

# HKM40/50 / HK40/50 Series

Pump units for distributing heating water in heating systems

## Installation and operating manual



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## 1 General information

### 1. 1 Important notes about the Installation and Operating Manual



The operator is responsible for ensuring adherence to the local laws and regulations (e.g. accident prevention regulations, etc.).

Incorrect operation or operating the pump unit contrary to the specifications shall void all rights to any warranty claim.

This Installation and Operating Manual:

- is part of the pump unit.
- contains instructions and information for the safe and correct installation and commissioning of the pump unit.
- must be available to all users throughout the entire service life of the pump unit.
- is intended for trained personnel who are familiar with the applicable standards and provisions and, in particular, with the relevant safety concepts and the operation and maintenance of the pump unit.
- is protected by copyright and may not be altered without the manufacturer's permission.
- must not be available to unauthorised personnel, either as an original or duplicated document.

### 1. 2 Product conformity

This pump unit conforms to the 2006/42/EC machinery directive.

### 1. 3 Product features

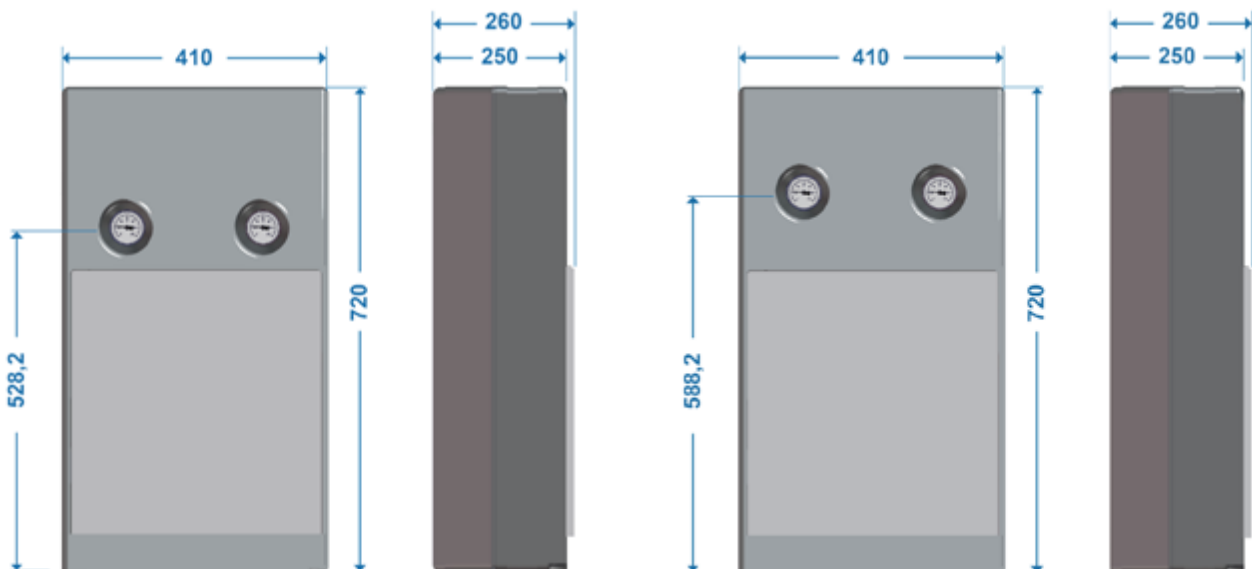
- EPP insulation shell
- All system connections with 2" male thread, flat sealing
- Compact, space-saving design

## 2 Technical features

Hydraulic data	HKM40/HK40 and HKM50/HK50
Max. operating pressure	6 bar
Min. ambient temperature	-10 °C (note pump specification)
Max. ambient temperature	+40 °C (note pump specification)
Min. operating temperature	+2 °C (note pump specification)
Max. operating temperature	+90 °C (note pump specification)
Centre distance	180 mm
Gravity brake closing pressure	10 mbar
Temperature display range	0 - 120 °C
Media	Water or water with glycol as per VDI (Association of German Engineers) 2035 / ÖNORM (Austrian standard) H 5195
Electrical connection	
Power supply	See separate pump documentation
Dimensions	
Width x height x depth with EPP shell	720 mm x 410 mm x 260 mm
Weight	DN40 / DN50
HKM 40/50 Magna3	33.1 kg / 34.5 kg
HKM 40/50 Stratos PARA	25.3 kg / 31.2 kg
HKM 40/50 without pump	16.7 kg / 17.7 kg
HK 40/50 Magna3	29.8 kg / 31.5 kg
HK 40/50 Stratos PARA	22.7 kg / 28.4 kg
HK 40/50 without pump	13.3 kg / 13.5 kg
Connections to pipe network	
	2" male thread, flat sealing (190 Nm)
Materials	
Return pipes	Tubular steel ø 60 mm
Fittings	Brass CW617N
Seals	AFM34/2
Insulation	EPP
Gravity brake	POM, NBR, stainless steel
Plastics	impact-resistant and temperature-resistant
O-rings	EPDM
Tightening torques for screw fittings	
	1½"; 130 Nm 2"; 190 Nm
Circulation pump	
	Technical information on the circulation pumps can be found in the relevant pump documentation.
Actuator	
	Technical information on the actuators can be found in the relevant actuator documentation.

DN 40

DN 50



## 3 Safety

### 3.1 Safety notices



**DANGER** indicates an imminent danger that may cause serious physical injury or death if the appropriate safety precautions are not in place.



**WARNING** indicates a danger arising through incorrect behaviour (e.g. misuse, disregarding notices, etc.) that may cause serious physical injury or death.



**CAUTION** indicates a potentially dangerous situation that may cause minor or slight injuries if the appropriate safety precautions are not in place.



**NOTICE** indicates a situation that may cause material damage if the corresponding precautions are not taken.

### 3.2 Important safety information

- Read this operating manual carefully before use.
- Only connect this pump unit to a power supply which matches the supply voltage stated on the pump unit's data plate.
- The power supply on the pump unit must be disconnected before completing any maintenance, cleaning or repair work.
- Maintenance, cleaning and repair work may be carried out by trained specialist personnel only.
- If the pump unit is damaged or is not functioning correctly, it must no longer be used. In this case, contact your specialist dealer immediately.
- Observe the maintenance instructions and intervals.
- Protect the pump unit against the effects of weather.
- Never use the pump unit outdoors.
- The device set may only be used in accordance with its intended use.

### 3.3 Intended use

This pump unit is intended for distributing heating water in heating systems.

The pump unit is completely pre-assembled, ready to install.

The pump unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of specialist knowledge or experience.

### 3.4 Foreseeable misuse

The following is regarded as foreseeable misuse:

- operating the pump unit contrary to the specifications.
- using the pump unit for use other than its intended use.
- making modifications to the pump unit not agreed with the manufacturer.
- using replacement or wear parts not approved by the manufacturer.
- operating the pump unit outdoors (parts and components are not UV-resistant).

### 3.5 Operator's responsibility

The operator must ensure that:

- the pump unit is only used for its intended purpose.
- the pump unit is installed, operated and maintained according to the specifications in the Installation and Operating Manual.
- the pump unit is only operated according to local directives and occupational health and safety regulations.
- all precautions have taken to avoid hazards originating from the pump unit.
- all precautions for first aid and fire suppression are carried out.
- only authorised and trained users have access to and operate the pump unit.
- users have access to this Installation and Operating Manual at all times.

### 3.6 Users

Only qualified persons may operate the pump unit or carry out service and maintenance work.

#### Operators

An operator is deemed to be qualified if they have read this operating manual and understood the potential hazards associated with improper behaviour.

#### Fitters/commissioners

Due to their technical training, expert knowledge and consideration of the relevant standards, provisions, regulations and laws, fitters/commissioners are able to carry out work on the pump units and to identify and prevent potential hazards.

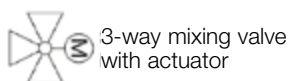
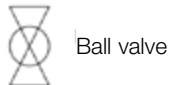
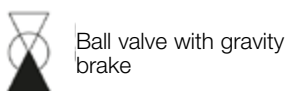
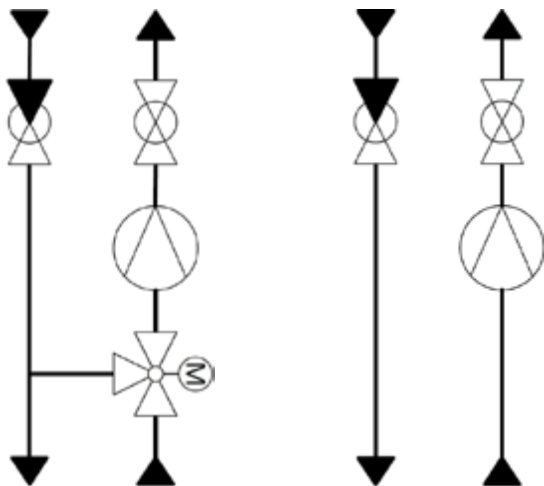
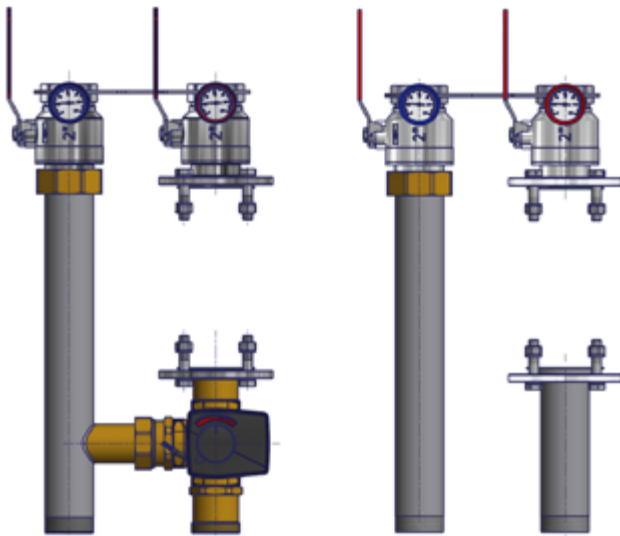
## 4 Construction

### HKM40/50 pump unit

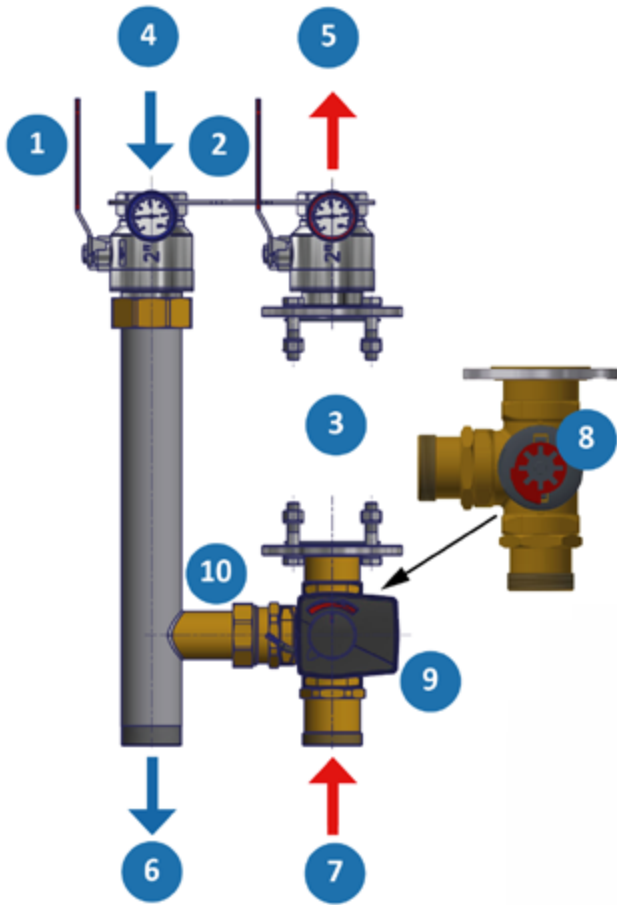
- Compact design
- Thermometer on the ball valve
- 3-way mixing valve with actuator

### HK40/50 pump unit

- Compact design
- Thermometer on the ball valve

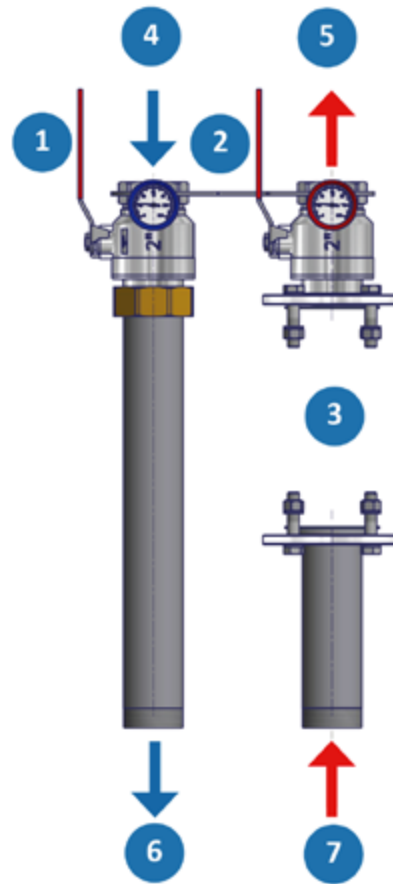


4.1 HKM40/50



- 1 Ball valve with gravity brake (return)
- 2 Ball valve (supply)
- 3 Circulation pump
- 4 Return inlet
- 5 Supply outlet
- 6 Return outlet
- 7 Supply inlet
- 8 3-way mixing valve
- 9 Actuator
- 10 Connecting pipe

4.2 HK40/50



- 1 Ball valve with gravity brake (return)
- 2 Ball valve (supply)
- 3 Circulation pump
- 4 Return inlet
- 5 Supply outlet
- 6 Return outlet
- 7 Supply inlet

## 5 Installation and commissioning

### **⚠ DANGER**

Electricity!

Risk of death from electric shock!

- Work on live parts must be carried out only by trained electricians.
- Disconnect the power supply to the unit before carrying out any installation, maintenance, cleaning or repair work and secure it against reconnection.

### **NOTICE**

Installation and commissioning of the pump unit must be carried out only by specialist personnel who have been duly trained and authorised by the manufacturer.

### **⚠ CAUTION**

When carrying out repairs and replacing parts, the prescribed mounting positions and flow directions for the individual components to be replaced must be observed.

### **⚠ CAUTION**

Material damage!

Opening shut-off valves quickly produces pressure surges.

- Always open shut-off valves slowly and in a controlled manner.

### 5.1 Installation

**Before installing the unit and starting it for the first time, check all screw fittings and retighten if necessary!**

#### Torque

- 1½" screw fittings 130 Nm
- 2" screw fittings 190 Nm

#### Requirements

- The fittings are preassembled at the factory; however, the tightness of the seal is to be checked before commissioning (pressure test).

### 5.2 Starting the unit

#### Requirements

- The pump unit is fully installed.
1. Connect the power supply (see separate pump documentation).
  - ✓ **The pump unit automatically switches itself on when the power supply is connected.**
  2. Bleed the heating system.

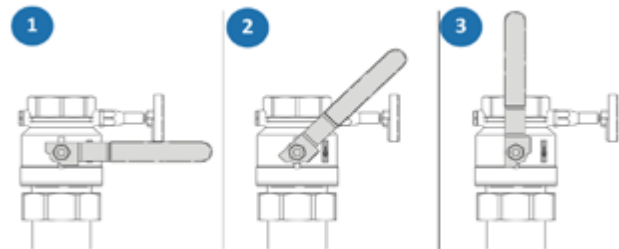
### **NOTICE**

The pump unit must be switched off during the bleed process.

### 5.3 Lever position

The ball valve on the return circuit is fitted with a gravity brake. The gravity brake must be set to fill the system.

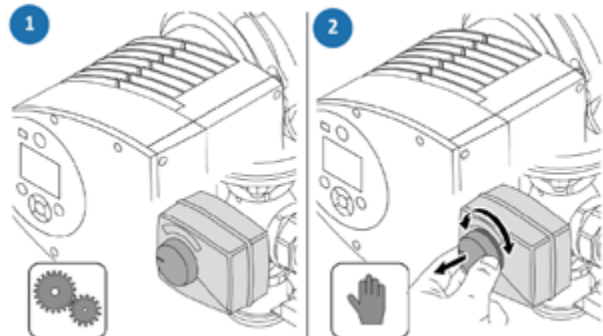
- Move the level to position (2).
- The gravity brake is set and allows the system to be bled.
- Fill the system.



- 1 Service setting: ball valve closed
- 2 Drain: ball valve half open (only included in the return circuit)
- 3 Operating position: ball valve open

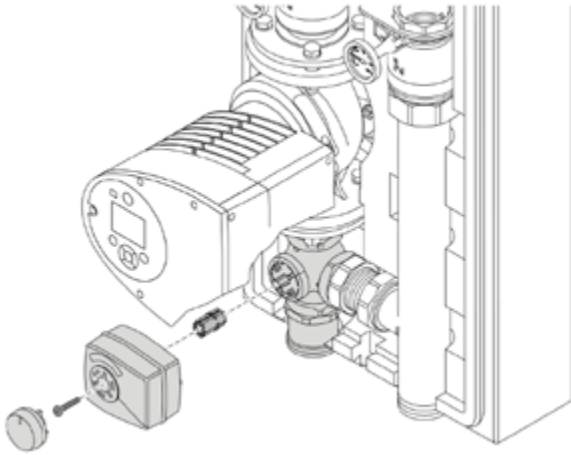
### 5.4 Mixing valve operating position

- Gently pull the knob on the mixing valve out.
- The mixing valve setting can be changed manually.
- Push the knob on the mixing valve back in to its original position.
- The knob locks, mixing valve is in automatic setting.



- 1 Automatic setting
- 2 Manual operation

## 5.5 Removing the mixing valve actuator



## 5.6 Electrical connection

Observe the pump manual.

**⚠ DANGER**

**Electricity!**

**Risk of death from electric shock!**

- Work on live parts must be carried out only by trained electricians.
- Disconnect the power supply to the unit before carrying out any installation, maintenance, cleaning or repair work and secure it against reconnection.

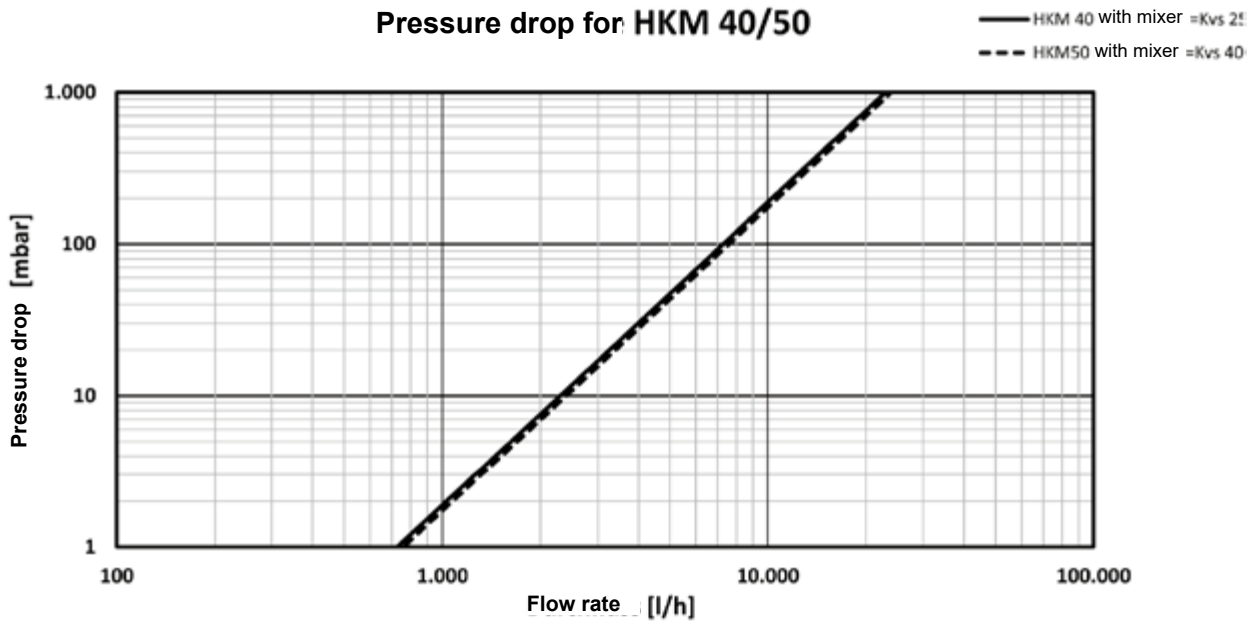
The electrical connection may only be completed by a trained electrician. Observe local regulations.

- Technical information / electrical connection for the circulation pumps can be found in the relevant pump documentation.

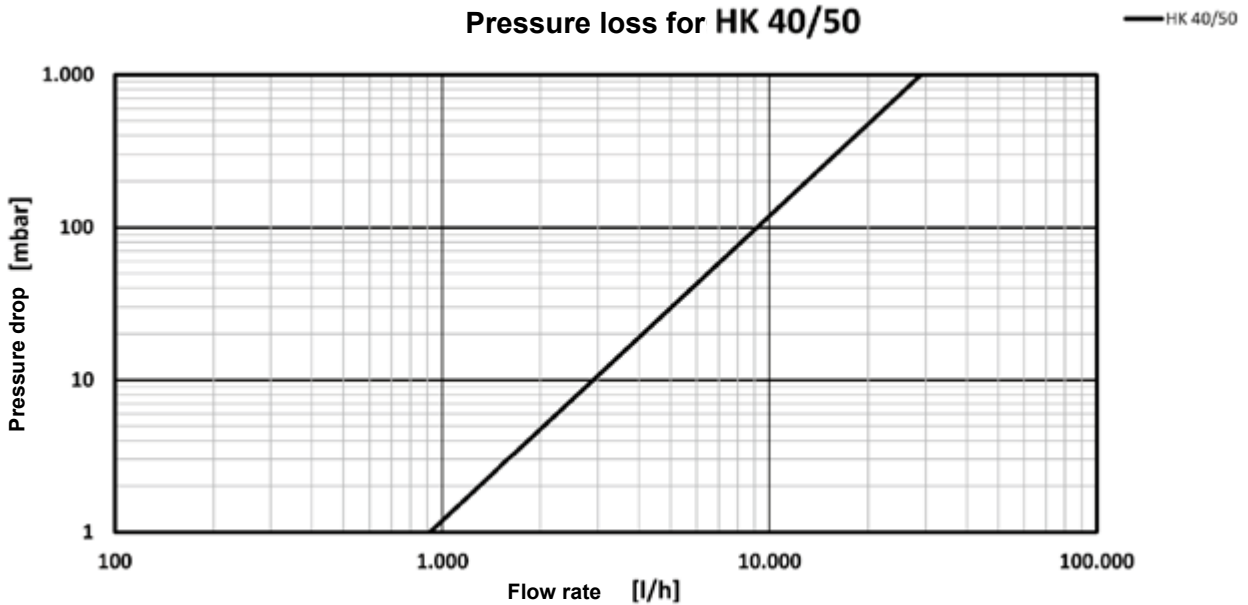


## 6 Performance curve

Pressure drop for HKM 40/50



Pressure loss for HK 40/50



## 7 Maintenance



Electricity!

Maintenance work on the pump unit may only be carried out once the power supply has been disconnected.



Hot water!

Severe scalding possible.

Do not put hands into hot water when draining the pump unit.

Allow the pump unit to cool before carrying out any maintenance, cleaning or work repair.



Hot surfaces!

Severe burns possible.

Do not hold pipework or components while the unit is in operation.

Allow the pump unit to cool before carrying out any maintenance, cleaning or work repair.

Wear heat-resistant safety gloves if it is necessary to work on hot components.



Maintenance of the pump unit must be carried out only by specialist personnel who have been duly trained and authorised by the manufacturer.

### 7.1 Annual maintenance schedule

#### 1. General visual inspection

- Check the unit for leaks and retighten connections with flat seals or replace the seals.

#### 2. Functional check

- Check the correct adjustment and operating and performance parameters.
- Check for noisy operation.
- Check with the user in the event of anomalies.

#### 3. Ball valves

- Check for correct operation of shut-off valves and ball valves.

#### 4. Pump

- Be aware of noise build-up in the pump.

#### 5. 3-way mixing valve (HKM only)

- Check functionality of the 3-way mixing valve.

#### 6. Actuator (HKM only)

- Check functionality of actuator.

#### 7. Post-maintenance checks

- Check all loosened screw connections for a firm seating and retighten if necessary.
- Remove all tools, materials and other equipment used from the work area.
- Bleed the system.

### 7.2 Replacing wear parts

Note that the pump unit has parts which are subject to wear that naturally occurs as a result of normal use even when properly maintained and serviced.

Specifically, these are mechanical parts and parts which are in contact with hot water and steam such as hoses, seals, valves, etc.

Normal wear and tear is not a defect and is not covered under warranty or guarantee. Nevertheless, defects and malfunctions may only ever be remedied by trained specialist personnel.

Contact your specialist dealer for more information.

### 7.3 Removing the circulation pump

1. Disconnect the power supply and secure against reconnection.
2. Remove the pump unit front cover.
3. Close the shut-off valves.
4. Disconnect the circulation pump wiring.
5. Undo the flange and remove the circulation pump.

**⚠ WARNING****Severe scalding from hot water!**

- Allow the pump unit to cool down before carrying out maintenance work.
- Do not put hands into hot medium when draining the pump unit.

### 7.4 Installing the circulation pump

1. Replace damaged or defective seals if necessary.
2. Insert the circulation pump and tighten the flange (see "Technical features" on page 3 for tightening torques).
3. Connect the circulation pump wiring.
4. Slowly open the ball valve using the lever.
5. Slowly pressurise the pump unit and bleed the system if necessary.
6. Check the seals on the pump unit are not leaking.
7. Reconnect the power supply to the pump unit.
8. Refit the front cover.

### 7.5 Removing the 3-way mixing valve (HKM only)

1. Disconnect the power supply and secure against reconnection.
  2. Remove the pump unit front cover.
  3. Close the shut-off valves.
  4. Move the regulating insert (spindle) to centre position using the lever on the actuator.
  5. Remove the actuator.
- ✓ **Instructions for fitting/removing the actuator can be found in the relevant manufacturer's manual.**
6. Loosen the bolts and remove the 3-way mixing valve.

### 7.6 Fitting the 3-way mixing valve (HKM only)

1. Replace damaged or defective seals.
2. Fit the 3-way mixing valve and tighten the bolts.
3. Fit the actuator.
4. Slowly open the ball valve using the lever.
5. Reconnect the power supply to the pump unit.
6. Refit the front cover.

## 8 Disposal



**Improper disposal can lead to contamination of the environment and groundwater!**

**When disposing of components and operating materials, the provisions and guidelines of the country of use must be observed.**

1. Make sure the current to all subassemblies and components has been disconnected.
2. Remove the pump unit in the correct way or engage a specialist company to do this.
3. Separate the subassemblies and components into recyclable materials and operating materials.
4. Dispose of the subassemblies and components in accordance with local laws and provisions or take them to a recycling facility.

### 8.1 Return to manufacturer

Contact the manufacturer if you wish to return the pump unit or component parts.

### 8.2 Informing authorities and the manufacturer

Inform the manufacturer when decommissioning and disposing of the pump unit for statistical purposes.

## 9 Warranty

WATTS products are tested extensively. WATTS therefore guarantees only the replacement or, at the sole discretion of WATTS, the free-of-charge repair of components of the supplied products where these, in the opinion of WATTS, exhibit verifiable manufacturing faults. Warranty claims due to defects or defects of title may be asserted within one (1) year of delivery/transfer of risk. Excluded from the warranty are damages attributable to normal use of the product or wear and damages resulting from modifications or non-authorised repairs on the products, for which WATTS rejects all claims for compensation (direct or indirect). (For more detailed information, please refer to our website.) In all cases, supply is subject to the General Terms and Conditions, which can be found at [www.wattswater.de](http://www.wattswater.de).

The descriptions and photographs contained in this product specification sheet are supplied by way of information only and are not binding. Watts Industries reserves the right to carry out any technical and design improvements to its products without prior notice.

Warranty: all sales and contracts for sale are expressly conditioned on the buyer's assent to Watts terms and conditions found on its website at [www.wattswater.de/agn](http://www.wattswater.de/agn) Watts hereby objects to any term, different from or additional to Watts terms, contained in any buyer communication in any form, unless agreed to in a writing signed by an officer of Watts.



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