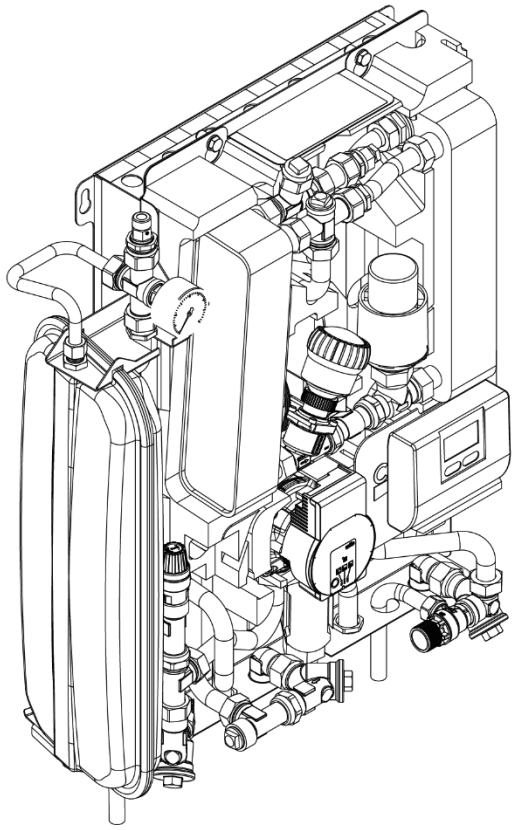
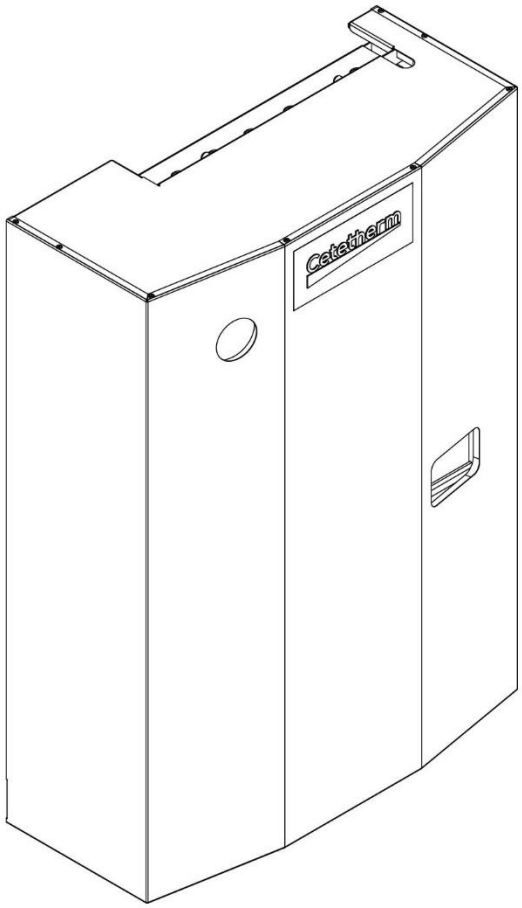
Cetetherm

Installation, service, and operating instruction Cetetherm Mini UK

Heating & domestic hot water HIU for apartments and single-family houses

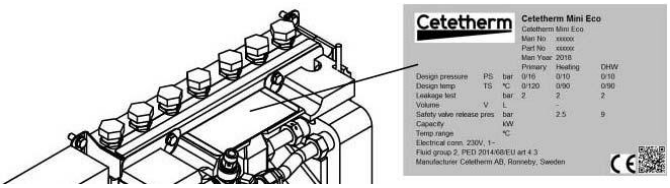




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QR-code:



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Cetetherm can without further notice make changes and improvements to the content in this manual if it is necessary due to printing mistakes, wrong information or changes in the hardware or software.

All these types of changes will be included in future release of the manual.

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1 General information

Cetetherm Mini UK is a complete, ready-to-install HIU for hot water and heating. It is designed for buildings with a connection to a heating network.
Cetetherm has years of experience in heating network technology and has developed Cetetherm Mini UK with well-planned pipe work and with all components easily accessible for inspection and future servicing.

1.1 Comfort

In Cetetherm Mini UK the hotwater and heating are set and controlled manually and maintained at the desired temperature.

1.2 Installation

Read this manual before installing the HIU.

Compact dimensions, light weight, well arranged plumbing – all make installation very simple.

Mini UK is designed for hanging on the wall and is mounted on an insulated frame and includes an insulated cover. Better insulation means less energy usage and better energy efficiency.

1.3 Long-term security

The heat exchanger plates, and all piping are manufactured in acid-resistant stainless steel. All components are closely matched and carefully tested to function in accordance with 3rd party certified quality assurance system ISO 9001.

For future servicing requirements, all components are accessible and individually replaceable.

1.4 CE-marking

Cetetherm Mini UK follows the rules and legislation specified in the Declaration of Conformity.
To maintain the validity of the CE marking, only identical replacement parts must be used.

1.5 Information about the document

All pictures in this document are general images.

1.6 General warnings

	The installation work must be carried out by an authorized installation contractor. Before the system is taken into operation, it must be pressure tested in accordance with relevant regulations.
	The temperature and the pressure of the primary heating water are very high. **Only qualified technicians** are allowed to work with the HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
	If the hot water temperature is set too high, people may be scalded. If the hot water temperature is set too low, unwanted bacteriological growth may occur in the hot water system. This can result in serious personal injury.
	Parts of the HIU may get very hot and should not be touched.
	When starting up the HIU: To avoid the risk of scalding, make sure that no-one draws any hot water until the hot water temperature has been adjusted.
	Start heating circulation by first opening the valves in the **heating media supply** and then **return** lines, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges. Then open **heat return** and then **supply**.
	Before the HIU is connected to the electrical supply, make sure that the heating system is topped up with water. Starting up the system without water will damage the circulation pump.
	The HIU pump must be connected to an electrical plug to be connected to the main supply. If necessary, the plug-and-socket connection can be replaced with a permanent installation with an all-pole isolated switch. This must be carried out by a qualified electrician.
	Building regulation demands that a safety relief valve must be installed on the DHW circuit outside of the HIU.

2 Operating instructions

2.1 General operation

The temperature and pressure of the incoming heating network water are very high. The heat from the heating network water is transferred to the heating and hot water systems of the building in the heat exchangers. The heat is transferred through thin plates of acid-resistant stainless steel which keep the heating network water separate from the systems in the building.

Mini UK has a temperature control for hot water. This measures the temperature of the hot water in the heat exchanger and automatically controls the primary flow.

The hot water temperature is controlled by a temperature control valve which is set to about 50 ºC.
If the temperature is set too high, there is a risk of scalding. Setting the hot water temperature too low may result in unwanted bacteriological growth in the hot water system.

The heating circuit is controlled by a temperature control valve.

After adjustment, the Mini UK operates completely automatically. However, in hard water areas it is advisable to be attentive and to remedy any faults in good time if the temperature of the hot water is too high; otherwise, the risk of lime deposits in the heat exchanger may increase.

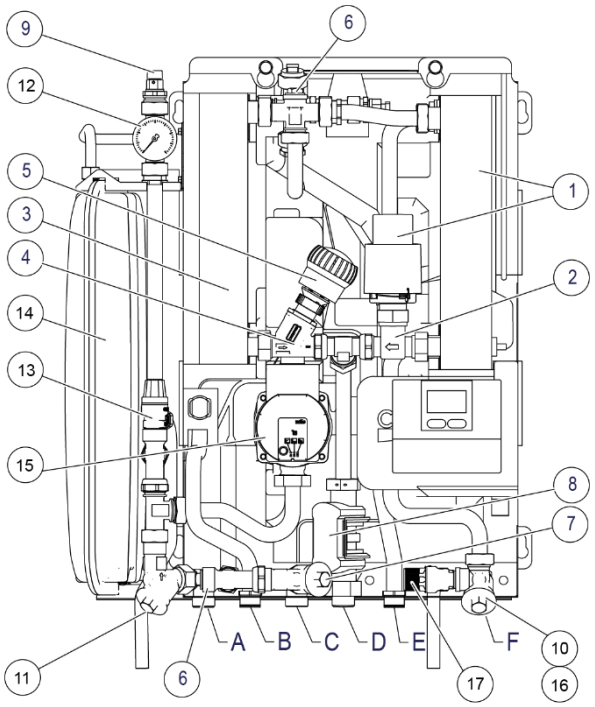
The energy supplier registers the use of energy. Measurement is done by recording the flow of heating network medium through the system, and by measuring the temperature difference between the medium's supply and return flow.

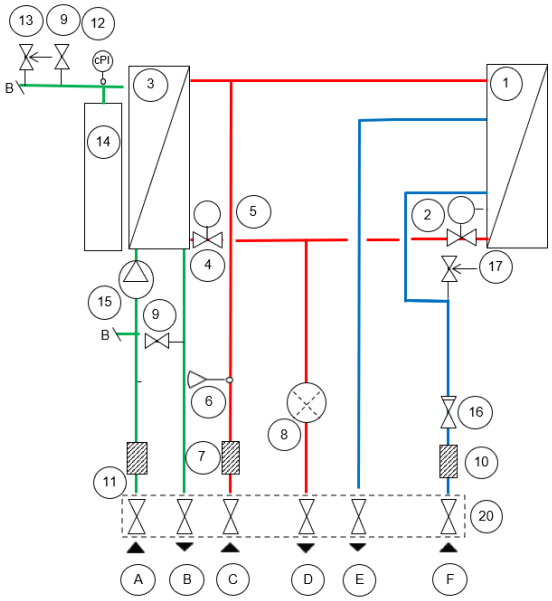
2.2 Safety equipment/inspection

- Daily inspection to check for leaks from pipes or components.
- Weekly inspection to make sure that the operation of the heating and hot water control systems is stable, and that the temperature does not fluctuate. Temperature hunting causes unnecessary wear of valves, thermostats, and heat exchangers.
- Every three months check the safety valve and the pressure in the heating system.

To check the operation of a safety valve, turn its wheel/knob until water escapes from the waste pipe of the valve, then close the wheel/knob quickly. Occasionally a safety valve may open automatically to release excess pressure. After a safety valve has been open it is important that it closes properly and does not drip.

3 Product overview and flowchart





1.	Heat exchanger and temperature controller for hot water
2.	Control valve for hot water
3.	Heat exchanger for heating
4.	Control valve, heating circuit
5.	Manually operated actuator, heating circuit
6.	Temperature sensor connection heating media supply
7.	Filter for heating media
8.	Adapter for energy meter
9.	Air vent valve
10.	Filter cold water
11.	Filter heating circuit
12.	Pressure gauge for heating circuit

13.	Safety valve for heating circuit
14.	Expansion vessel heating circuit
15.	Circulation pump, heating circuit
16.	Check valve cold water
17.	Safety valve for hot water circuit (not in all models)
20.	Valve kit with service bypass & binder points - option
A.	Heating circuit, return
B.	Heating circuit, supply
C.	Heating network media, supply (primary inlet)
D.	Heating network media, return (primary return)
E.	Hot water (hw)
F.	Cold water (cw)

4 Installation

4.1 Unpacking

- Remove the transport packaging and check that the product has not been damaged in transit and that the consignment agrees with the specifications.
- When lifting the unit take care not to apply stress to pipes and heat exchanger as this may weaken them. Avoid lifting the unit by holding the heat exchanger.

  Note: Risk of injury; sharp edges and lifting heavy objects.

4.2 Preparation

- Mini UK must be placed on a wall, in upright position. Mount the unit using screws or bolts suitable for the material of the wall and for the weight of the unit.
- Choose a suitable installation area in accordance with official regulations.
  The HIU may generate sounds during operation caused by pumps, regulators systems, flows etc. This should be taken in consideration during installation of the unit so that possible operational sounds affect the surroundings as little as possible.
- Cetetherm recommends that:
  - the HIU is mounted on a well-insulated wall, such as outer wall or on concrete wall.
  - placed in a space with a floor gully.
- Check the applicable regulations of the primary heating supplier. The available differential pressure should be at least 50 kPa and at most 600 kPa. Where the differential pressure is higher, a differential pressure controller should be added to the installation.
- The maximum operating pressure for the heating 2,5 bar and for the DHW 5,5 bar.

4.3 Mounting the HIU

- Retighten all connections, including those made at the factory with 45Nm. If connections need retightening after the installation has been taken into service, the system should be depressurised before retightening. If the system is not depressurised before retightening, gaskets can be damaged.
- Mount the HIU on the wall using screws or bolts suitable for the material of the wall and for the weight of the unit. The unit may be mounted at any height on the wall, but 1500 – 1800 mm from floor to keyhole fixing may be taken as a guide. Use a spirit level.
- Place gaskets on the valves and use hand power and fasten the nuts to the pipes on the HIU.
- Tighten with 45 Nm.
- Close all valves.
- Connect the pipe work to the valves.



The temperature and the pressure of the primary heating water are very high.
Only qualified technicians can work with the HIU. Incorrect operation may cause serious personal injury and result in damage to the building.

- Energy meters see *3 Product overview*, must be installed at the prepared location or following the instructions of the energy supplier.
- Mount the provided draining pipe to the safety valve on the cold-water circuit.
- Connect a hose or a pipe from the safety valve to the floor gully.

4.4 Filling up the system

- Fill up the system with water by opening the valves.

The valves must be opened in the correct order in order to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

4.4.1 Filling up the tap water circuit

- Open the valves *Cold water*, C*old water outlet* and *Hot water*.
- Open all water taps in the building to get rid of trapped air. Let them be open until all air is gone.

4.5 Filling up and bleeding the heating circuit

- Fill up the system until the manometer shows 1,6 Bar.
- Bleed the heating system via the air vent valves and at the heating systems draining places e.g. radiator valves.
- If the pressure is low after bleeding the system, fill up to 1,6 Bar again.
- The first time the heating system is filled up, this procedure might have to be repeated several times.

4.5.1 Connect to heating network

NOTE: If the HIU is connected to a system sensitive to high temperature or to a low temperature system, for example floor heating, a safety thermostat must be mounted and activated before starting up.

- Open the valves *heating network media, supply* and *heating network media, return.*
  Start with supply then return.
- When all connections are done and all circuits are pressurized, look for leaks.
- If connections need retightening after the installation has been taken into service, the system must be depressurised. If the system is not depressurised, gaskets can be damaged.

4.6 Commissioning advice Mini UK

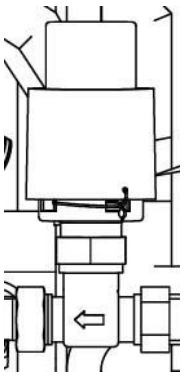
4.6.1 Connect the pump

- The HIU pump must be connected to an electrical plug to be connected to the main supply. If necessary, the plug-and-socket connection can be replaced with a permanent installation with an all-pole isolated switch. This must be carried out by a qualified electrician.

4.6.2 Adjust the hot water temperature

- Adjust the hot water temperature by having a hot water tap open at normal flow rate. Measure the temperature at the draw-off point with a thermometer. It takes about 20 seconds to get a stable tap water temperature.
  The temperature should be minimum 50 °C.

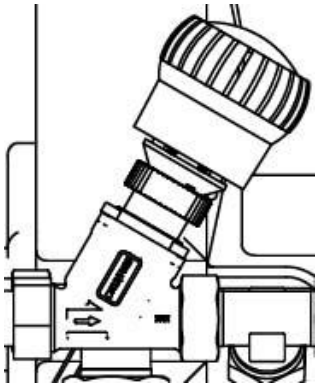
  Cetetherm recommends that the primary inlet temperature is at least 10º higher than the tap water temperature.
  NOTE: Make sure that no cold water is mixed with the hot water while making this adjustment.



4.6.3 Set the heating temperature

- Set the heating temperature setpoint on the heating actuator.
  NOTE:All °C are approximate.

  Cetetherm recommends that the primary inlet temperature is at least 10º higher than the heating temperature setpoint.



Setpoint	2	3	4	5	6	7
°C	20	30	40	50	60	70

4.7 General adjustments and settings

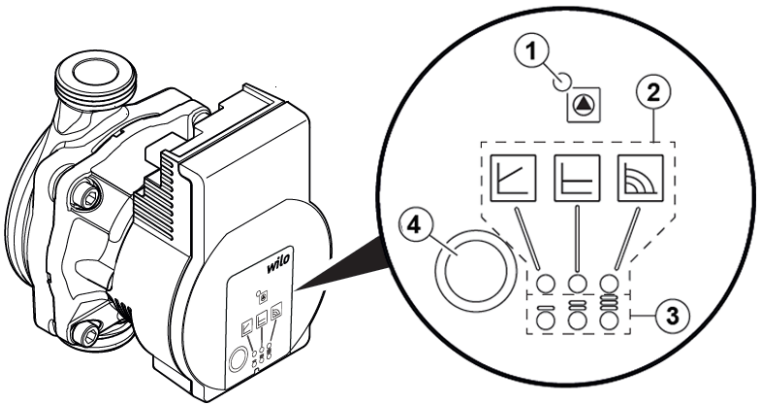
The property owner must be instructed in the operation, setting and care of the unit.
It is particularly important to provide information about the safety systems and about hazards that may arise in relation to the high pressure and temperature of the primary heating water.

4.8 Dismantlement

When the time comes for the HIU to be dismantled and scrapped it must be disposed of in the correct manner in accordance with local or national regulations.

5 Pump settings and pump performance

The HIU are equipped with a heating circuit pump Wilo Para.
When the pump is switched on it runs with the factory pre-setting or the last setting.
The pump is pre-set to run with operation mode, constant speed, curve III.
Control mode indicates with LEDs on the pump front.



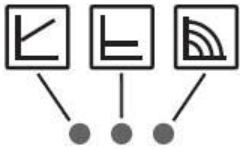
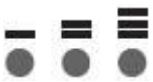
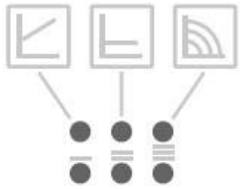
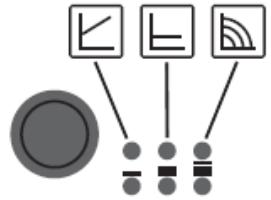
1 Operation status/ fault signal (LED)

2 Display of selected control mode

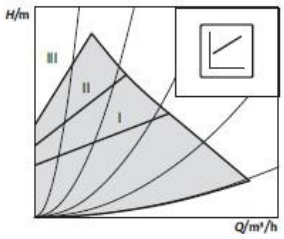
3 Display of selected curve (I, II, III)

4 Operating button for pump adjustment

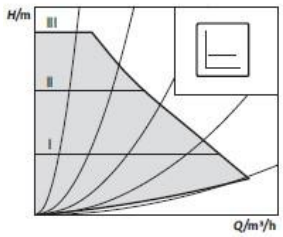
5.1 Pump settings

	Operation status • Green – normal operation • Lights up/flashes red – error message
	Display of selected control mode
	Display of selected pump curve I, II, III
	LED indicator when • pump venting • manual restart • key lock
	**Operating button** Press • Select control mode • Select pump curve (I, II, III) within the control mode Press and hold • Activate the pump venting function, press for 3 seconds • Activate manual restart, press for 5 seconds • Lock/unlock button, press for 8 seconds

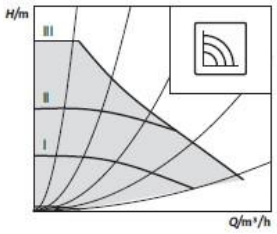
5.2 Control modes



- Variable differential pressure Δp-v – the pump reduces the delivery head to half in the case of decreasing the volume flow in the pipe network.
  Electrical saving by adjusting the delivery head to the volume flow requirement and lower flow rates.
  There are three pre-defined pump curves (I, II, III)..

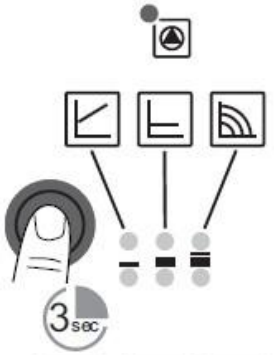


- Constant differential pressure Δp-c – the control keeps the set delivery head constant irrespective of the pump volume flow.
  There are three pre-defined pump curves (I, II, III).

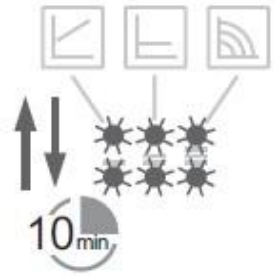


- Constant speed – the pump runs in three prescribed fixed speed stages (I, II, III).

5.3 Venting the pump

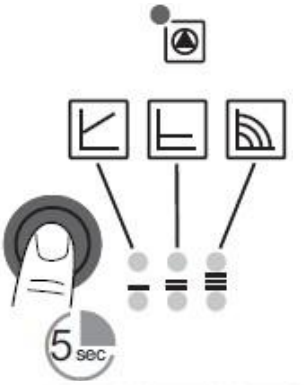


If the pump does not vent automatically, activate the pump venting function by pressing and holding the operating button for 3 seconds.
Venting function is active for 10 minutes.
The top and bottom LED row flash in turn at 1 second intervals.
To cancel, press and hold the operating button for 3 seconds



NOTICE!
After venting, the LED display shows the previously set values of the pump.

5.4 Manual restart



The pump attempts an automatic restart upon detecting a blockage.
If the pump does not restart automatically, activate manual restart by pressing and holding the operating button for 5 seconds.
Manual restart is active for 10 minutes.
The LEDs flash in succession clockwise.
To cancel, press and hold the operating button for 5 seconds.



NOTICE!
After restart, the LED display shows the previously set values of the pump.

5.5 Key lock



The keylock is activated by pressing and holding the operating button for 8 seconds until the LEDs for the selected setting briefly flash, then release.

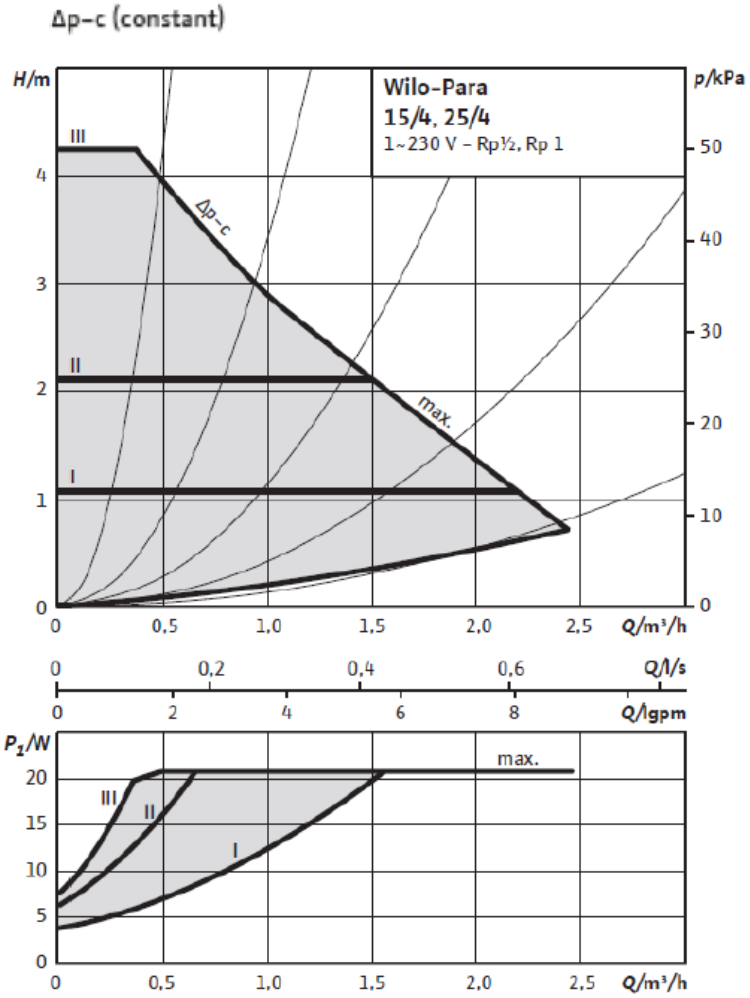
LEDs flash constantly at 1-second intervals.
The key lock is activated: pump settings can no longer be changed.
The key lock is deactivated in the same manner as it is activated.

NOTICE!
All settings/displays are retained if the power supply is interrupted.

5.6 Activating factory setting

The factory setting is activated by pressing and holding the operating button while switching off the pump.
All LEDs flash for 1 second. The LEDs for the last setting flash for 1 second.
When the pump is switched on again it will run using the factory settings.

5.7 Pump curve



5.8 Setting the control mode

To change the control mode and the curve, use the button on the pump. Each press will change the pump setting. The LED display the setting.

	LED display	Control mode	Curve		LED display	Control mode	Curve
1		Constant speed	II	**6**		Constant differential pressure Δp-c	III
2		Constant speed	I	**7**		Constant differential pressure Δp-c	II
3		Variable differential pressure Δp-v	III	**8**		Constant differential pressure Δp-c	I
4		Variable differential pressure Δp-v	II	**9**		Constant speed	III
5		Variable differential pressure Δp-v	I				

5.9 Thoubleshooting the pump



Service actions must be carried out by an authorized service technician.

Fault	Causes	Remedy
LED -lights up red	Rotor blocked	Activate manual restart
	Winding defective	
LED- flashes red	Power supply too low or high	Check power supply and operating conditions
	Control module too warm	
	Motor current to high	
LED -flashes red/green	No power supply to the pump	Check the power supply, water quantity/pressure and the ambient conditions.
	Air in the pump	
	Sluggish motor. The pump is operated outside of its specifications. The speed is lower than during normal operation.	
Pump is not running although the power supply is switched on	Electrical fuse defective	Check the fuse
	No voltage supply at pump	Rectify the power interruption
Noisy pump	Insufficient inlet pressure	Increase the system pressure within the permissible range
		Check the delivery head/duty point and set it to a lower head if necessary
Building does not warm up	Thermal output of the heating surfaces is too low.	Increase setpoint
		Change the control mode

6 Service instructions

	To avoid the risk of scalding, make sure that no-one draws any water while servicing the HIU.
	Grey marked service actions must be carried out by an authorized service technician.

NOTE! Make sure that the HIU has been correctly installed.

6.1 Tap water service instructions

6.1.1 Tap water temperature too low

Reason	Action
Primary heating supply too low	**Check the primary inlet temperature** The temperature can be checked by means of the energy meter (min 65 ° C) or contact the primary heating medium provider.
Handle on control valve incorrectly positioned	**Adjust the handle on the control valve** Control the hot water temperature by turning the handle on the control valve, counter clockwise to increase and clockwise to decrease tap water temperature. Adjust the hot water temperature by having a hot water tap open at normal flow rate. Measure the temperature at the draw-off point with a thermometer. It takes about 20 seconds to get a stable tap water temperature. The temperature should be minimum 50 °C. Cetetherm recommends that the primary inlet temperature is at least 10 ºC higher than the tap water temperature. **NOTE**: Make sure that no cold water is mixed with the hot water while making this adjustment.
Filter for heating media clogged	**See** *8.1 Cleaning the heating media filter.*
Hot water valve does not work	**See** *7.1 Check the function of the actuator and valve for hot water.*

6.1.2 Tap water temperature too high

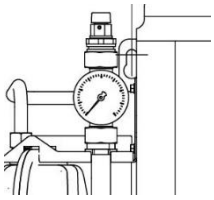
Reason	Action
Handle on control valve incorrectly positioned	**Adjust the handle on the control valve** Control the hot water temperature by turning the handle on the control valve, counter clockwise to increase and clockwise to decrease tap water temperature. Adjust the hot water temperature by having a hot water tap open at normal flow rate. Measure the temperature at the draw-off point with a thermometer. It takes about 20 seconds to get a stable tap water temperature. The temperature should be minimum 50 °C. Cetetherm recommends that the primary inlet temperature is at least 10º higher than the tap water temperature. **NOTE**: Make sure that no cold water is mixed with the hot water while making this adjustment.
Hot water valve and/or actuator does not work	**See** *7.1 Check the function of the actuator and valve for* hot water If the water temperature is too high when the handle is in position 0, the actuator or the exchanger is damaged and requires replacing.

6.1.3 Hot water temperature unstable or too low

Reason	Action
Alternating pressure on primary side	**Check available differential pressure and temperature at the primary heating medium provider**
Filter for heating media clogged	**See** *8.1 Cleaning the heating media filter*.
Filter for cold water clogged	**See** *8.3 Cleaning the cold-water filter*.
Check valve cold water defect	**Check and change if necessary** **See** *8.9 Change the cold water check valve*.

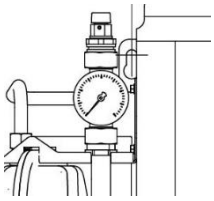
6.2 Heating system service instructions

6.2.1 Heating system temperature too high or too low

Reason	Action
Air in the heating system	**Bleed the system** Disconnect the HIU power supply cable. Bleed the heating system via the air vent valve. The pump is self-venting. Air in the pump may cause noise. This noise ceases after a few minutes run time. Bleed the radiators. 

The pressure in the system is too low or there is not enough water in the heating system	**Check the pressure on the manometer and top up the system with water** The pressure should not be below 1.0 Bar in wintertime or below 0.6 Bar in summer. The circuit should only be topped up with fresh water when necessary. The water used for topping up contains oxygen which can lead to corrosion in the system. The circuit should therefore be topped up as seldom as possible. Fill up until the pressure meter shows desired value, or up to maximum 2.0 Bar. Then close the top up valve. The safety valve opening pressure is 3 Bar.
Heating valve and/or actuator does not work	**See** 7.2 Check the function of the actuator and valve for heating.
Filter for heating media clogged	**See** *8.1 Cleaning the heating media filter*.

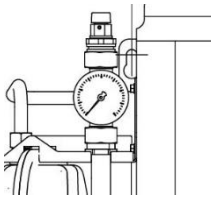
6.2.2 No heating

Reason	Action
Closed radiator or floor heating valves	**Check that all radiator valves and floor heating valves are fully open**
Circulation pump not running	**Check that the electrical power is on**
	Check the circulation pump If the pump fails to start after stopping, try to start it at the highest setting. **See** *5.9 Thoubleshooting the pump*.
Air in the heating system	**Bleed the system** Disconnect the HIU power supply cable. Bleed the heating system via the air vent valve. The pump is self-venting. Air in the pump may cause noise. This noise ceases after a few minutes run time. Bleed the radiators. 
The pressure in the system is too low or there is not enough water in the heating system	**Check the pressure on the manometer and top up the system with water** The pressure should not be below 1.0 Bar in wintertime or below 0.6 Bar in summer. The circuit should only be topped up with fresh water when necessary. The water used for topping up contains oxygen which can lead to corrosion in the system. The circuit should therefore be topped up as seldom as possible. Fill up until the pressure meter shows desired value, or up to maximum 2.0 Bar. Then close the top up valve. The safety valve opening pressure is 3 Bar.
Filter for heating media clogged	**See** *8.1 Cleaning the heating media filter*.

6.2.3 Heating temperature unstable

Reason	Action
Alternating pressure on primary side	**Check available differential pressure and temperature at the primary heating medium provider**
Filter for heating media clogged	**See** *8.1 Cleaning the heating media filter*.

6.2.4 Disturbing noise from the circulation pump or the radiator system

Reason	Action
Air in the system	**Bleed the system** Disconnect the HIU power supply cable. Bleed the heating system via the air vent valve. The pump is self-venting. Air in the pump may cause noise. This noise ceases after a few minutes run time. Bleed the radiators. 
Air in the pump	**Let the pump run** The pump vents itself over time. Air in the pump may cause noise. This noise ceases after a few minutes run time.
Pump runs with incorrect operating mode	**Check and change to recommended operating mode** **See** *5.8 Setting the control mode*.
Pump motor or pump component damaged	**See** *8.4 Change the pump*.

6.2.5 Heating system often needs topping up

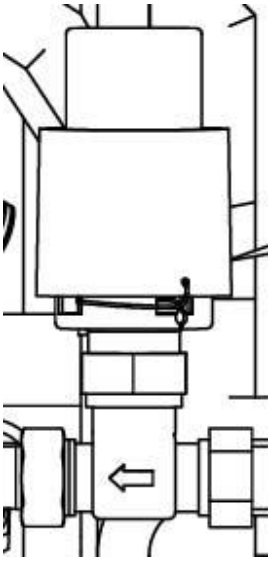
Reason	Action
Leaks in the HIU or in the system	**Check the HIU and the system for leaks** Leaks from the HIU or the heating system cause pressure drop. Contact your service technician if finding any leaks.
The expansion vessel cannot handle the changes in the system	**See** *7.3 Check the volume take-up and pressure equalizing of the expansion vessel*.
The heating system safety valve is leaking or does not work	**Check the heating system safety valve** Check that the heating system safety valve is not leaking and that it works properly. Check the safety valves' function by turning the wheel/knob until water runs out of the valve's waste pipe and then close the valve quickly.

7 Service actions for the installer

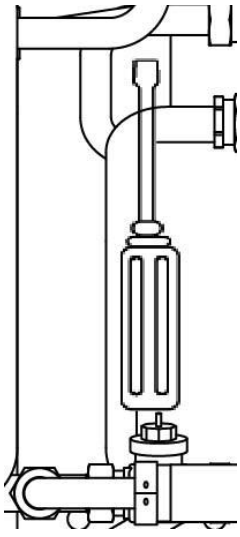
7.1 Check the function of the actuator and valve for hot water

⚠	Service actions must be carried out by an authorized service technician.
⚠	Close the shutoff valves for the **Heating network supply** and **Heating network return** together with the **cold** and **hot wate**r.
⚠	After finishing repair, open the shutoff valves. Start with **Heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

- Disconnect the power feed to the HIU.
- Unscrew the tap water actuator from the control valve.
  If the valve is working it should be fully open when the actuator is removed.
  Check that hot water passes through the valve. Feel gently on a pipe after the valve.
- Close the shut-off valves.



- Carefully press the valve's spindle with a tool and check the valve's travel and spring back.
  NOTE: The valve may be very hot!
- Turn the handle on the actuator; a small stem should move in and out.
  NOTE: the movement is very small and can be difficult to see. If the stem does not move the actuator is damaged and requires replacing.
- Connect the power feed to the HIU.
- Open the shutoff valves.
- After service set the tap water temperature,
  see *4.6.2 Adjust the hot water temperature*.

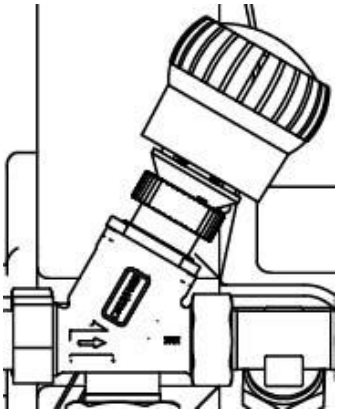


7.2 Check the function of the actuator and valve for heating

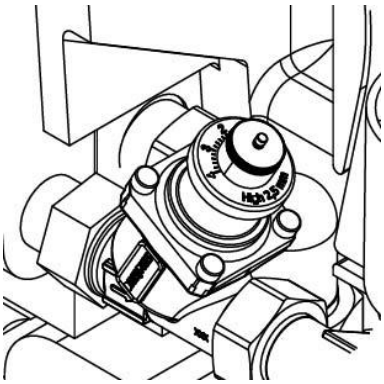
⚠	Service actions must be carried out by an authorized service technician.
⚠	Close the shutoff valves for the **Heating network supply** and **Heating network return** together with the **cold** and **hot wate**r.
⚠	After finishing repair, open the shutoff valves. Start with **Heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.
⚠	DO NOT change the pre-setting on the heating valve.

- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Unscrew the heating actuator from the control valve.
  Close the actuator by turning the knob clockwise, this will make it easier to reattach.

  If the valve is working it should be fully open when the actuator is removed.
  Check that hot water passes through the valve. Feel gently on a pipe after the valve.



- Carefully press the valve's spindle with a tool and check the valve's travel and spring back.
  NOTE: DO NOT change the pre-setting on the valve.
  NOTE: The valve may be very hot!
- Turn the handle on the actuator; a small stem should move in and out. If the stem does not move the actuator is damaged and requires replacing.



- Check the locking adapter is mounted inside the actuator before mounting it on the valve.
  Assemble the valve and actuator using a pipe wrench.
- Connect the power feed to the HIU.
- Open the shutoff valves.

7.3 Check the volume take-up and pressure equalizing of the expansion vessel

- Check the expansion vessel and its valve for possible leakage.
- Check the pre-pressure in the expansion vessel.

The cause may be that the expansion vessel cannot manage the volume changes on the heating side. The expansion vessel may have to be replaced.

See *8.10 Change the expansion vessel*. Alternatively, the system´s total volume of water may be too high, i.e. the volume changes are too large for the expansion vessel. If so, add extra expansion volume.

8 Maintenance and repairs

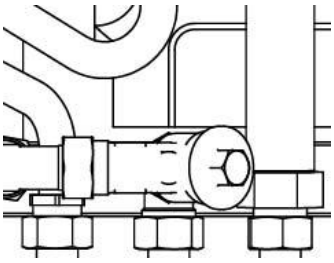
When carrying out repairs, please contact your local service partner.

⚠	Before starting out repairs always close the correct shutoff valves.
⚠	When dismounting a component there will be water coming out, hot and under pressure.

8.1 Cleaning the heating media filter

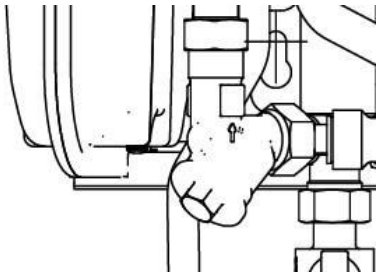
⚠	Service actions must be carried out by an authorized service technician.
⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Use a wrench and release the filter cover and remove the cartridge.
- Clean the filter with water and refit the cartridge. Screw the filter cover with a momentum of 10–20 Nm.
- Open the shutoff valves and connect the power feed to the HIU.



8.2 Cleaning the heating circuit filter

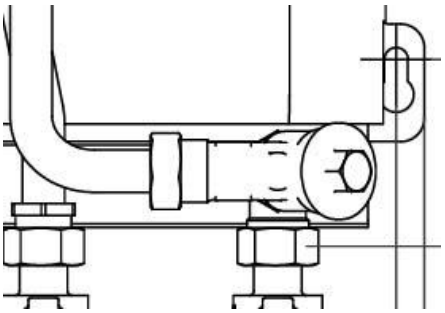
⚠	Service actions must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **heating network supply**, **heating network return**, **heating supply and heating return**. Release the pressure using the heating circuit safety valve.
⚠	After finishing repair, fill up the circuit and vent. Open the shutoff valves, start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Then open **heat return** and then **supply**. Open the valves slowly to avoid pressure surges.



- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Use a wrench and release the filter cover and remove the cartridge.
- Clean the filter with water and refit the cartridge. Screw the filter cover with a momentum of 10–20 Nm.
- Fill up the heating circuit, vent the heating circuit.
- After final bleeding, the pressure should not be less than 1.0 bar in winter and not less than 0.6 bar in summer.
- Open the shutoff valves and connect the power feed to the HIU.

8.3 Cleaning the cold-water filter

⚠	Service actions must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **heating network supply**, **heating network return**, **hot water,** and **cold water**.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Then open **cold water** and then **hot water**. Open the valves slowly to avoid pressure surges.

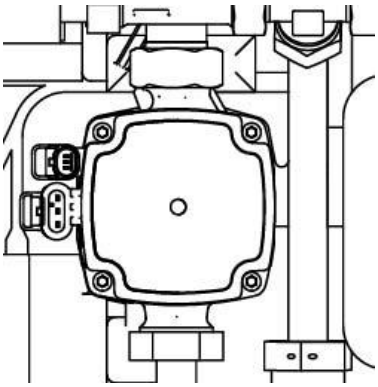


- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Use a wrench and release the filter cover and remove the cartridge.
- Clean the filter with water and refit the cartridge. Screw the filter cover with a momentum of 10–20 Nm.
- Open the shutoff valves and connect the power feed to the HIU.

8.4 Change the pump

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **heating network supply**, **heating network return**, **heating supply** and **heating return**. Release the pressure using the heating safety valve.
⚠	After finishing repair, fill up the heating circuit and vent. Open the shutoff valves, start with **heating return** and then **heating supply**, then **heating network Supply** and **heating network return**, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

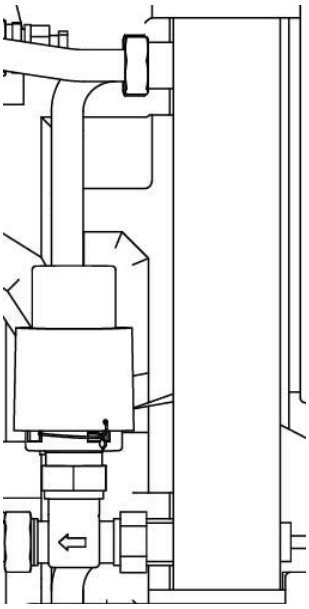
- Disconnect the power cable to the pump.
- Close the shut-off valves.
- Release the brass nuts with a spanner and replace the pump. Connect the pump cable.
- Fill up the heating circuit. Vent the heating circuit.
- Open the shut-off valves and connect the power feed to the HIU.
- After final bleeding, the pressure should not be less than 1.0 bar in winter and not less than 0.6 bar in summer.



8.5 Change the hot water actuator and heat exchanger

⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

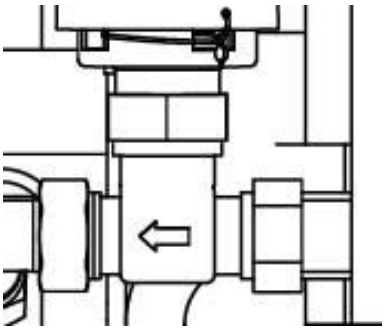
- Disconnect the power feed to the HIU.
- Close all shut-off valves.
- Unscrew the actuator from the control valve.
- Release the four nuts on the heat exchanger.
- Refit a new heat exchanger and actuator.
  Use new gaskets and tighten with 45Nm.
- Mount the actuator on the valve.
- Open the shutoff valves and connect the power feed to the HIU.



8.6 Change the hot water valve

⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

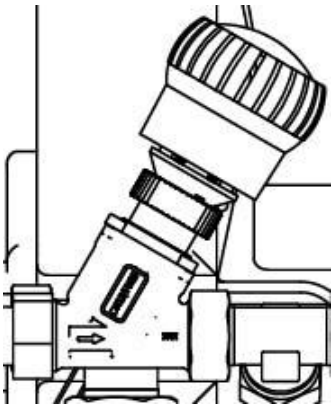
- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Unscrew the tap water actuator from the control valve.
- Use a spanner to remove the control valve.
  Note the arrow direction on the valve.
- Mount a new valve; and take especially care to the arrow direction.
  Use new gaskets and tighten with 45Nm.
- Fasten the tap water actuator on the valve.
- Open the shutoff valves and connect the power feed to the HIU.



8.7 Change the heating actuator

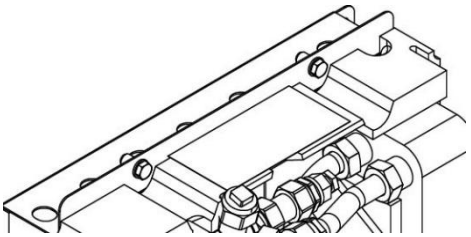
⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves. Release the pressure using the heating safety valve.
⚠	After finishing repair, fill up the heating circuit and vent. Open the shutoff valves, start with **heating return** and then **heating supply**, then **heating network Suppl**y and **heating network return**, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

- Disconnect the power feed to the HIU.
- Close the actuator by turning the knob clockwise, this will make it easier to reattach Unscrew the heating actuator from the valve.
- Make sure that new actuator is closed by turning the knob clockwise to the closing position.
- Check that the locking adapter is mounted inside the actuator before mounting it on the valve. Assemble the valve and actuator using a pipe wrench.



- Replace the temperature sensor with the sensor that is connected to the new heating actuator.

  NOTE: Some water will come out from the heat exchanger.

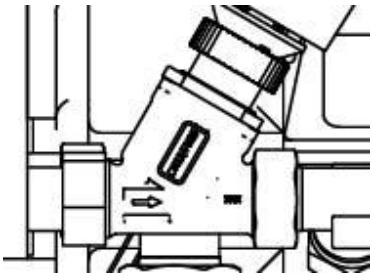


- Fill up the heating circuit. Vent the heating circuit.
- Open the shut-off valves and connect the power feed to the HIU.
- After final bleeding, the pressure should not be less than 1.0 bar in winter and not less than 0.6 bar in summer.

8.8 Change the heating valve

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

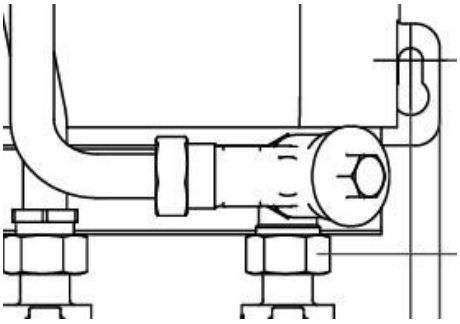
- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Unscrew the heating actuator from the control valve.
- Use a wrench to remove the control valve.
  Note the arrow direction on the valve.
- Mount a new valve; and take especially care to the arrow direction.
  Use new gaskets and tighten with 45Nm.
- Close the actuator by turning the knob clockwise to the closing position.
- Check the locking adapter is mounted inside the actuator before mounting it on the valve.
  Assemble the valve and actuator using a pipe wrench.
- Open the shutoff valves and connect the power feed to the HIU.



8.9 Change the cold water check valve

⚠	Service actions must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **heating network supply**, **heating network return**, **hot water** and **cold water**.
⚠	After finishing repair, open the shutoff valves. Start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Then open **cold water** and then **hot water**. Open the valves slowly to avoid pressure surges.

- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Use a wrench and unscrew the filter.
- Remove the old check valve and mount a new.
  NOTE! Make sure that the check valve is mounted in the correct way.



Flow direction



- Mount the filter again.
- Open the shutoff valves cold and hot water.
- Vent the circuit by opening a hot water tap.
- Connect the power feed to the HIU. Open the shutoff valves heating network Supply and then heating network return.

8.10 Change the expansion vessel

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **heating network supply**, **heating network return**, **heating supply and heating return**. Release the pressure using the heating circuit safety valve.
⚠	After finishing repair, fill up the circuit and vent. Then open the shutoff valves, start with **heating network supply** and then the **return** line, to avoid pollutions in the system. Then open **heat return** and then **supply**. Open the valves slowly to avoid pressure surges.

- Disconnect the power feed to the HIU.
- Close the shut-off valves.
- Replace the expansion vessel.
- Fill up the heating circuit. Vent the heating circuit.
- Open the shutoff valves and connect the power feed to the HIU.
- After final bleeding, the pressure should not be less than 1.0 bar in winter and not less than 0.6 bar in summer.

9 Operating data and performance

Primary side:	Primary side	Heating	DHW
Design pressure PS	16 Bar	10 bar	10 Bar
Design temperature TS	120°C	90°C	90°C
Relief pressure safety-valve		3 Bar	
Volume Heat exchanger, L	0,38/0,45	0,46 L	0,48 L

Temperature program (°C) Heating	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
100-63/60-80	14	18	15*	1*7AH	1*7AL	0,09	5	0,17	6
100-48/45-60(46,2)	16	18	15*	1*7AH	1*7AL	0,07	3	0,26	**14**
100-43/40-60(42,6)	22	18	15*	1*7AH	1*7AL	0,09	5	0,26	**15**
100-33/30-35 (30,2)	6	18	15*	1*7AH	1*7AL	0,02	1	0,29	**18**
85-47/45-60	14	18	15*	1*7AH	1*7AL	0,09	5	0,22	11
80-63/60-70 (62,5)	11	18	15*	1*7AH	1*7AL	0,15	13	0,26	**15**
80-60/50-70(57,5)	17	18	15*	1*7AH	1*7AL	**0,18**	19	0,20	9
80-33/30-35(30,2)	6	18	15*	1*7AH	1*7AL	0,03	1	0,29	**18**
100-63/60-80	24	18	23	1*11AH	1*11AL	0,15	6	0,29	8
100-48/45-60(45,8)	21	18	23	1*11AH	1*11AL	0,09	2	**0,34**	11
100-43/40-60(41,7)	27	18	23	1*11AH	1*11AL	0,11	3	**0,32**	10
100-33/30-35 (30,2)	6,5	18	23	1*11AH	1*11AL	0,02	1	**0,31**	10
85-47/45-60 (46,5)	19	18	23	1*11AH	1*11AL	0,12	4	**0,30**	9
80-63/60-70 (61,7)	13	18	23	1*11AH	1*11AL	0,17	7	**0,31**	9
80-60/50-70(56,0)	22	18	23	1*11AH	1*11AL	**0,22**	12	0,26	7
80-33/30-35(30,2)	6,5	18	23	1*11AH	1*11AL	0,03	1	**0,31**	10

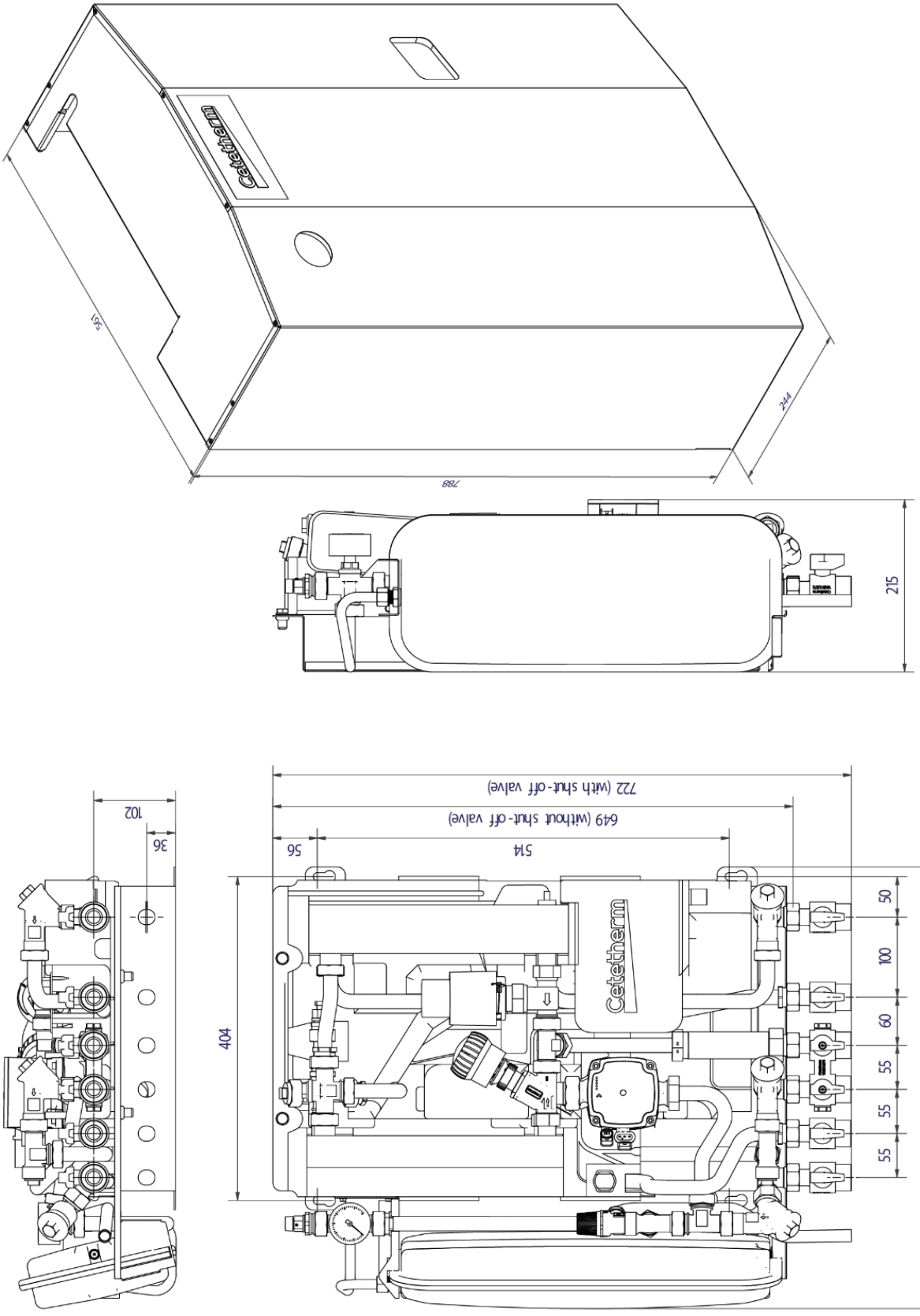
Temperature program (°C) DHW	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
80-25/10-60	62	20	27*	1*12 H	1*13 H	0,27	17	0,3	17,5
80-23/10-55(22,7)	67	20	27*	1*12 H	1*13 H	0,28	18	0,35	24,7
65-22/10-50	43	20	27*	1*12 H	1*13 H	0,24	13	0,26	14
65-25/10-50 (23,3)	50	20	27*	1*12 H	1*13 H	**0,29**	19	0,3	18
60-25/10-50	40	20	27*	1*12 H	1*13 H	0,27	17	0,24	12
80-25/10-60 (23,0)	69	20	35	1*16 H	1*17 H	**0,29**	11	0,33	13
80-25/10-55 (21,0)	75	20	35	1*16 H	1*17 H	**0,30**	12	0,4	19
65-25/10-50 (23,1)	67	20	35	1*16 H	1*17 H	**0,38**	19	0,4	19
65-22/10-50 (20,1)	50	20	35	1*16 H	1*17 H	**0,27**	10	0,3	11
60-25/10-50 (24,1)	50	20	35	1*16 H	1*17 H	**0,33**	15	0,3	11

* Option

9.1 Technical Data

Main measures	See Measure sketch
• With cover	560x240x720 (mm, WxDxH)
• Without cover	560x220x720 (mm, WxDxH)
ight	25kg, cover 2kg
Electrical data	230 V, 1-phase, 58 W
Transportation	Total weight 31 kg, 0.2 m³
Sound level	<55 dB (A) 1.6 m from floor, 1 m from unit

9.2 Measure sketch

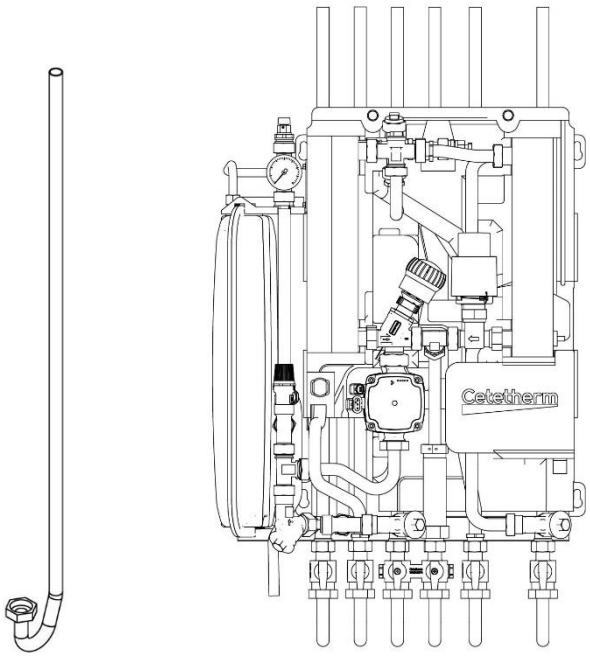


10 Options

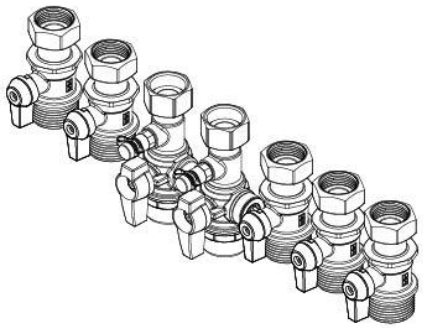
The mounting instructions are described for a new installation. If the kits are to be installed on an already installed subsystem, release the water pressure and disconnect the electrical power supply before starting. The options must be installed by an authorized installation contractor.

10.1 Pipe connection up

The pipe connection up, makes it possible to connect incoming and outgoing pipes at the top of the Mini UK.



10.2 Valve kit with service bypass and binder points



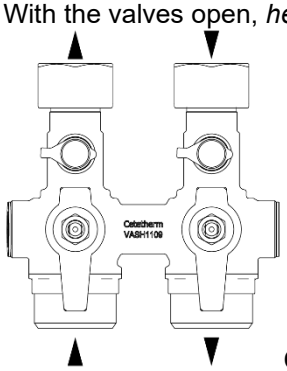
10.2.1 Using the valve kit with service bypass and binder points

The Service bypass makes it possible to flush the pipes *Heating Network media, supply and return*, when the HIU is mounted.

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating HIU. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **heating network supply** and **heating network return** shutoff valves.
⚠	When opening the shutoff valves, start with **heating network Suppl**y and then **heating network return**, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

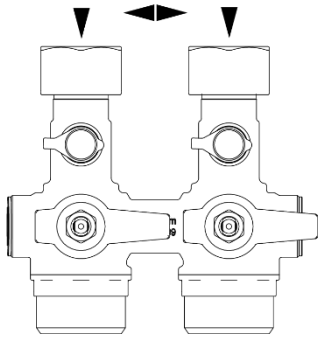
- Connect the service bypass valves between connection *heating network media supply (**C**)* and *heating network media return (**D**)*.
  Tighten with 45 Nm.

- With the valves open, *heating network media supply* and *return* are connected to the HIU.



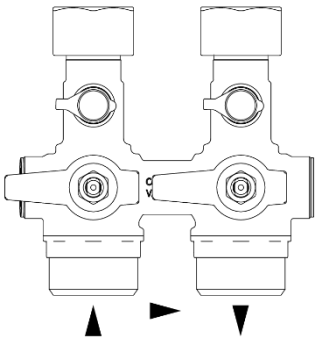
Open – handles in vertical position.

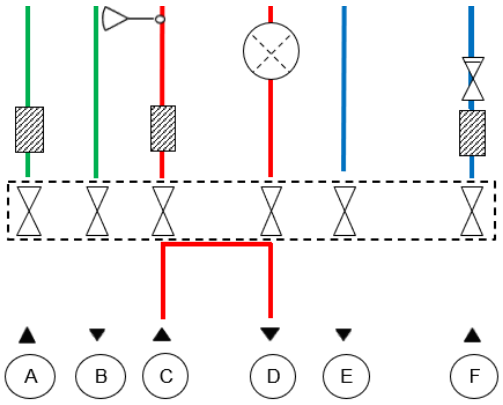
- With the valves in closed postion, *heating network media supply* and return are not connected to the HIU.



Closed – handles in horizontal position, pointing to the right.

- With the valves in bypass postion,the pipes for *heating network media supply* and *return*, are connected.





- After flushing the pipes, turn the handle to closed position and tighten the screws.
- Then open the shut off valves, start with *heating network supply* and then *heating network return*, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

Cetetherm AB
Logistikvägen 9
372 38 Ronneby – Sweden
www.cetetherm.com