AFRISO Sp. z o.o.

Szałsza, ul. Kościelna 7
42-677 Czekanów

Tel. +48 (0) 32 330 33 50
info@afriso.pl
www.afriso.pl

Installation and operating manual

Heating pump assembly RTA 45, 55, 60 and 72

Art.- No 77 546, 77 547, 77 548, 77 549

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

953.001.0140 3 Version: 06.2026

Table of contents

1 Explanations to the installation and operating manual

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

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

1.1 Safety messages and hazard categories

WARNING **Type and source of the hazard are shown here.**

- ▶ Precautions to take in order to avoid the hazard are shown here.

There are three different levels of warnings:

Warning	Meaning
DANGER	Immediately imminent danger! Failure to observe the information will result in death or severe injuries.
WARNING	Possibly imminent danger! Failure to observe the information may result in death or severe injuries.
CAUTION	Dangerous situation! Failure to observe the information may result in minor or moderate injuries or property damage.

2 Safety

2.1 Intended use of the device

RTA pump assemblies are used to protect solid fuel boilers before excessively low return temperatures. Each assembly comprises a circulation pump, a temperature valve, a flap valve allowing for gravity flow, shut-off valves, and thermometers at each connection of the assembly. The entire unit is insulated. The unit maintains the temperature of the medium returning to the boiler at the proper level, in accordance with the version of the temperature valve used in the unit, i.e. 45°C, 55°C, 60°C or 72°C.

Any use other than that specified in section 2.1 is prohibited.

2.2 Predictable incorrect application

Do not use this product in the following cases:

- when operating conditions exceed the maximum allowable pressure or temperature of the medium,
- with the following liquids and gases: with the following liquids and gases: a mix of water and glycol with a glycol concentration of more than 50%, water vapour, oil, petrol, water intended for human consumption, other media that damage the valve components or interfere with its operation.

2.3 Quality control

Construction of heating pump assembly RTA 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 manual for assembly and use as well as observe the relevant safety regulations.

WARNING **Mains voltage (230 V AC) can cause severe burns or death.**

▶ Do not allow the circulation pump housing to come into contact with the heating medium.

▶ Before carrying out any maintenance work, disconnect the device from the mains.

▶ Do not make any modifications to the device.

2.4 Personnel qualification

Heating pump assembly must only be installed, commissioned, switched off and dismantled by proper qualified and trained personnel. Work on electrical circuits must only be carried out by a qualified electrician.

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 Usage of spare parts and accessories

Usage of unsuitable spare parts and accessories may cause damage to the product.

▶ Use only genuine spare parts and accessories of 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: info@afriso.pl, tel. 32 330 33 55.

3 Product description

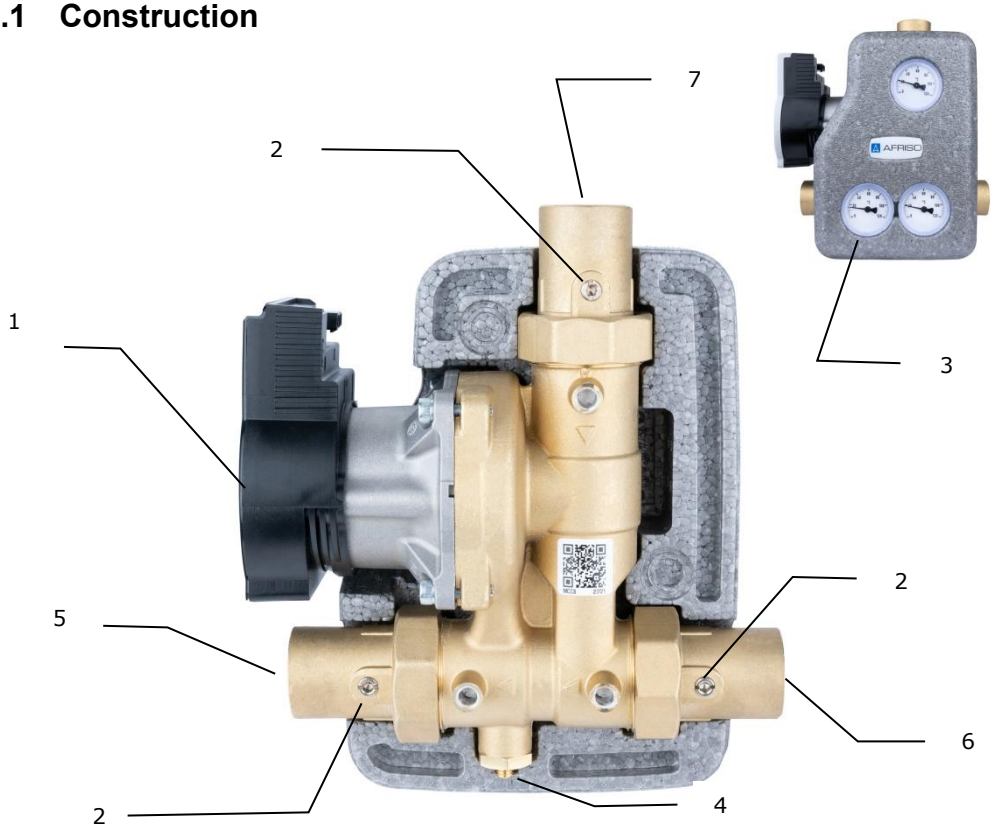
RTA pump assemblies are available in four versions:

- with a temperature valve rated at 45°C
- with a temperature valve rated at 55°C
- with a temperature valve rated at 60°C
- with a temperature valve rated at 72°C

RTA pump assemblies ensure that the return water to the solid-fuel boiler is maintained at the proper temperature, as specified by the manufacturer. This protects the boiler’s internal components against low-temperature corrosion.

RTA pump assemblies are insulated, which minimises heat loss to the surrounding environment. Thanks to thermometers fitted to each connection on the unit, it is possible to monitor the temperature and thus verify the operation of the unit.

3.1 Construction



1- Wilo Para STG pump
2- Ball shut-off valves
3- Thermometers
4- Adjustment screw for the flap valve
5- Return connection to the heat source
6- Return connection from the system
7- Bypass connection (heat source supply)

Figure 1: Construction of RTA heating pump assemblies.

3.2 Dimensions

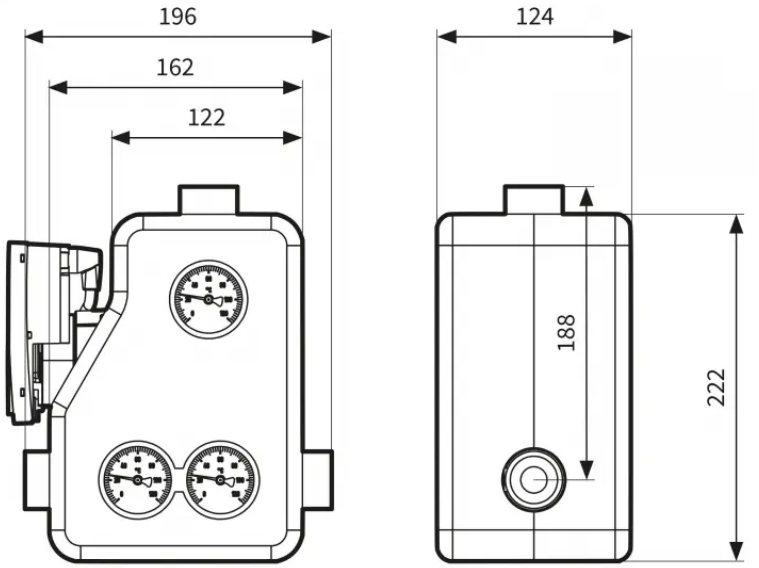
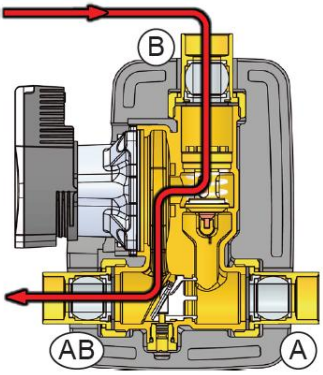


Figure 2: Dimensions of the RTA heating pump assemblies.

3.3 The principle of operation of RTA pump assemblies

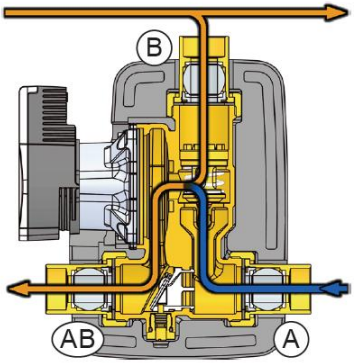
The diagrams below illustrate the various stages of operation of the temperature valve included in the RTA pump assemblies.

Stage 1. System start-up.



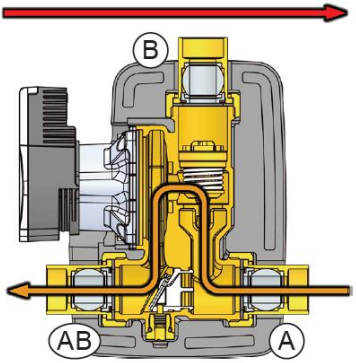
Once the boiler has been fired up, the temperature valve remains fully closed on the system side (connection A) until the medium has reached the temperature valve's set point. During this stage, all the medium flows solely through the bypass (connection B), causing the medium's temperature to rise very quickly.

Stage 2. Central heating system supply



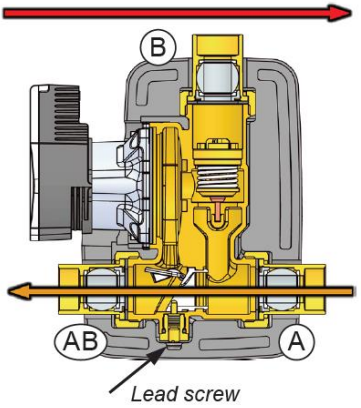
Once the temperature reaches the set point of the temperature valve, the connection on the system side (A) begins to open, whilst the bypass (connection B) begins to close. The heat generated by the boiler begins to be transferred to the central heating system, but is regulated so that the return temperature does not fall below the valve's set point.

Stage 3. System operation.



The supply temperature rises until the central heating system connection (connection A) is fully open, whilst the bypass (connection B) is fully closed. This situation occurs when the temperature of the heating medium returning to the valve is approximately 10°C higher than the temperature rating of the temperature valve. In this state, all the heat produced at the source is supplied to the system.

A situation in which gravitational circulation occurs



Gravity flow of the heating medium through the flap valve may occur when the circulation pump stops running and residual heat is transferred from the heat source to the system. The flap valve then closes the bypass (connection B) and allows the medium to flow from the system back to the heat source.

The flap valve also acts as a safeguard against overheating of the heat source in the event of a pump or power supply failure.

NOTE!

To allow gravity flow through the RTA unit, turn the control screw anti-clockwise. The flap valve can be locked in place again by turning the adjustment screw clockwise. This operation may only be carried out whilst the circulation pump, which is part of the unit, is running.

3.4 Example application schemes

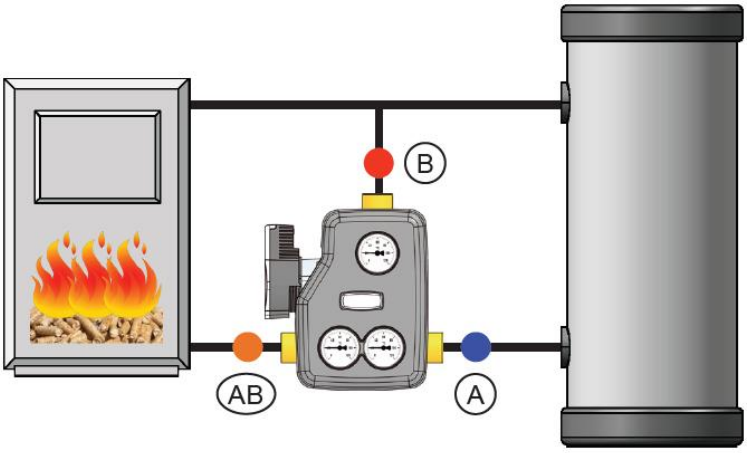


Figure 3: Installation of the RTA heating pump assembly in a system with a solid fuel boiler on the left-hand side.

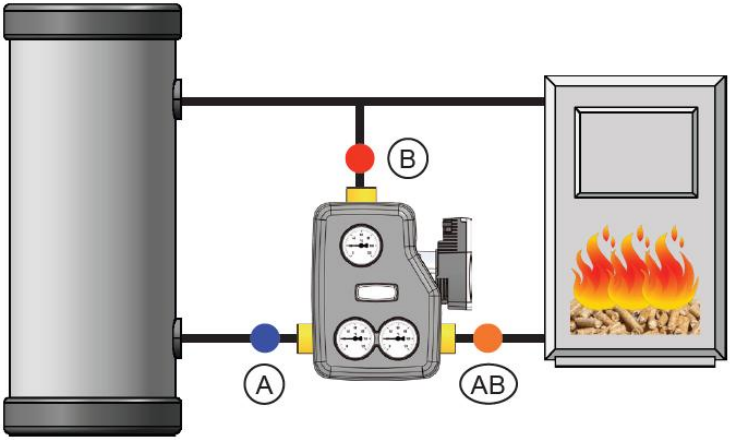


Figure 4: Installation of the RTA heating pump assembly in a system with a solid fuel boiler on the right-hand side.

4 Montage and commissioning

The installation place of the RTA unit must provide protection against the weather conditions. The unit must not be installed outside buildings. The permissible installation positions for the unit are shown in Figure 5.

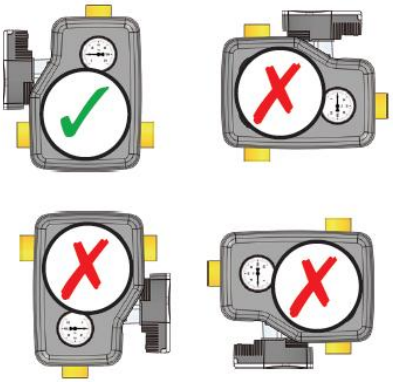


Figure 5: Permissible installation positions for RTA heating pump assemblies.

The RTA pump assembly can be installed on either side of the heat source. By default, the assembly is designed for installation with the heat source on the right-hand side. To install the assembly on the other side of the heat source, simply move the thermometers to the other side of the insulation. To do this:

- open the insulation and remove the three thermometers from their slots,
- pierce the insulation for the thermometer pocket in the prepared embossing,
- fit the insulation and place the thermometers in the prepared slots, ensuring that the thermometers do not protrude beyond the insulation.

4.1 Electrical connections

☑ Please ensure that the power supply has been disconnected and secured before accidental activation.

Health and safety regulations and other relevant accident prevention regulations must be observed.

All applicable national regulations must also be complied with.

The pump included in the unit is connected to a 230 V AC supply.

5 Technical data

Table 1: Technical data of the RTA heating pump assemblies.

Parameter / part	Value / description
General specifications	
Circulation pump	Wilo Para STG/8
Pressure	max 10 bar
Connections	3x G1” F
Temperature of the heating medium	max 100°C
Rated temperature of the temperature valve	45°C, 55°C, 60°C, 72°C (depending on the version)
Valve full-open temperature	Rated valve temperature +10 K
Supply voltage	
Rated voltage	230 V AC
Power consumption	max 75 W

5.1 Approvals and certificates

RTA heating pump assemblies are subject to the Pressure Directive 2014/68/EU and are not CE marked in accordance with Article 4.3 (recognised engineering practice).

The circulation pumps supplied with the product are accompanied by a declaration of conformity, which is available on the manufacturer’s website.

5.2 Construction and operation of the pump

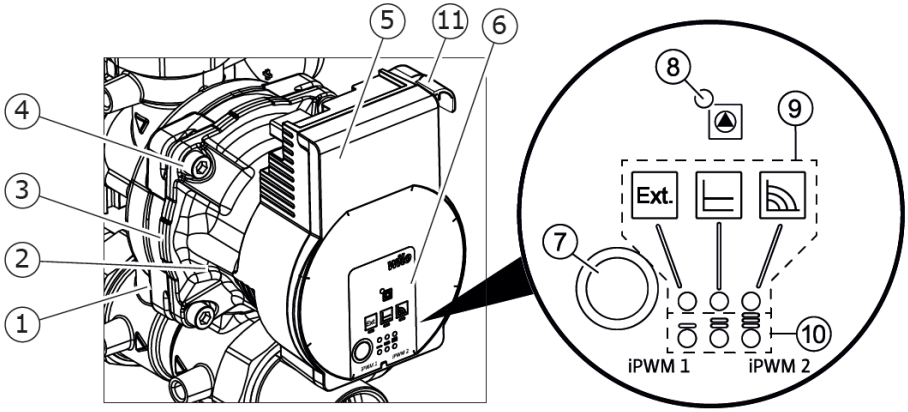
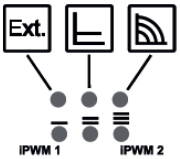


Figure 6: Pump construction and markings Wilo Para STG.

1. Pump housing with screw connections
2. Pump motor
3. Condensate drain
4. Housing fixing bolts
5. Control module
6. Rating plate
7. Button for changing pump operating parameters
8. LED indicator light
9. Display of the selected control mode
10. Display of the selected pump operating characteristic
11. PWM signal connection

LED indicator lights

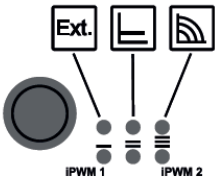
- Signalling
  - In normal operation mode the LEDcontrol button lights up green
  - The LED lights up or flashes when a fault occurs



- Display of the selected control mode external control, Δp-c and constant speed

- Indication of the selected pump characteristic (I, II, III or iPWM1, iPWM2) within the control mode setting
- LED indicator lights for the venting function, manual restart and key lock

Control button



Press

- Choosing the type of control
- Selection of pump characteristics (I, II, III or iPWM1, iPWM2) in terms of control type

Press and hold

- Activating the venting function (press and hold for 3 seconds)
- Manual restart function (press and hold for 5 seconds)
- Locking/unlocking buttons (press and hold for 8 seconds)

Setting the control mode

- The control mode and corresponding pump characteristics are selected by turning the dial clockwise.
- To change the characteristics, briefly press (for approx. 1 second) the control button.
- The LEDs indicate the current settings: control mode and pump characteristics.

	LED display	Control mode	Pump characteristics
1		Constant speed	II
2		Constant speed	I
3		External control mode iPWM	iPWM 1
4		External control mode iPWM	iPWM 2
5		Constant differential pressure Δp-c	III
6		Constant differential pressure Δp-c	II
7		Constant differential pressure Δp-c	I
8		Constant speed	III

After pressing the button for the eighth time, the factory setting is selected.

The pump is designed to operate in accordance with the constant speed characteristics and at maximum speed (curve III in Figure 7).

The recommended operating mode for the pump is operation at a constant speed or ope The recommended operating mode for the pump is operation at a constant speed or operation based on an external PWM signal ration based on an external PWM signal.

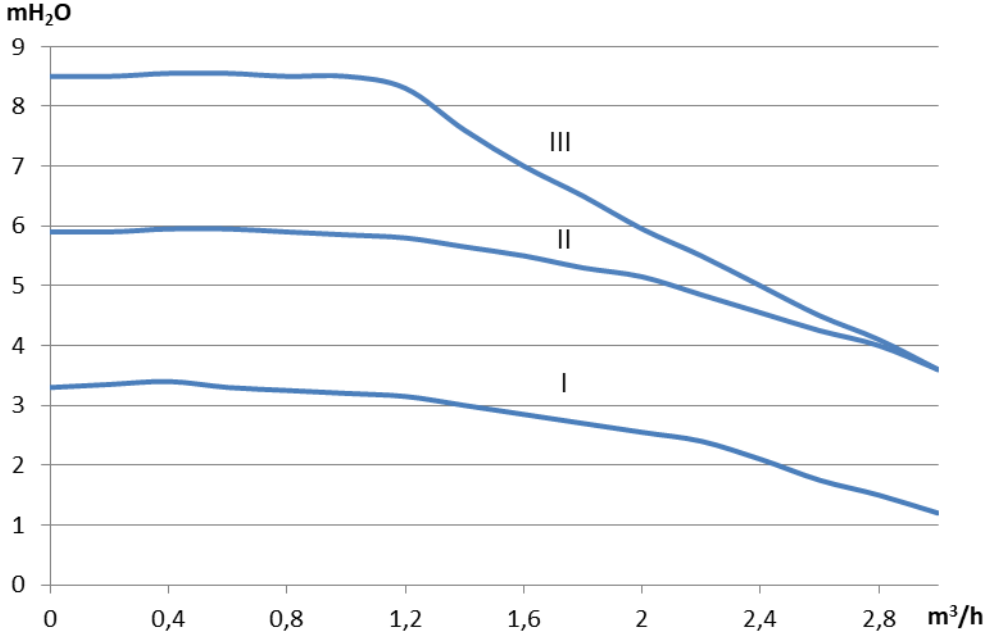


Figure 7: Performance characteristics of the Wilo pump.

5.3 Built-in pump functions

Venting

The automatic pump venting function is activated by pressing and holding the pump operating parameters button for 3 seconds. The pump venting function is activated and runs for 10 minutes. During this time, the bottom and top rows of LEDs flash alternately every 1 second. The function can be cancelled by pressing and holding the button for 3 seconds.

Manual restart of a locked pump impeller

The manual pump restart is activated by pressing and holding the pump operating parameters button for 5 seconds. The restart function is activated and runs for 10 minutes. While the mode is active, the LEDs light up one after the other in a clockwise direction. To cancel the mode, press and hold the button for 5 seconds.

Locking/unlocking the pump operating parameters button

To activate the key lock, press and hold the button on the pump for 8 seconds until the LEDs for the selected setting flash briefly. The LEDs flash continuously every second. The key lock is now active; you cannot change the pump settings. To deactivate the key lock, follow the same procedure as for activating it.

6 Transport and storage

CAUTION **Possibility of damage to the device during improper transport.**

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

CAUTION **Possibility of damage to the device during improper storage.**

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

7 Decommissioning, disposal

1. Disconnect the power supply.
2. Dismount the device.
3. Dispose of the product according to local directives and guidelines. Electronic parts and batteries should not be disposed of with household waste. Return the product to the appropriate collecting point or to the manufacturer's or distributor's collecting point.

8 Warranty

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

9 Copyright

Any alteration to technical details, whether in written form or in the form of illustrations, is prohibited by law.

We reserve the right to make changes without prior notice.

10 Customer satisfaction

For AFRISO customer satisfaction is paramount. If you have any questions, suggestions or product problems, please contact us.

11 Addresses

The addresses of companies representing the AFRISO Group worldwide can be found at www.afriso.pl.