steel housing with welded connections and external, removable thermal insulation. The tank has a partial baffle inside, which is responsible for the desired stratified temperature distribution inside the buffer and at the same time enables the mixing of supply and return streams. Dedicated wall mounting brackets are included in the scope of delivery to the buffer tank, which enable smooth mounting of the buffer storage on a wall. The ABT 50 storage tank is designed for direct connection to the AFRISO KSV boilers manifolds up to 70 kW and to AFRISO PrimoTherm pump groups with 125 mm installation connections spacing.



3.1 Buffer construction

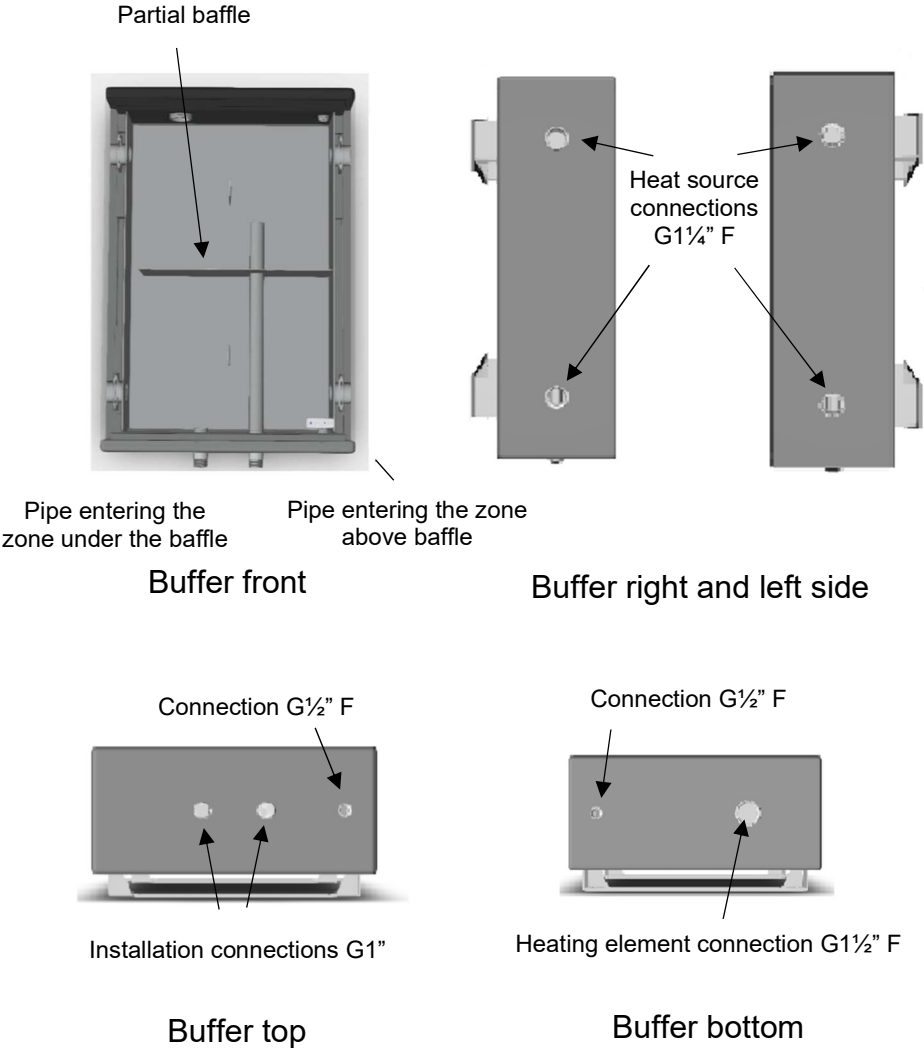


Figure 1: Connection description of buffer tank ABT 50.



3.2 Dimensions

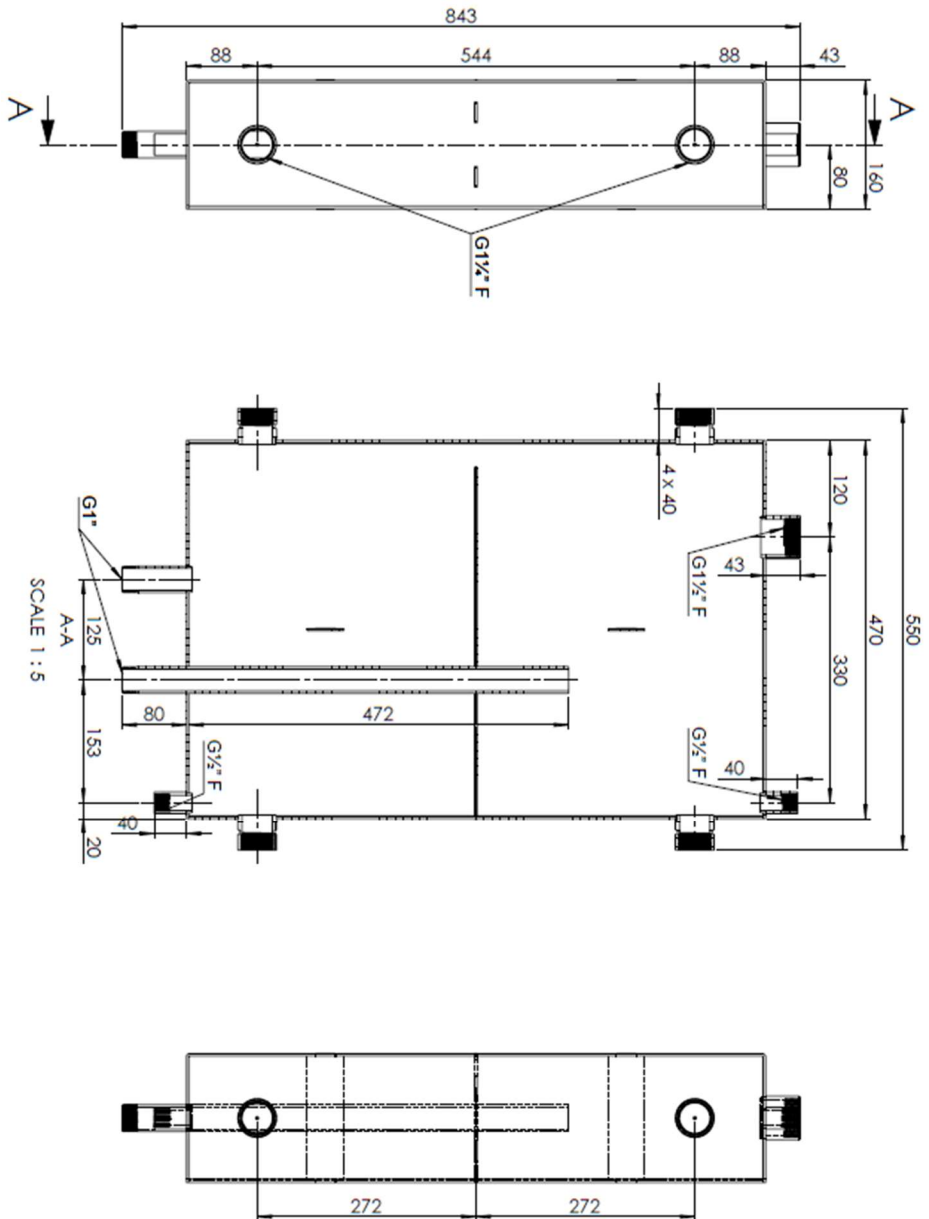


Figure 2: Dimensions of buffer tank ABT 50 without insulation.

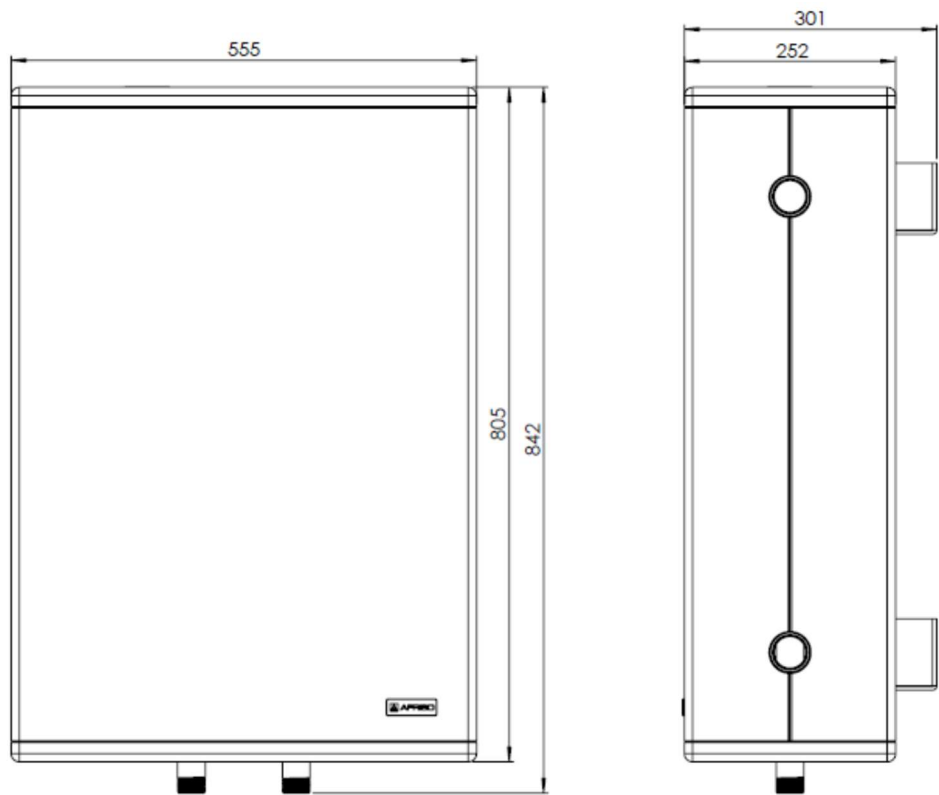


Figure 3: Dimension of buffer tank ABT 50 with insulation.

3.3 Buffer operation

The ABT 50 buffer tank is a storage tank for heat or cold that, once accumulated, can be used when the heat/cool source is switched off. This reduces the on/off switching frequency of the heat/cool source.

The ABT 50 buffer also acts as a hydraulic low-loss header (in case of parallel connection) - stabilising the operation of the system as well as the heat/cool sources.

The buffer increases the water capacity in the system and thus ensures an adequate minimum fluid flow through the source. This is a key aspect for the correct operation of the heat pump.

3.4 Scope of delivery

The scope of the delivery of the ABT 50 buffer tank includes:

- buffer tank ABT 50,
- 2 half union G1" F x union nut G1½",
- plug G1½" for closing the heating element connection,
- 2 plugs G1¼" for closing the second heat/cold source connections,
- plug G½"
- automatic air vent with mounting valve R½",
- wall mounting brackets,
- installation and operation manual.

4 Transport and storage

NOTICE



Possibility of damage to the device during improper transport.

- ▶ Do not throw the device
- ▶ Protect against water, moisture, dirt and dust.
- ▶ Do not place heavy items on the packaging, do not stack.

NOTICE



Possibility of damage during incorrect storage.

- ▶ Store the device in a dry and clean room.
- ▶ Protect against water, moisture, dirt and dust.

5 Examples of application schemes

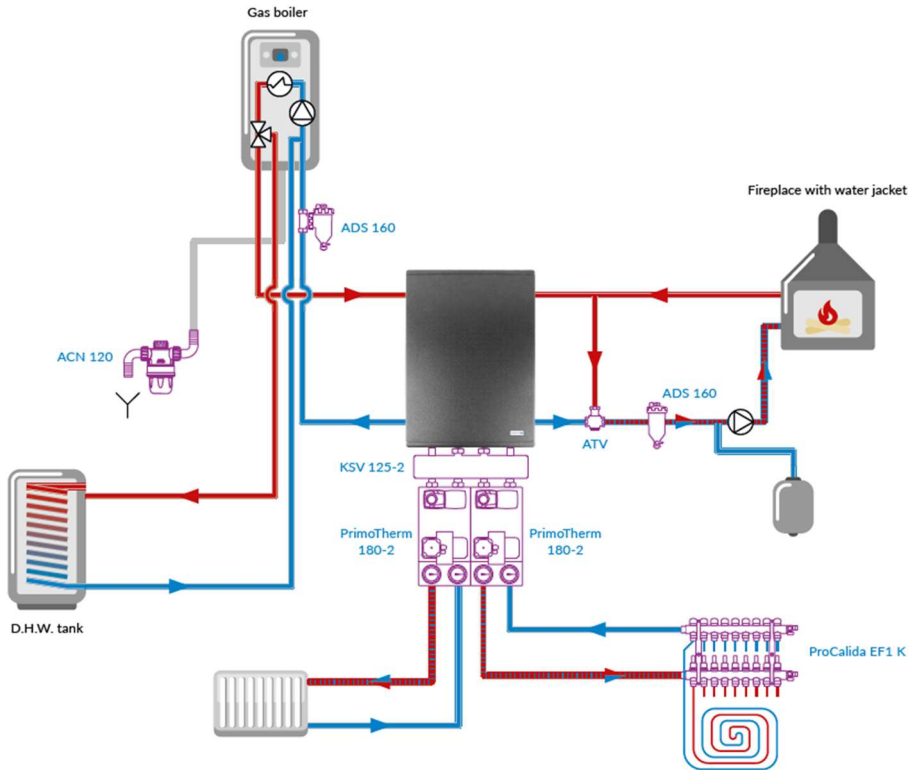


Figure 4: Buffer tank ABT 50 used in installation with radiator and surface heating to connect two heat sources: gas boiler and fireplace with water jacket.

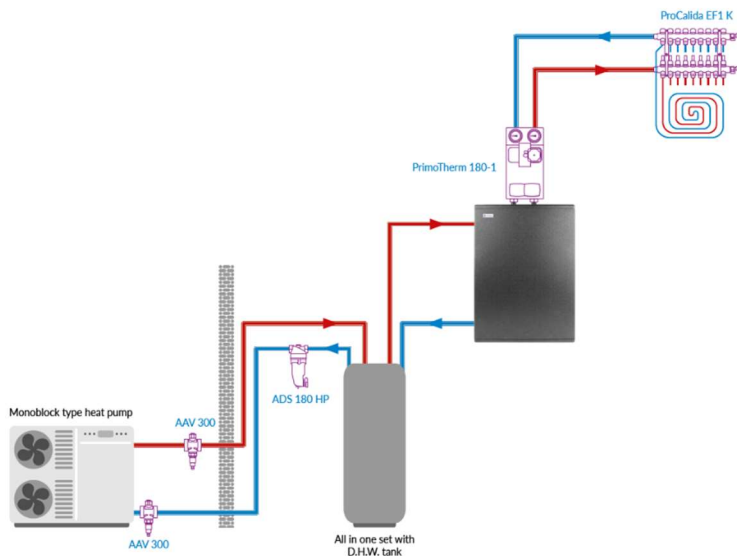


Figure 5: Buffer tank ABT 50 used in surface heating installation with monoblock type heat pump.

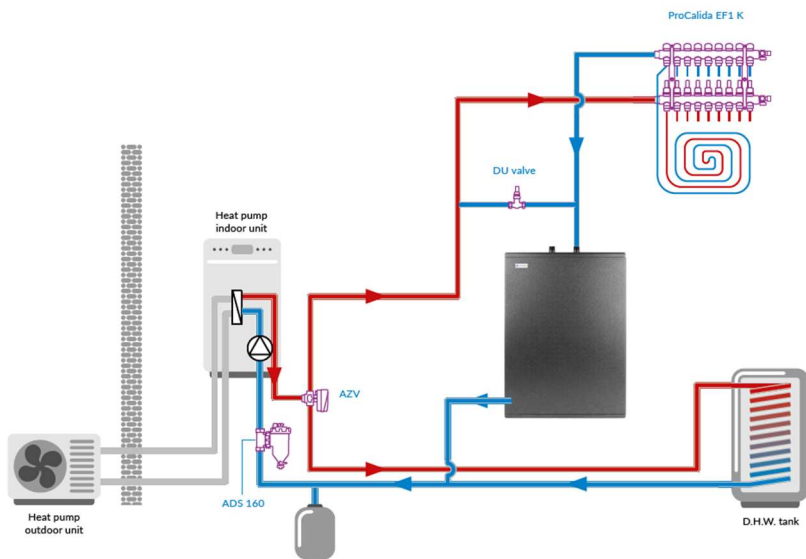


Figure 6: Buffer tank ABT 50 used in surface heating instalation with split type heat pump.



6 Technical data

Table 1: Technical data of buffer tank ABT 50

Parameter	Value
General specification	
Nominal capacity	50 l
Weight	30 kg
Dimension with insulation (h. x w. x d.)	842 x 555 x 252 mm
Working pressure	max 3 bar
Working temperature	5 ÷ 90°C
Heat/cold source connections	4 x G1¼" F
Installation / boiler manifold connections	2 x G1", spacing 125 mm, (2 x half union G1" F x union nut G1½" included)
Heating element connection	G1½" F
Energy class <small>(In accordance with EU Regulation 812/2013)</small>	C
Standing loss <small>(In accordance with EU Regulation 814/2013)</small>	56,4 W
Storage capacity <small>(In accordance with EU Regulation 814/2013)</small>	52,0 l

7 Approvals

Buffer tank ABT 50 is subject to the Pressure Directive 2014/68/EU and in accordance with art. 4.3 (sound engineering practice) are not CE marked.

The ABT 50 complies with EU Regulation 812/2013 and EU Regulation 814/2013.

8 Installation and commissioning

The installation location of the ABT 50 buffer tank must provide protection from the atmospheric factors. The buffer tank must not be installed outdoors. It can be installed in any room protected from temperatures below 0°C. The ABT 50 buffer tank is designed for wall mounting using the brackets added to the device and appropriate mounting anchors depending on the type of wall. The buffer is not designed to be placed on the floor. To make it easier to install the brackets, you can use the buffer template included in the package. Before placing the buffer on the hangers, make sure that the buffer is already in the thermal insulation. Insulation cannot be put on a buffer which is already mounted on brackets. For connection of the heat/cooling source use the side connections G1¼" F on the left or right side of the buffer. Unused connections must be plugged with the plugs which are provided in the delivery. An automatic air vent with mounting valve must be screwed into the upper G½" F connection, and a plug into the lower G½" F connection. The plug can be replaced by a drain valve (Art.-No 42 407) or a temperature sensor sleeve (not included in the scope of delivery). Installations can be connected directly to G1" connections, and when fitting a KSV manifold up to 70 kW or a PrimoTherm pump group to the buffer, use the G1" F half unions x G1½" union nuts connections which are attached to the buffer. The buffer tank can be connected to the system from the top, bottom or side. The internal construction of the tank is indicated by the embossing on the insulation (Fig. 7).

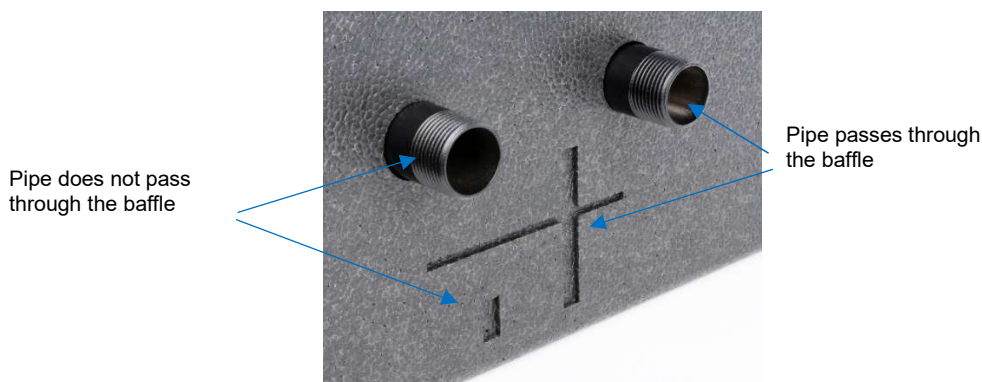


Figure 7: Embossing on insulation of buffer tank ABT 50.



Depending on the orientation of the buffer, the supply and return connections from the system may be interchanged (see Fig. 8 for examples).

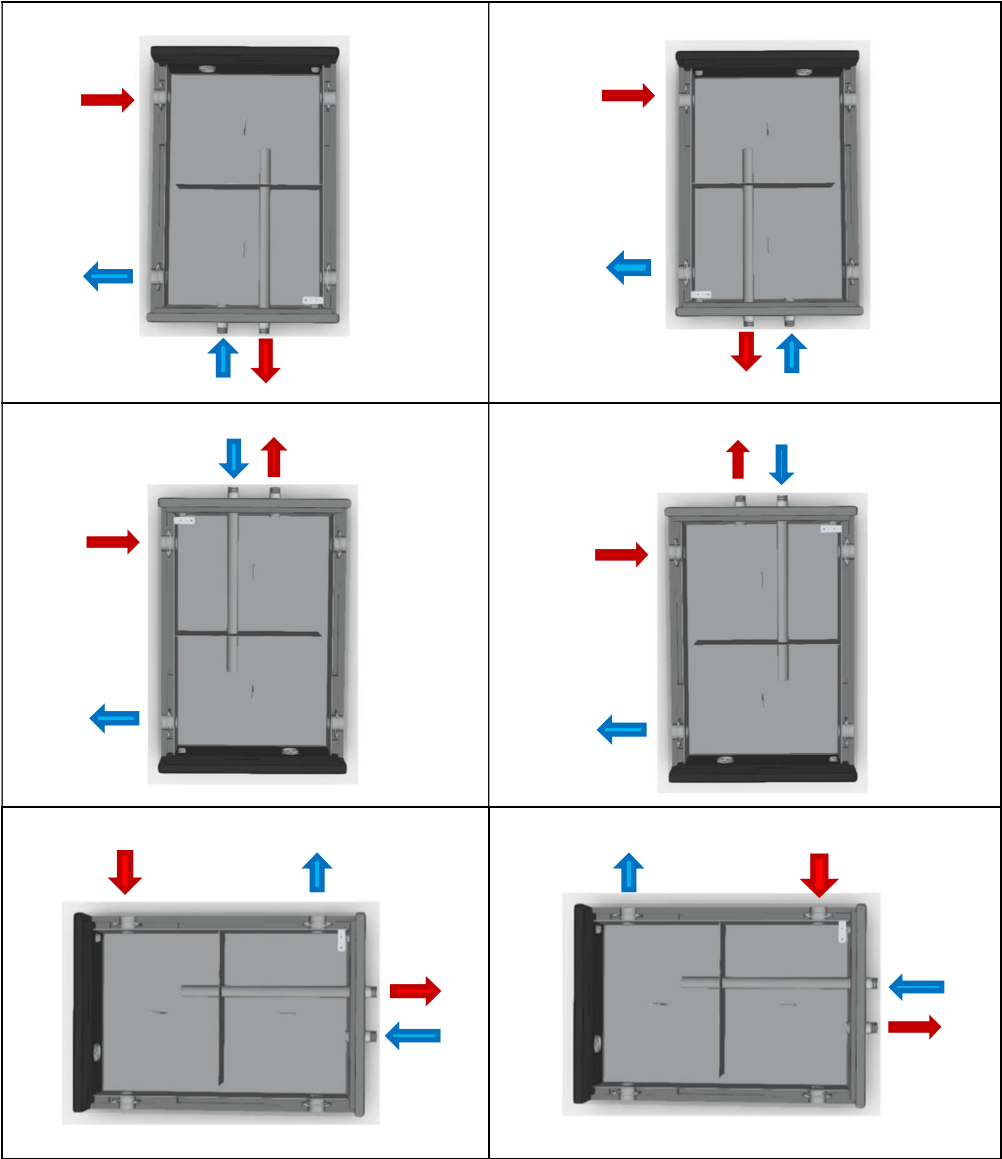


Figure 8: Flows inside the buffer tank depending on connection manner.

When installing an ABT buffer storage in a closed heating installation, due to the additional 50 litres of liquid inside the system, it must be verified that already installed expansion vessel used has sufficient capacity. If the installed expansion vessel is insufficient, the system must be retrofitted with an additional expansion vessel or the existing expansion vessel must be replaced with a vessel with greater capacity.

WARNING**Danger of scalding**

- Scalding can occur from the hot medium during installation and maintenance work. Ensure that the installation has cooled down sufficiently before proceeding.

9 Selection and installation of electric heater

Depending on the orientation of the ABT 50 buffer tank, the electric element can be screwed into a dedicated G1½" F connection or into one of the connections G1¼" F dedicated for a heat source. Depending on the connection, the maximum installation length of the element will be different (Fig. 9). During selection of a connection, the heater element manufacturer's guidelines must be followed first and foremost!

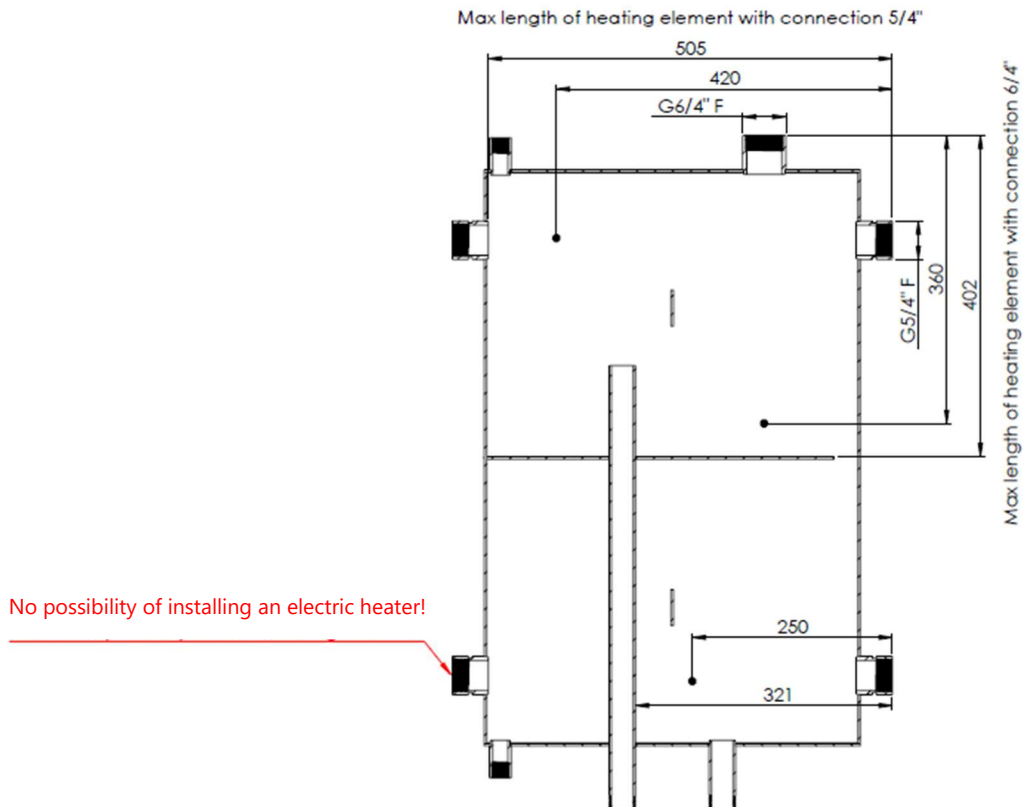


Figure 9. Maximal electric heater length depending on connection

WARNING



Mains voltage (230 V AC) can cause serious injury or death.

- ▶ Do not allow the element cover to come into contact with liquid.
- ▶ Disconnect the element from the mains before servicing.
- ▶ Do not make any changes to the device.
- ▶ Follow the guides which are included in electric heater instruction manual.

10 Maintenance

The watertightness of the system connections to the storage tank must be checked periodically (at least once a year). Also minimum once a year visually check the condition of the tank and the operation of the automatic air vent. If a drain valve is screwed into the lower G $\frac{1}{2}$ " F connection (not included in the scope of delivery), the medium must be drained through this valve from the system at regular intervals to remove separated impurities.

WARNING



Danger of scalding

- ▶ Scalding can occur from the hot medium during installation and maintenance work. Ensure that the installation has cooled down sufficiently before proceeding.

11 Decommissioning, disposal

1. Dismount the device
2. To protect the environment, this product must not be disposed of together with normal household waste. Dispose of the product in accordance with the local directives and guidelines.

Buffer tank ABT 50 consist of materials that can be recycled.

12 Return

Before returning a product, please contact the manufacturer: zok@afriso.pl, telephone +48 32 330 33 55.

13 Warranty

Product warranty in accordance with the general conditions of sale and delivery.