

## **tubra<sup>®</sup> - PGR DN 25/32**

### **Pump group for unmixed heating circuits**

**Assembly and operating instructions**

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## 1 Introduction

This manual describes the assembly, operation and maintenance of the **tubra®-PGR DN 25/32** heating circuit station.

This manual is intended for trained specialists with an adequate level of expertise in handling heating systems, water pipe installations and electrical installations.

The installation and commissioning procedures should only be conducted by qualified, specialist personnel.

The **tubra®-PGR DN 25/32** pump group must only be installed and operated in a dry environment that is protected from frost.

Please read through these instructions carefully before starting installation.

Non-compliance will invalidate all claims under the guarantee and warranty.

Illustrations are symbolic and may differ from product to product.

Subject to technical modifications and errors.

### 1.1 Intended use

The **tubra®-PGR DN 25/32** pump group serves exclusively to circulate the heating water for operating a heating circuit. The **tubra®-PGR DN 25/32** pump group must only be operated using heating water in accordance with VDI 2035.

### 1.2 Safety instructions

In addition to country-specific guidelines and local directives, the following technical regulations must also be taken into account:

- EN 12 828 Heating systems in buildings
- DIN 4753 Water heaters, water heating installations and storage water heaters for drinking water
- DIN 18 380 Heating systems and central water heating systems
- DIN 18 381 VOB: Gas-, water-, sewage installation works
- DIN 18 421 VOB: thermal insulation work on thermal installations
- VDI 2035 Avoidance of damage in hot water heating systems
- VDE 0100 Series of standards on the use of electrical equipment of machines
- VDE 0701 Repair, modification and testing of electric equipment
- VDE 0190 Main equipotential bonding of electric facilities
- BGV Accident prevention regulations of workers' compensation associations



As the system can reach temperatures > 60 °C, there is a risk of scalding and burning through contact with the components.

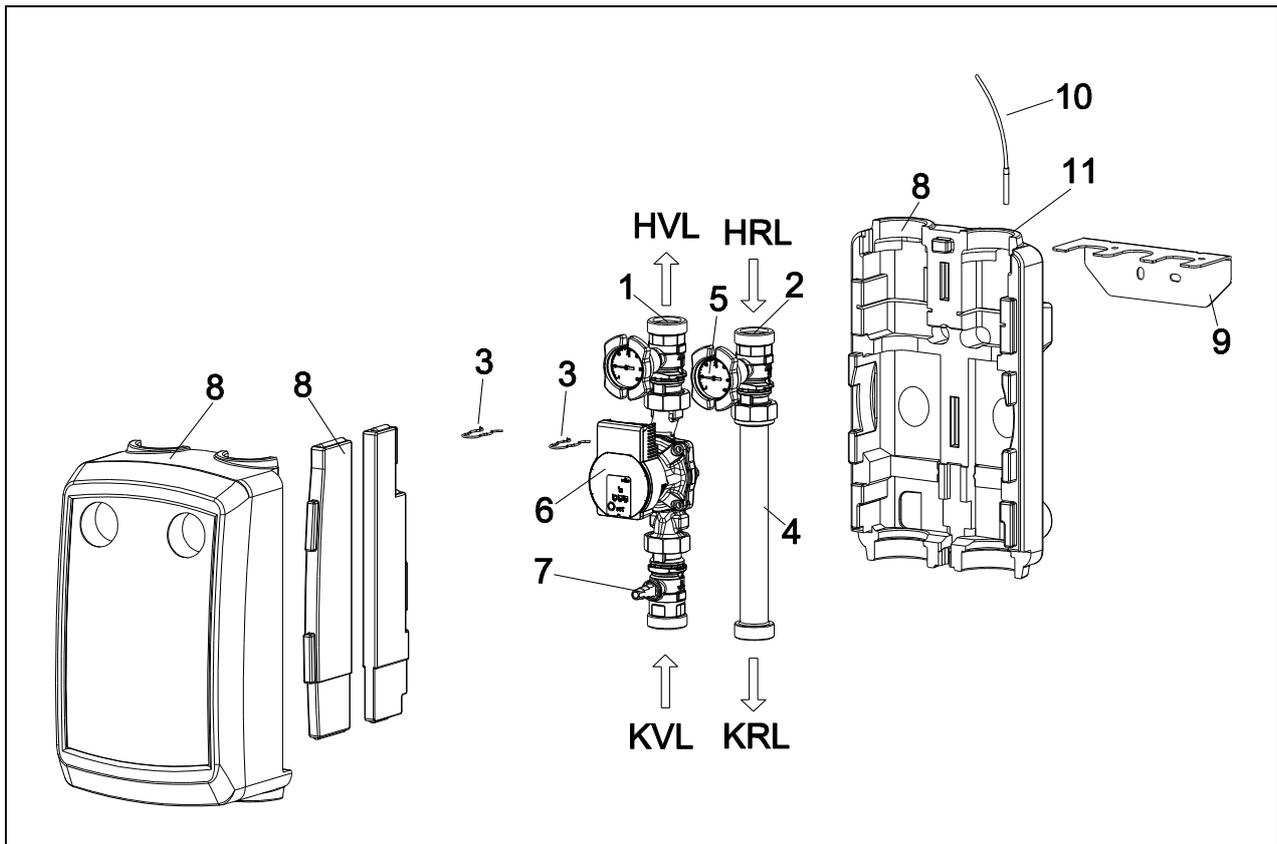
### 1.3 Other applicable documents

Also observe the assembly and operating instructions for the various components used, such as the servo-motor.

### 1.4 Delivery and transport

Please check to ensure the product is complete and undamaged immediately after receipt. Any damage or complaints must be reported immediately.

## 2 Layout and scope of delivery



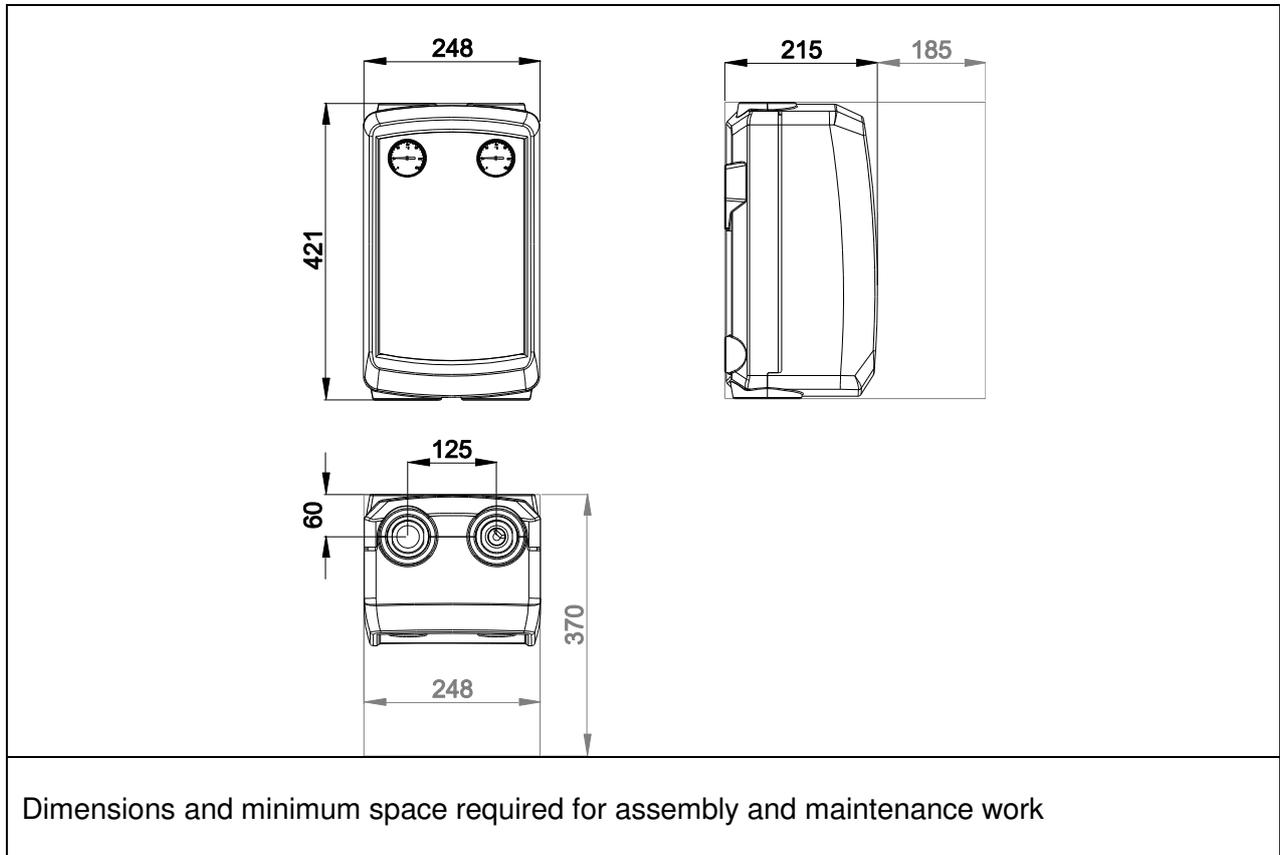
Pos.	Designation	ET- Nummer
1	Ball valve for heating flow, with applying prism for temperature sensor, red handle	DN 25: 968.70.58.00.01 DN 32: 968.50.58.00.01
2	Ball valve for heating return, with applying prism for temperature sensor and gravity brake, blue handle	DN 25: 966.70.27.00.01 DN 32: 966.50.27.00.01
3	Safety springs	
4	Adapter pipe	968.00.08.00.01
5	Dial thermometer (flow/retrun)	665.24.19.00.01
6	Circulation pump	on demand
7	Pump shut-off	DN 25: 966.70.06.00.01 / DN 32: 966.50.28.00.01
8	Insulation consisting of front and rear shell, cover and inserts	
9	Mounting angle	
10	Flow sensor [not included in scope of delivery]	
11	Recess for the flow sensor	
HVL	Heating flow	KVL   Boiler flow
HRL	Heating return	KRL   Boiler return

### 3 Technical specifications

#### 3.1 General instructions

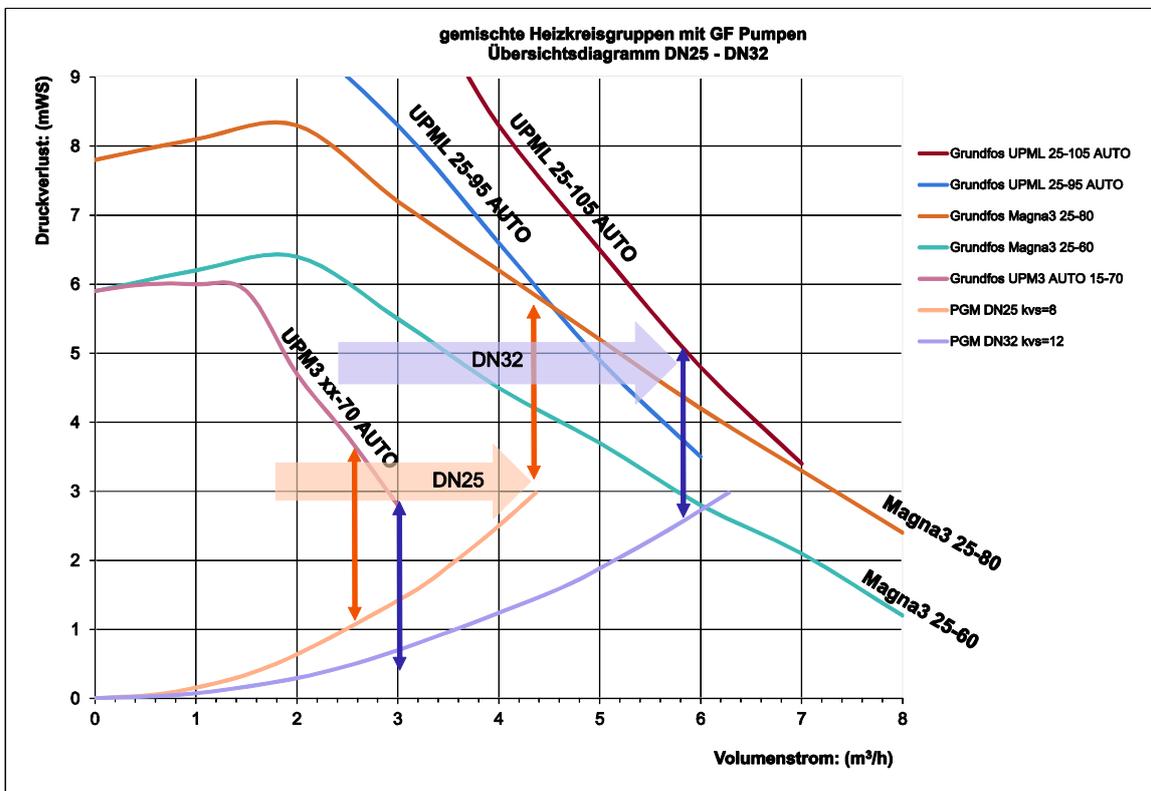
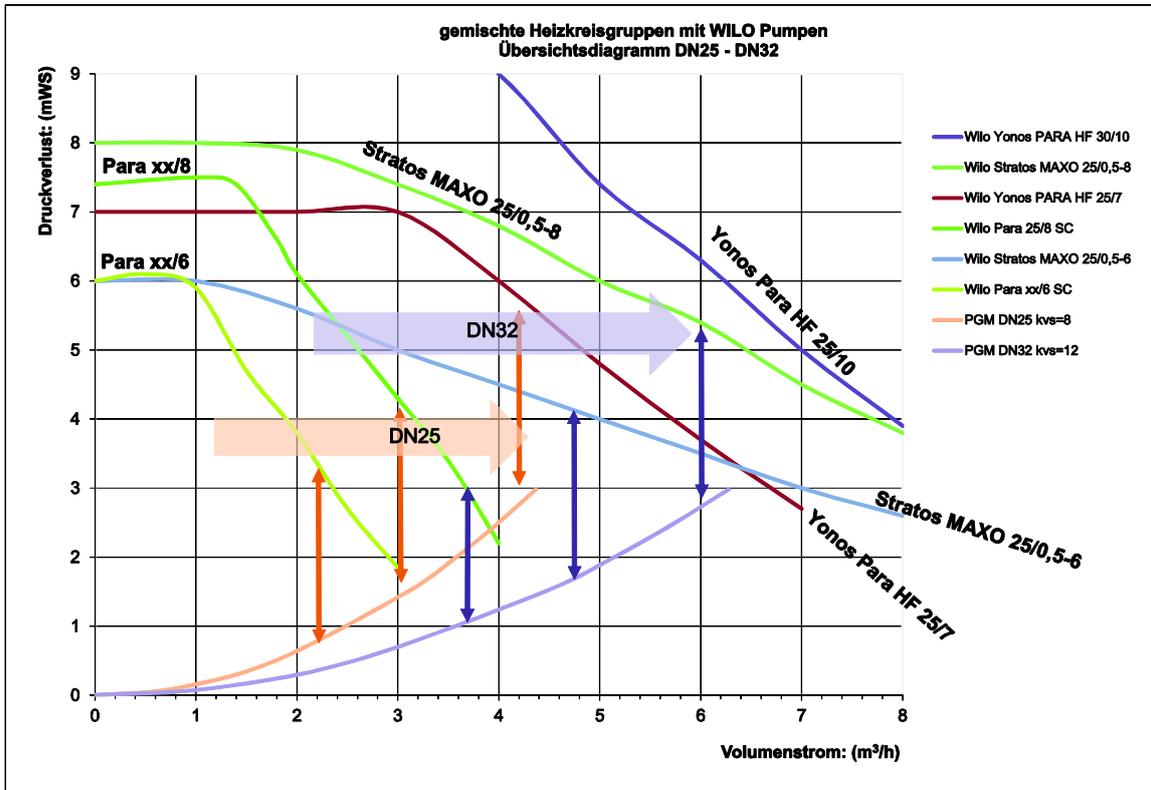
Designation/type	tubra®-PGR	tubra®-PGR
Nominal size	DN 25	DN 32
Nominal output, ΔT 20 K	Power: up to 100 kW depending on pump type	Power: up to 160 kW depending on pump type
Connections	On the heating circuit	G1½ AG / Rp1
	On the boiler	G1½ AG
		G2 AG
Max. operating pressure	3 bar	3 bar
Max. operating temperature	95°C	95°C
Medium	Heating water according to VDI 2035	Heating water according to VDI 2035
Opening pressure for each gravity brake	20 mbar	20 mbar
Circulation pump		Para 25/6 SC
	optional	Para 25/8 SC
	optional	UPM3 25 -70 Auto / Hybrid
	optional	without pump
	on demand	for other pumps see pressure loss
Electrical connections	230 V AC/ 50-60 Hz	230 V AC/ 50-60 Hz

#### 3.2 Dimensions / required space



### 3.3 Pressure loss

#### tubra®-PGR DN 25/32

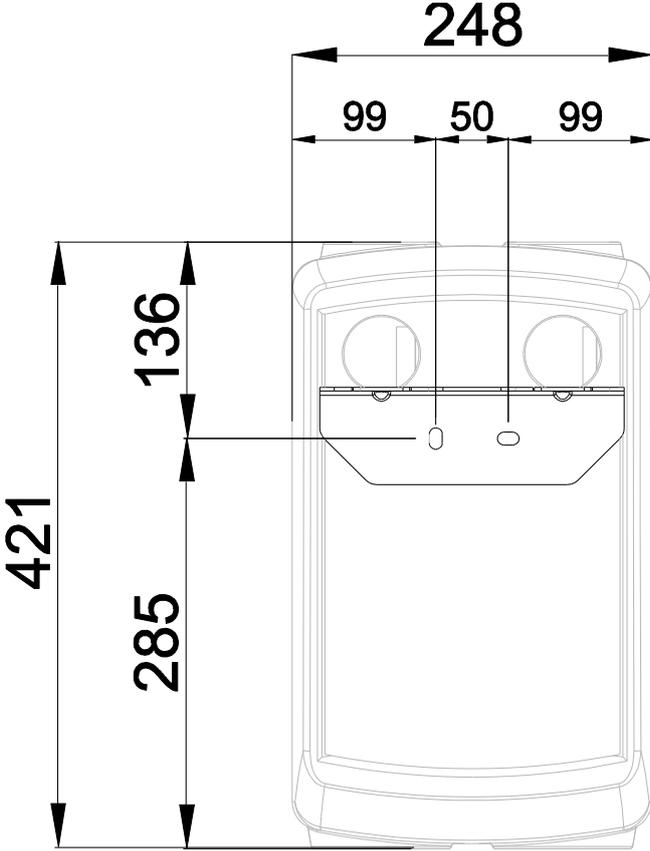
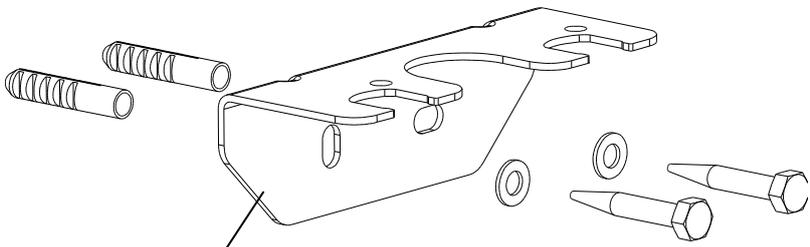


## 4 Assembly

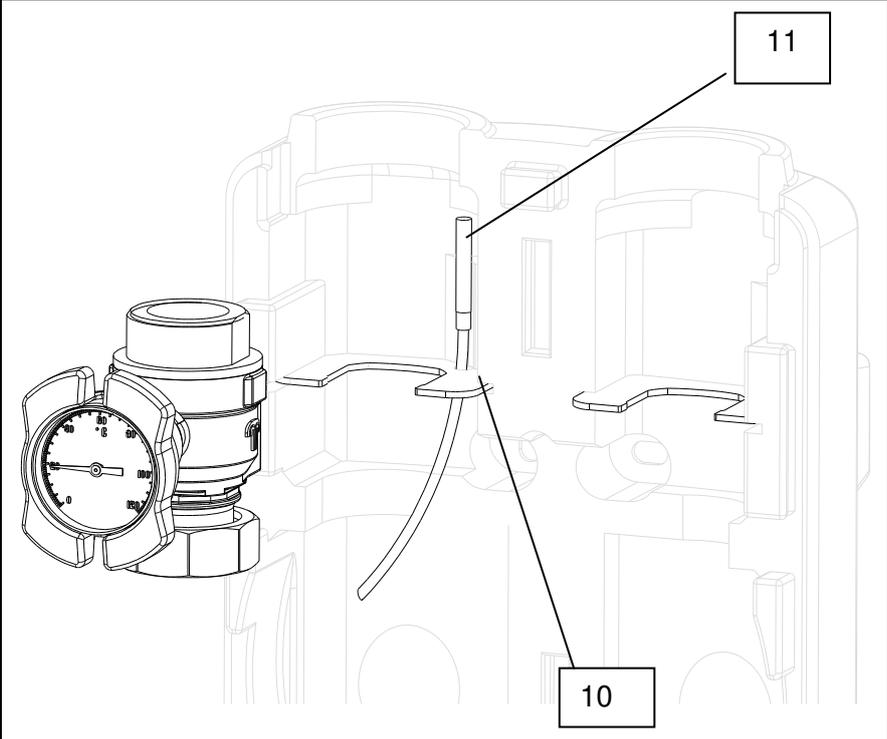
### 4.1 General description

The heating circuit station can be installed and operated in many different installation positions, provided that the pump shaft is horizontal.

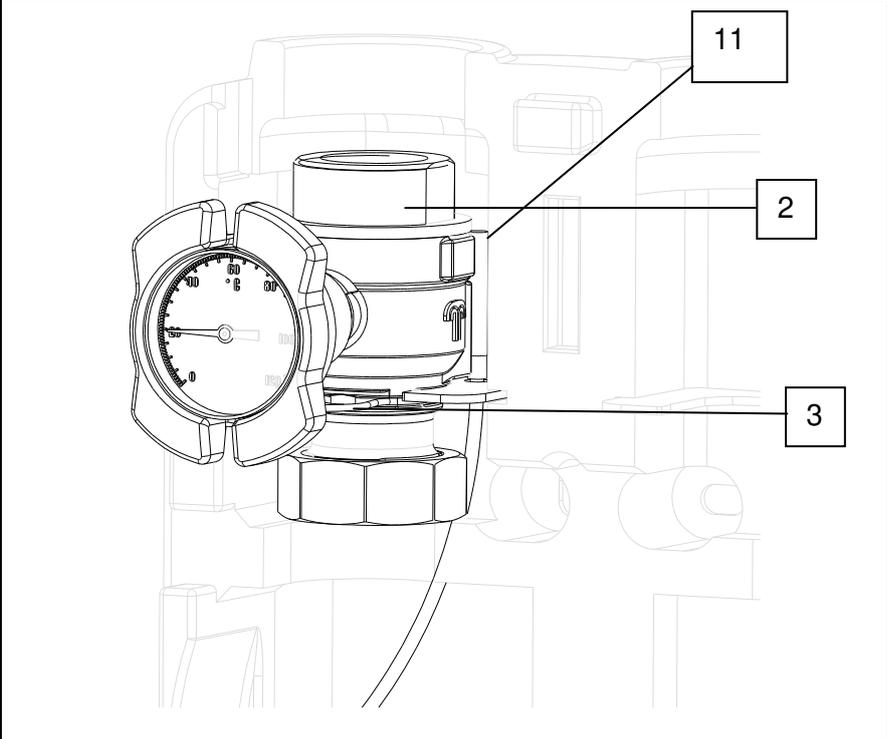
### 4.2 Wall-mounted assembly

	<p>Remove securing springs [3]. Lift the feed and return lines and remove them from the Pull out angle [10]. Remove the rear insulation shell.</p> <p>Mark attachment points of the mounting bracket [10] to the wall and drill two <math>\varnothing 10</math> mm holes.</p>
 <p>10</p>	<p>Place the dowel and tighten the mounting bracket [10] with the screws and washers.</p> <p>Align mounting bracket [10] horizontally.</p> <p>Slide the rear insulation shell onto the mounting bracket [10].</p> <p>Insert the feed and return line in the mounting bracket and secure with the locking springs [3].</p>

### 4.3 Mounting sensor



The sensor [11] is inserted into the hole provided in the mounting bracket [10] from below.

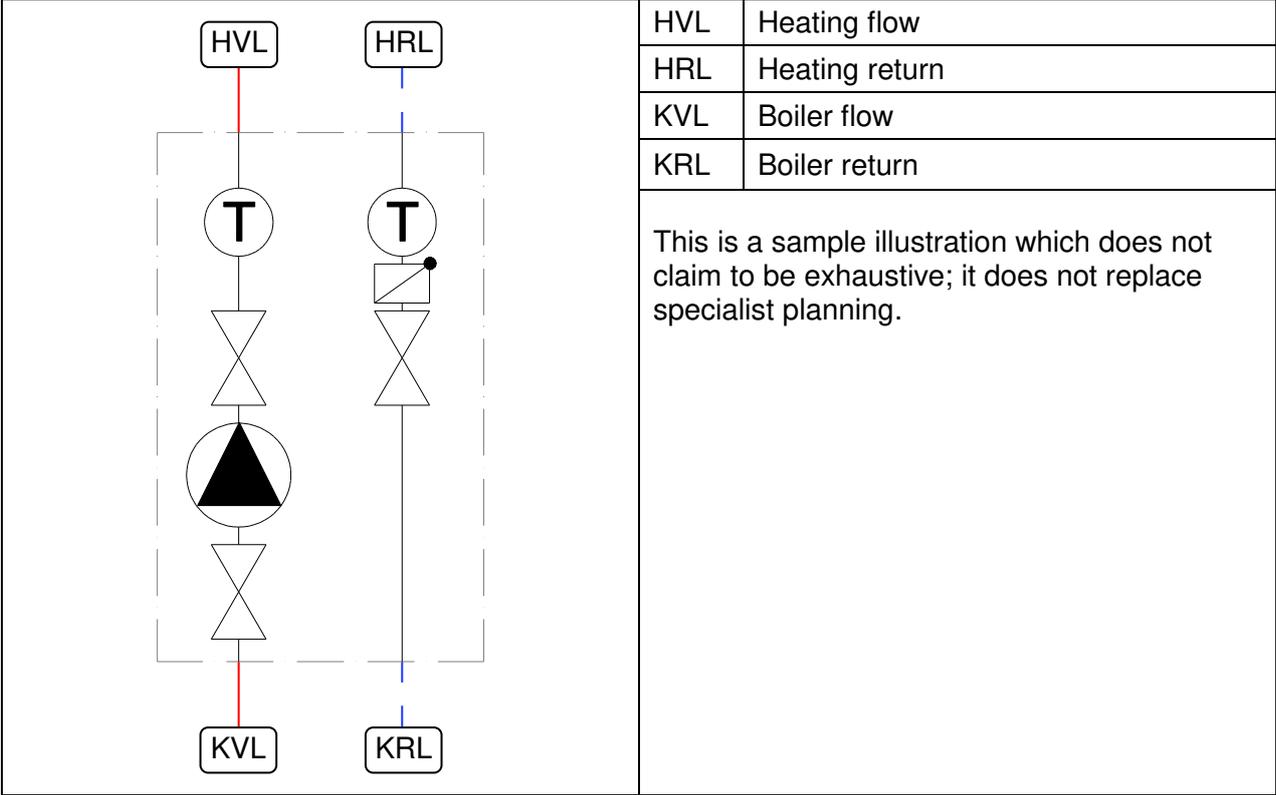


Mount pump group and secure ball valves [2] with safety spring [3].

Fasten sensor [11] and cable with cable tie.



**4.4 Hydraulic connection**



**4.5 Electrical connections**

**4.5.1 General description**

Only authorised, specialist personnel are permitted to open electrical housings and work on the electrical system after de-energising the equipment.  
 When establishing connections, make sure the terminal assignments and polarity are correct.  
 Protect the electrical components from overvoltage.

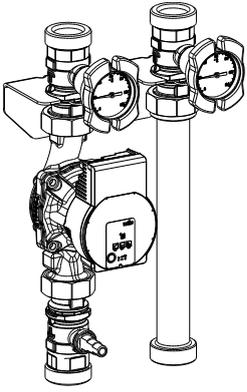
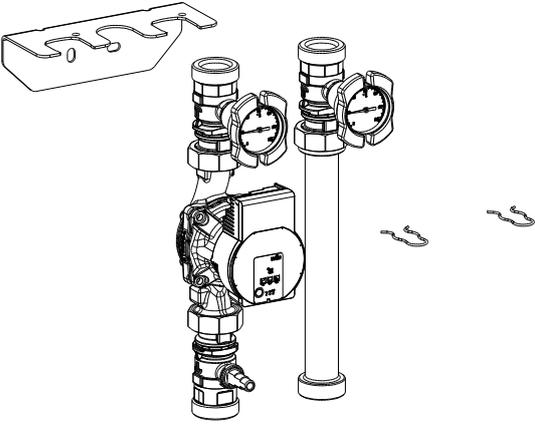
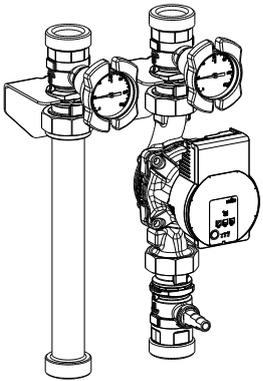
 <b>Danger!</b>	<p>Risk of fatal electric shock as a result of incorrect electrical connections.</p> <ul style="list-style-type: none"> <li>→ Electrical connections must exclusively be created by electricians approved by energy suppliers and as per the locally applicable regulations.</li> <li>→ Disconnect the supply voltage prior to conducting any work.</li> </ul>
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**4.5.2 Circulation pump**

Refer to the operating manual of the circulation pump.



#### 4.6 Modification from flow on the left to flow on the right

 <p>The diagram shows a pump assembly mounted on a vertical pipe. The pump is oriented vertically with its front face to the left. Two ball valves are located above the pump, also oriented vertically. The return line is on the left and the supply line is on the right.</p>	<p>Initial situation return left.</p>
 <p>The diagram shows the pump assembly with the mounting plate removed. Two safety springs are shown being pulled off from the ball valves. The return line is now on the right and the supply line is on the left.</p>	<p>Pull off the safety springs on the ball valves. Lift the assembly out of the mounting plate and replace the supply and return lines.</p>
 <p>The diagram shows the pump assembly after modification. The pump is now oriented vertically with its front face to the right. The ball valves are also oriented vertically. The supply line is now on the right and the return line is on the left. The pump group is secured with safety springs.</p>	<p>The supply line is now on the right, with the pump facing forward. Fix the pump group with safety springs. The pump group has now been modified from flow on the left to flow on the right.</p>

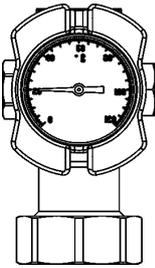
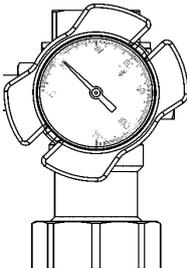
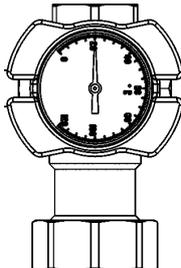
**5 Operation**

**5.1 Circulation pump**

Observe the operating manual of the circulation pump.

**5.2 Function of the gravity brake and ball valves**

The gravity brake is installed in the return ball valve

 <p>Operational position</p>	 <p>Gravity brake lifted</p>	 <p>Ball valve closed</p>	<p>The gravity brake in the return ball valve [2] is set vertically during operation.</p> <p>The gravity brake can be released for service and maintenance work or for draining the system.</p> <p>To release the gravity brake, turn the handle of the ball valve 45° to the right.</p> <p>After completing the service work, turn the ball valves back to the operating position.</p>
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## 6 Start-up

Complete installation of all hydraulic and electrical components is a precondition for commissioning.

Turn all ball valves and gravity brakes to the operating position for commissioning.

### 6.1 Leak testing and filling the system

Check all of the system components, including all of the factory-fitted elements and stations, to ensure they are leak-tight; repair any detected faults accordingly. When doing so, adapt the test pressure and test duration to match the respective piping system and the respective operating pressure.

Only fill the heating system with filtered, treated water as per VDI 2035 and completely bleed the system.

### 6.2 Commissioning the circulation pump

Observe the operating manual of the circulation pump.

## 7 Maintenance/service

The manufacturer recommends that annual maintenance be carried out by authorized specialist personnel.

Steps to Perform a maintenance:

Steps	Activities
1. Control of the pump	adjust if necessary, hydraulic balance
2. Activation of all ball valves	
3. Control of the system pressure	adjust system pressure if necessary
4. Check water quality according to VDI 2035	Take any necessary measures if necessary

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