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Operation and installation manual

PrimoBox AZB mixing units
400 and 500 series in cabinets

+ Read the manual before using the device
+ Pay attention to all information regarding safety
+ Keep the Operation and installation manual

954.001.002

Table of Contents

1 Explanations to the installation and operation manual

Installation and operating instructions are an important part of the 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 the 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

Mixing units PrimoBox AZB 400 and 500 series are a compact, prefabricated solution enabling quick and convenient connection of a heat source and two or three heating circuits in closed installations made in accordance with EN 12828.

Mixing units AZB series 400 and 500 are intended for separating the medium into two or three heating zones. Depending on the version, individual zones can be supplied with medium of the temperature obtained at the outlet from the heat source (direct circuits, without mixing), as well as of a lower temperature, obtained by mixing.

Any other use than indicated in point 2.1 is forbidden.

2.2 Quality control

Construction of mixing units PrimoBox AZB 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.

WARNING

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

- ▶ Do not allow the device cover to come into contact with water.
- ▶ Disconnect the device from the mains before opening the cover.
- ▶ Disconnect the device from the mains before servicing.
- ▶ Do not make any changes to the device.

2.3 Qualification of personnel

Mixing units PrimoBox AZB series 400 and 500 may only be installed, commissioned, shut down and disassembled by suitably qualified and trained personnel. Work on electrical circuits should only be carried out by an authorized electrician.

2.4 Modifications to the product

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

2.5 Using additional parts and accessories

Improper additional parts and accessories may damage the device.

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

2.6 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 non-compliant 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

PrimoBox AZB mixing units are available in versions supplying two or three heating circuits.

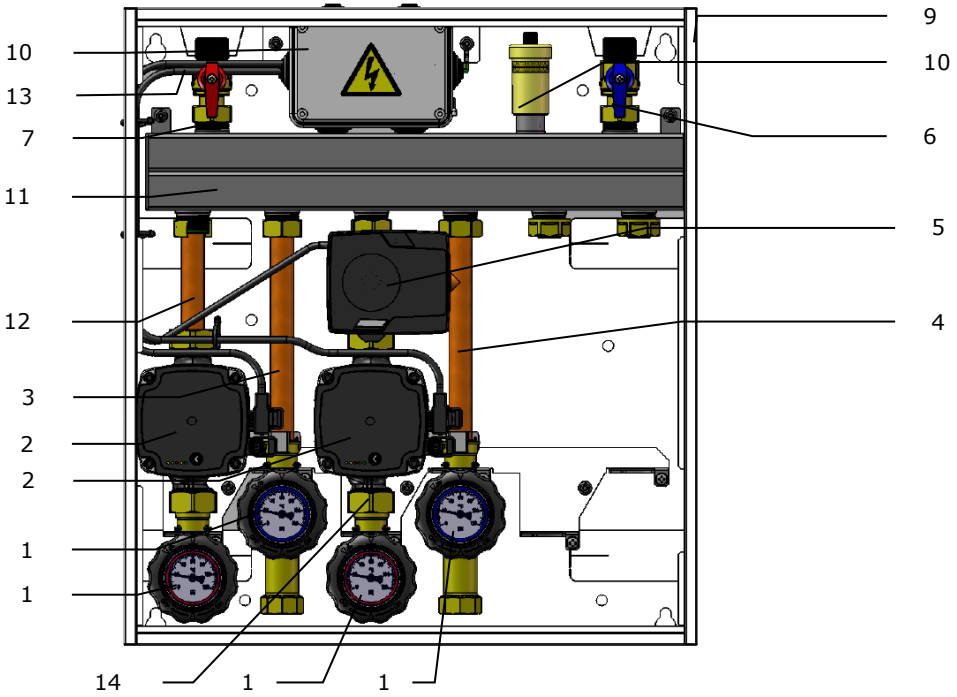
PrimoBox AZB units allow obtaining different medium temperatures of individual heating circuits.

The PrimoBox AZB mixing unit is enclosed in a metal cabinet. Inside the cabinet there is a manifold ensuring separation of the installation into different heating circuits.

There are versions with heating circuits without mixing and with mixing via a valve with ARM ProClick actuator.

Two-section versions of AZB mixing units are made based on the same manifold as three-section version, but only two pairs of connections are used.

3.1 Construction



1- shut-off valve with thermometer
2- Grundfos UPM3 AUTO 15-70 130 mm pump
3- zone 1 return pipe
4- zone 2 return pipe
5- rotary valve with ARM ProClick actuator
6- primary circuit return shut-off valve
7- primary circuit supply shut-off valve
8- automatic air vent
9- cabinet
10- electrical box
11- manifold
12- zone 1 supply pipe
13- electric wires
14- zone 2 supply pipe

Fig. 1: Construction of AZB 405 mixing unit

3.2 Dimensions

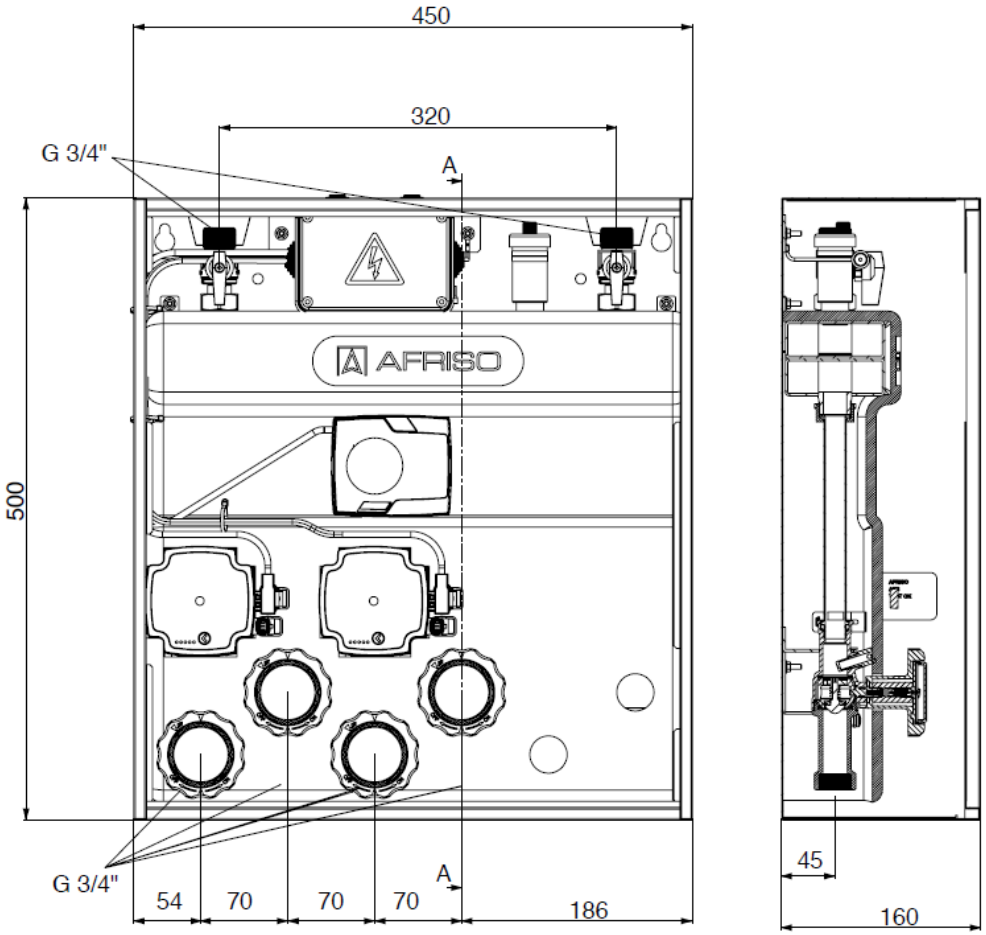


Fig. 2: Dimensions of the AZB mixing unit

3.3 Operation

The AZB mixing unit is designed to divide the heating medium flow from the boiler circuit into two or three heating system circuits.

The mixing unit allows the use of a much smaller number of fittings and pipes necessary to perform individual installation circuits, organizes and simplifies the entire installation.

Shut-off valves with thermometers

AZB mixing units are supplied with built-in shut-off valves to facilitate product maintenance. Check valves have been built into the shut-off valves. Space for temperature sensors has also been prepared. The valve knobs contain thermometers to control the temperature of the heating medium. By turning the knob by 45 °, the non-return valve is forced to open to enable system maintenance and system filling.

Grundfos UPM3 AUTO 15-70 circulation pumps

For the operation of the Grundfos UPM3 AUTO circulation pumps included in the PrimoBox units, please refer to the attached operating instructions (also available on the manufacturer's website).

Connections for AZB mixing units

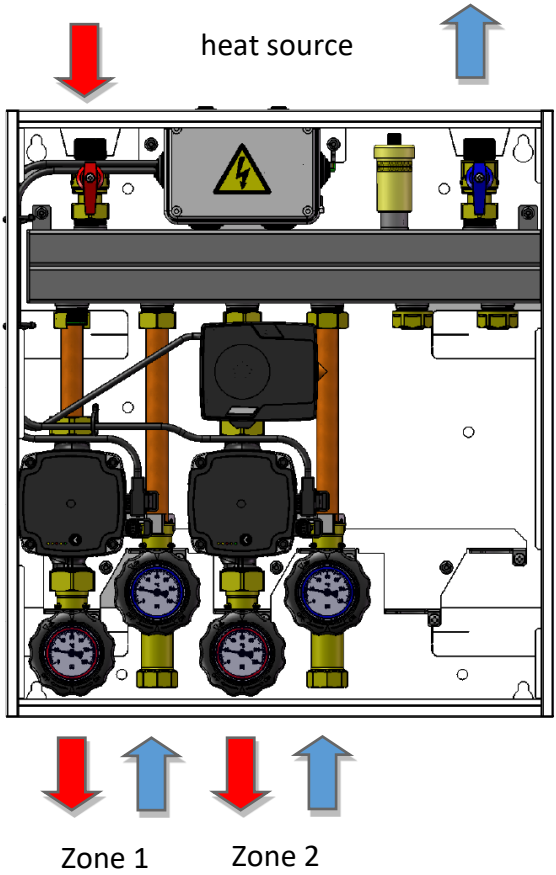


Fig. 3: Connections of PrimoBox AZB 405 mixing unit

3.4 Hydraulic diagram sample

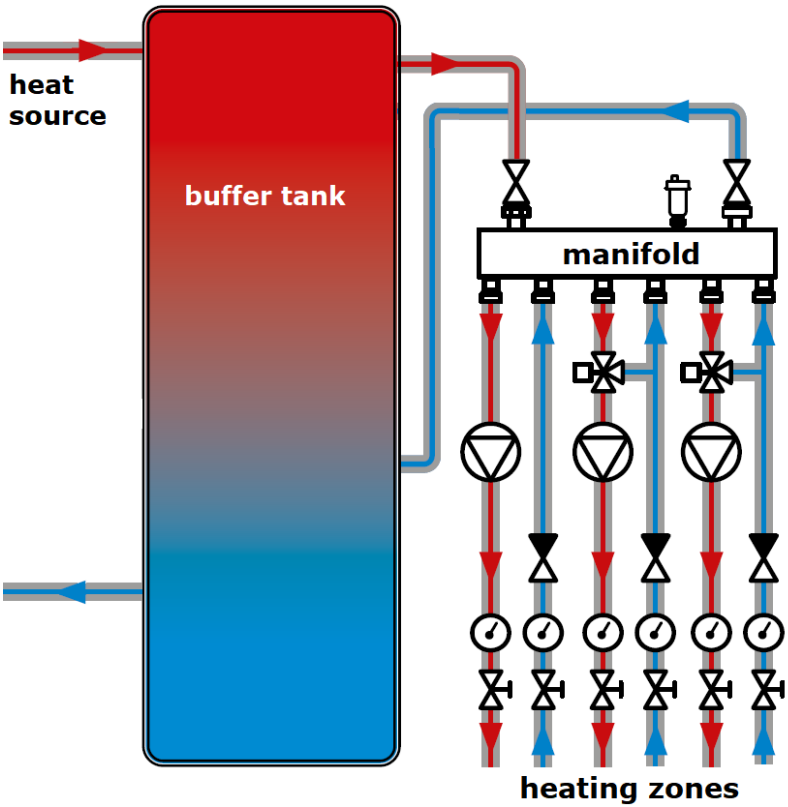


Fig. 4: PrimoBox AZB 555 hydraulic diagram

3.5 Sample application diagrams

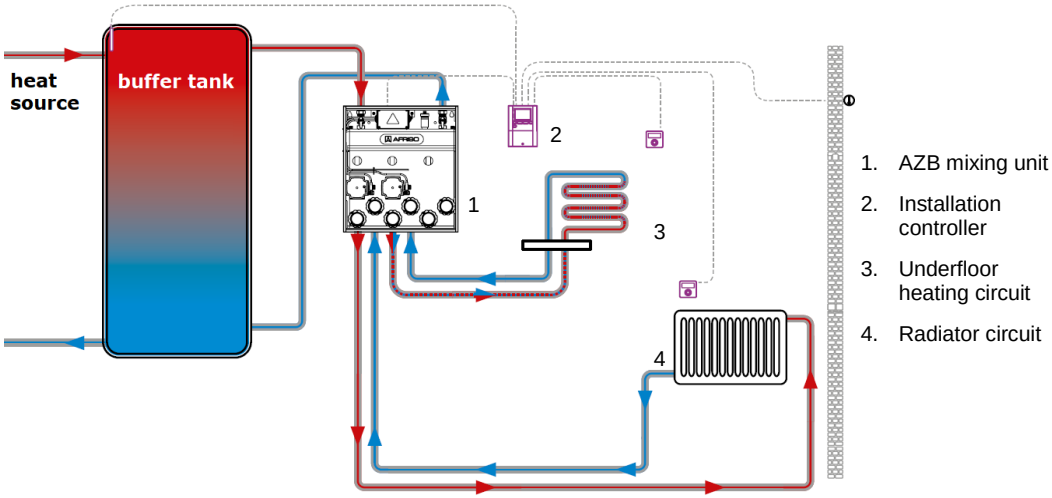


Fig. 5: Sample application diagram - 2 zones of underfloor heating system and a radiator system circuit

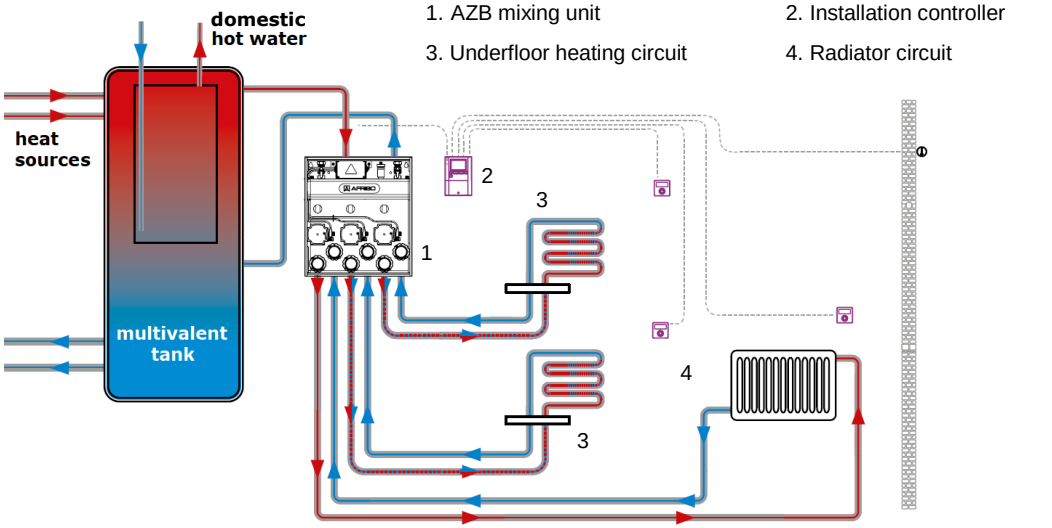


Fig. 6: Sample application diagram – 2 underfloor heating circuits, radiator system circuit with multivalent tank

4 Specification

Table 1: Technical data of AZB 400 & 500 units

Parameter / part	Value / Description
General specification	
Dimensions (W x H x D)	450 x 500 x 160mm
Weight	13 ÷ 22 kg
Circulation pumps	Grundfos UPM 3 AUTO 15-70 130 mm
Rotary mixing valve	Kvs 3,6 with 3-point ARM ProClick 230 V AC 50 Hz
Pressure	max 4,5 bar
Heat source connections	G¾"
Connection of individual zones	famale G¾"
Heating medium temperature	5°C ÷ 95°C
Glycol concentration	max 30%
Installation power	max 35 kW
Supply voltage	
Supply voltage	230 V AC ± 10%, 50 Hz
Power consumption	max 52 W
Housing protection	IPX 0

4.1 Approvals

Mixing units with manifold AZB series 400 and 500 are subject to the Pressure Directive 2014/68/EU and in accordance with art. 4.3 (sound engineering practice) are not CE marked.

Circulation pumps included in the product have a declaration of conformity, which is available on the manufacturer's website.

The ARM ProClick electric actuators used in the AZB units comply with EU directives on low voltage electrical equipment LVD (2014/35/EU) and electromagnetic compatibility EMC (2014/31/EU).

4.2 Flow and available pressure diagrams

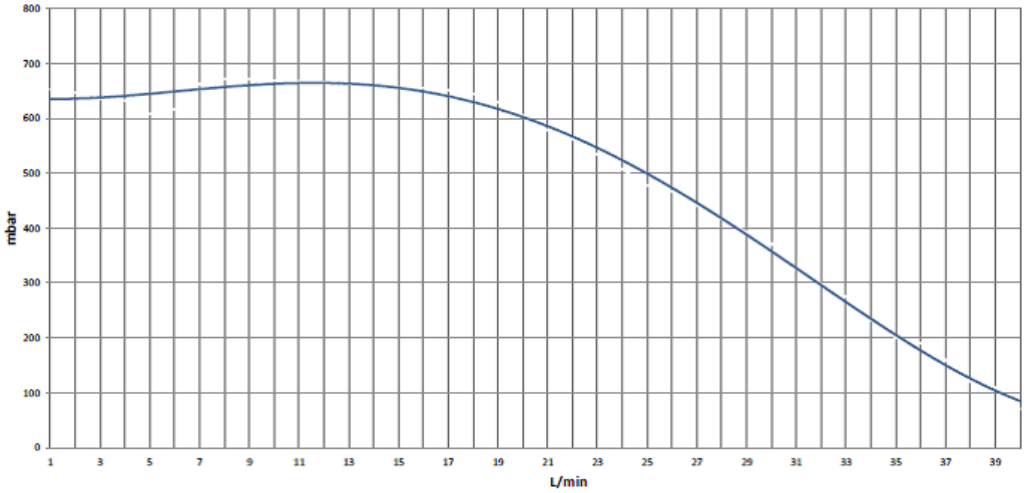


Fig. 7: Graph of flow rate and disposal pressure through a direct circuit

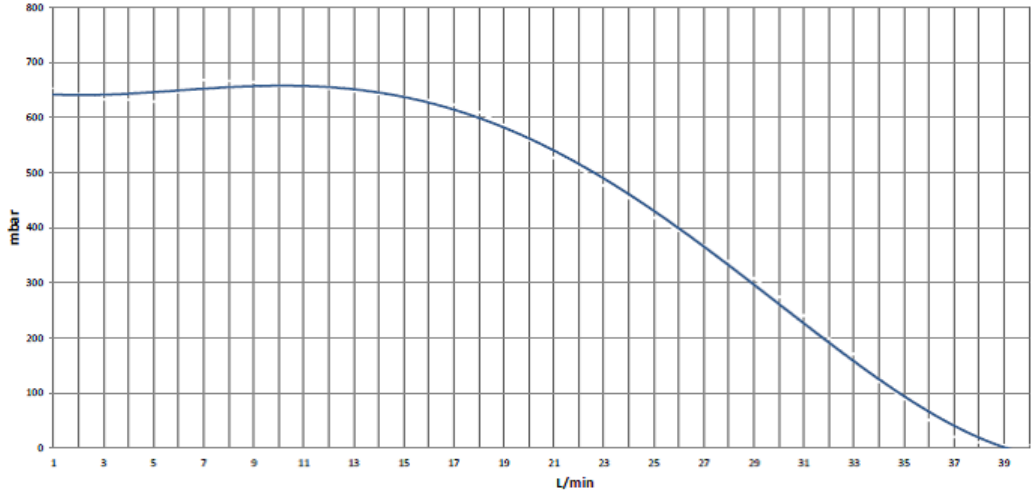


Fig 8: Graph of flow rate and disposal pressure through a circuit with mixing valve

5 Transport and storage

ATTENTION

Possibility of damage to the device during improper transport.

- Do not throw the device.
- Protect against water, moisture, dirt and dust.

ATTENTION

Possibility of damage during incorrect storage.

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

6 Installation and commissioning

The place where the AZB kit is installed must provide weather protection. The AZB module must not be installed outdoors. The AZB unit is designed for wall mounting or to embed it in the wall. It cannot be mounted on stands or placed directly on the floor.

ATTENTION

Possible damage to existing installations

- When drilling into walls, pay special attention not to damage electric cables or other existing cables.

6.1 Wall mounting

On the selected, straight wall, mark the places provided for the handles so that they coincide with the holes in the back of the PrimoBox AZB mixing unit. Drill holes in the wall and place the dowels (included in the delivery) in them. Hang the module on the dowels. Then check the correct leveling.

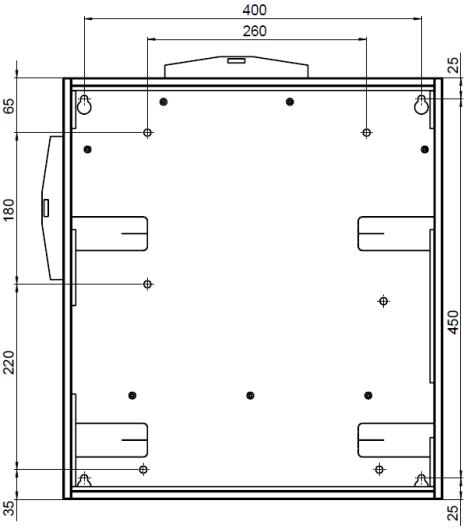


Fig. 9: Spacing of mounting holes

Possible need for other dowels

ATTENTION

- It is necessary to verify that the dowels provided are suitable for the selected wall.
- If the dowels provided are not suitable for the selected wall, replace them with others.
- Mounting the AZB unit on the improper dowels can lead to its breaking off the wall!

6.2 Flush mounting

Check whether the wall is strong and thick enough and that the PrimoBox AZB mixing kit will fit in the place you choose.

To install the PrimoBox AZB mixing kit in the wall, breach the fins placed in the housing and bend them with pliers so that they are outside the unit housing (Figure 10).

Then create a space in the wall, at least 2 cm larger than the external dimensions of the housing of the AZB mixing kit. Fasten the module in the hole in the wall with plaster or other suitable compound. Remember to level it carefully using a spirit level.

After drying, if necessary, make an aesthetic finish of the wall.

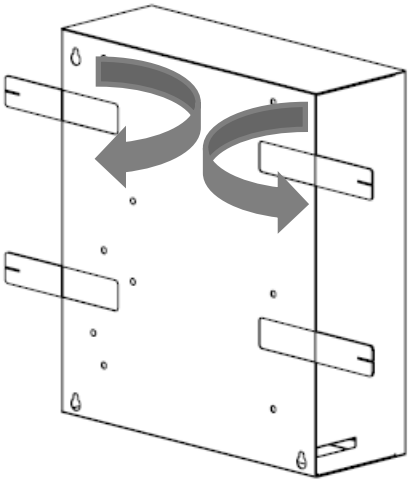


Fig. 10: Bending of the housing fins

6.3 Hydraulic connections

Before connecting the AZB mixing unit, flush the system thoroughly, paying special attention to removing residue from soldering, cutting pipes, etc. Make sure that the installation contains safety components necessary for proper and safe functioning. We recommend installing strainers before inlet connections. The heating installation should also contain filters, dirt separators or other similar filtering elements.

6.3.1 Connection of the primary circuit

The connection between the AZB mixing unit and the heat source (e.g. gas boiler) takes place via the supply and return connections at the top of the unit. The connection should be made by G¾" male threads.

6.3.2 Connection of individual heating circuits

The connection between the mixing unit and the heating system is made by pairs of supply/return connections located at the bottom of the AZB mixing unit 400 series (2 pairs) or 500 (3 pairs). The PrimoBox AZB 400 and 500 mixing units are equipped with threaded female G¾" connections.

6.4 Electrical connections

☑ Make sure that the power supply has been disconnected and protected against accidental switching on.

Safety regulations and other relevant accident prevention regulations must be observed. You should also comply with all applicable national laws. The PrimoBox AZB mixing unit is connected to 230V AC.

PrimoBox mixing units have a built-in electrical box. All necessary cables have already been distributed from the electrical box.

WARNING

Do not allow actuators, built-in electrical box and cables into contact with water.

An example of cable distribution is shown in Fig. 11.

The number of electric wires varies depending on the number of electric actuators and pumps in the set.

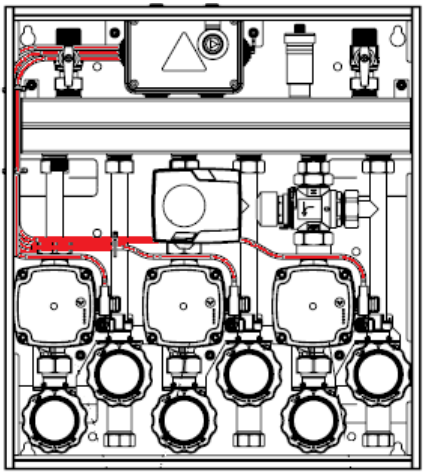


Fig. 11: Sample distribution of electric wires

Depending on the version, it is necessary to make additional connections between pumps and electric actuators with the controller or controllers. In this case, make an electrical connection of the controller with the AZB mixing unit according to the diagram (Fig. 12).

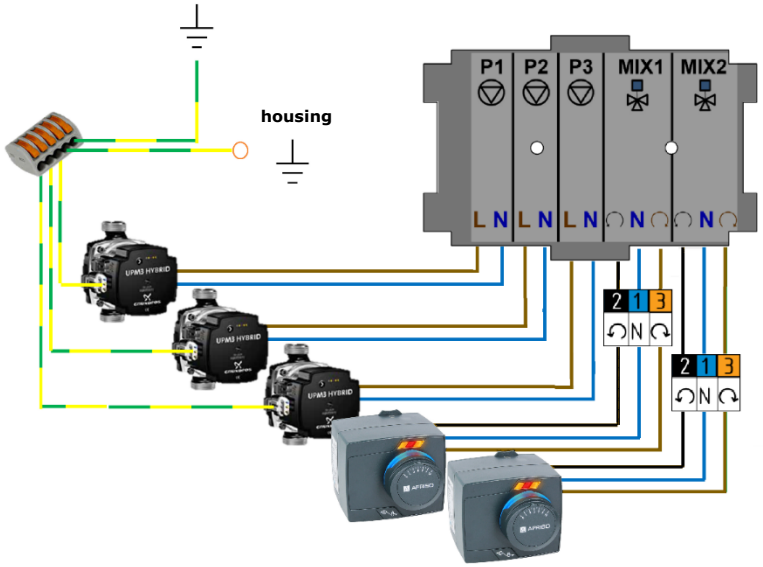


Fig. 12: Electrical diagram of the mixing unit PrimoBox AZB 555 with two ARM ProClick actuators

ARM ProClick actuators must be electrically connected to a suitable 3-point controller with a 230 V AC control signal.

The actuator power cord is detachable, which simplifies installation and electrical work. To remove the plug from the actuator, pry the lid latch lever and slide the cover off the actuator housing (Fig. 13), then unplug the plug (Fig. 14). The plug fits into the socket only in one position.

Fig. 13: Removing the lid

Fig. 14: ARM ProClick actuator plug

7 Assembly and disassembly of ARM ProClick actuators

The PrimoBox AZB unit is equipped with ARM ProClick electric actuators. They can be easily disassembled and reassembled.

The ARM ProClick actuators are removed from the valve by pressing the button on the side of the actuator housing and pulling the actuator towards you.

Fig. 15: Actuator latch release button

To mount the ARM ProClick actuator on the mixing valve of the AZB unit, the mixing valve must be set to "50% opening", i.e. the center of its valve is exactly halfway between the hot water inlet and the cold water inlet. Then slide the actuator onto the mixing valve until the ProClick mechanism locks on it.

When mounting the ProClick actuator on a rotary valve, pay attention to the current position of the valve cover. The valve stem should be positioned as in Figure 16 below, and the actuator position indicator should show half the scale.

If the valve is in a different position, set it manually (using a flat screwdriver, for example) as shown in Figure 16. If the indicator on the actuator does not indicate the center of the scale, switch it to manual operation mode, set the actuator with the allen key so that the indicator is in the center of the scale. After putting the actuator on the valve, switch back to automatic mode.

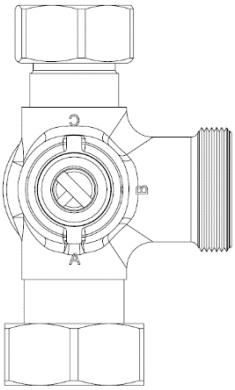


Fig. 166: Correct position of the rotary mixing valve when installing the actuator

8 Switching the actuator to manual operation

Switching from automatic to manual operation is carried out by operating the mode button.

Fig. 17: Actuator mode button

The pressed mode button enables manual operation, i.e. free operation of the actuator with an allen key.

9 Decommissioning, scrapping

1. Disconnect the device's power supply.
2. Disassemble the device (see chapter 6, reverse order).
3. In the interests of environmental protection, do not dispose of the device when it is out of service with unsorted household waste. The device should be delivered to an appropriate recycling facility.

The AZB 400 and 500 series mixing units are made of materials that can be recycled.

10 Warranty

The manufacturer’s warranty for this product is 36 months after the date of purchase from AFRISO sp. z o.o.. In case of any alteration in the product or usage against this instruction manual, the warranty becomes void.

11 Copyright

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12 Customer satisfaction

For AFRISO sp.z o.o. customer satisfaction is the most important thing.

If you have questions, suggestions or problems with the product, please contact: zok@afriso.pl, phone number +48 32 330 33 55.

13 Addresses

The addresses of companies representing the AFRISO group around the World can be found at www.afriso.com.