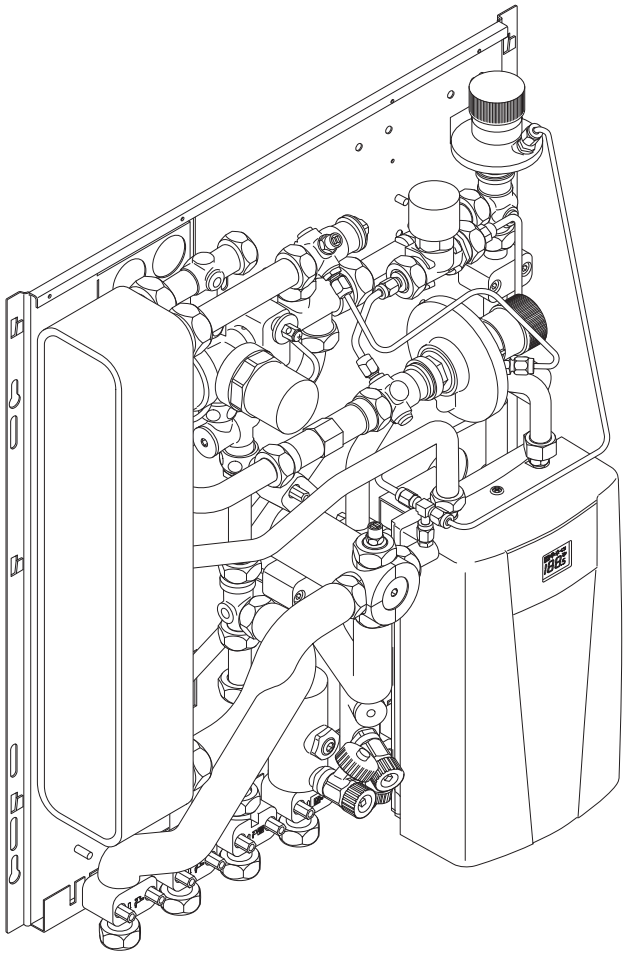
Uponor Combi Port M-Hybrid

EN Installation and operation manual



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2 Preface

This installation and operation manual describes how to install and operate the components of the system.

2.1 Safety instructions

Safety messages used in this document

STOP	**Warning!** Risk of injury and damage. Ignoring warnings can cause personal injury and/or damage to products and other property.
⚠	**Caution!** Risk of malfunctions. Ignoring cautions can cause the product to not operate as intended.
!	**Note** Important information to the section in the manual.

Uponor uses safety messages in the document to indicate special precautions required for the installation and operation of any Uponor product.

Power

STOP	**Warning!** Risk of electric shock if touching the components! The unit operates with a 230/400 V AC voltage.
STOP	**Warning!** Risk of electrical shock! Electrical installation and service behind secured 230/400 V AC covers must be done under the supervision of a qualified electrician.
STOP	**Warning!** Uponor system power supply: 230/400 V AC, 50 Hz. In case of emergency, immediately disconnect the power.
STOP	**Warning!** Prior to any work on the controller or the components connected to it, switch off the controller according to the regulations.

Technical constraints

⚠	**Caution!** To avoid interference, keep data cables away from components bearing power of more than 50 V.

Safety measures

!	**Note** For safe and proper use, obey the instructions given in this document. Keep them for future reference.

The installer and operator agree to comply with following measures regarding Uponor products:

- Read and obey the instructions and processes in the document.
- The installation must be performed by a qualified installer in accordance with local regulations.
- Uponor is not liable for modifications not specified in this document.
- Switch off all connected power supplies before starting any wiring work.
- Do not expose the Uponor components to flammable vapours or gases.
- Do not use water to clean electrical Uponor products/ components.

Uponor is not liable for damage caused by ignoring the instructions in this document or the applicable building code.

2.2 Standards and regulations

!	**Note** The installation must be carried out in accordance with current local standards and regulations!

Planning and designing of the heating system must be performed in accordance with applicable global and country-specific standards and guidelines

- Ensure that no aggressive substances, such as acids, lubricants, bleach, flux, strong liquid cleaning agents, contact sprays or concrete including its components, come into contact with the stainless steel manifold and manifold components.
- A water analysis is recommended for each installation. In the event of warranty claims, it is mandatory. It is essential that the heating circuits are regulated on the water side so that a sufficient hydraulic function of the individual heating circuits or the entire underfloor heating system is guaranteed!

For Combi Ports with an assembled water meter, **planning and implementation of the drinking water system** must be done in accordance with the Infection Protection Ordinance.

A few points to be high-lighted:

- Flush and disinfect the system before commissioning and handing over to the user.
- Provide the domestic hot water pipes with required thermal insulation strength.
- Insulate the drinking cold water pipes to secure that no heating in excess of the requirements takes place.

2.3 Correct disposal of this product (Waste Electrical and Electronic Equipment)

!	**Note** Applicable in the European Union and other European countries with waste separation systems.


This icon on the product, or in the related documents indicates that it should not be disposed with household waste.

Please, recycle responsibly to support the sustainable use of resources and prevent possible harm to human health and/or the environment.

Household users should contact the retailer where they purchased this product, or their local government office, for details on where and how they can take it for recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. Do not dispose this product with other commercial waste.

3 System description

Domestic hot water: In the heat interface unit, a comfortable hot water temperature of 45-60 °C is achieved even at low heating flow temperatures of 35-40 °C. Cold water is preheated with a high-performance plate heat exchanger made of stainless steel. Due to the high flow and the low spread of approximately 3-5 °K, the cold water is heated to approximately 37 °C. Further heating to a higher hot water temperature for showering or bathing (approximately 40-60 °C) takes place via the integrated, electric heater (booster).

Domestic heating:

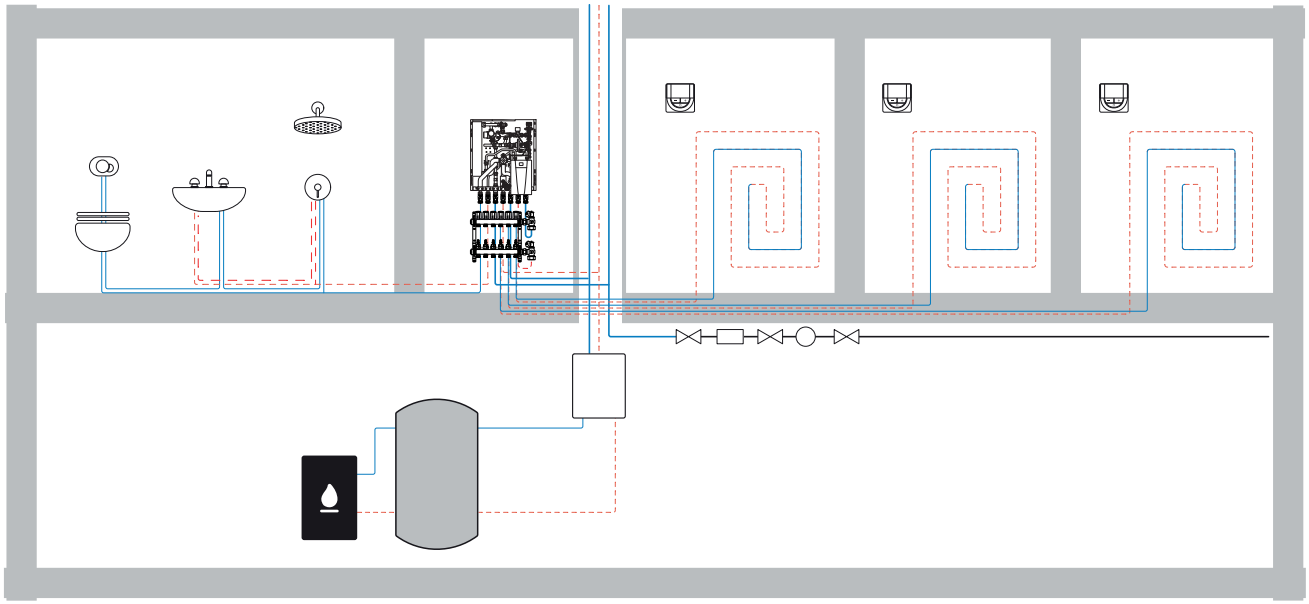
The Uponor Combi Port M-Hybrid unit independently manage the hydraulic balancing between hot water and heating. The room temperature control is carried out in the underfloor heating system (pump group, thermostatic supply temperature valve, room thermostat).

The heat interface unit is available for in-wall installation only.

Hygienic principle:

The heating water flows through the heat exchanger only on demand. This makes sure that the hot water temperature remains constant. If no hot water is needed, the valve stops the supply of hot water through the heat exchanger. It can cool down which is beneficial for the hygiene.

3.1 Operating principle



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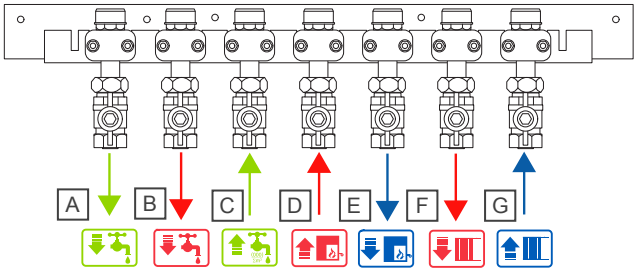
3.2 Connection description



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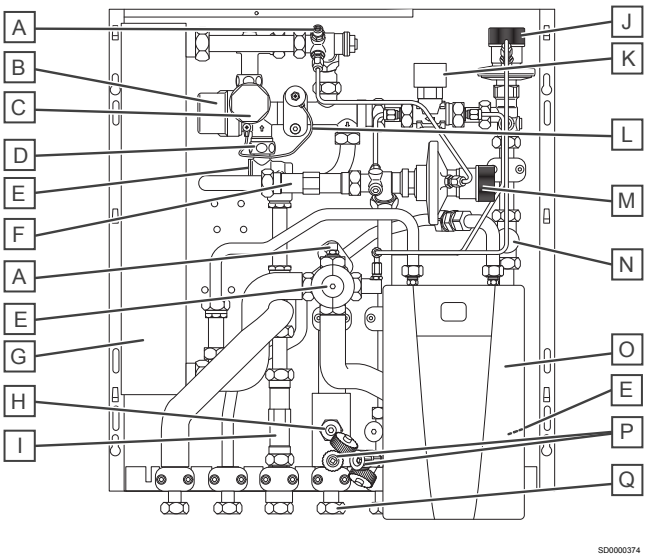
Item	Description
A	Cold water to apartment (PWC)
B	Domestic hot water to apartment (PWH)
C	Cold water from riser (PWC)
D	Heating supply (primary)
E	Heating return (primary)
F	Heating supply (secondary)
G	Heating return (secondary)

3.3 Components

Note

The illustrations below show example setups. The individual modules can have different appearances.

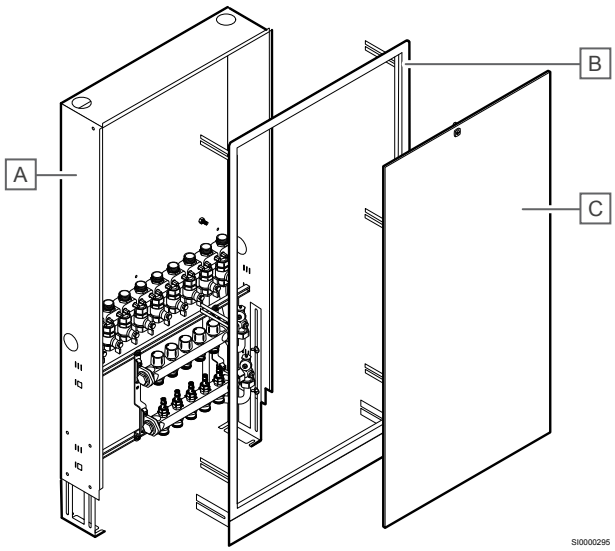


Item	Description
A	Venting screw
B	PM controller
C	Water hammer arrester
D	Cold water throttle disc
E	Strainer
F	Heat meter distance piece
G	Heat exchanger
H	Heat meter pocket M10 x 1
I	Water meter distance piece
J	Differential pressure regulator in secondary heating
K	Thermostatic lead module (BP)
L	Equipotential bonding connection
M	Differential pressure regulator in primary heating
N	Zone valve to limit heating supply to appartment
O	Electric heater (booster)
P	Draining and filling valve
Q	Swivel nut

3.4 Accessories

Uponor offers a variety of accessories that are compatible with the standard portfolio. The below accessories are optional, and their use completes the product portfolio. Subsequent chapters describe the application in more detail.

Cabinet including manifolds



Item	Description
A	Cabinet body
B	Frame
C	Door

Cabinet includes pre-installed ball-valve rail and underfloor heating (UFH) manifolds 4-12 loops.

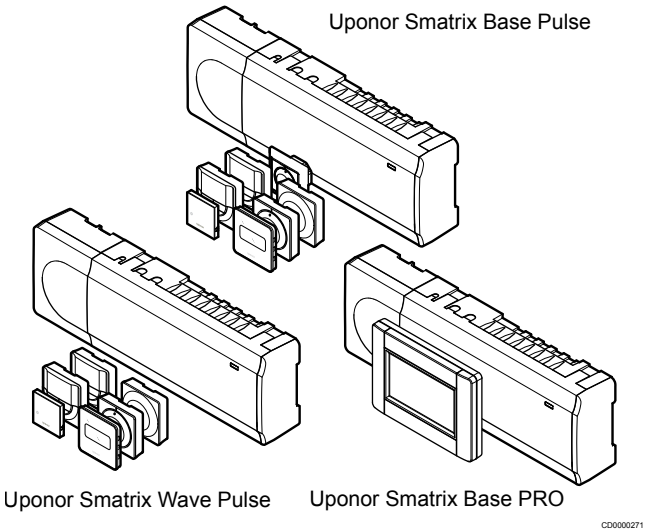
Dimensions of in-wall cabinet (width x hight x depth) in mm
810 x 1200 x 180, with UFH manifold 4-12 loops

Room temperature control

Note

Thermostats and remote control modules are not part of the Uponor Combi Port delivery. They must be ordered separately.

Uponor Smatrix



Uponor Smatrix is a fully equipped range of components for room temperature control, optionally via radio or wired. The unique auto-balancing technology eliminates the need for manual balancing of the loops. The smart system accurately determines and controls the exact energy needed for an optimal room temperature. The result is

highly comfortable underfloor heating and cooling with reduced energy consumption.

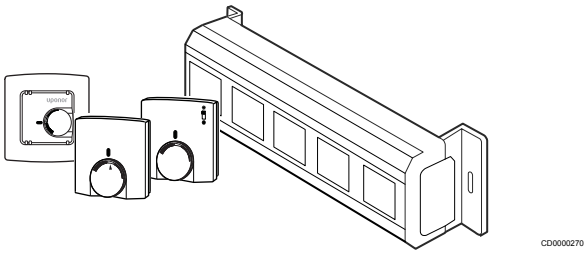
Room control functions

This list shows available functions for the different systems.

Basic functions	Wave Pulse	Base Pulse	Base PRO
Autobalancing	✓	✓	✓
Cooling function	✓	✓	✓
Modularity	✓	✓	✓
Installation and configuration functions	**Wave Pulse**	**Base Pulse**	**Base PRO**
Installation wizard	✓	✓	
Offline configuration	✓	✓	
Over-the-air updates	✓	✓	
Remote support	✓	✓	
Comfort functions	**Wave Pulse**	**Base Pulse**	**Base PRO**
Mobile app	✓	✓	
Smart notifications	✓	✓	
Trend visualization	✓	✓	✓
Multi home control	✓	✓	
Smart home integration	✓	✓	
Comfort settings	✓	✓	✓
ECO profiles	✓	✓	✓
Electrical underfloor heating control	✓	✓	
Ventilation integration	✓	✓	
Fan coil integration	✓		
Technical functions	**Wave Pulse**	**Base Pulse**	**Base PRO**
Uponor cloud services	✓	✓	
Data storage	✓	✓	✓
Pump management	✓	✓	✓
System diagnostics	✓	✓	✓
Heat pump (HP) integration	✓*)	✓*)	✓
Room bypass	✓	✓	✓
Room check			✓
KNX BMS integration			✓
Modbus RTU BMS integration			✓

*) cloud connectivity with selected HP for dynamic heat curve adjustment

Uponor Base flexiboard



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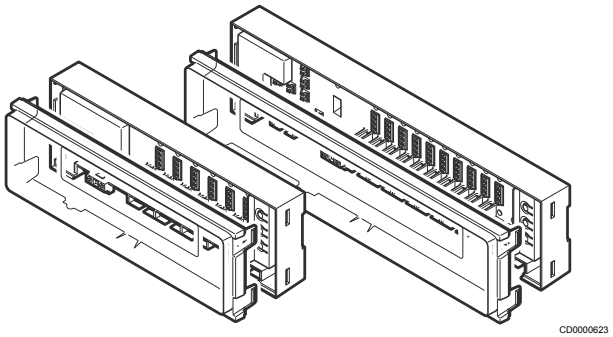
Uponor Base flexiboard is a 230 V control that enables individual room control for 6 or 8 rooms. There are also 2 variants with integrated pump logic available. This switches the circulating pump on or off as required and enables an energy-efficient operation.

Uponor Base X-60 and X-80



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Uponor Base X-60 and X-80 are control units with autobalance function for 230 V standard wiring:

- Base X-60 supports up to 6 thermostats and 12 actuators 230 V.
- Base X-80 supports up to 10 thermostats and 12 actuators 230 V (also for cooling applications).

Available functions

This list shows available functions for the different systems.

Basic functions	X-80	X-60
Autobalancing	✓	✓
Time limit by-pass with autobalance	✓	✓
Heating/cooling switch	✓	
Input: condensation	✓	
Input: day/night switch	✓	✓
Technical functions	**X-80**	**X-60**
Pump relay	✓	✓
Boiler relay	✓	
Four wires thermostat connection	✓	✓
Works with three wires thermostat	✓	

Additional information

Note

Visit the Uponor download centre for more information regarding the installation and configuration of Uponor Smatrix and Uponor Base flexiboard.

Uponor Smatrix and Base controllers

www.uponor.com/services/download-centre

4 Prepare for installation

4.1 General information

Warning!

The fittings are under pressure. Escaping pressurised media can cause serious injury such as scalding or eye damage.

Depressurise the system before performing any installation work.

For retrofits to an existing system:

Drain the system or close the supply lines of the section and depressurise it.

Warning!

Risk of injury due to the heavy weight of the unit:

Do not perform the installation alone.

Always wear safety shoes during the assembly. The unit can be of considerable weight, depending on the configuration. If the station falls over, this could lead to injuries, particularly to the feet.

Caution!

Leaks can occur in the unit during transport or installation. Examine the nuts to make sure that they are correctly tightened before the connection to prevent property damages.

Before you install the heat interface unit, make sure that:

- the primary pipes are installed in the building site.
- the primary pipe installation is flushed and do a leak check.
- the power and ground cables are connected in the installation site.
- the unit is installed in a dry and frost-free room with an ambient temperature lower than +40 °C.
- the unit is installed in vertical position (not inclined, upside down or lying down).
- the unit is always easy to access after the assembly.

4.2 Water analysis

A water analysis of the tap water must be checked before using the device. The limit values of domestic and heating water must be considered. The heating water quality must be in accordance to VDI 2035.

4.3 Heating side

The heating water quality must be in accordance to VDI 2035.

4.4 Drinking water side

The brazed plate heat exchangers are made up of embossed stainless steel plates (1.4404/1.4401 or SA240 316L/SA240 316). Thus, it is necessary to consider the corrosion behaviour of both the stainless steel and the Vacinox solder.

The heat exchangers in the heat interface units are made up of Vacinox stainless steel plates. Before using the heat exchangers, the building services planner or installation company must check during system planning that corrosion protection and scale formation have been adequately addressed in accordance with local regulations (e.g., DIN 1988-200 paragraph 12.3.2) and the available drinking water analyses. This verification must cover the following points:

- Selection of material.
- Corrosion-related changes in drinking water quality.
- Execution of the installation.
- Consideration of the anticipated operating conditions.

The below values for water ingredients must be fully obeyed:

Water ingredients	Value	Heat exchanger Vacinox soldered
pH-value	-	6-10
Total Hardness	°dH	6-15
Filterable substances	mg/l	<30
Chloride	mg/l	See list 1)
Free chlorine	mg/l	<0,5
Sulfate	mg/l	<400
Sulfide	mg/l	<7
Iron dissolved	mg/l	<0,2

1)

- At 20 °C max. 800 mg/l
- At 25 °C max. 600 mg/l
- At 50 °C max. 200 mg/l.

5 Installation

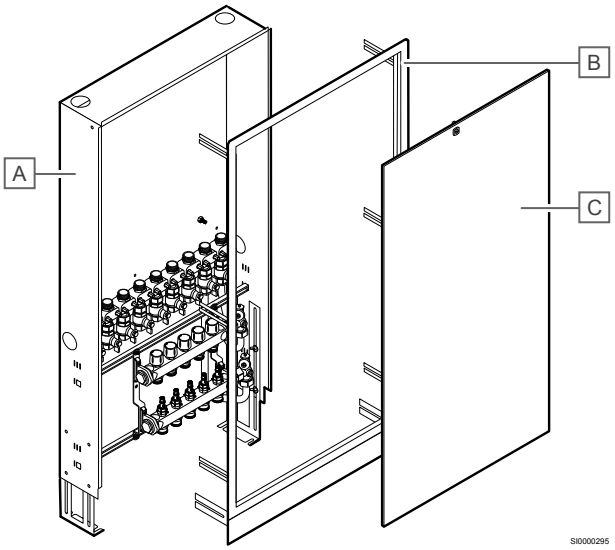
5.1 Mechanical installation

In-wall installation

Preparations

Note

For dimensions, refer to the Chapter "Technical data".



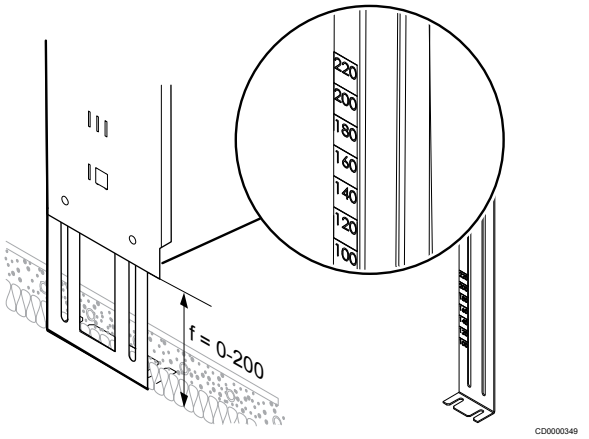
Item	Description
A	Cabinet body
B	Frame
C	Door

1. Remove the frame and door from the cabinet body.
2. Keep the frame and door aside and use during installation.

Adjust the in-wall cabinet

The in-wall cabinets are adjustable inside the recess in height and depth.

The recess height is calculated using the floor height and is measured from the bare floor. Adjust the floor installation height based on the values shown on the feet.



Dimensions of in-wall cabinet body (width x height x depth mm)	Recess dimensions in-wall (width x height x depth mm)
810 x 1200 x 180[1)]	(810 + 45) x (1200 + 30 + f) x 185[1)]

1) With pulled out cabinet frame.

Install the in-wall cabinet

Note

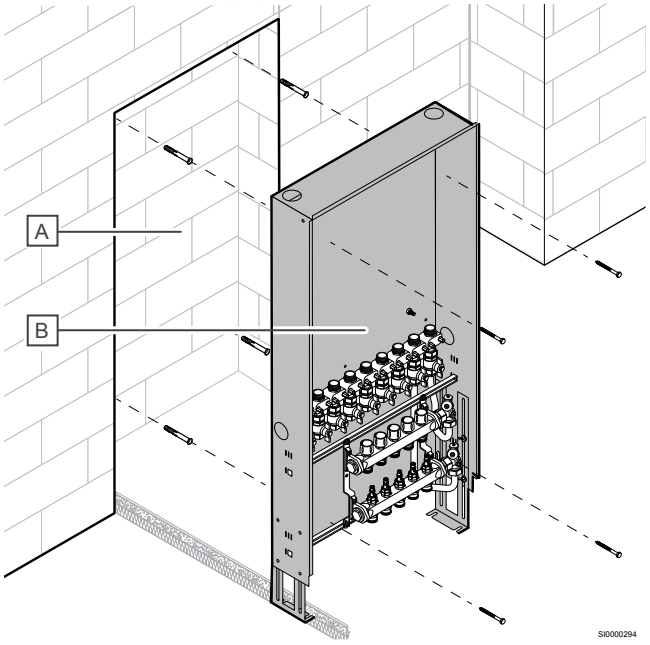
For free-standing installations: Refer to the illustration in Chapter "Adjust the in-wall cabinet" and adjust the feet as necessary. Pay attention to the horizontal alignment.

1. Put the marks on the wall recess to show where to drill the holes. Use the in-wall cabinet holes as a pattern.
2. Level up horizontally.

3. Adjust the depth of the cabinet body.

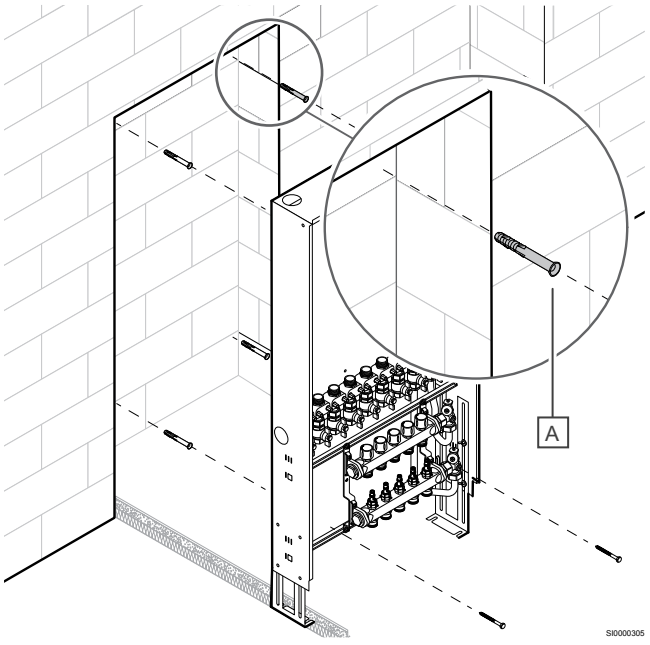
Caution!

Adjust the depth to 180 mm.



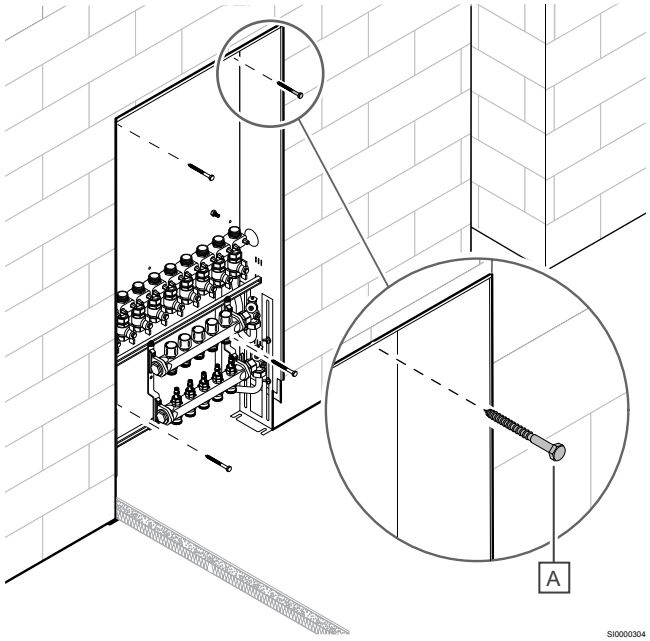
Item	Description
A	Wall recess
B	In-wall cabinet body

4. Drill holes to install the plugs.
5. Put the plugs into the drilled holes.



Item	Description
A	Wall plug (4 pcs)

6. Install the in-wall cabinet body into the wall recess with the hexagon bolts.



Item	Description
A	Hexagon bolt (4 pcs)

Connect the primary supply pipes

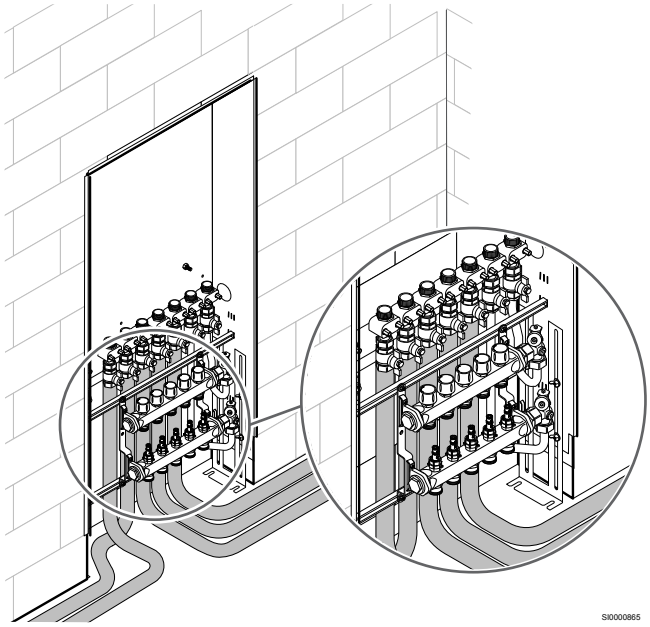
Note

Follow the planning documentation when you install the pipes.

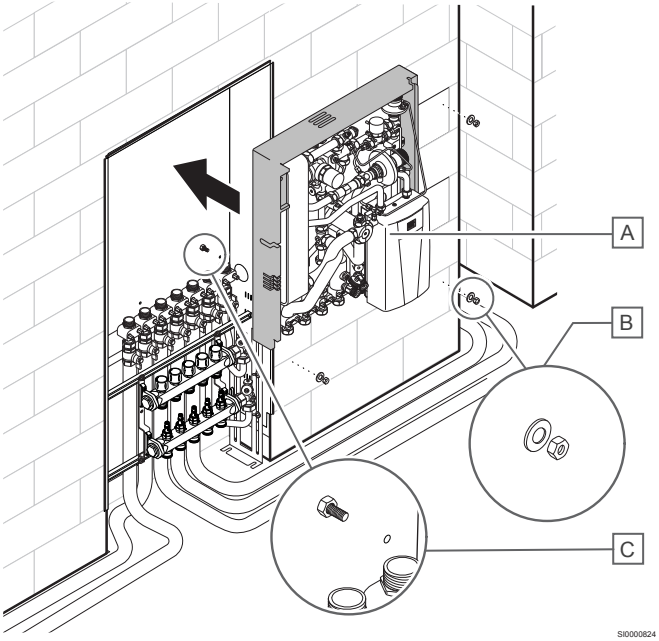
Note

Make sure to follow local regulations when you install and insulate the pipes.

1. Use the necessary fittings to connect the supply pipes to the ball valves.

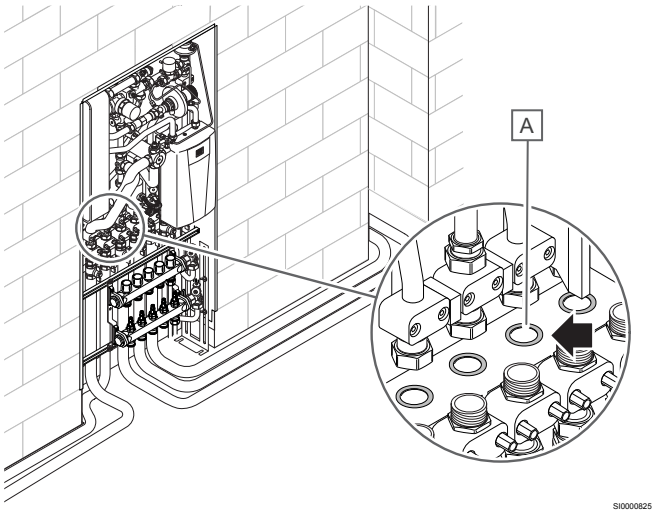


Install the heat interface unit



Item	Description
A	Heat interface unit
B	Hexagon nut (4 pcs)
C	Fixed bolts

1. Install the heat interface unit onto the fixed bolts in the cabinet wall.
2. Tighten with four hexagon nuts.
3. Put the flat gaskets on to the connection rail **¾"** screw connection.



Item	Description
A	Flat gasket

Note

Do a damage check of the flat gasket/-s.

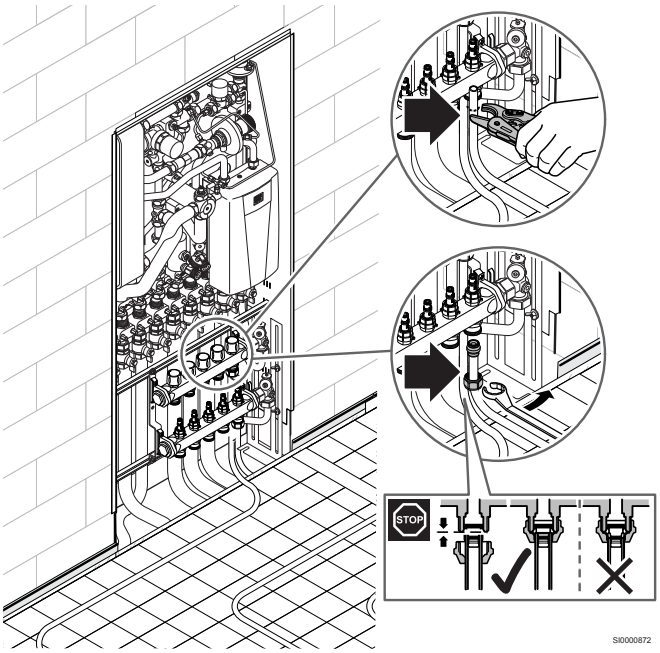
4. Tighten the **¾"** swivel nuts.

Connect the pipes

Note

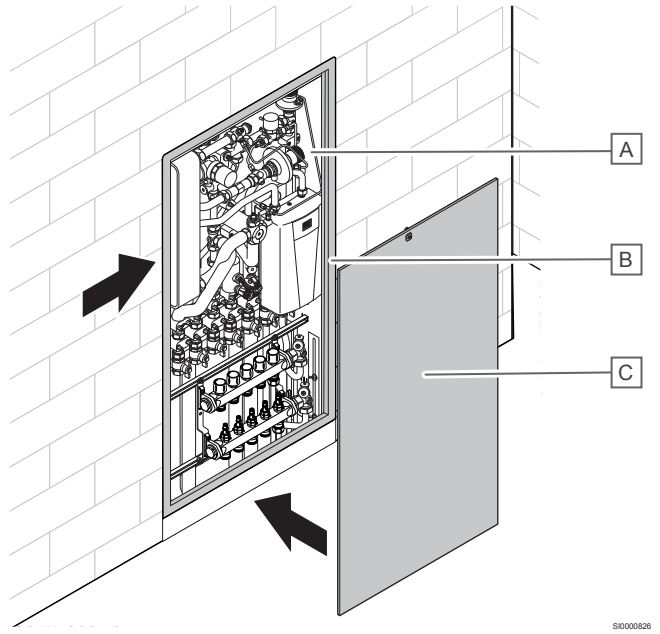
Follow the planning documentation when you install the pipes.

Connect the underfloor heating pipes to the manifold.



1. Cut the pipe to the necessary length.
2. Connect the pipe to the manifold with the compression fitting.

Install the frame and door to the cabinet



Item	Description
A	In-wall cabinet
B	Frame
C	Door

1. Attach the frame to the cabinet body using wing nuts.
2. Align the two frame brackets with the recesses in the door and install it to the frame.

5.2 Electrical installation

Warning!

Risk of electric shock if touching the components! The unit operates with a 400 V AC (electric heater), 230 V AC (control unit) voltage.

Warning!

Required work must be performed by a qualified installer in accordance with local regulations. This includes electrical connections and installations, set up for operation and maintenance.

Warning!

Uponor system power supply: 400 V AC (electric heater), 230 V AC (control unit).

In case of emergency, immediately disconnect the power.

Note

For more information on electrical installation instructions, please refer to Chapter **"11. E-compact instant water heater CEX4-U"** in this document.

6 Finishing installation

Warning!

Leaks can cause personal injury and property damage.

Note

Follow the planning documentation when you install the pipes.

Read and obey the instructions to make sure the system operates correctly and safely, do not reduce the specified cable cross-sections. Replace the heat meter distance piece with the heat meter.

If a plastic distance piece is not to be replaced with an optional component, replace it with stainless steel **1.4401** pipe. For more information, speak to the manufacturer.

- Connect the hydraulics correctly.
- Use the supplied gaskets when you connect the pipes.
- Connect the heating supply, heating return and the hot and cold water.
- Install a filling and draining valve on-site at a serviceable central point to fill the central heating system.
- Refer to the planning documentation for installation instructions.

6.1 Visual inspection

Caution!

Incorrect installation can cause property damage.

Note

If an installation error is found during visual inspection, temporarily stop and correct the error.

Follow these steps to complete the installation:

1. Examine the complete installation:
   - 1.1. Make sure that the hydraulics are connected correctly.
   - 1.2. Clean the dirt collected on or around the unit during installation. Examine the strainers and flush/clean them if necessary.
   - 1.3. Examine the tightness of all gaskets on pipe and device connections and tighten them if necessary. Always lock the opposite side before you tighten the connections.
   - 1.4. Optional: Make sure that all electrical connections are correct, including the polarity of the mains connection. Make sure that the system is correctly grounded.
2. Make sure that the installation is filled/flushed and vented.

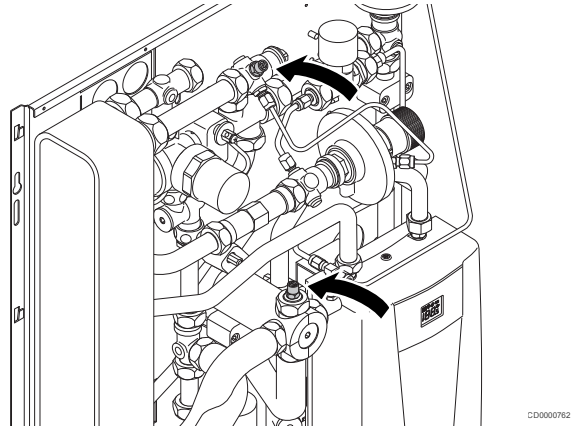
7 Operation

7.1 Electric heater

Note

For more information on electric heater, please refer to Chapter **"11. E-compact instant water heater CEX4-U"** in this document.

7.2 Venting screw



Use the venting screws to remove air from the heat interface unit.

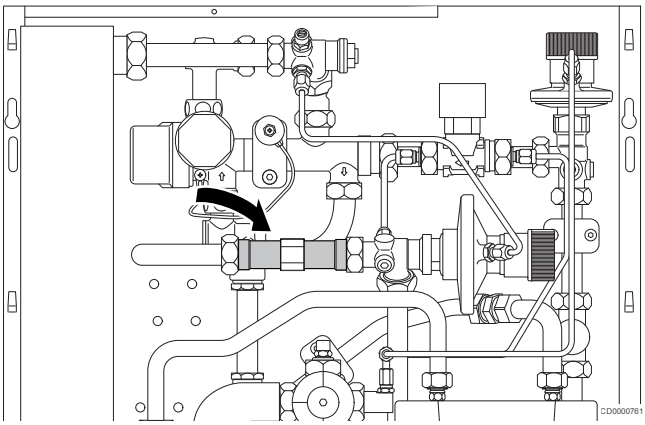
7.3 Heat meter distance piece

Note

The heat meter to be installed must have these specifications: **Qn = 1,5 m³/h**, with fast scanning frequency of 1,5-2 seconds, that fully measures the volume flow rate every 3-4 seconds, including kWh calculation. We recommend to use an ultrasonic heat meter. Construction length of **110 mm** and **¾"** external threaded connection.

Note

The heat meter distance piece is not sufficient for continuous operation.

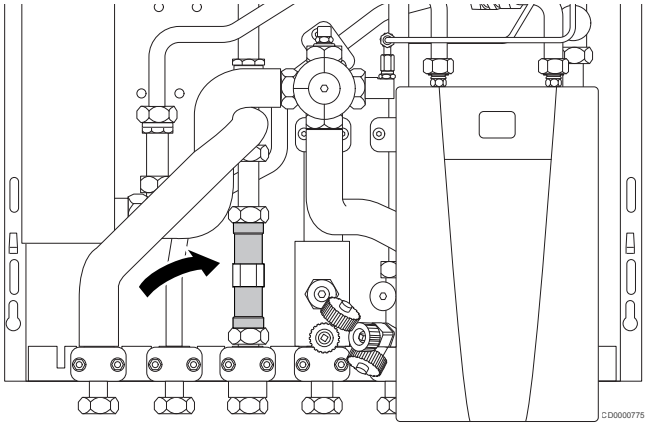


The heat meter distance piece is intended to be replaced with a heat meter to record energy consumption. A sensor pocket for M10 x 1 mm is available for the flow sensor.

7.4 Water meter distance piece

Note

Operating pressure: **PN 10**



The water meter distance piece (**110 mm x ¾"**) can be replaced with a water meter to record water consumption.

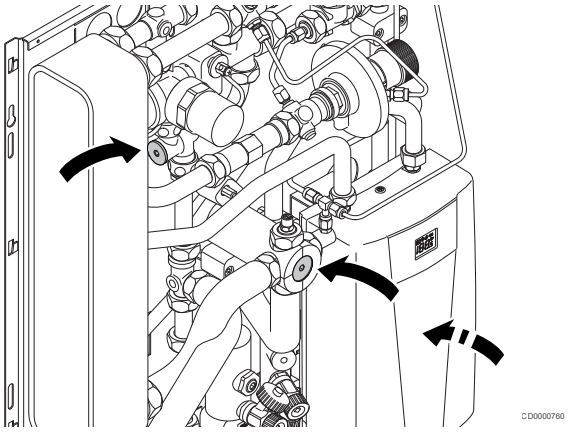
7.5 Strainer

Caution!

Shut-off the water supply, primary and secondary heating to the unit and release the pressure before any work with the strainer.

Note

To open the strainer, use an internal hexagon (**6 mm**).



The strainer collects dirt and its filter can be removed for inspection and cleaning.

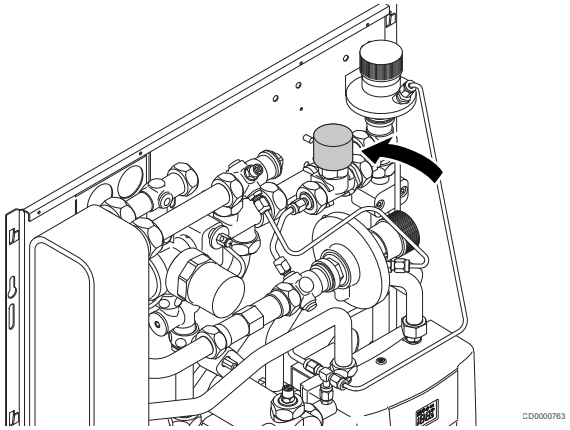
7.6 Thermostatic lead module (BP)

Note

A too high temperature setting can cause the heating water return temperature to rise.

Note

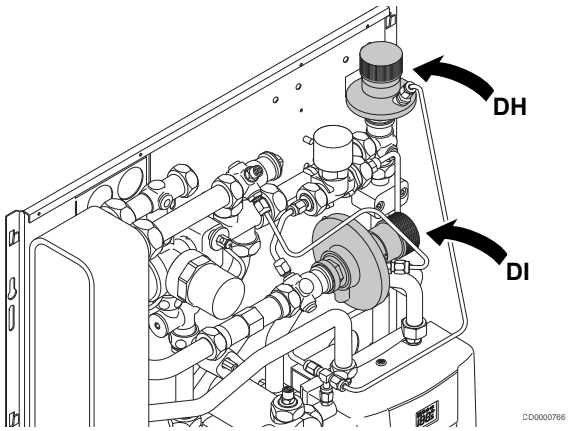
A too low temperature setting can lead to longer waiting times when preparing domestic hot water.



A thermostatic lead module (BP) is used to prevent the risers from cooling down when not dispensing.

1. Set the BP line temperature to approximately **15 K** below the heating supply temperature using the handwheel, with a range 35-60 °C. Refer to Chapter **"8.3 Setting log heat interface units"** for the default settings.

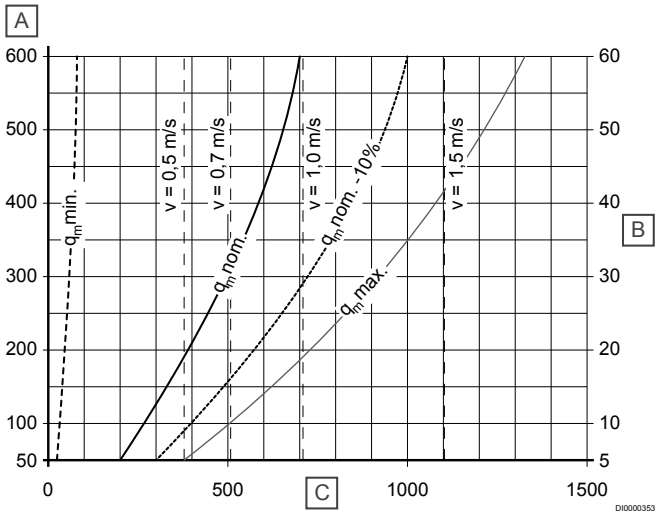
7.7 Differential pressure regulators



The differential pressure regulator protects control valves, such as the proportional volume control or the radiator valves, from excessive differential pressure and ensures the hydraulic balancing of the installation. The differential pressure regulator works independently and without auxiliary energy and is adjustable.

Turn the handwheel to continuously adjust the desired setpoint for two regulators which are used in the heat interface unit:

- Setting range differential pressure regulator (DH, secondary heating) 50-300 bar (refer to Chapter **"8.3 Setting log heat interface units"** for the default settings).
- Setting range differential pressure regulator (DI, primary heating) 100-400 bar (refer to Chapter **"8.3 Setting log heat interface units"** for the default settings).

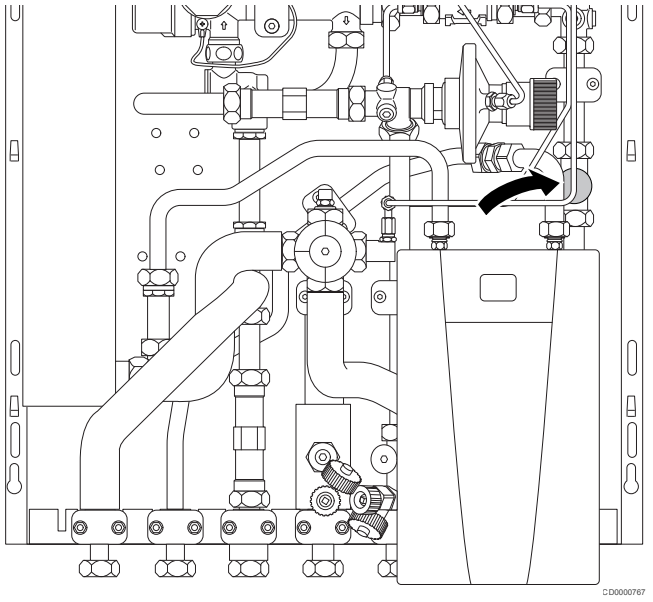


Item	Description
A	Pressure drop Δp [mbar]
B	Pressure drop Δp [kPa]
C	Mass flow rate [kg/h]

7.8 Zone valve

Note

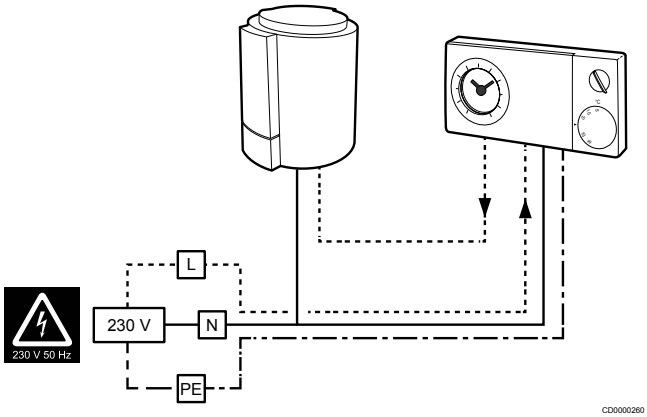
It is possible to change the valve setting during operation without leakage.



The mass flux in the secondary heating circuit can be regulated with the zone valve. The housing of this valve has a threaded connection (**30 x 1,5**) for a 2-point actuator.

Adjust the value using a 13 mm hexagonal key, within the range of 1-9 (refer to refer to Chapter **"8.3 Setting log heat interface units"** for the default settings).

Actuator on the zone valve



The thermal actuator is installed on the zone valve and is controlled by a room thermostat. All users can set the required room temperature here including night-time reduction.

Follow country-specific regulations for user-oriented room control.

Description	Value
Operating voltage	230 V AC, 50/60 Hz
Operating line	1 W
Line	2x 0,75 mm² (1x Blue / 1x Brown)

7.9 Cold water throttle disc

Note

The installed cold water throttle disc can be replaced if required. The colour indicates the maximum volume flow (see table below).

The cold water throttle disc is in the connection between the cold water connection of the proportional volume control and the strainer.

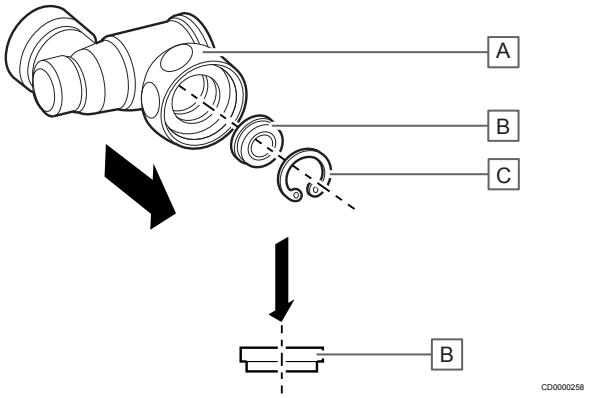
The throttle disc limits the amount of cold water to the heat exchanger and prevents the hot water supply from exceeding the calculated volume.

Cold water throttle disc colour	l/min
Black	6
White	8
Orange	9
Blue	10
Red	12
Green	15
Brown	17
Black	19
Purple	22

Replace the throttle disc

Note

Observe the flow direction when replacing the throttle disc!



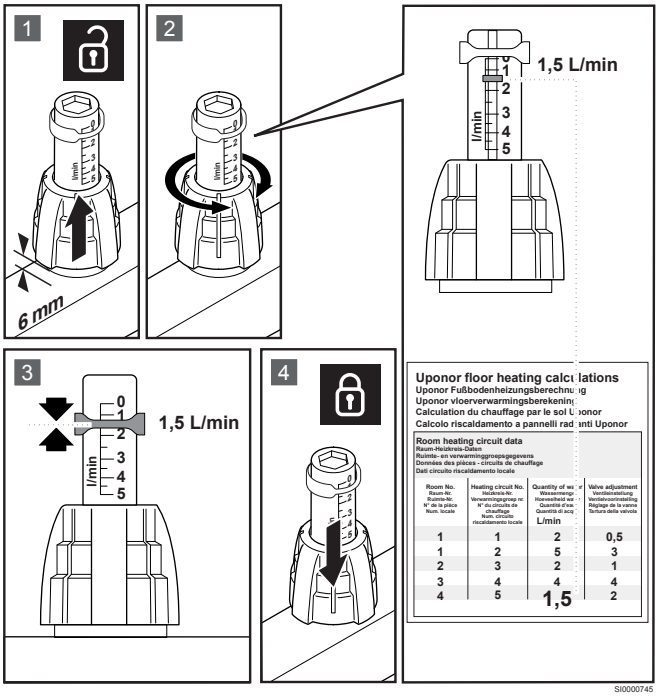
Item	Description
A	Strainer
B	Cold water throttle disc
C	Retaining ring

1. Disassemble the strainer.
2. Disassemble the retaining ring. Use special pliers for this.
3. Replace the throttle disc.
4. Install the retaining ring.
5. Install the strainer.

7.10 Hydraulic balancing on the manifold

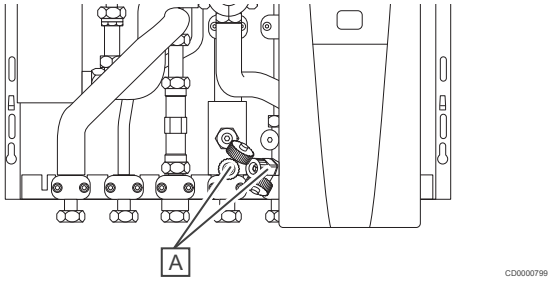
Warning!

The pressure in the valves can cause personal injury.



1. Unlock the flowmeter. Pull the outer ring approximately 6 mm up.
2. Set the flowmeter to the system flow rate (l/min). Set each heating loop obeying the system calculation.
3. Mark the setting with the memory ring.
4. Lock the flowmeter. Push the outer ring down.

7.11 Filling and flushing



The filling and draining valves (A) on the heat interface unit are used to fill and flush the system.

Filling and flushing the system

1. Open the draining valves (A).
2. Fill and flush the system with heating water as per VDI 2035, or follow country specific regulations.

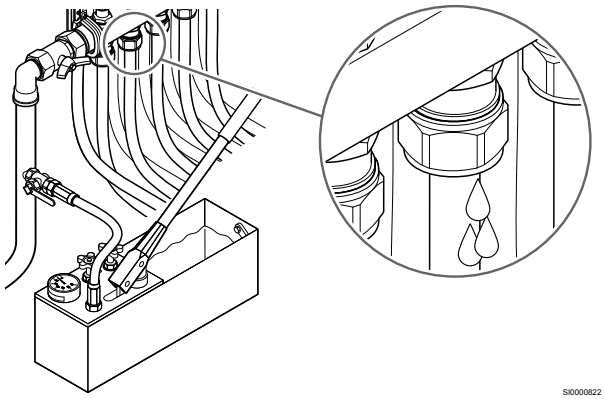
7.12 Tightness testing

Warning!

Leaks can cause personal injury and property damage.

Caution!

Pressure leaks can occur at usual operating pressure and must be repaired immediately.



The tightness test for heating and domestic water installations must obey country-specific regulations.

7.13 Complete the installation and handover

Caution!

Incorrect installation can cause property damage.

Do these steps to complete the installation:

1. Do a check of the settings.
2. Complete the acceptance protocol and document the adjusted settings (refer to refer to Chapter **"8.3 Setting log heat interface units"**).
3. Handover the documentation and the protocol to the house owner.

8 Maintenance

8.1 General information

Important information

Read and obey the instructions to make sure the system operates correctly and safely.

Obey the instructions to prevent risk and downtime and increase the system's reliability and life.

A visual inspection of the port unit is necessary at 3 to 6 month intervals.

Function and energy savings

The heat interface unit is a compact station that can operate in a system with several units or as a supplement to an existing heating system. It is designed for residential buildings and is used to supply, control and measure domestic cold water (PWC), domestic hot water (PWH) and space heating.

Hot water is only prepared on demand and not stored, which is the most convenient and hygienic way. This enables dispensing of large amounts of hot water. Restrictions are only imposed by the central heating.

Water heating

Caution!

All water pipes are filled and pressurised.

The cold water supply for the apartment is provided via the central house connection and distribution line.

The heat interface unit is equipped with a central shut-off ball valve for cold water (C).

All ball valves should be exercised (open-close) at regular intervals (about once per month).

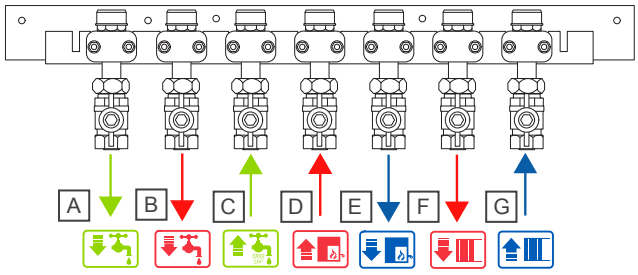
The ball valves (A) and (B) should only be closed for assembly/ disassembly reasons.

Water hygiene

Although the water system follows the flow principle, which is the most hygienic method of water heating, the water pipes should always be flushed if not used for a longer period.

The tapping duration should be around 1-2 minutes. The water must be allowed to run at least every 7 days for about 1-2 minutes (follow country specific regulations).

8.2 Turning off heat interface unit



If there is a malfunction, close the ball valves C, D and E.

Item	Description
A	Cold water to apartment (PWC)
B	Domestic hot water to apartment (PWH)
C	Cold water from riser (PWC)
D	Heating supply (primary)
E	Heating return (primary)
F	Heating supply (secondary)
G	Heating return (secondary)

If the system must be shut down for a longer period:

1. Shut-off the cold water tap (C). Do not close ball valves D, E, F and G.
2. Keep the heat interface unit safe from frost.
3. When you start the unit again, let the hot water run for about five minutes (follow country specific regulations).

8.3 Setting log heat interface units

Date:	**Setting log heat interface units**					
Site:		Type:		Serial no:		
Component	**Description**			**Setting range**	**Factory setting**	**Set on site**
BP	Thermostatic lead module, capillary 6 mm, Kvs 1,55			35-60 °C	45 °C	
DH	Differential pressure regulator in secondary heating			50-300 mbar	100 mbar	
DI	Differential pressure regulator in primary heating			50-400 mbar	200 mbar	
Component	**Description**			**Type**		
Cold water throttle disc	Colour	Green	Black			
	Max. flow l/min	15	19			
Exchanger	Type	GKE-228H-24 (CU)	GKE-228H-40 (CU)			
		DW GVH-228H-24 (VacInox)	DW GVH-228H-40 (VacInox)			
Heat meter distance piece	Heat meter line Qn 1,5 installation length, 110 mm x ¾"					

9 Troubleshooting

9.1 Fault description

Fault description	Cause	Solution
Hot water function		
Hot water temperature too low or fluctuating	**Central heating**	
	Heating circuit pump type not supported	Examine the central heating pump
	Setting for heating circuit pump is not correct	Heating circuit pump setting: Constant pressure
	Pump performance too low	Examine the pump performance
	Mixing valve faulty	Examine the mixing valve function
	Setting for heating circuit control is not correct	Do a check of the heating circuit control setting
	Heating circuit control faulty	Examine the heating control function
	Air trapped in buffer storage	Release air from the buffer storage tank
	Cold water pressure too low/too high	Cold water pressure at unit: **Min. 3-3,5 bar**
	Heat interface unit	
	Strainer in primary flow dirty	Clean the strainer in the primary flow
	Insufficient differential pressure	Clean the capillary of the differential pressure control and check that the differential pressure control is working
	Air in the system	Release air from the ystem while dispensing
	Insufficient heating volume flow passes through the heat exchanger	Do a check of the volume flow using heat meters
	Heat meter type not supported	Use heat meter type with **Qn 1,5**
	Insufficient heating volume flow	Increase differential pressure
	Heat exchanger dirty	Clean the heat exchanger
	Proportional volume control does not switch over	Replace the proportional volume control
	Ball valves closed	Do a check if the ball valves are in open position
Waiting time for hot water is too long	Check the pump setting in the central heating system	Pump setting: Constant pressure
	The temperature setting on the thermostatic lead module (BP) is too low	Increase the temperature setting on the thermostatic lead module (BP)
	The capillary on the thermostatic lead module (BP) is dirty	Clean the capillary on the thermostatic lead module (BP)
	No thermostatic lead module (BP) available	Retrofit the thermostatic lead module (BP)
Noise generation		
Noise generated in the station	Pipe clamps too tight	Examine the pipe clamps
	Cold-water throttle disc is dirty	Clean the cold-water throttle disc
Heating function		
Heating system does not heat up	Supply temperature too low at the heat source	Do a check of the supply temperature at the heat source
	Volumetric flow rate is too low	Do a check of the fittings in the device
	Check the heat meter type	The heat meter type must be **Qn 1,5**
	Check the pump setting in the central heating system	Pump setting: Constant pressure
	Air trapped in buffer storage	Release air from the buffer storage tank
	Insufficient differential pressure	Clean the capillary of the differential pressure control and check that the differential pressure control is working
	Air in the system	Release air from the system
Underfloor heating not working well	Actuators on manifolds not or wrong connected	Examine the electrical connection of actuators
		Do a check of the connection-order to the room-thermostats
	Room temperature too low/too high	Do a check of temperature setting on room-thermostats
		Do a check if manifold pre-setting is done. You see the flows on the flowmeters installed at the manifold. When necessary, do a check of the pre-setting.

10 Technical data

10.1 Technical specifications

Caution!

Electrical installation and servicing involving secured voltages of 400 V AC (electric heater) and 230 V AC (control unit) must be performed by a qualified electrician. Please refer to Chapter **"11. E-compact instant water heater models CEX-U/CEX"**.

HIU	Value
Medium	Heating water (refer to VDI 2035)
Operating temperature	5-85 °C

Heating	Value
Max. operating pressure	6 bar
Pressure drop heating primary	0,6 bar

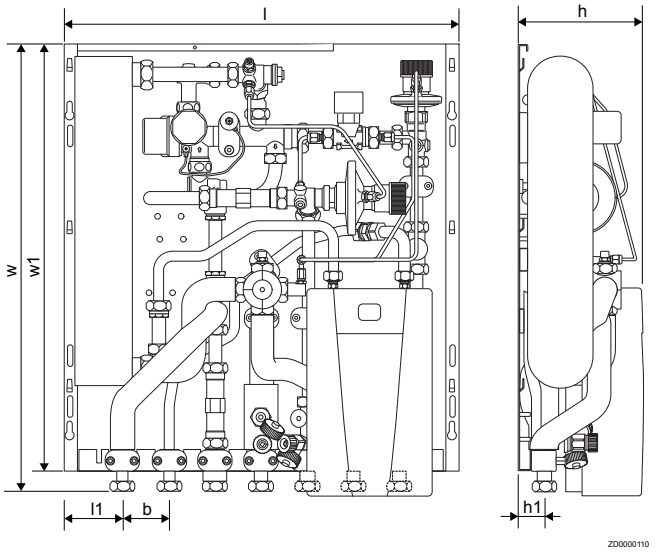
Sanitary	Value
Max. operating pressure	10 bar
Min. tap water pressure required to comply with the tap water supplier's standards	3,0 bar

Material	Value
Fittings, Tap water	CW617N
Fittings, Heating	CW617N, CW614N
Seals	Refer to DVGW KTW, W270
Plate heat exchanger	1.4404 stainless steel
Pipes	1.4401 stainless steel
Weight	approximately 14-16 kg

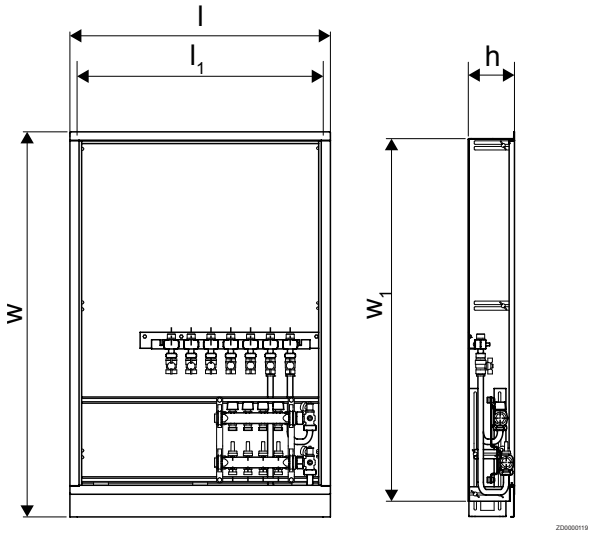
10.2 Dimensional drawings

Note

The illustrations below show example setups. The individual modules can have different appearances.

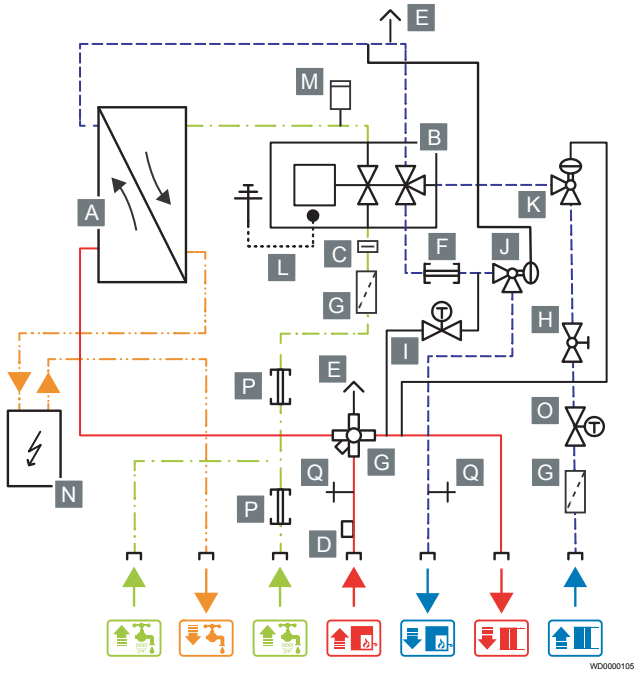


l	l1	b	w	w1	h	h1
556 mm	83 mm	65 mm	617 mm	600 mm	179 mm	39 mm



l	l1	w	w1	h
855 mm	810 mm	1264 mm	1190 mm	150 - 180 mm

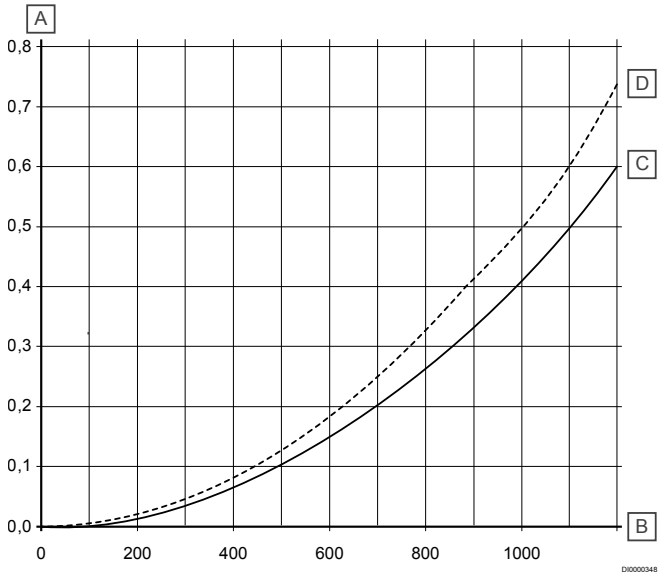
10.3 Hydraulic schemes



Item	Description
A	Heat exchanger
B	PM controller
C	Cold water throttle disc
D	Heat meter pocket M10 x 1
E	Venting screw
F	Heat meter distance piece
G	Strainer
H	Zone valve to limit heating supply to appartment
I	Thermostatic lead module (BP)
J	Differential pressure regulator in primary heating
K	Differential pressure regulator in secondary heating
L	Potential equalization
M	Water hammer arrester
N	Electric heater (booster)
O	Return temperature limiter (RL) (option)
P	Water meter distance piece
Q	Draining and filling valve

10.4 Performance curves

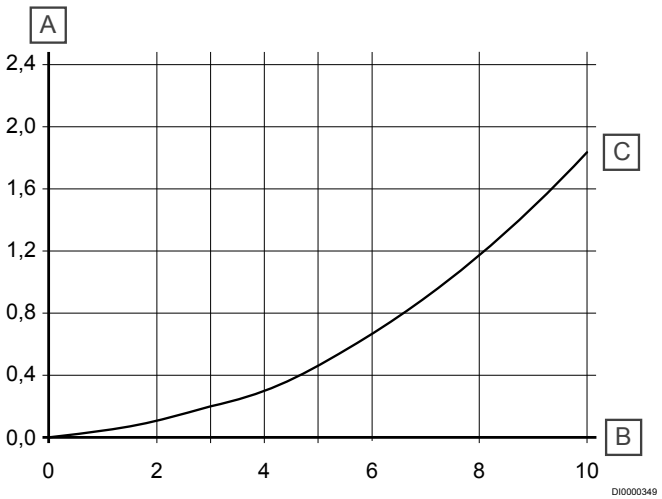
Heating side (primary)



Item	Description
A	Pressure drop in bar
B	Heating water flow rate in litres/hour (l/h)
C	Heat interface unit
D	Heat interface unit include secondary strainer

Pressure drops including ball valve. Additional pressure drops, e.g. heatmeter with **Qn 1,5** of approximately **0,05 bar** and other installations must be included.

Domestic hot water side (secondary)



Item	Description
A	Pressure drop in bar
B	Tap water flow rate in litres/minute (l/min)
C	Heat interface unit

Pressure drops including ball valve. Additional pressure drops, e.g. heatmeter with **Qn 1,5** of approximately **0,05 bar** and other installations must be included.

11 E-compact instant water heater CEX-U/CEX

11.1 Installation

CLAGE

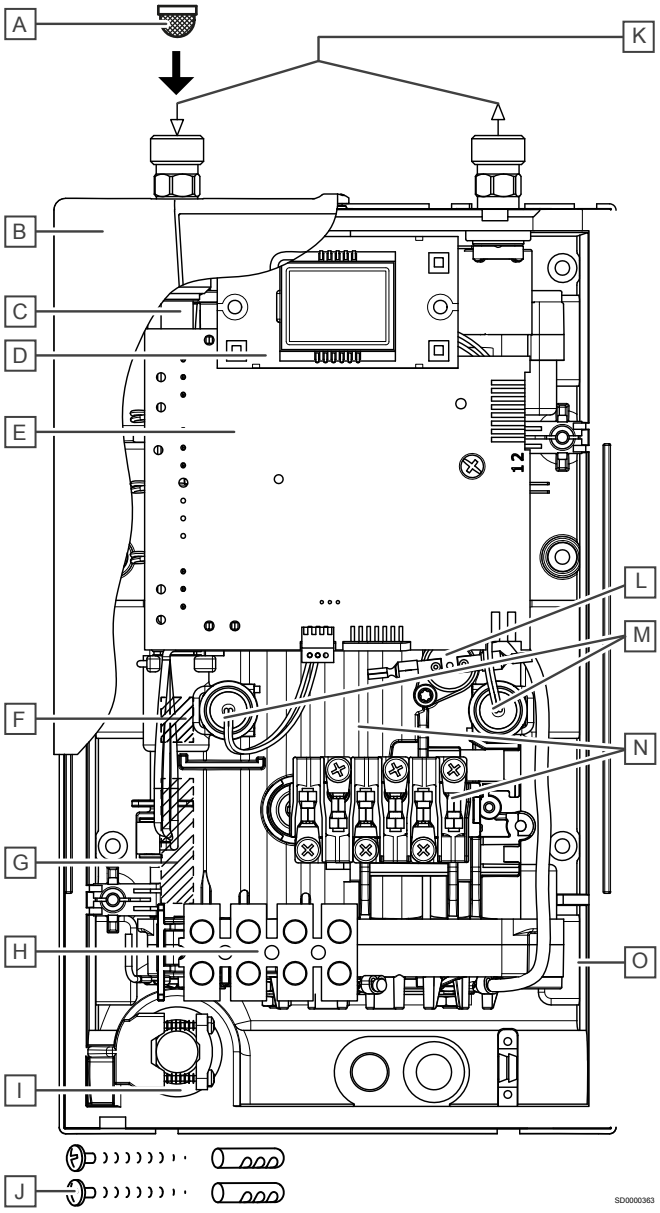
Installing instructions for the professional

E-compact instant water heater CEX-U

Overview

Note

Carefully read the enclosed safety instructions through in full before the appliance is installed and put into service and follow them in the further steps!



Item	Description
A	Filter
B	Hood
C	Inlet pipe
D	Control panel
E	Electronics
F	Non-return valve
G	Flow sensor
H	Connecting terminal
I	Grommet
J	Screws and dowels
K	Cold and hot water connection
L	Safety thermal cut-out
M	Temperature sensor set
N	Heating element with SDB
O	Bottom part

Technical specifications

Model	CEX13,5-U ELECTRONIC MPS®		CEX21-U ELECTRONIC MPS®	
Energy efficiency class	A[1)]		A[1)]	
Rated capacity (Rated current)	11/13,5 kW (16/19,5 A)		18/21 kW (26/30 A)	
Chosen capacity (Chosen current)	11 kW (16 A)	13,5 kW (19,5 A)	18 kW (26 A)	21 kW (30 A)
Electrical connection	3~/PE 380..415 V AC		3~/PE 380..415 V AC	
Min. required cable size	1,5 mm^2	2,5 mm^2	4 mm^2	4 mm^2
Hot water (l/min) max. at Δt = 33 K	4,8	5,8[2)]	7,8[2)]	9,1[2)]
Rated volume	0,3 l		0,3 l	
Rated pressure	1,0 MPa (10 bar)		1,2 MPa (12 bar)	
Connecting type	pressure resistant/pressureless		pressure resistant/pressureless	
Heating system	Bare wire heating system IES ®		Bare wire heating system IES ®	
Required spec. water resistance @ 15 °C Spec. electrical conductivity	≥ 1000 Ωcm ≤ 100 mS/m		≥ 1000 Ωcm ≤ 100 mS/m	
Inlet temperature	≤ 60 °C		≤ 60 °C	
Flow rate to switch on – max. flow rate	2,0-5,0 l/min [3)]		2,5-8,0 l/min [3)]	
Pressure loss	0,2 bar at 2,5 l/min 1,3 bar at 9,0 l/min [4)]		0,2 bar at 2,5 l/min 1,3 bar at 9,0 l/min [4)]	
Temperature choice	20-60 °C		20-60 °C	
Water connection	G 3/8“		G 3/8“	
Weight (when filled with water)	2,7 kg		2,7 kg	
VDE class of protection	I		I	
Type of protection / safety	IP24 CE		IP24 CE	

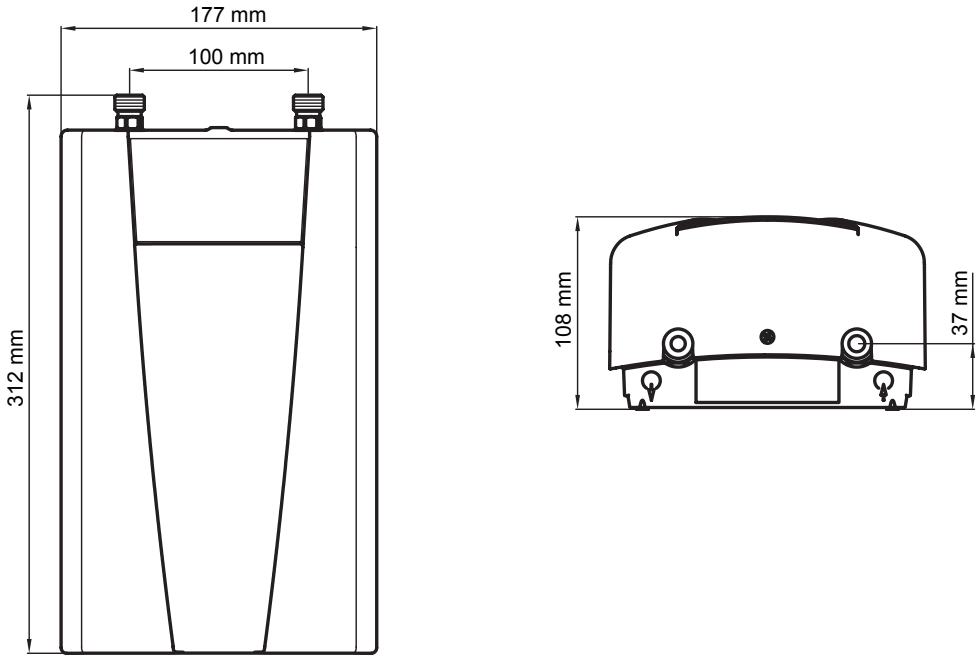
1) The declaration complies with the EU regulation No 812/2013.

2) Mixed water.

3) Flow rate limited to achieve optimum temperature rise.

4) Without flow regulator.

Dimensions



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Installation

The following regulations must be observed:

- e.g. VDE 0100
- EN 806
- Installation must comply with all statutory regulations, as well as those of the local electricity and water supply companies.
- The rating plate and technical specifications
- Only intact and appropriate tools must be used

Installation site

- Appliance must only be installed in frost-free rooms. Never expose appliance to frost.
- The Appliance is designed for undersink installation and has to be installed with water connectors upward.
- The appliance complies with protect-ion type IP 24.
- In order to avoid thermal losses, the distance between the instantaneous water heater and the tapping point should be as small as possible.
- For maintenance work, a shut-off valve should be installed in the supply line. The appliance must be accessible for maintenance work.
- Copper or steel connecting pipes may be used. Plastic pipes may only be used if they conform to DIN 16893, Series 2. The hot water pipes must be thermally insulated.
- The water pipes must not exert any mechanical force on the water connections of the instantaneous water heater during installation and operation. If this cannot be guaranteed due to the installation conditions, we recommend the use of flexible connections.
- The specific resistance of the water must be at least 1300 Ωcm at 15 °C. The specific resistance can be asked for with your water distribution company.

Electrical connection

Warning!

Risk of electric shock if toughing the components! The unit operates with a 400 V AC (electric heater), 230 V AC (control unit) voltage.

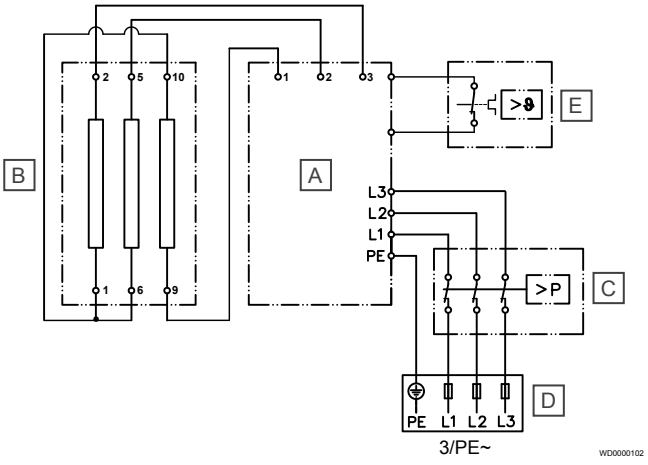
Warning!

Required work must be performed by a qualified installer in accordance with local regulations. This includes electrical connections and installations, set up for operation and maintenance.

Warning!

Uponor system power supply: 400 V AC (electric heater), 230 V AC (control unit).

In case of emergency, immediately disconnect the power.



Item	Description
A	Electronic circuitry
B	Heating element
C	Safety pressure cut-out
D	Connecting terminal
E	Safety thermal cut-out

Only by a specialist!

Please observe:

- e.g. VDE 0100
- The installation must comply with current IEC and national local regulations or any particular regulations, specified by the local electricity supply company
- The rating plate and technical specifications
- The appliance must be earthed!

Structural prerequisites

- The appliance must be installed via a permanent connection. Heater must be earthed! Maximum cable cross section: 6 mm^2.
- The electric wiring should not be injured. After mounting, the wiring must not be direct accessible.
- An all-pole disconnecting device (e.g. via fuses) with a contact opening width of at least 3 mm per pole should be provided at the installation end.
- To protect the appliance, a fuse element must be fitted with a tripping current commensurate with the nominal current of the appliance.

Load shedding relay/box

If further three-phase appliances are connected, we recommend the use of CLAGE's prepared load shedding box (art. no. 82260). Alternatively, a load shedding relay (CLAGE art. no. 82250) can be connected to phase conductor L2. A special operatingmode must be selected on the appliance for this purpose.

LCD	Description
0	Operation without load shedding, manufacturer‘s setting
1	Operation with normal load shedding relay
2	Operation with sensitive load shedding relay

To change the operating mode, press the three keys ①, ②, ∧ and ∨ simultaneously and wait until the desired mode (0, 1 or 2) is shown on the display, then release the keys. Operating mode 1 must be selected first, thus to check the correct operation ofthe load shedding relay at low appliance output (35 degree set point and low waterflow rate). Mode 2 must be selected if the load shedding relay flickers.

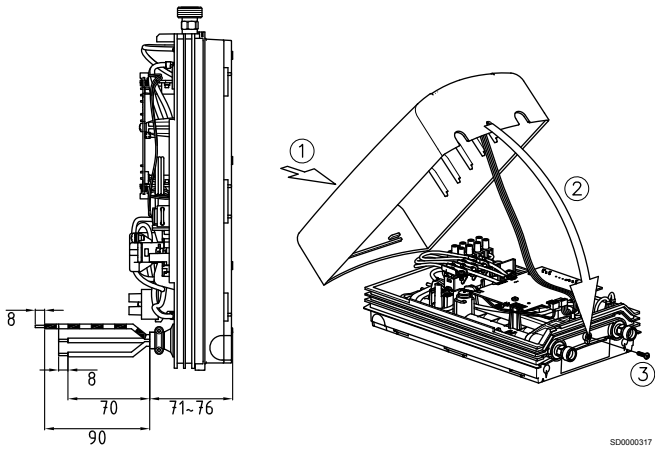
Electrical connection

Caution!

Check that the power supply is switched off prior to electrical connection!

Alternative

Electrical installation to a permanent connection



If, in case of particular local circumstances, connecting to a permanent connection is the only possibility, continue as follows.

Electrical connection with pre-installed power cable

The appliance is to be connected with the pre-installed power cable to a terminalbox. If necessary, use one of the three predetermined breaking points for the cable entry (at the right, left or bottom).

1. Disassemble the pre-installed power cable.
2. Dismantle off the power cable so that you can insert the cable with the cladding through the water splash protection sleeve up to the cord grip into the appliance.
3. Lead the cable through the water splash protection sleeve into the appliance so that one can securely fix the cladding of the cable with the cord grip. If necessary, use one of the three predetermined breaking points for the cable entry (at the right, left or bottom). The protective sleeve prevents water from entering the appliance alongside the connection line. The protection sleeve has to be used!
4. Mount the cord grip. The cord grip must be used!
5. Strip the cables and plug them in the connecting terminals according to the wiring diagram. The appliance must be earthed.
6. After successful electrical connection, fit the hood of the unit. Make sure not to jam any cables between the appliance hood and the base part of the appliance.

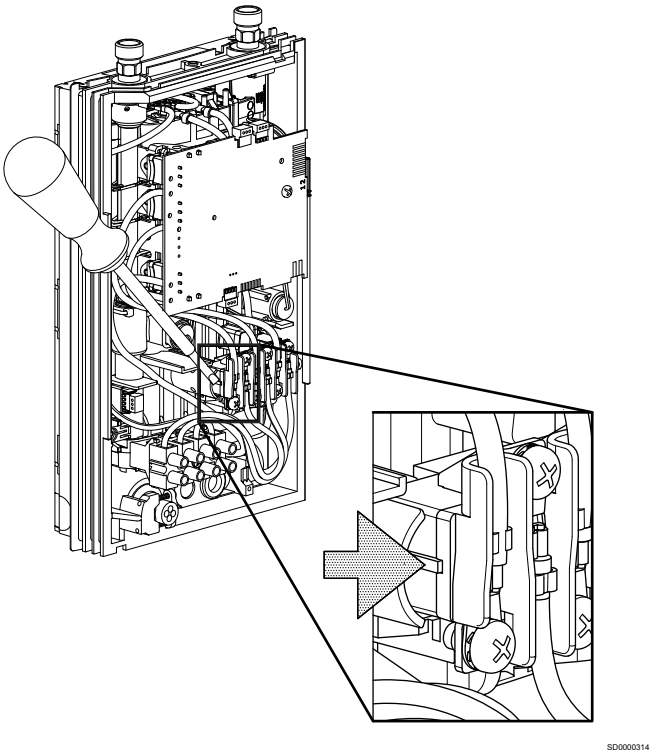
Initial operation

Caution!

Before making the electrical connection, fill the mains and the appliance with water by carefully opening and closing the hot water tap in order to vent completely.

To ensure a maximum flow, remove any existing aerator from the faucet. Flush the warm and cold water pipes each at least for one minute.

After every draining (e.g. after work on the plumbing system or following repairs to the appliance), the heater must be re-vented in this way before starting it up again.



If the water heater cannot be put into operation, the temperature cut-out or the pressure cut-out may have tripped during transport. If necessary, reset the cut-out.

Selection of power rating

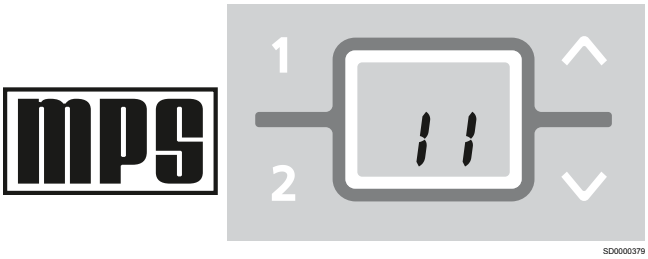
Only by authorised specialist, otherwiselapse of guarantee!

Upon first connection of the appliance to the supply voltage, select the maximum power rating. Only after having set the power rating, the heater provides its standard operation mode.

The maximum allowable power rating at installation site depends on the local situation.It is imperative to observe all data shown in the table “Technical specifications“, in particular the required cable size and fuse protection for the electrical connection. Moreover, the electrical installation must comply with the statutory regulations of therespective country and those of the local electricity supply company (Germany: DINVDE 0100).

Multiple Power System:

CEX13,5-U:

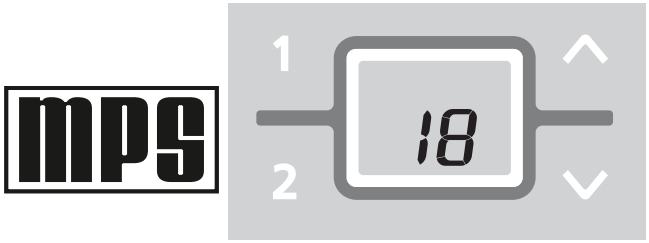


SD0000379

The rated capacity (max. power consumption) is 11 kW/400 V and can be changed internally to 13.5 kW.

1. Switch on the power supply to the appliance. The digital display on the appliancemust light up.
2. When switching on the supply voltage for the first time, the value “11” flashes in the display. If not, please carefully read the note “Reinstallation”.
3. Select the maximum allowable power rating depending on the local situation via the up ∧ and ∨ down arrow keys: 11 or 13 kW.
4. Press key ⓵ to confirm the setting. The appliance starts operating.
5. Mark the set power rating on the rating plate.
6. Open the hot water tap. Check the function of the appliance.
7. After having set the maximum allowable power rating, the heating element will be activated after approx. 10 - 30 seconds of water flow.
8. Explain the user how the instantaneous water heater works and hand over the operating instructions.
9. Fill in the guarantee registration card and send it to the after-sales service or use the online registration.

CEX21-U:

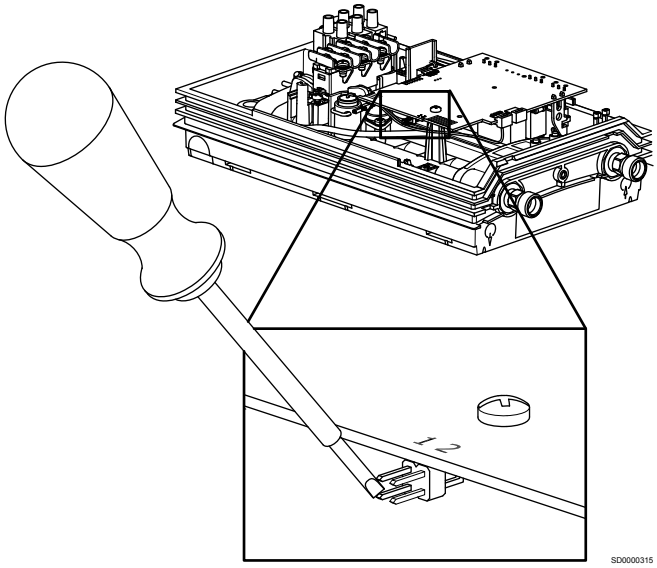


SD0000388

The rated capacity (max. power consumption) is 18 kW/400 V and can be changed internally to 21 kW.

1. Switch on the power supply to the appliance. The digital display on the appliancemust light up.
2. When switching on the supply voltage for the first time, the value “18” flashes in the display. If not, please carefully read the note “Reinstallation”.
3. Select the maximum allowable power rating depending on the local situation via the up ∧ and ∨ down arrow keys: 18 or 21 kW.
4. Press key ⓵ to confirm the setting. The appliance starts operating.
5. Mark the set power rating on the rating plate.
6. Open the hot water tap. Check the function of the appliance.
7. After having set the maximum allowable power rating, the heating element will be activated after approx. 10 seconds of water flow.
8. Explain the user how the instantaneous water heater works and hand over the operating instructions.
9. Fill in the guarantee registration card and send it to the after-sales service or use the online registration.

Reinstallation



SD0000315

In case the appliance will be commissioned again under different installation conditions than during its initial operation, it may be necessary to adapt the maximum power rating. A temporary short-circuit of the two pins, e.g. with a screwdriver acc. to EN 60900 (see figure), will reset all heater parameters to works setting and lock the heating.

CEX13,5-U:

Value “11“ flashes in the display until the maximum power rating has been selected. This condition will maintain when activating and deactivating the supply voltage.

CEX21-U:

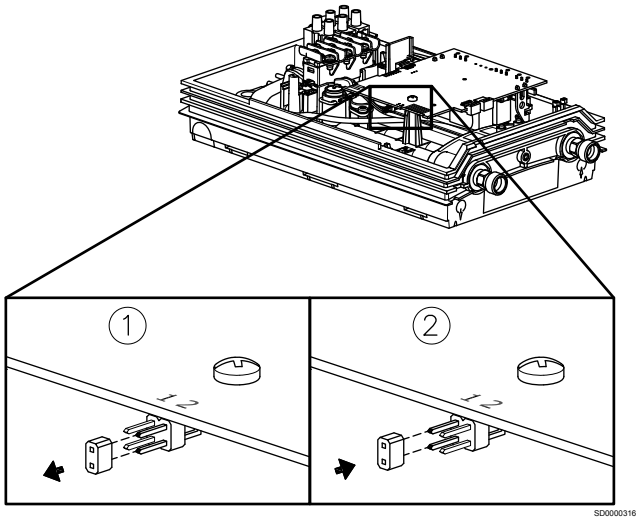
Value “18“ flashes in the display until the maximum power rating has been selected. This condition will maintain when activating and deactivating the supply voltage.

Shower application

The water heater's temperature must be limited to 55 °C, if it is connected to a shower. The service menu parameter "Temperature Limit" ("tL") must be set to a value less or equal 55 °C, in consultation with the customer and the lock level must be activated.

When the device is operated with preheated water, it must be ensured that this temperature is limited to 55 °C as well.

Lock level



The operating mode of the appliance can be restricted. The service menu can be used to configure the appliance.

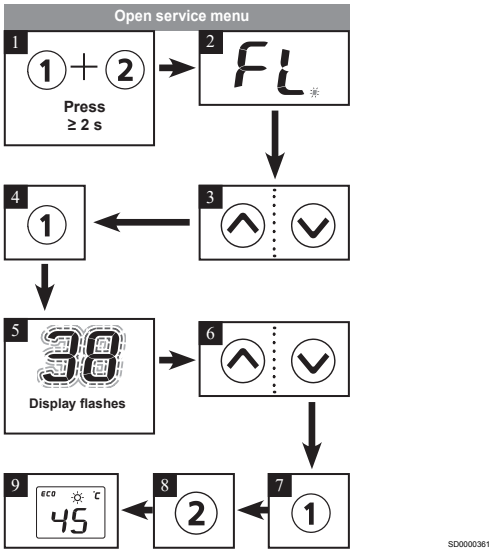
Activation of the lock level

1. Set required lock level in the service menu (refer to chapter "Service menu" in this installing instructions).
2. Disconnect the appliance from the power supply (e.g. by switching off the fuses).
3. Move the jumper on the power electronics from pin 2 to pin 1 (see figure).
4. Put the appliance into operation again.

Deactivation of the lock level

1. Disconnect the appliance from the power supply (e.g. by switching off the fuses).
2. Move jumper from pin 1 to pin 2.
3. Put the appliance into operation again

Service menu

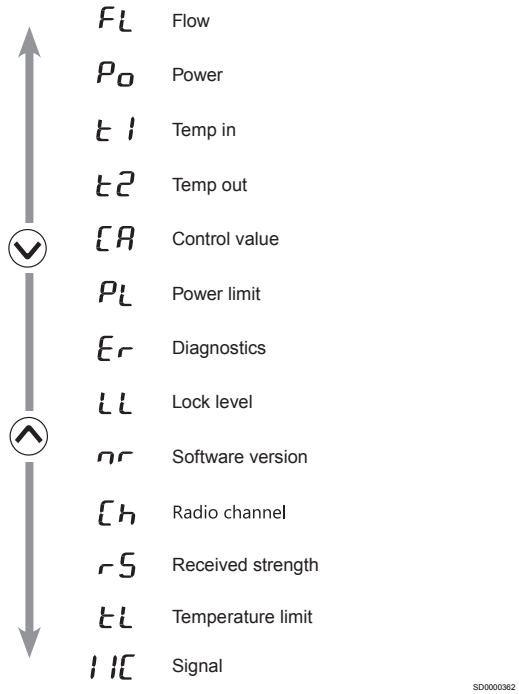


The service menu offers an overview of system parameters and is used for diagnostics.

Press key ① and key ② simultaneously for at least 2 seconds to call up the service menu, the display confirms by "FL" and by a flashing point. Using the arrow keys ∧ and ∨, you can switch between the individual menu items.

Press key ① to see the value of the currently selected menu. The value flashes inthe display. (The values of some menus can be switched over by using the arrow keys ∧ and ∨.) You will get back to the drop-down-menu when pressing key ① again. With key ② you will get back tothe standard display (nominal value). After two minutes without any key stroke the system automatically switches back to the standard display.

Menu item order of "Service menu":



Individual menu items as follows:

"FL": Flow
Indication of current flow rate given in l/min.

"Po": Power
Indication of current power consumption (kW).

"t1": Temp in
Indication of inlet temperature (°C).

“t2“: Temp out
Indication of outlet temperature (°C).

“CA“: Control value
Indication of calibration value of the controlsystem. Regular range: 40 - 60.

“PL“: Power limit
Indication of the current maximum power rating (kW) of the appliance.

“Er“: Diagnostics
Indication of the last ten diagnostic messages.
The error code is indicated by the first displayed value after pressing key ① (refer to “Abstract for Trouble-Shooting & Diagnostics” in the hood). By using the arrow keys ∧ and ∨ the last 10 error codes are displayed chronologically. Thereby the display indicates in turns the error numbers from “0” to “9“ and the corresponding error. The last error will be recorded at position “0” and the former ones each shifted 1 position backwards.

“LL“: Lock level
The operating mode of the appliance can be restricted.
Setting Options:

“0”	no restriction (factory setting)
“1”	factory reset via key (countdown) not possible, parameters can be seen, but not be modified in setup menu
“2”	same as “1”, additionally the setup menu cannot be opened
“3”	same as “2” additionally nominal valuememory 1 and 2 not changeable
“4”	same as “3”, additionally nominal valuenot changeable

Note

When the setting 1, 2, 3 or 4 was chosen, the system parameters can no longer be modified in the service menu.

In order to modify these system parameters, it is necessary to remove the jumper on the power electronics, as specified in the chapter “Deactivation of the lock level”.

“nr“: Software version
Information about installed software version.

“Ch“: Radio channel
(with wireless module only)
Information about the current radio channel of the water heater and its remote control.

“rS“: Received strength
(with wireless module only)
Information about the current signal quality of the remote control as percentage. Depending on the distance between remote control and water heater the value varies between 10% and 100%.

“tL”: Temperature limit
The maximum setable temperature can be reduced to any value within the temperature limit.
The Lock Level must be activated by placing the jumper to enable the limitation.

“IIC“: Signal
Information about the quality of the radio contact when a diagnostic display is connected.

Environment and recycling


This product was manufactured climate neutrally according to Scope 1 + 2. We recommend the purchase of 100% greenelectricity to make the operation climate neutral as well.

Disposal of transport and packaging material:

For smooth transport yourproduct is carefully packed. The disposalof the transport material is carried out by the specialist tradesman or the specialist trade. Separate the sales packaging according to materials separated accordingto materials via one of the dual systems in Germany.

Disposal of old products:

Your productwas manufactured from high-quality, reusable materials and components. Products marked with the crossed-out wheeled bin symbol must be disposed of separately from household waste at the end of their service life. Therefore, take this product to us as the manufacturer or to one of the municipal collection points that recycle used electronic devices. This proper disposal serves to protect the environment and prevents possible harmful effects on humans and the environment that could result from improper handling of the products at the end of their service life. For more detailed information on disposal, please contact your nearest collection point or recycling centre or your local council.

Business customers:

If you wish to discard equipment, please contact your dealer or supplier for further information.

For disposal outside Germany, please also observe the local regulations and laws.

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E-Mail: service@clage.de
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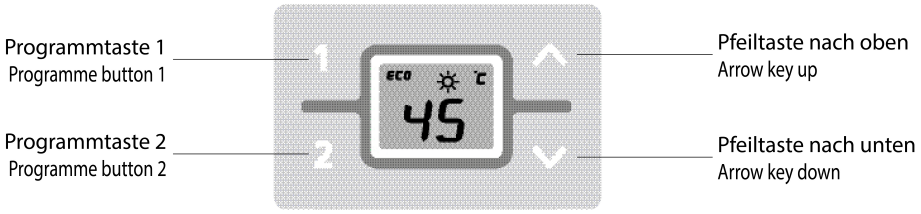
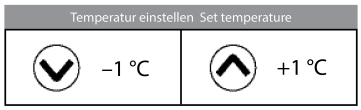
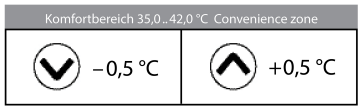
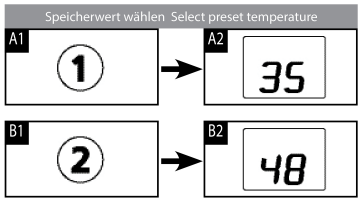
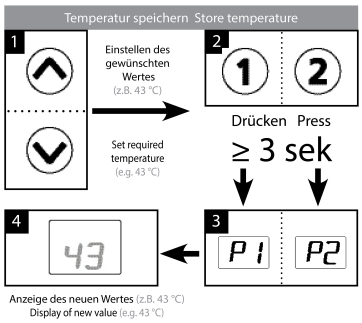
Kurzanleitung Quick reference guide

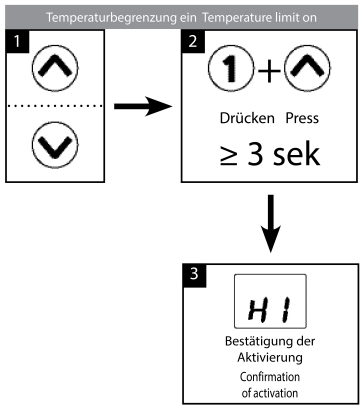


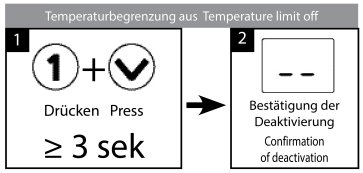


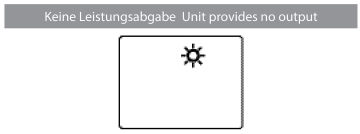


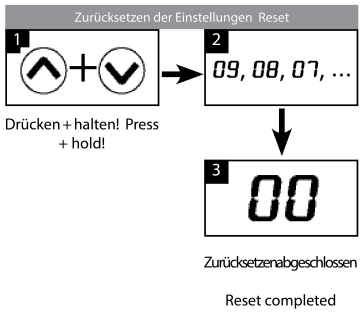


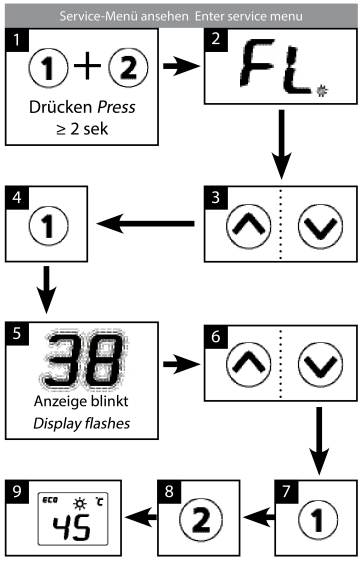












11.2 Operation

CLAGE

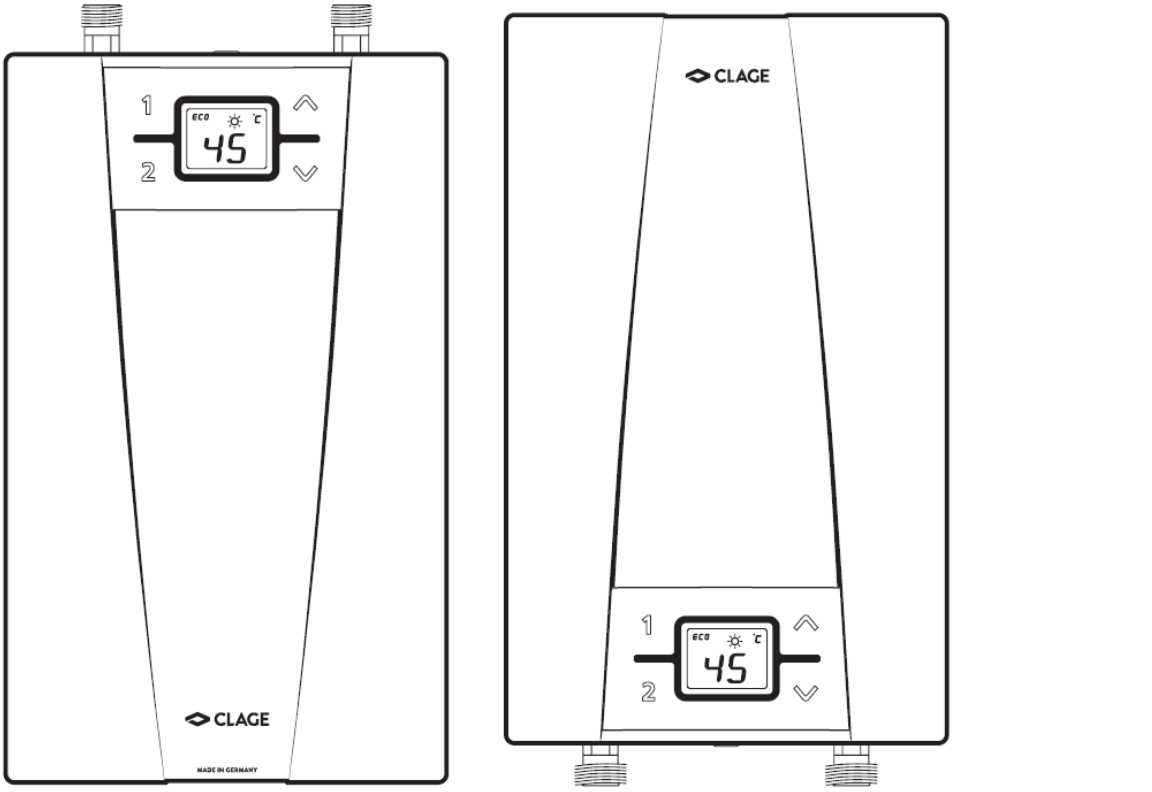
Operating instructions for the user

E-compact instant water heater
CEX-U / CEX

Description of the appliance

Note

Carefully read the enclosed safety instructions through in full before using the applianceand follow them during use!

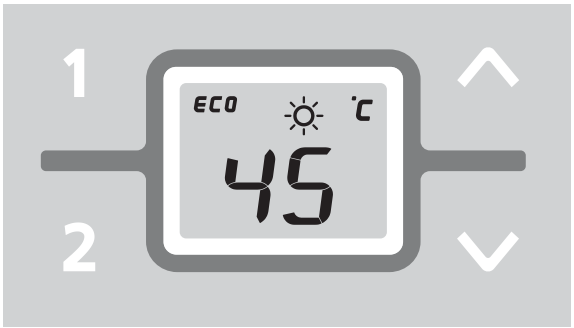


SD0000364

The instantaneous water heater CEX-U/CEX is a electronically controlled, pressure-resistant water heater for a decentralised hot water supply to one or more outlets.

Its electronic control regulates the heating power consumption depending on the selected outlet temperature, the respective inlet temperature and the flow rate, thus reaching the set temperature exactly to the degree and keeping it constant in case of pressure fluctuations. The required outlet temperature can be entered on a keypad and can be read off the digital display.

How to use



SD0000365

As soon as you open the hot water tap, the instantaneous water heater switches on automatically. When the tap is closed, the appliance automatically switches off.

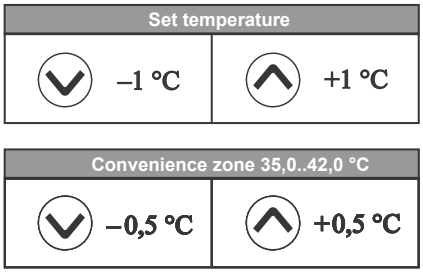
Temperature setting

Note

If temperature is set below 20 °C with arrow key **v** the display shows “--“ and the appliance switches off the heating function.

Note

If the water heater supplies a shower, the maximum temperature was reduced during initial operation. This limitation cannot be exceeded.

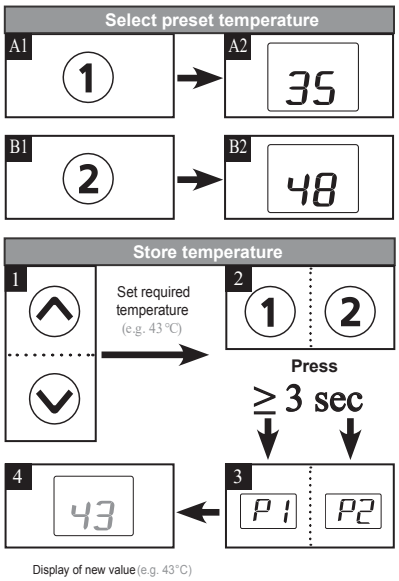


SD0000366

You can set the required temperature gradually to a lower or higher value with the arrow keys **^**and **v**.

The temperature changes by 1 °C, in the convenience zone between 35 °C and 42 °C by 0.5 °C, if key is pressed shortly one time. Pressing a key for a longer time changes the temperature continuously.

Programme buttons



SD0000378

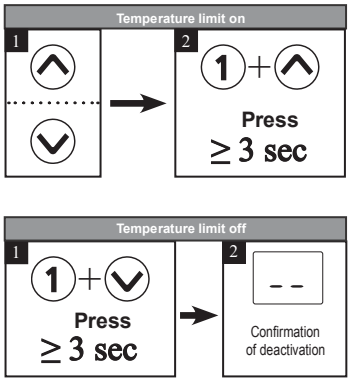
The two programme buttons allow to quickly select the preset temperature. When pressing a programme key, the preset temperature is selected and displayed. The factory setting for programme ① is 35 °C and for programme ② it is 48 °C. You can assign your own settings for the programme keys:

- Prolonged pressing of the programme key stores the previously selected temperature. The display changes from ”P1” or “P2“ to the newly stored temperature value. This newly set temperature is now available to you each time you press the corresponding program key..

Temperature limitation

Note

By activation of the temperature limit also the programme keys are affected. Therefore, the fixed values of the programme keys must be checked after changing the temperature limitation.

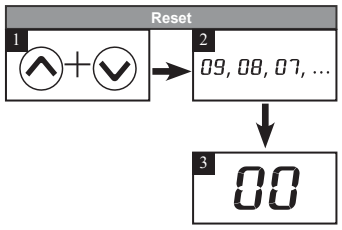


SD0000377

This instantaneous water heater is equipped with an optional temperature limiting function. This scalding protection is deactivated in the factory setting.

- **Switch on:** Select the limit temperature, then press ① and **^** simultaneously for atleast 3 sec. The display briefly confirms the activation by “HI“.
- **Switch off:** Press program key ① and **v** simultaneously for at least 3 sec. The display briefly confirms the deactivation by “--“.

Reset to factory setting



SD0000376

All factory settings can be recalled:

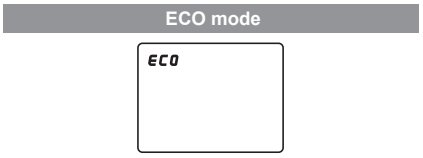
- Press **^** and **v** simultaneously. The display now counts backwards from “10“ to“00“ in second intervals. The appliance is reset at value “00“ - if you stop pressing the keys earlier, you will cancel the process.

How to save energy

SD0000375

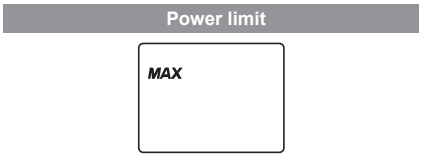
Set the exact temperature you need on the appliance and open the hot water tap.Once you feel that the water is too hot, do not add any cold water and, instead, enter a lower temperature on the appliance. If you were to add cold water, the water already heated would cool down again and valuable energy would be wasted. Moreover, the cold water added in the tap is not covered by the control range of the electronic circuitry, with the result that temperature constancy is no longer guaranteed.

ECO mode



The symbol ***ECO*** shows that the appliance works in an energy saving mode (i.e. themomentary energy consumption is subject to the selected temperature and to the flowrate in the energy saving mode.

Power limit



If the full output of the instantaneous water heater does not suffice to heat the tapped quantity of water, this will be indicated by ***MAX*** on the LCD (e.g. in winter time, when opening several taps at once). When you reduce the hot water flow rate, ***MAX*** stops lighting because the output of the appliance is sufficient to reach the set temperature again.

Top-up heating

When operating with preheated water (e.g. with solar systems), ensure that the maximum inlet temperature is not exceed.

If the inlet temperature exceeds the setpoint, the icon on the digital display indicates ☼ that the heating power is switched off.

Venting after maintenance work

Caution!

This instantaneous water heater features an automatic air bubble protection to prevent it from inadvertently running dry. Nevertheless, the appliance must be vented before using it for the first time. Each time the appliance is emptied (e.g. after work on the plumbing system, if there is a risk of frost or following repair work), the appliance must be re-vented before it is used again.

- Disconnect the instantaneous water heater from the mains (e.g. via deactivating the fuses).
- Unscrew the jet regulator on the outlet fitting and open the cold water tap valve to rinse out the water pipe and avoid contaminating the appliance or the jet regulator.
- Open and close the hot water tap until no more air emerges from the pipe and all air has been eliminated from the water heater.
- Only then should you re-connect the power supply again (e.g. via activating the fuses) to the instantaneous water heater and screw the jet regulator back in.
- The appliance activates the heater after approx. 10 seconds of continuous waterflow.

Cleaning and maintenance

- Plastic surfaces and fittings should only be wiped with a damp cloth. Do not use abrasive or chlorine-based cleaning agents or solvents.
- For a good water supply, the outlet fittings (e.g. jet regulators and shower heads) should be unscrewed and cleaned at regular intervals. Every three years, the electrical and plumbing components should be inspected by an authorised professional in order to ensure proper functioning and operational safety at all times.

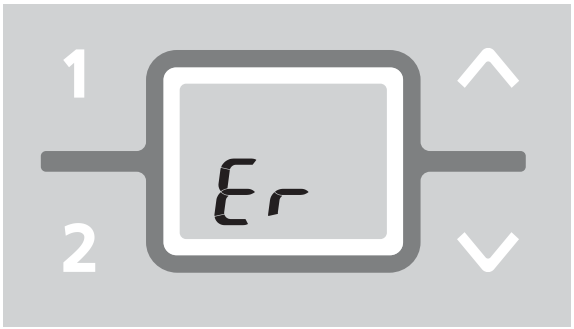
Trouble-shooting and service

Caution!

Repairs must only be carried out byauthorised professionals.

If a fault in your appliance cannot be rectified with the aid of this table, please contact the service organisation of your importer or the Central Customer Service Department. Please have the details of the type plate at hand.

This instantaneous water heater was manufactured conscientiously and checked several times before delivery. Should malfunctions nevertheless occur, it is usually only due to a bagatelle. First attempt to switch the house fuses off and on again in order to reset the electronics. Next, try to remedy the problem with reference to the following table. In doing so, you will avoid unnecessary expense of customer service assistance.



Problem	Cause	Solution
Water stays cold, digital display does not light up	Master fuse tripped	Renew or activate fuse
	Safety pressure cut-out tripped	Contact customer service

Problem	Cause	Solution
Water stays cold, digital display does light up	Safety thermal cut-out tripped	Contact customer service
Display flashes error message“Er“	Pipe clamps too tight	Check the pipe clamps
	Control system has switched off	Switch fuse off and on. If “Er“ still flashes contact customer service
Flow rate of hot water too weak	Outlet fitting dirty or calcified	Clean shower head, jet regulator or sieves
	Fine filter dirty or calcified	Let clean fine filter by a specialist
Selected temperature is not reached, “MAX“ lights	Water flow rate too high	Reduce water flow rate at the tap
Selected temperature is not reached, “MAX“ does not light	Cold water has been added via the tap	Tap hot water only; set temperature for use
Symbol “sun“ lights up	Inlet temperature exceeding nominal temperature	Reduce inlet temperature
Appliance heats, the display does not light	Display plug not properly connected	Let fix correct position of display plug by customer service

If the connection cable is damaged, it must be replaced with an original spare cable from the manufacturer by an authorised technician in order to avoid any hazards.

If you cannot rectify the fault with the aid of the troubleshooting table, please contact customer service.

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