Series HK25-C and HKM25-C

Pump groups for unmixed and mixed
cooling and heating circuits

EN **Installation and operating manual**

(translated from the original operating manual)

Watts.eu

Contents

1 General Information

1.1 Important information about the installation and operating manual

NOTICE

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

Incorrect operation or operating the product (HK25-C and HKM25-C) outside the specifications invalidates all warranty claims.

This Installation and Operating Manual

- is the component of the product (HK25-C and HKM25-C);
- contains instructions and information on safe and correct installation and commissioning of the product (HK25-C and HKM25-C);
- must be available to all users throughout the entire service life of the product (HK25-C and HKM25-C);
- 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 product (HK25-C and HKM25-C);
- is protected by copyright and may not be changed without the manufacturer's permission.

1.2 Notes on supplier documents

The supplier documents contain specific information on the components, their technical features, installation instructions and other relevant details. Read these documents carefully and retain with this manual. The supplier documents cover the following:

- Circulation pump operating instructions
- Actuator operating instructions

1.3 Product conformity

For the product (HK25-C and HKM25-C), conformity according to Machinery Directive 2006/42/EC is declared.

1.4 Product features

- Pump groups for combined cooling and heating systems depending on seasonal requirements.
- Condensation does not form due to the watertight XPE low-temperature insulation shell pre-assembled at the factory.
- Pre-assembled connecting pipework enables quick installation of the pump group without dismantling the low-temperature insulation shell.
- Circulation pump for low operating temperatures with corrosion-resistant motor housing.
- Compact, space-saving design.

1.5 Product Labeling

The data plate is located on the inside of the insulation front shell.

2 Safety

2.1 Safety notices

DANGER

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

WARNING

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

CAUTION

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

NOTICE

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

2.2 Important safety instructions

- Before using, carefully read through this operating manual.
- Only trained specialist personnel are permitted to perform maintenance, cleaning and repair work.
- The product (HK25-C and HKM25-C) must not be used if it is damaged or is no longer operating correctly. In this case, contact your specialist dealer immediately.
- Adhere to the maintenance instructions and intervals.
- Protect the product (HK25-C and HKM25-C) from the influences of weather.
- Never use the product (HK25-C and HKM25-C) outdoor.
- The product (HK25-C and HKM25-C) is only permitted to be used for the purpose for which it was intended.

2.3 Intended use

The product (HK25-C and HKM25-C) is not intended to be operated by people (including children) with physical, sensory or mental disabilities, nor by people with insufficient experience or previous knowledge.
The pump groups (HK25-C and HKM25-C) are designed for use in cooling and heating applications.

2.4 Foreseeable misuse

The following is considered to be foreseeable misuse:

- Operating the product (HK25-C and HKM25-C) contrary to the specifications.
- Improper use of the product (HK25-C and HKM25-C).
- Modifications to the product (HK25-C and HKM25-C) that were not agreed with the manufacturer.
- Using replacement or wear parts not approved by the manufacturer.
- Operating the product (HK25-C and HKM25-C) outdoors (parts and components are not UV resistant).

2.5 Responsibilities of the operator

The operator must ensure that:

- The product (HK25-C and HKM25-C) is only used for its intended purpose.
- The product (HK25-C and HKM25-C) is installed, operated and maintained according to the specifications in the Installation and Operating Manual.
- The product (HK25-C and HKM25-C) is only operated according to local regulations and occupational health and safety regulations.
- All precautionary measures have been carried out to avoid dangers originating from the product (HK25-C and HKM25-C).
- All precautionary measures for first aid treatment and firefighting have been carried out.
- Only authorized and trained users have access to the product (HK25-C and HKM25-C) and operate it.
- Users have access to this Installation and Operating Manual at all times.

2.6 Groups of persons

Only qualified persons may operate the product (HK25-C and HKM25-C) or perform service and maintenance work.

User

A user is deemed to be qualified if they have read these operating instructions and understood the potential risks associated with incorrect behavior.

Fitter/commissioner

Due to their specialist training and knowledge, and taking into consideration the applicable standards, provisions, regulations and laws, a fitter/commissioner is capable of performing work on the product (HK25-C and HKM25-C) and recognizing and avoiding potential risks.

System planner

The system planner is responsible for evaluating these parameters and developing workarounds.

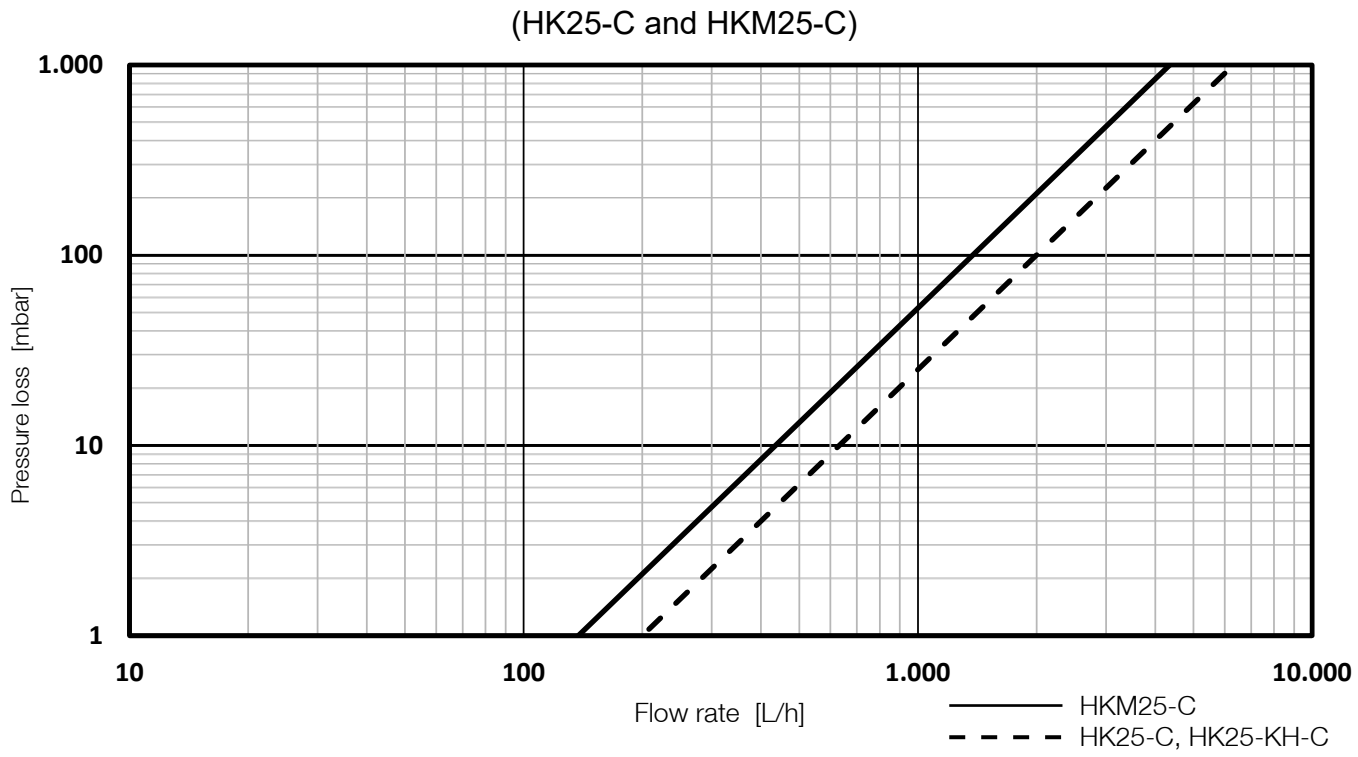
3 Technical data

Hydraulic data	
Max. operating pressure	6 bar
Ambient temperature	+5 to +30 ° (see pump specifications)
Operating temperature [1]	+8 to +80 ° (see pump specifications)
Gravity brake opening pressure	10 mbar
Kvs mixing valve	HKM25-C: 6.3 m³/h
Temperature display range	0 - 120 °C
Nominal width	DN 25
Media	Water or water with glycol as per VDI (Association of German Engineers) 2035 / ÖNORM (Austrian standard) 5195
Electrical connection	
Power supply	See separate pump documentation
Dimensions	
Width x height x depth with EPP shell	300 x 547 (370) x 240 mm
Centre distance	125 mm
Sealing surfaces distance	342.5 mm
Weight	
Weight without packaging	HK25-C: 7.5 - 8.0 kg, depending on pump model. HKM25-C: 8.5 - 9.0 kg, depending on pump model.
Weight with packaging	approx. 0.6 kg more than without packaging
Connections to pipe network	
Heating circuit side connections	G 1½ male thread, with flat seals without connecting pipework. Ø 28 mm connecting pipework for compression fitting
Boiler side connections	G 1½ male thread, with flat seals without connecting pipework. Ø 28 mm connecting pipework for compression fitting
Tightening torques for screw fittings	
G ¾	35 Nm
G 1	55 Nm
G 1¼	90 Nm
G 1½	130 Nm
Materials	
Fittings	Brass CW617N
Pipes	Tubular steel
Bypass pipe	Brass CW617N
Gravity brake	POM, NBR, stainless steel
Wall brackets	Galvanised sheet steel
Insulation shell	EPP (expanded polypropylene)
Low-temperature insulation shell	XPE (cross-linked polyethylene foam)
O-rings	EPDM
Plastics	impact-resistant and temperature-resistant
Flat seals	AFM 34/2
Other	
Circulation pump	See separate pump documentation
Actuator	HKM25-C: see separate actuator documentation.

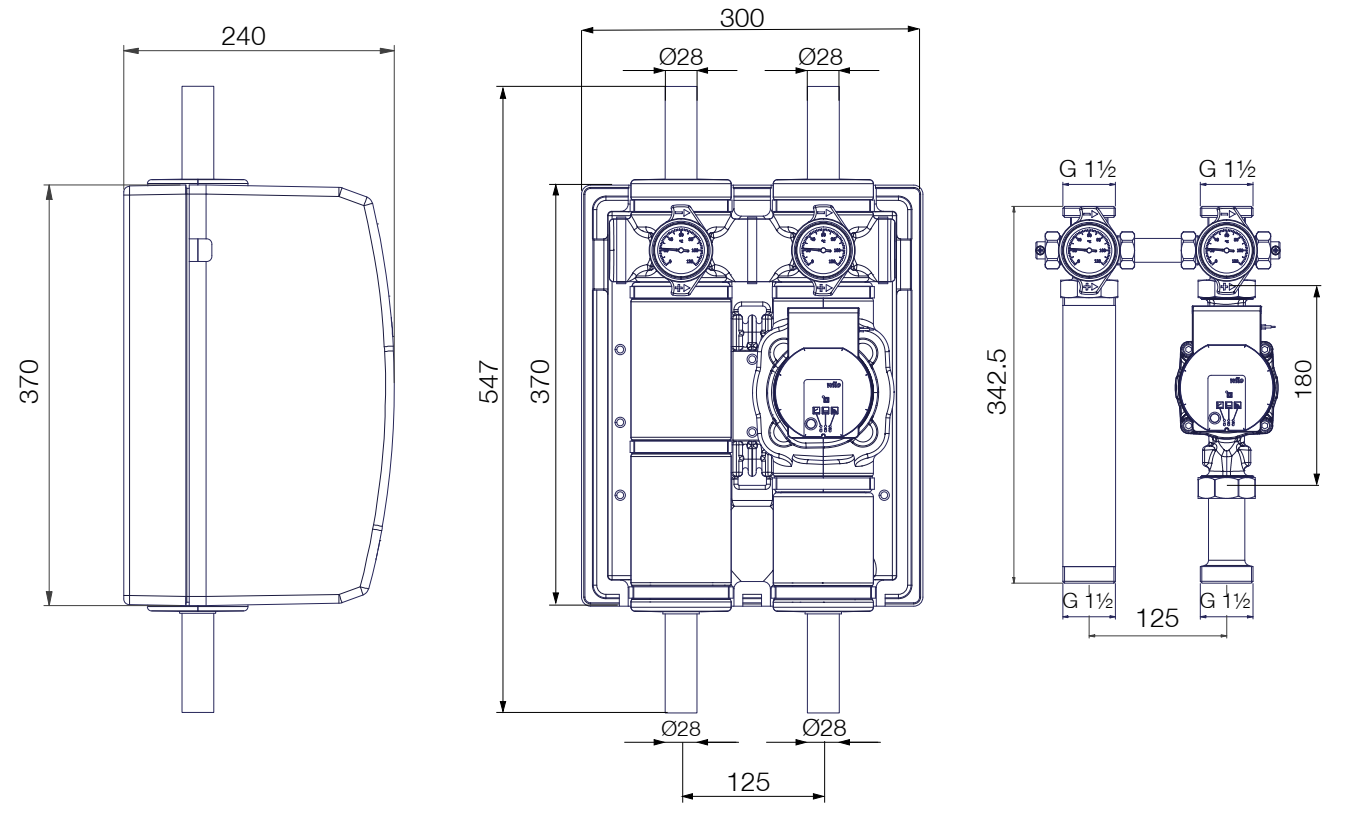
[1] To prevent condensation forming on system components, the cooling water temperature should not fall below +18 °C. Alternatively, appropriate precautions must be taken to prevent the temperature from falling below the dew point.

Dew point graph [▶ 7]

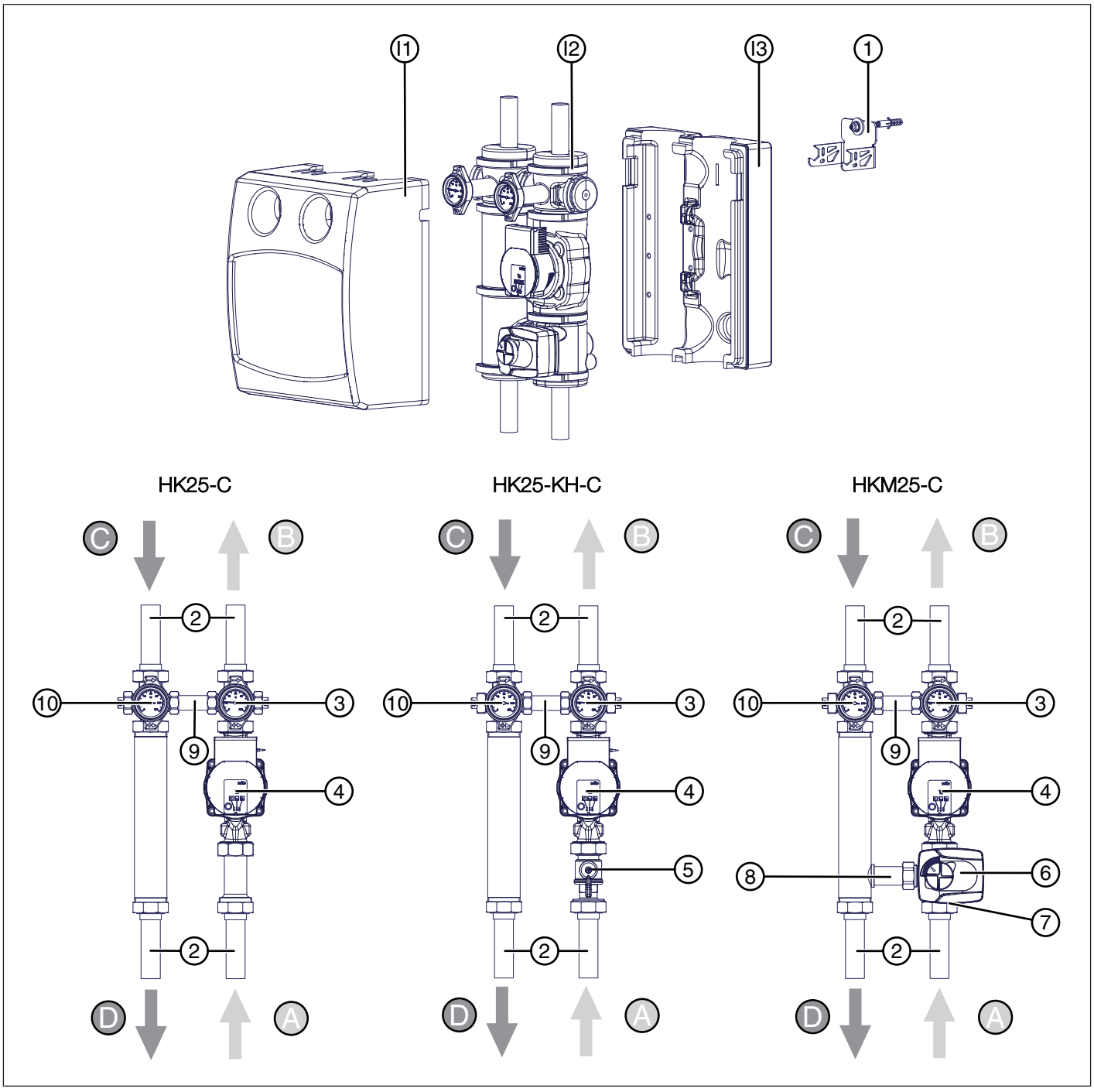
4 Preassure loss curve



5 Dimensions



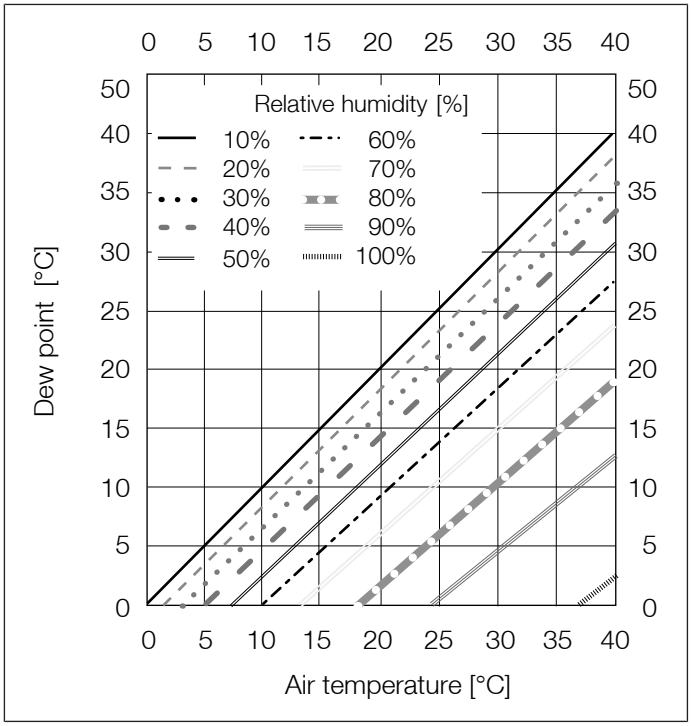
6 Component overview



A	Primary circuit supply inlet
B	Heating/cooling circuit supply outlet
C	Heating/cooling circuit return inlet
D	Primary circuit return outlet
I1	EPP heat insulation shell - front side
I2	Internal XPE low-temperature insulation shell
I3	EPP heat insulation shell - rear side

1	Wall bracket
2	Connecting pipework (4x)
3	Ball valve with gravity brake (supply)
4	Circulation pump
5	Additional ball valve
6	Actuator
7	3-way mixing valve
8	Bypass pipe
9	Connecting pipe
10	Ball valve (return)

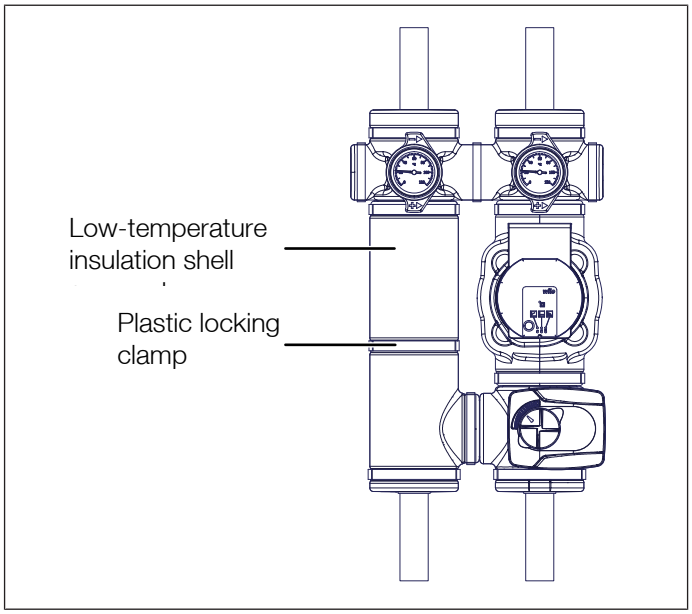
7 Dew point graph



8 Information on the low-temperature insulation shell

The internal, watertight XPE (cross-linked polyethylene foam) low-temperature insulation shell prevents condensation forming during cooling and reduces heat losses during heating. The low-temperature insulation shell consists of several segments which are fixed to the pump group using plastic locking clamps. The segments fit perfectly around the pump group, removing any gaps and air pockets between the segments and the pump group.
To ensure the low-temperature insulation shell functions correctly, follow the instructions below:

- Complete all installation work with the low-temperature insulation shell in place.
- Only remove the low-temperature insulation shell if this is specifically stated in the installation and operating manual.
- When installing on site, make sure the low-temperature insulation shell fits perfectly around the pump group components after dismantling and that there are no gaps between the individual segments.
- The low-temperature insulation shells are designed for specific models and are therefore not fully interchangeable.



9 Installation and commissioning

9.1 General safety information

DANGER

Electrical energy!
Risk of death from electric shock.
- Work on parts carrying live voltage must only be carried out by trained electricians.
- Disconnect the power supply of the system and secure it against being switched back on before carrying out any installation, maintenance, cleaning or repair work.

NOTICE

Material damage!
Opening shut-off valves quickly produces pressure surges.
- Always open shut-off valves slowly and in a controlled manner.

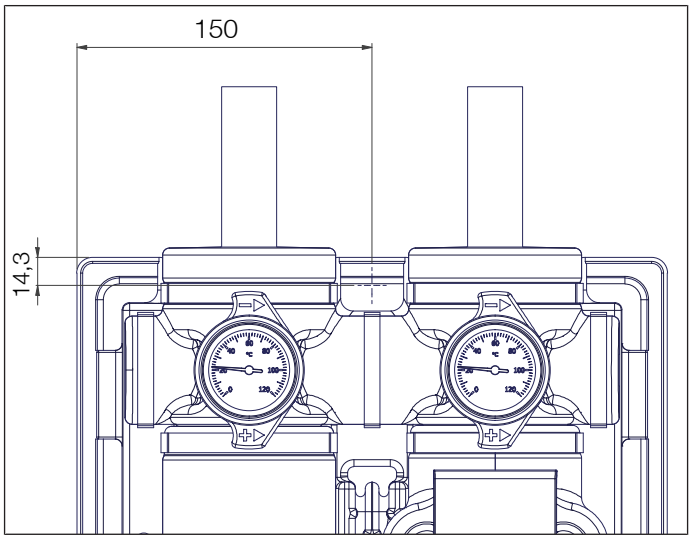
NOTICE

Material damage!
Incorrect repair and replacement of individual components.
- When carrying out repairs and replacing parts, note the prescribed mounting positions and flow directions for the individual components which are being replaced.

NOTICE

Material damage!
Formation of condensation on the pipes.
- Install a local heating/cooling function controller and humidity sensor to control the dew point.
- Keep cooling water temperature above 15 °C.

9.2 Installation diagram



9.3 Installation

Before installing the unit and starting it for the first time, check all screw fittings and retighten if necessary!
Tightening torques for screw fittings
G ¾: 35 Nm; G 1: 55 Nm; G 1¼: 90 Nm; G 1½: 130 Nm.

1. Remove the pump group front shell.
2. Fit the pump group perpendicular to the wall using the set of fixings provided (see installation diagram).
3. Connect the supply and return lines.
4. Check the low-temperature insulation shell and the insulation on the pipes are flush with each other so that there are no gaps between them.

9.4 Starting the unit

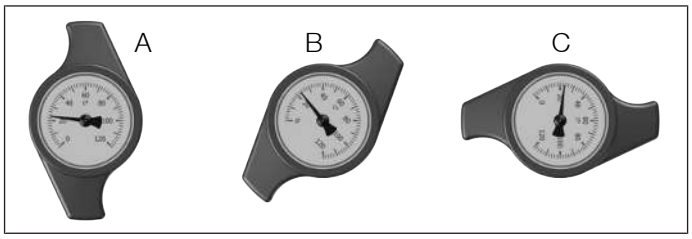
✓ **The pump group is fully installed.**
✓ **The fittings are preassembled at the factory; however, the tightness of the seal is to be checked before commissioning (pressure test).**
✓ **The pump group must be disconnected from the power supply and secured.**

1. Vent the heating system.
2. Connect the power supply

⇨ **The pump group automatically switches itself on when the power supply is connected.**

3. Fit the pump group front shell.

9.5 Thermometer settings



A	Operating position: gravity brake ready to work; ball valve open
B	Drain: gravity brake open; ball valve half open (only included in the supply line)
C	Service position: ball valve closed

10 Maintenance

10.1 General safety information

DANGER

Electricity!
Risk of death from electric shock!
- Maintenance on the product (HK25-C and HKM25-C) may only be carried out once the power supply has been disconnected.

WARNING

Hot surfaces!
Risk of serious burns.
- Do not touch the pipes or components during operation.
- Ensure that the product (HK25-C and HKM25-C) has cooled down before carrying out maintenance, cleaning and repair work.
- Wear heat-resistant safety gloves if it is necessary to carry out work on hot components.

10.2 Annual maintenance schedule

General visual inspection
- Check the product for leaks and, where necessary, retighten connections with flat seals or replace the seals.

Functional check
- Check the correct adjustment and operating and performance parameters.
- Check with the user in the event of anomalies.

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

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

Actuator
- Check functionality of actuator.

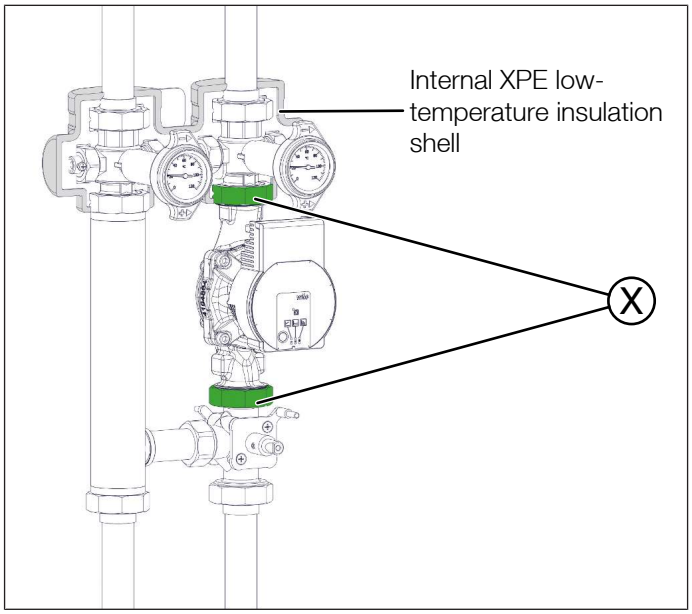
Post-maintenance checks
- Check all loosened screw connections for a firm seating and retighten if necessary.
- Remove all tools, materials and other equipment used from the work area.
- Fill and vent the system.

10.3 Replacing wear parts

Note that the product 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.

10.4 Removing the circulation pump

1. Disconnect the power supply and secure against reconnection.
2. Remove the pump group front shell.
3. Close all ball valves by rotating the thermometer handle.
4. Remove the thermometer handles.
5. Remove the actuator from the 3-way mixing valve.
6. Partially remove the low-temperature insulation shell. The segments indicated below can remain in place.



7. Unplug the circulation pump.

WARNING

Hot water!
Severe scalding possible.
- Allow the product (HK25-C and HKM25-C) to cool before carrying out any maintenance, cleaning or work repair.
- Do not put hands into hot water when draining the product (HK25-C and HKM25-C).

8. Undo the union nuts (X) and remove the circulation pump.

10.5 Installing the circulation pump

NOTICE

Material damage and efficiency losses due to condensation!
- Always replace the circulation pump with the same pump model.

✓ **The replacement circulation pump must be identical to the model fitted by the manufacturer.**

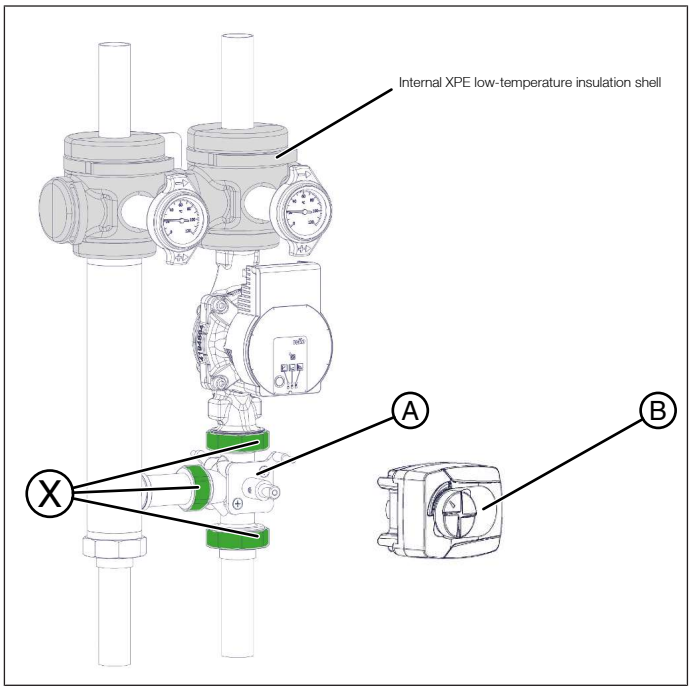
1. Replace the seals on the screw connections.
2. Position the circulation pump and tighten the union nuts (X). Observe the tightening torques for screw fittings.

Tightening torques for DN25 pump groups
- Pump G 1½, AFM 34/2 seals: 130 Nm.
- Pump G 1½, EPDM seals: 30-40 Nm.

3. Reconnect the circulation pump to the power supply.
4. Slowly open the ball valve below the circulation pump.
5. Refit the low-temperature insulation shell so that there are no gaps between the individual segments on the low-temperature insulation shell.
6. Slowly open the ball valve by turning the thermometer handle.
7. Slowly pressurise the pump group and bleed the system if necessary.
8. Check the seals on the pump group are not leaking.
9. Reconnect the power supply to the pump group.
10. Fit the pump group front shell.

10.6 Removing the 3-way mixing valve

1. Disconnect the power supply and secure against reconnection.
2. Remove the pump group front shell.
3. Close all ball valves by rotating the thermometer handle.
4. Partially remove the low-temperature insulation shell. The segments indicated below can remain in place.
5. Rotate the valve spindle to the left using the manual control on the actuator.
6. Rotate the arrow on the knob on the actuator to the left as far as the stop (EVO2) or to the central position on other actuator models.
7. Remove the actuator (B) (instructions for fitting/removing the actuator can be found in the relevant manufacturer's manual).
8. Remove the 3-way mixing valve (A) by loosening the union nuts (X).



10.7 Fitting the 3-way mixing valve

1. Replace the seals on the screw connections.
2. Position the 3-way mixing valve (A) and tighten the union nuts (X).

Tightening torques for DN25 pump groups

- Pump G 1½, AFM 34/2 seals: 130 Nm.
- Pump G 1½, EPDM seals: 30-40 Nm.
- Bypass G 1, AFM 34/2 seals: 55 Nm.

3. Refit the low-temperature insulation shell so that there are no gaps between the individual segments on the low-temperature insulation shell.
4. Fit the actuator (B).
5. Slowly open the ball valve by turning the thermometer handle.
6. Reconnect the power supply to the pump group.
7. Fit the pump group front shell.

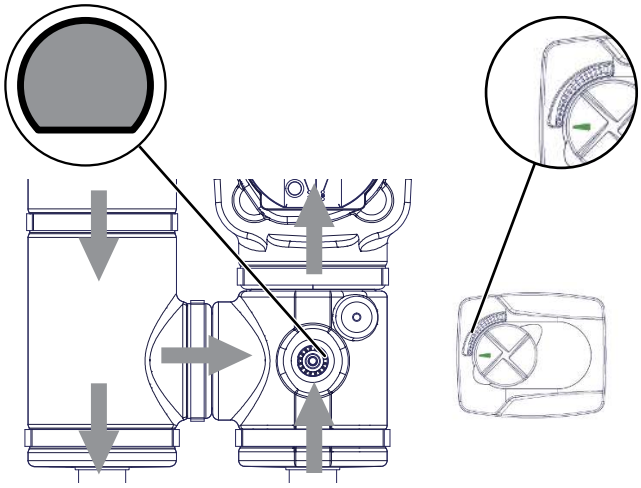
Instructions for fitting/removing the actuator can be found in the relevant manufacturer's manual.

10.8 Fitting the actuator

The following installation instructions apply specifically to the EVO2 actuator.

✓ **The low-temperature insulation shell is fully fitted and there are no gaps.**

1. Disconnect the power supply and secure against reconnection.
2. Apply the sticker with the scale as shown in the images below.
3. Rotate the knob on the actuator to the left as far as the stop.
4. Align the valve spindle as shown in the images below.
5. Carefully place the actuator onto the spindle. Make sure it is securely located.
6. Reconnect the power supply to the pump group.
7. Check the functionality of the actuator.



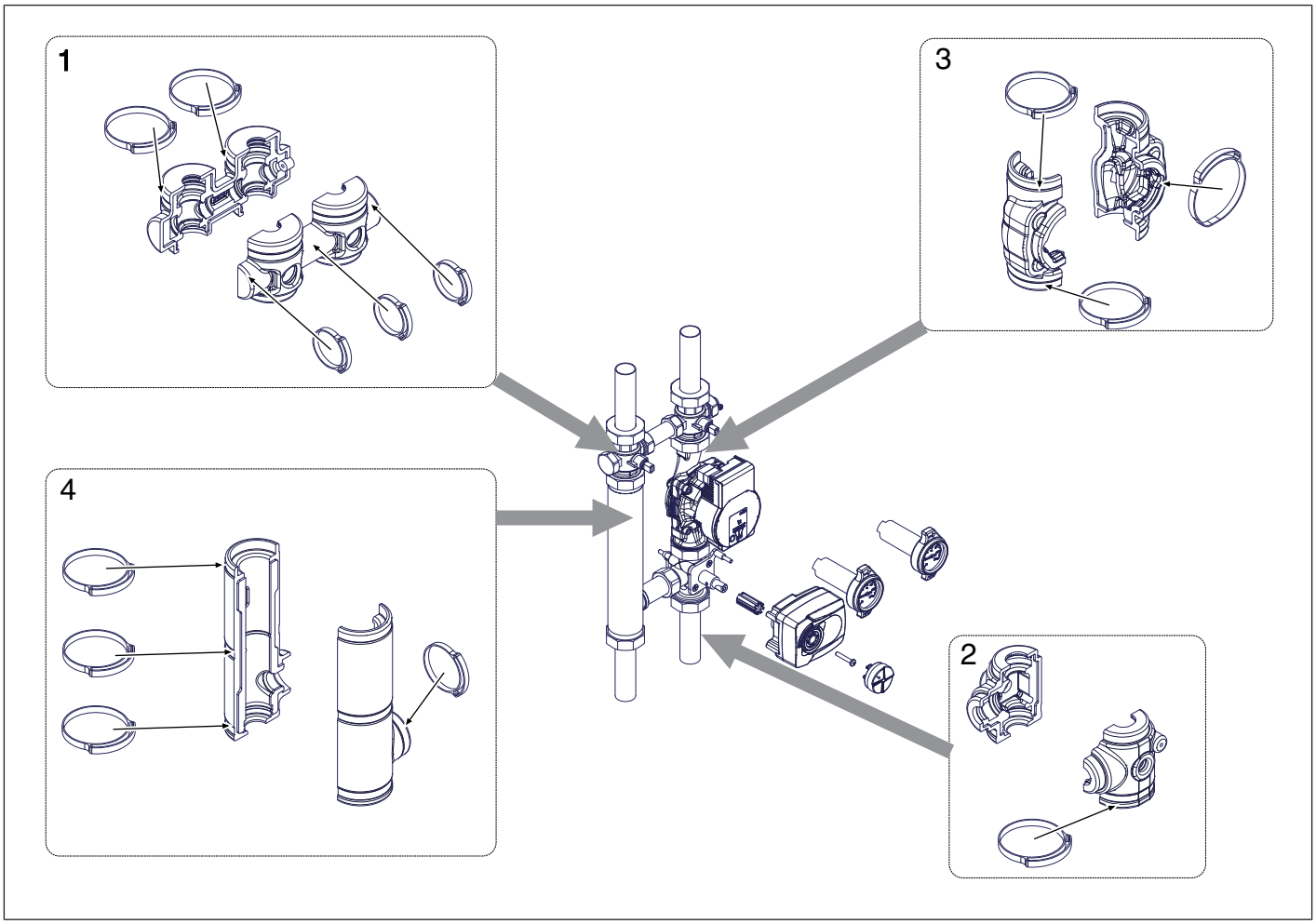
Clockwise direction of rotation

The 3-way mixing valve opens in a clockwise direction

10.9 Fitting the low-temperature insulation shell

- Only remove the low-temperature insulation shell if this is specifically stated in the installation and operating manual.

1. Separate the individual segments of the low-temperature insulation shell and the locking clamps into groups as shown below.
2. Fit the groups in the sequence shown in the image below and fix in place with the relevant locking clamps.
3. Steps 1 and 2 can be reversed in the sequence.
4. Make sure the pump group low-temperature insulation shell fits perfectly and that there are no gaps between the individual segments.
5. Fit the thermometer handles.
6. Reset the valve spindle and fit the actuator. Follow the separate operating instructions for the actuator.



11 Disposal

⚠ WARNING

Potential for contamination of the environment and groundwater from improper disposal!

- The legal regulations and guidelines in the country of operation must be observed when disposing of components and operating materials.

1. Disassemble the product (HK25-C and HKM25-C) properly or commission a specialist company to do so.
2. Sort the assemblies and component parts into recyclable materials, hazardous substances and operating materials.
3. Dispose of the assemblies and components in accordance with local laws and regulations or take them to be recycled.

11.1 Notification of administrative bodies and the manufacturer

Inform the manufacturer of decommissioning and disposal of the product (HK25-C and HKM25-C) for statistical purposes.

11.2 Return to the manufacturer

Get in contact with the manufacturer if you would like to return the product (HK25-C and HKM25-C) or parts of it.

12 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 friction 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.watts.eu/en/gtc.

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