

Combi Port E

EN Installation and operation manual

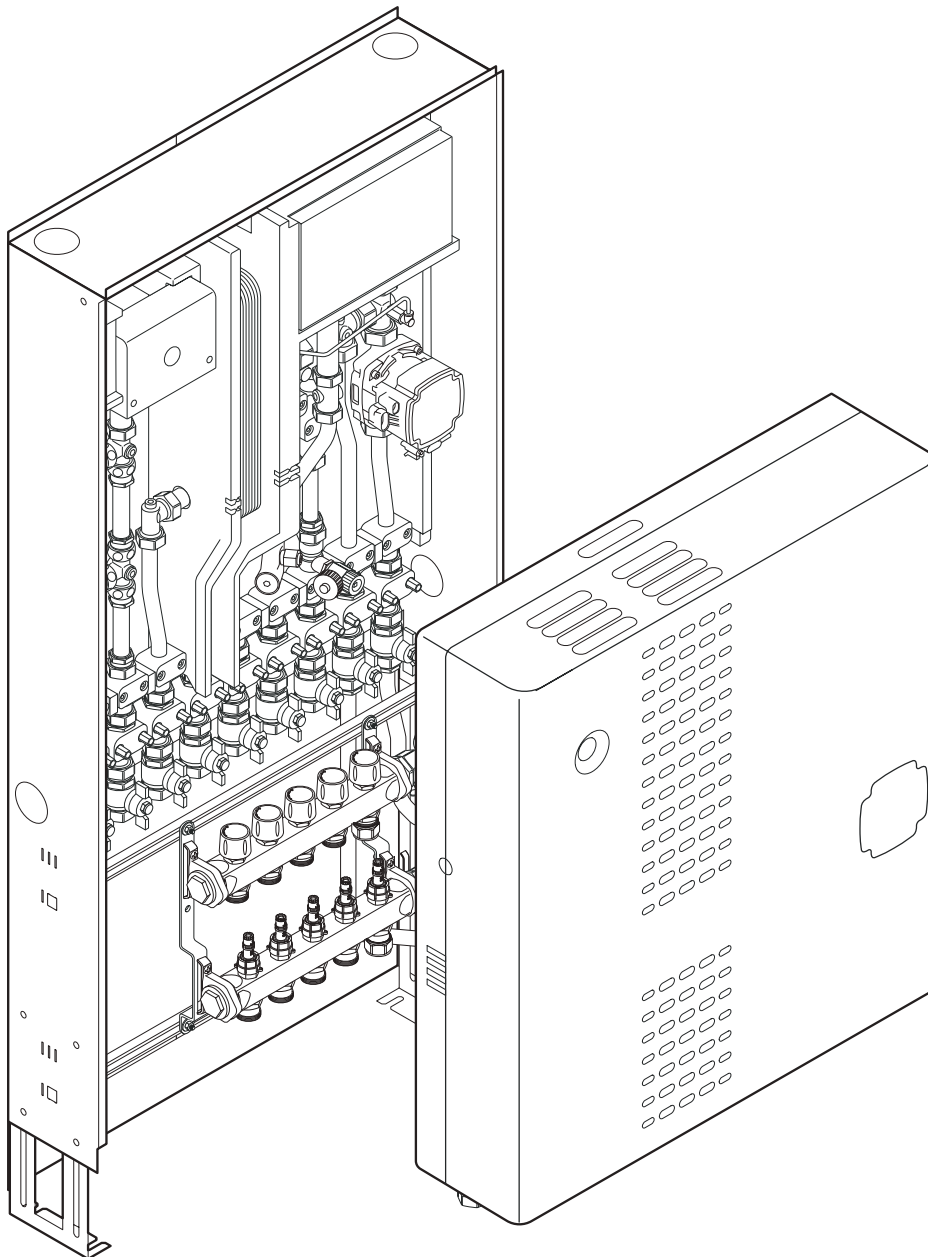


Table of contents

1	Copyright and disclaimer.....	3	10	Troubleshooting.....	26
			10.1	Fault description.....	26
			10.2	App alarms.....	27
2	Preface.....	4	11	Technical data.....	28
2.1	Safety instructions.....	4	11.1	Technical specifications.....	28
2.2	Standards and regulations.....	4	11.2	Electrical connection controller.....	28
2.3	Correct disposal of this product (Waste Electrical and Electronic equipment).....	4	11.3	Data output.....	29
			11.4	Wiring diagrams.....	30
			11.5	Dimensional drawings.....	37
			11.6	Performance curves.....	38
3	Combi Port E system description.....	6			
3.1	Operating principle.....	6			
3.2	Functional description.....	6			
3.3	Components.....	7			
3.4	Accessories.....	7			
3.5	Spare parts.....	9			
4	Prepare for installation.....	10			
4.1	General information.....	10			
4.2	Water analysis.....	10			
5	Mechanical installation.....	11			
5.1	Installation example.....	11			
5.2	In-wall installation.....	11			
5.3	On-wall installation.....	14			
5.4	Install the accessories.....	15			
6	Electrical installation.....	17			
6.1	Connecting the heat interface unit.....	17			
7	Additional installation.....	18			
7.1	Heat meter or cold/warm water meter.....	18			
7.2	Strainer.....	19			
7.3	Filling, flushing and venting.....	19			
7.4	Tightness testing.....	19			
7.5	Visual inspection.....	19			
8	Operation.....	20			
8.1	Start up the hydraulic system.....	20			
8.2	Combi Port E mobile application.....	22			
8.3	Commissioning and hand over.....	24			
9	Maintenance.....	25			
9.1	General information.....	25			
9.2	Turning off heat interface unit.....	25			

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The presumption for the manual is that the safety measures have been fully complied with and, further, that Uponor Combi Port E system, including any components that are part of such system, covered by the manual:

- is selected, planned and installed and put into operation by a licensed and competent planner and installer in compliance with current (at the time of installation) installation instructions provided by Uponor as well as in compliance with all applicable building and plumbing codes and other requirements and guidelines;
- has not been (temporarily or continuously) exposed to temperatures, pressure and/or voltages that exceed the limits printed on the products or stated in any instructions supplied by Uponor;
- remain in its originally installed location and is not repaired, replaced or interfered with, without prior written consent of Uponor;
- is connected to potable water supplies or compatible plumbing, heating and/or cooling products approved or specified by Uponor;
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- does not show evidence of tampering, mishandling, insufficient maintenance, improper storage, neglect or accidental damage before installation and being put into operation.

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2 Preface




The manual shows an example of a Combi Port E connection variant. Information about other variations, as well as further technical data can be found in the "Combi Port E Technical Information".

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





2.1 Safety instructions

Warnings used in this manual


The following symbols are used in Uponor documentation to indicate special precautions when installing and operating any Uponor equipment:

	Warning! Risk of injury. Ignoring warnings can cause injury or damage components.
	Caution! Ignoring cautions can cause malfunctions.
	Note Important information to the section in the manual.

Power

	Warning! Risk of electric shock if touching the components! The unit operates with a 230 V AC voltage.
	Warning! Risk of electrical shock! Electrical installation and service behind secured 230 V AC covers must be carried out under the supervision of a qualified electrician.
	Warning! The Uponor system uses 50 Hz, 230 V AC power. In case of emergency, immediately disconnect the power.
	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 installation/data cables away from power cables of more than 50 V.
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Safety measures


Conform to the following measures when installing and operating any Uponor equipment:

- Read and follow the instructions in the installation and operation manual.

- Installation must be performed by a competent person in accordance with local regulations.
- It is prohibited to make changes or modifications not specified in this manual.
- All power supplies must be switched off before starting any wiring work.
- Do not use water to clean Uponor components.
- Do not expose the Uponor components to flammable vapours or gases.

Uponor cannot accept any responsibility for damage or breakdown that can result from ignoring these instructions.

2.2 Standards and regulations

	Note The installation must be carried out in accordance with current local standards and regulations!
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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 separate collection systems
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This marking shown on the product or its literature indicates that it should not be disposed with other household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

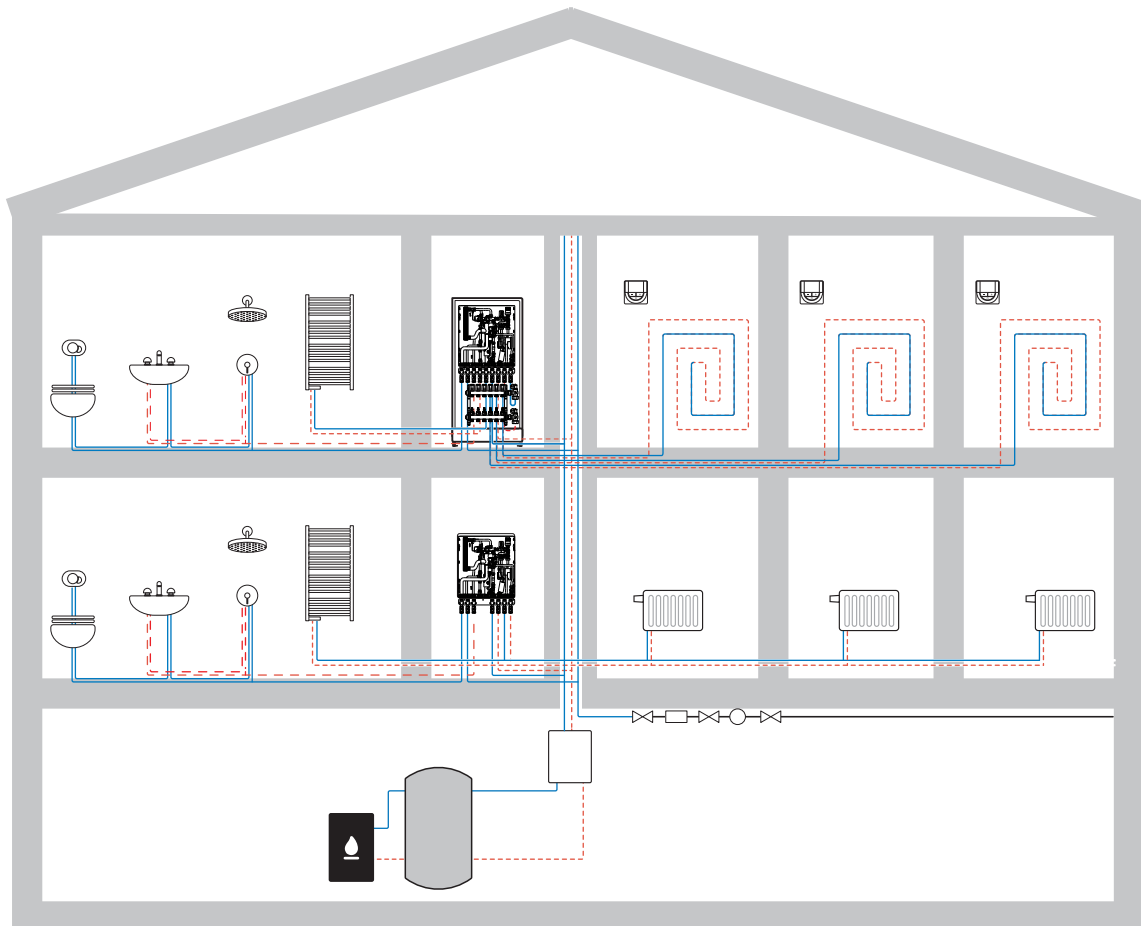
Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes of disposal.

3 Combi Port E system description

Combi Port E is a prefabricated heat interface unit suited for use in multifamily houses or large residential buildings. The ready-to-install

unit supplies domestic hot water and control of the domestic heating system, measurement of heating energy and water consumption.

3.1 Operating principle



SD0000060

3.2 Functional description

In Combi Port E, the cold water is heated only when required in the flow-through principle via a stainless steel high-performance plate heat exchanger. This always ensures low heating water return temperatures. The energy is supplied by heating water with a flow temperature of at least 55 °C via the heating water flow.

The heat interface unit has an insulation cover with a combined function. A thermal separation between heating and tap water side secures that no heating of the cold water pipes takes place.

Domestic hot water: The domestic hot water is generated only on demand with an integrated controller ensuring the process flow. The heating water flow is controlled by the valves depending on the hot water requirement. This ensures a constant hot water temperature. If no hot water is needed, the valve stops the supply of heating water through the heat exchanger. It can cool down which is beneficial for the hygiene.

Domestic heating: Combi Port E manages independently the hydraulic balancing between hot water and heating. This is achieved through the integrated regulating valves.

The heat interface unit is kept at temperature during normal operation. If no heat is required, the ECO mode becomes active and energy is saved.

The room temperature control is carried out with either Uponor Smatrix or Uponor Base flexiboard.

3.3 Components

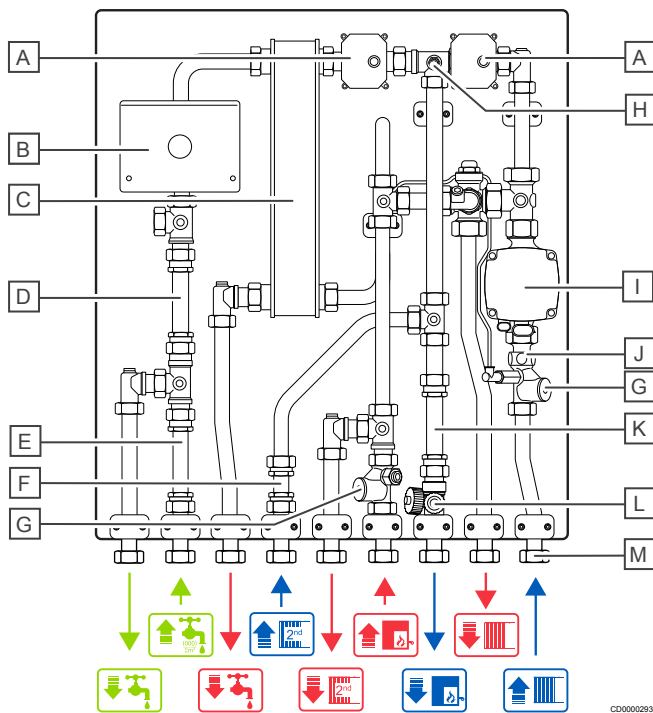
Note

The following illustrations show example set-ups for all units. Individual modules may vary in appearances.

The Combi Port E contains several accessories. The cabinets are available in two different versions, for in-wall and on-wall mounting and for all common system installations and installation situations.

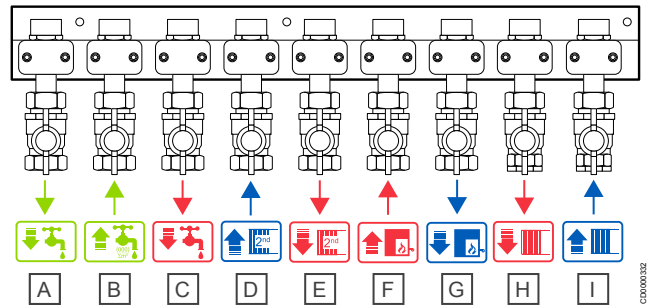
The cabinet is ready for installation according to customer specifications when delivered to the construction site. Upon request, it can also be equipped with specific valves, heat meters and components from the Uponor room temperature control system, both wired and as a flexible and convenient radio solution.

Combi Port E UFH



Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, swivel nut

Connection description



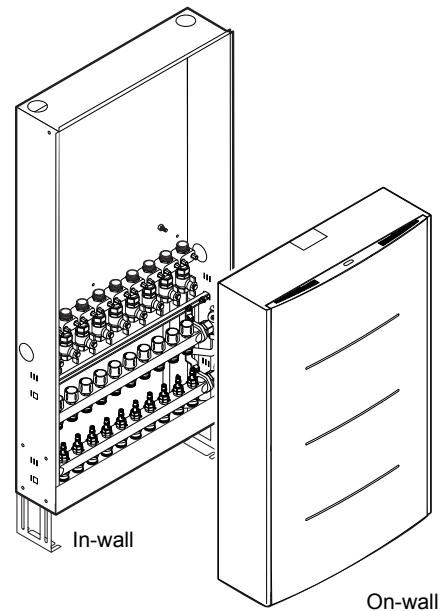
Item	Description
A	Cold water to apartment (CW)
B	Cold water from riser (CW)
C	Domestic hot water to apartment (DHW)
D	Heating circuit supply (secondary, 2nd)
E	Heating circuit return (secondary, 2nd)
F	Heating supply (primary)
G	Heating return (primary)
H	Heating supply (secondary)
I	Heating return (secondary)

3.4 Accessories

Uponor offers a variety of accessories for use with the standard portfolio.

The following accessories are optional. Their use completes the product portfolio. The application is described in more detail in the following chapters.

Cabinets with manifolds



Cabinets for in-wall and on-wall mounting are offered for Combi Port E. Underfloor heating (UFH) manifolds are pre-installed in two of the models and consist of lock shield valves on the supply bar and top meters on the return bar.

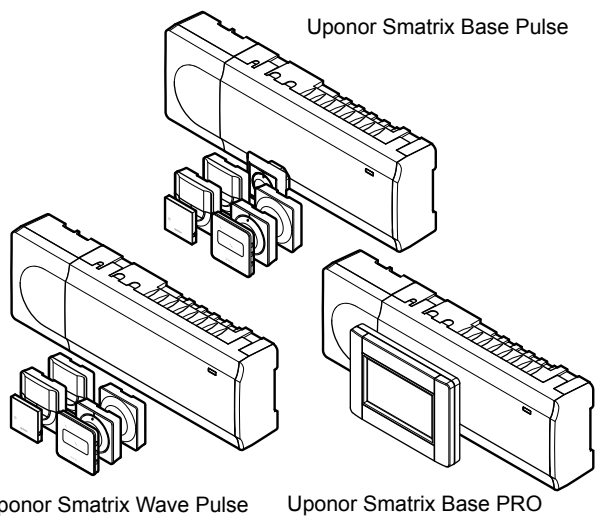
In-wall cabinet (width x height x depth, mm)	On-wall cabinet (width x height x depth, mm)
750 x 850 x 150, without UFH manifold	750 x 1200 x 260, with UFH manifold 3-10 loops
750 x 1200 x 150, with UFH manifold 3-11 loops	

Room temperature control

Note

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

Uponor Smatrix



CD0000271

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

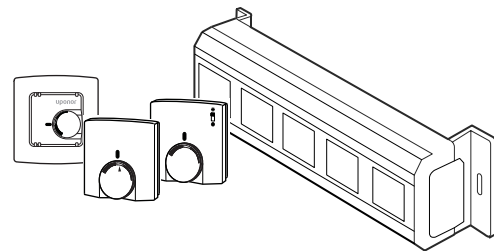
This list shows available functions for the different systems.

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	✓	✓	
Third-party remote support	✓	✓	

Comfort function	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 function	Wave Pulse	Base Pulse	Base PRO
Uponor cloud services	✓	✓	
Data storage	✓	✓	✓
Pump management	✓	✓	✓
System diagnostics	✓	✓	✓
HP integration			✓
Room bypass	✓	✓	✓
Room check			✓
BMS integration			✓
SMS module			✓

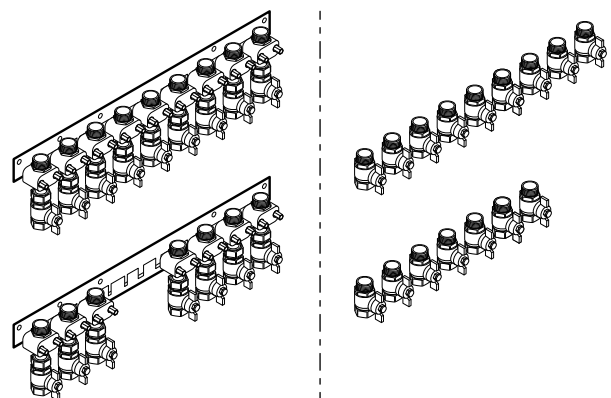
Uponor Base flexiboard



CD0000270

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.

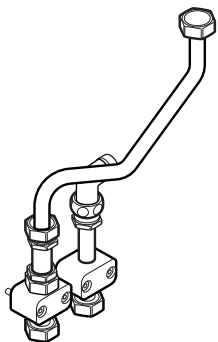
Ball valve sets



CD0000288

Ball valves are required for connecting the pipes with the heat interface unit. The valves are available as connection rails or as single items.

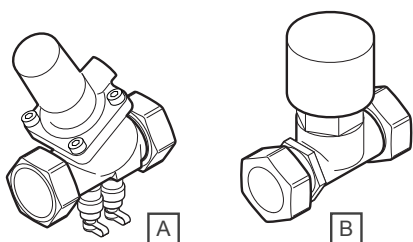
Connection set 2nd heating circuit



CD0000267

A connection set for 2nd heating circuit can be connected on demand.

Differential pressure regulator or return temperature limiter

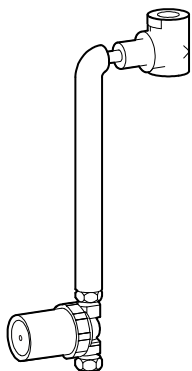


CD0000291

Item	Description
A	Differential pressure regulator
B	Return temperature limiter (RTB)

Differential pressure regulator or return temperature limiter (RTB) can be connected on demand.

Tap water circulation



CD0000290




A tap water circulation can be connected on demand.

3.5 Spare parts

For spare parts to the Combi Port units, see separate price list.

4 Prepare for installation

4.1 General information

	Warning! <p>The fittings are under pressure. Escaping pressurized media can cause serious injury such as scalding or eye damage.</p> <p>Depressurise the system before performing any installation work.</p> <p>For retrofits to an existing system:</p> <p>Drain the system or close the supply lines of the section and depressurise it.</p>
	Warning! <p>Risk of injury due to the heavy weight of the unit:</p> <p>Do not perform the installation alone.</p> <p>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.</p>
	Caution! <p>Leaks in the unit may occur during transport or installation. Check the nuts to ensure that they are properly tightened before the connection to avoid property damages.</p>

Before installing Combi Port E ensure that:

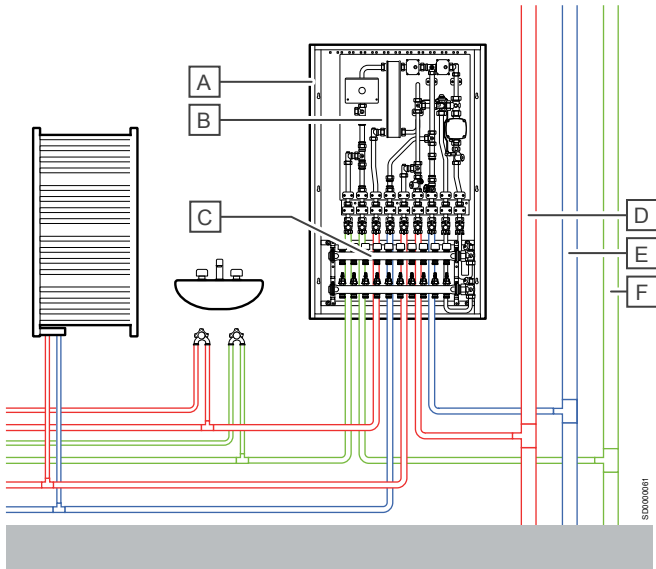
- the primary pipes are laid in the building site.
- the primary pipe installation is flushed and checked for leaks
- the power and ground cables are routed to the installation site.
- the unit can be installed in a dry and frost-free room with an ambient temperature lower than +40 °C.
- the unit can be mounted upright (not inclined, upside down or lying down).
- the unit is always easy to access even after the assembly.

4.2 Water analysis

A water analysis of the tap water must be checked before using the device. The limit values can be found in our technical information. The heating water quality must be in accordance to VDI 2035. In case of warranty claims, the report must be presented.

5 Mechanical installation

5.1 Installation example



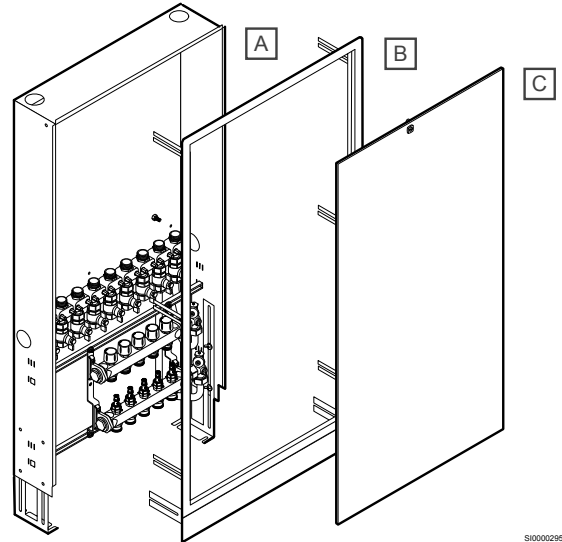
Item	Description
A	In-wall cabinet
B	Heat interface unit
C	Underfloor heating manifold
D	Heating supply (primary)
E	Heating return (primary)
F	Cold water from riser (CW)

The above installation example shows a typical installation with Combi Port E in an in-wall cabinet with an underfloor heating manifold.

A Uponor Smatrix controller for room temperature control is mounted and connected to the manifold.

5.2 In-wall installation

Preparations



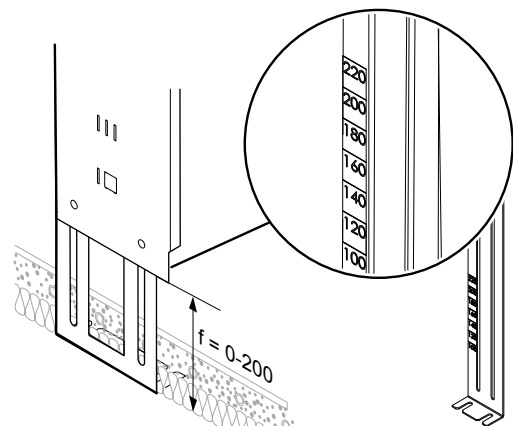
Item	Description
A	Cabinet body
B	Frame
C	Door

1. Dismount the frame and door.
2. Store the frame and door for later mounting.

Adjusting the in-wall cabinet

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

The niche height is calculated using the floor height and is measured from the bare floor. The specified floor installation height has to be set according to the values visible on the feet.



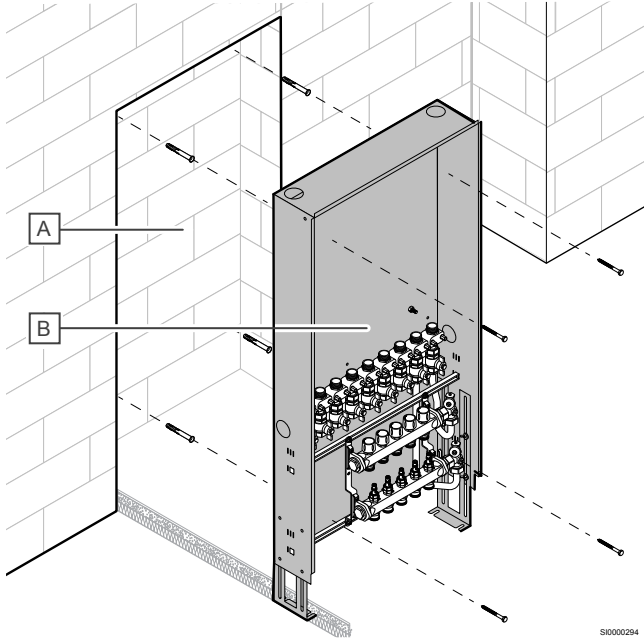
Dimensions of in-wall mounted cabinet (width x height x depth mm)	Niche dimensions in-wall (width x height x depth mm)
750 x 850 x 150	770 x (850 + 30 + f) x 155
750 x 1200 x 150	770 x (1190 + 30 + f) x 155

Install the in-wall cabinet

Note

For freestanding installations, set the height according to the table and adjust the feet accordingly. Pay attention to the horizontal alignment.

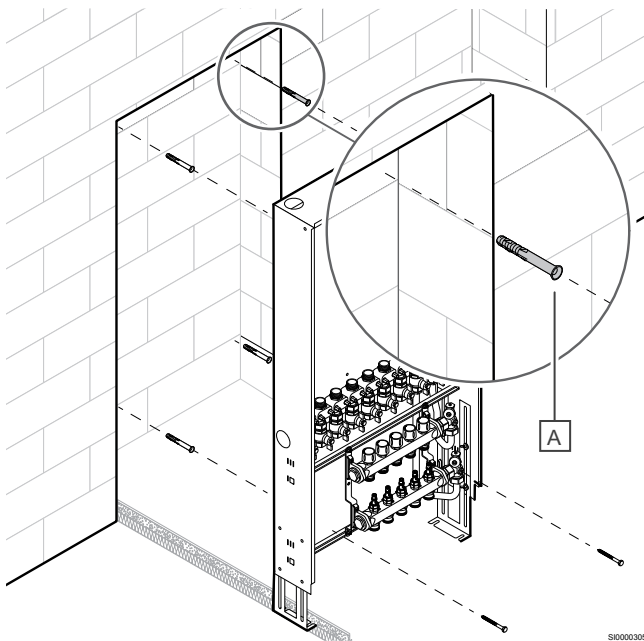
1. Mark the hole positions in the wall aperture using the in-wall cabinet holes as a pattern.



SI0000294

Item	Description
A	Wall aperture
B	In-wall mounted cabinet

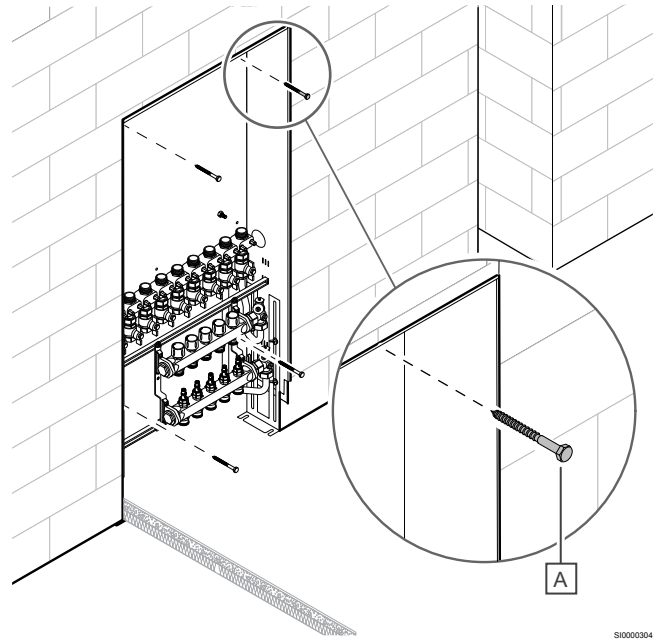
2. Drill holes suitable for the plug.
3. Mount the enclosed plugs in the drilled holes and place the in-wall box in the wall aperture.



SI0000305

Item	Description
A	Plug (4 pcs)

4. Secure the in-wall mounting box to the wall aperture, and secure with the enclosed hexagon bolts.



SI0000304

Item	Description
A	Hexagon bolt (4 pcs)

Connecting the primary supply pipes

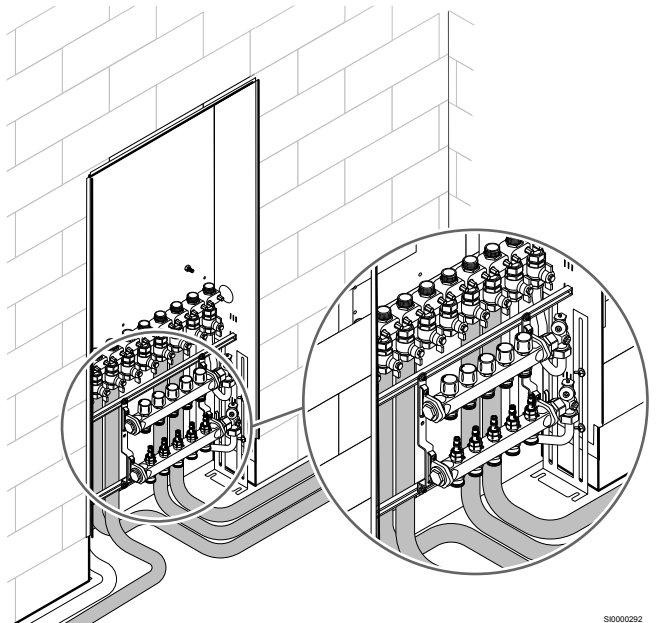
Note

Install the pipes in accordance with planning documentation.

Note

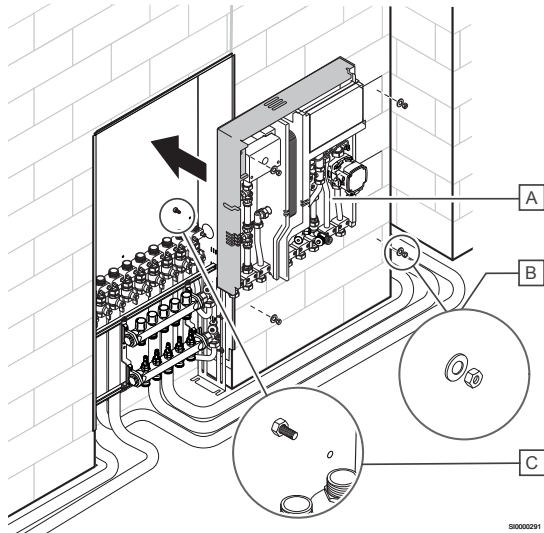
Ensure that pipe insulation and fixing is made in accordance with EnEV.

1. Connect the supply pipes to the ball valves by using desired fittings.



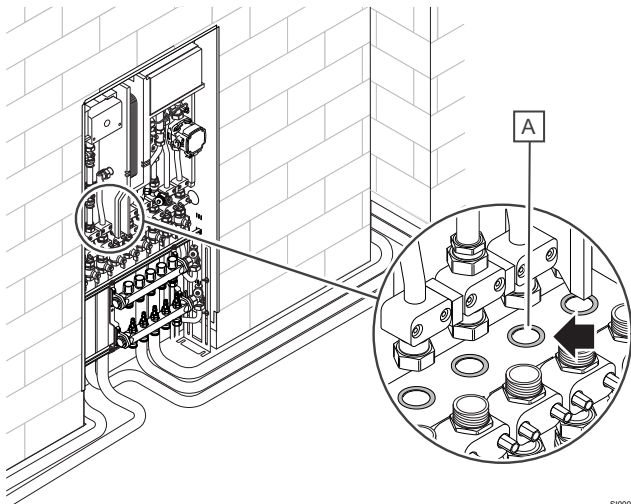
SI0000292

Install the heat interface unit



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

1. Mount the heat interface unit on the fixed bolts in the cabinet wall.
2. Tighten with 4 hexagon nuts.
3. Place the flat gaskets on to the connection rail 3/4" screw connection.



Item	Description
A	Flat gasket

Note

Check the flat gasket for damage.

4. Tighten the 3/4" swivel nuts.

Connecting the pipes



Note

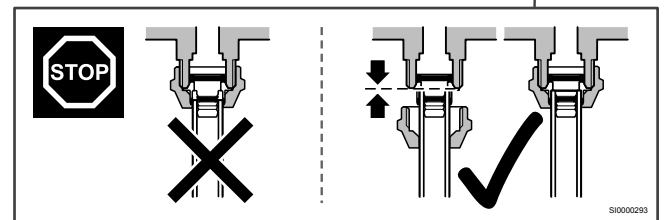
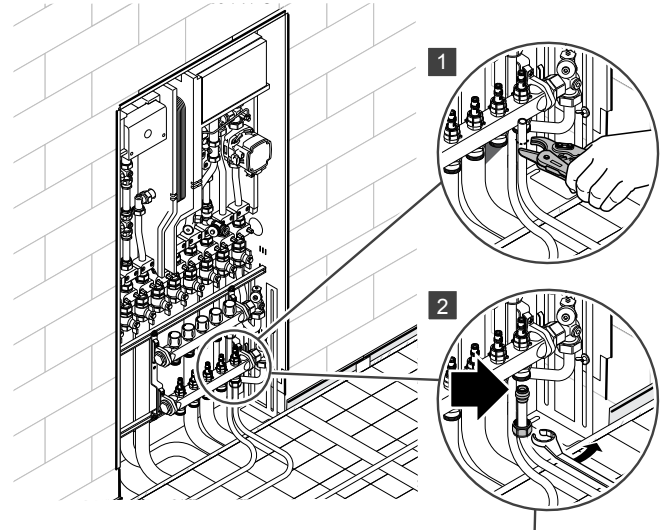
Install the pipes in accordance with planning documentation.



Note

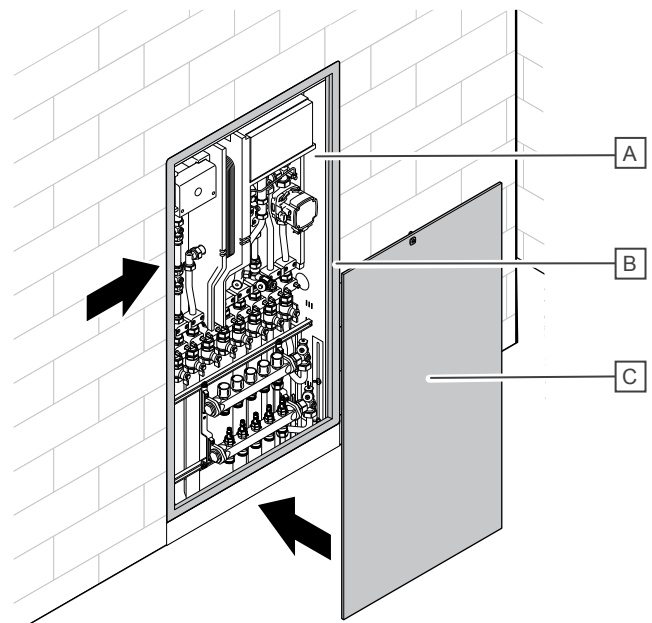
Ensure the use of supplied seals when connecting the pipes!

Connect the underfloor heating pipes to the manifold.



1. Cut the pipe in required 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. Close the heat interface unit with an insulation cover.
2. Attach the frame to the cabinet body using wing nuts.
3. Mount the door in the frame by fitting the two frame brackets into the recesses in the door.

5.3 On-wall installation

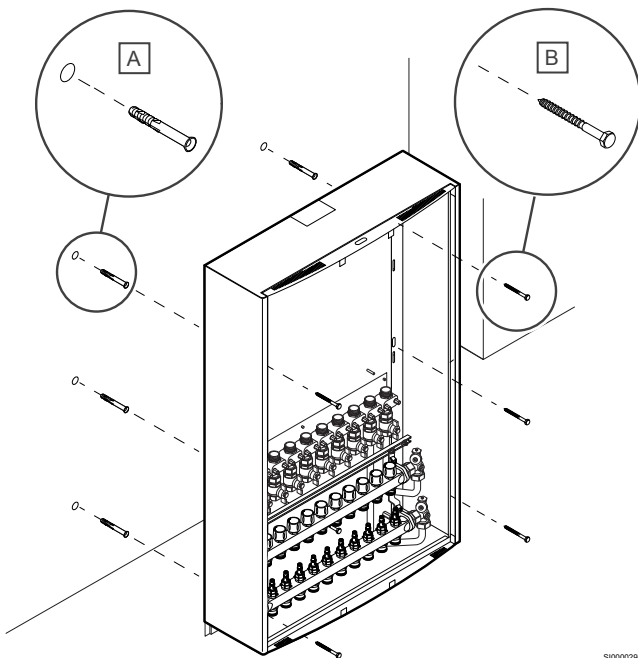


Note

For disassembling the on-floor cabinet, leave **3 cm** space above and to the sides.

The on-wall mounted cabinets are equipped with venting systems to prevent unnecessary build-up of heat and condensation.

Install the on-wall cabinet



Item	Description
A	Plug (6 pcs)
B	Hexagon bolt (6 pcs)

1. Mark the hole positions on the wall and drill holes using a **6 mm** drill.
2. Insert the plug in the drilled holes.

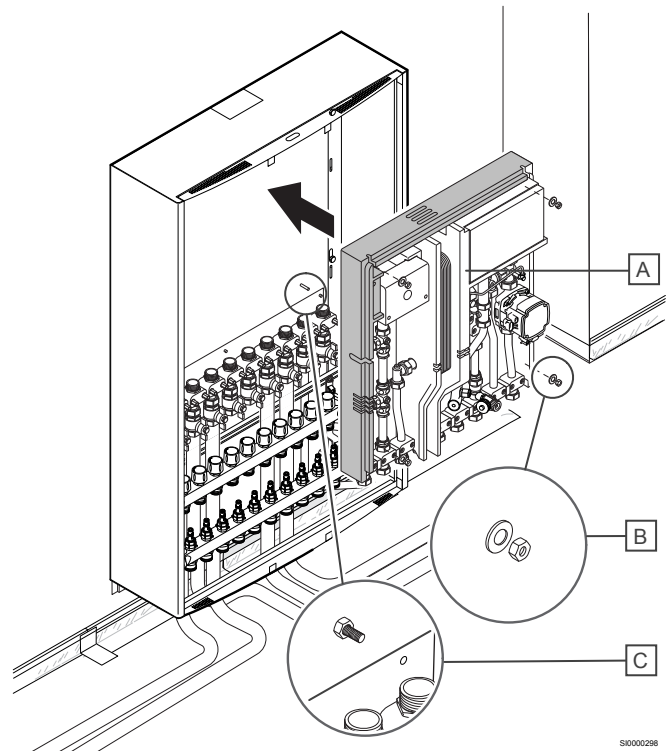


Note

See the dimensional drawings for measurements. Pay attention to the horizontal alignment.

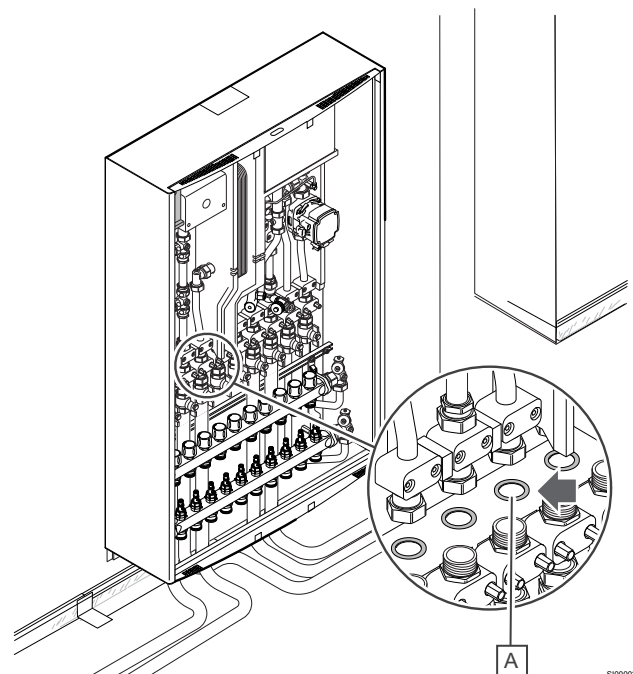
3. Attach the on-wall cabinet to the wall using the hexagon bolts.
4. Connect all pipes to the on-wall rail connections following the same process as for the in-wall cabinet.

Install the heat interface unit



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

1. Screw the heat interface unit to the wall using the hexagon bolts
2. Place the flat seals on to the connection rail $\frac{3}{4}$ " screw connection.



Note

Check the flat seals for damage.

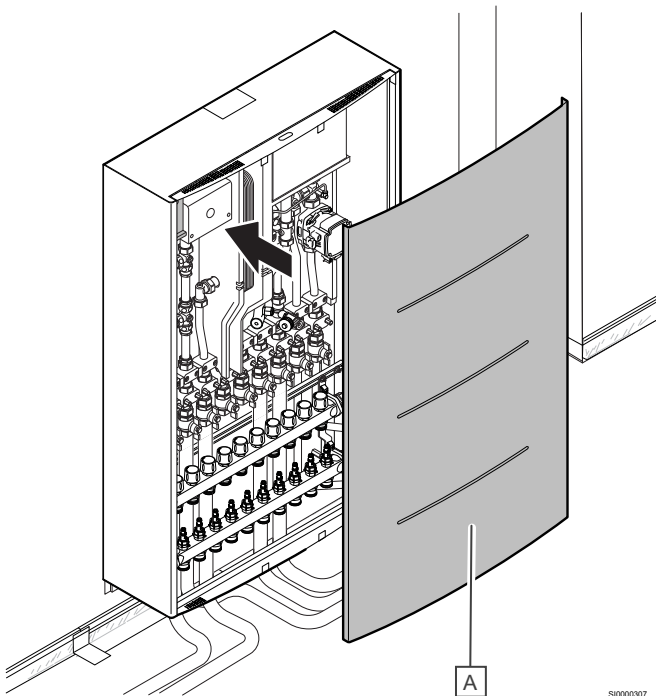
3. Tighten the $\frac{3}{4}$ " swivel nuts.

Install the on-wall covering



Caution!

Mount according to the condition of the walls and supports

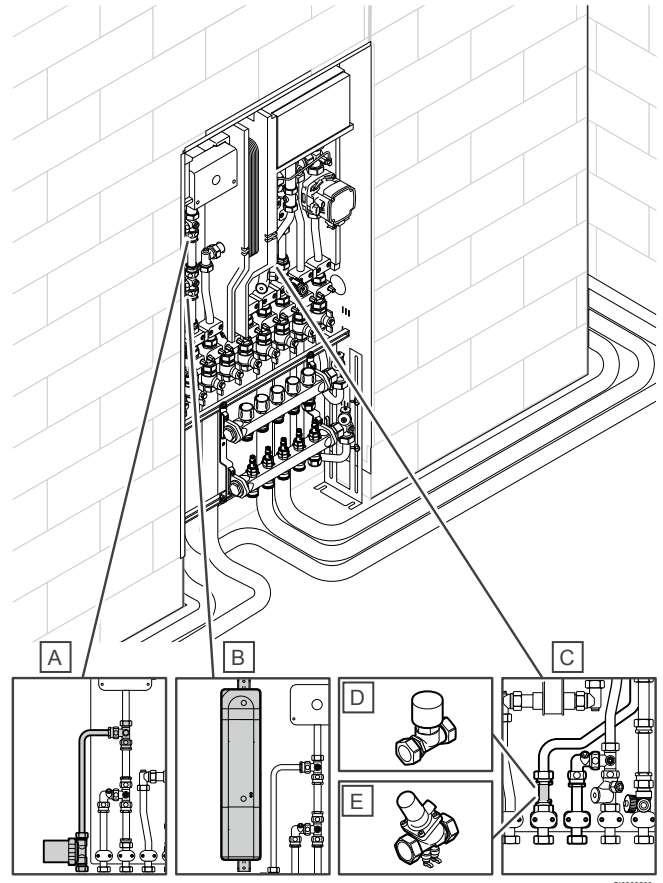


S10000307

Item	Description
A	On-wall cover

1. Close the heat interface unit with an insulation cover.
2. Hang the on-wall cover on to the lateral strips of the base sheet.

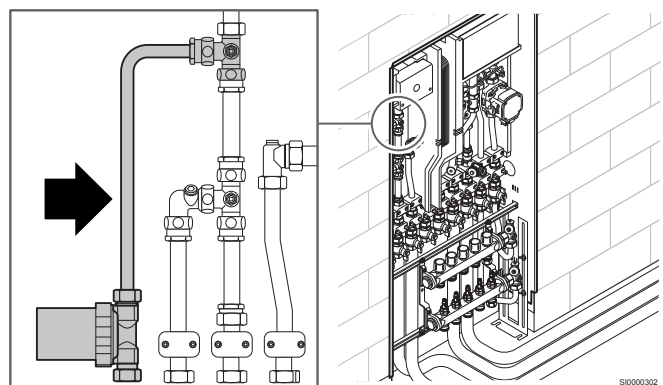
5.4 Install the accessories



S10000289

Item	Description
A	Circulation line
B	Room temperature control
C	Heating circuit (secondary, 2nd)
D	Return temperature sensor
E	Differential pressure regulator

Install the circulation line



S10000302

1. Connect the circulation line to the heat interface unit.
2. Connect the circulation pump to the power supply.
For information about the electrical connections, please see "Electrical installation, Page 17".

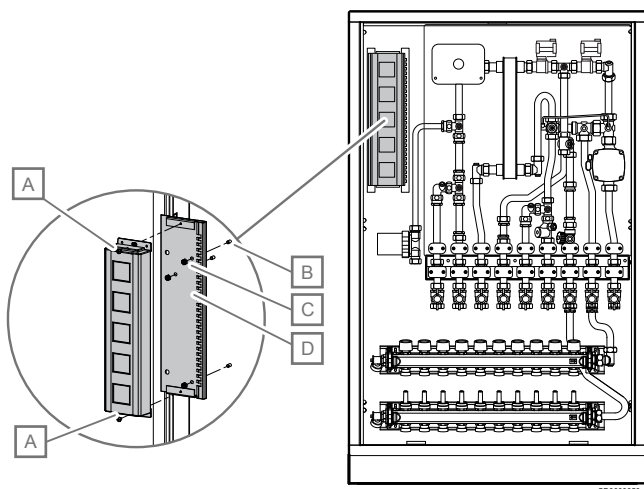


Note

Please read the installation manual from the pump manufacturer.

Install the room temperature control

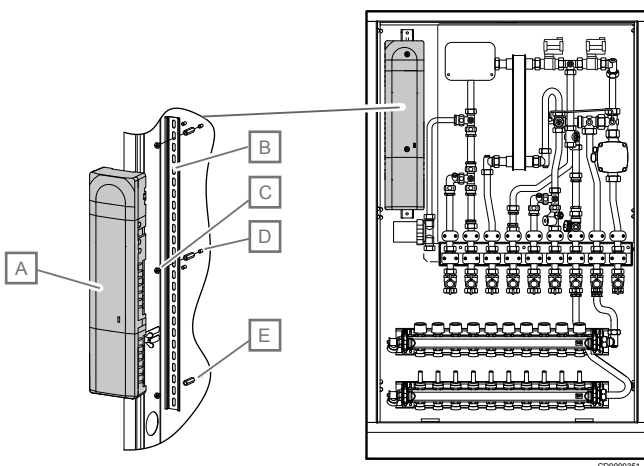
Uponor Base flexiboard



Item	Description
A	Uponor Base flexiboard room controller including screws
B	Bolt in wall cover
C	Nut
D	Mounting plate

1. Attach the mounting plate to the bolts.
2. Screw the nuts onto the bolts.
3. Attach the flexiboard onto the mounting plate with the screws provided.

Uponor Smatrix



Item	Description
A	Uponor Smatrix Wave Pulse room controller
B	DIN-rail
C	Nut
D	Bolts
E	Distance nut

1. Fasten the distance nuts on the bolts.
2. Fasten the DIN-rail with the screws on the distance nut.
3. Attach the Uponor Smatrix room controller to the DIN-rail.

Additional information

Note

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



Uponor Smatrix
Uponor Base Flexiboard

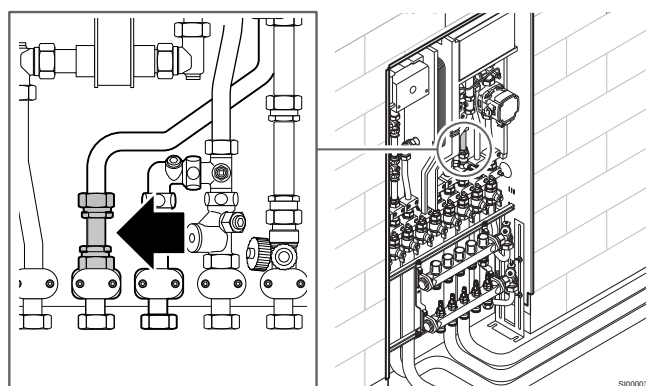


www.uponor.com/services/download-centre

Install the heating circuit (secondary)

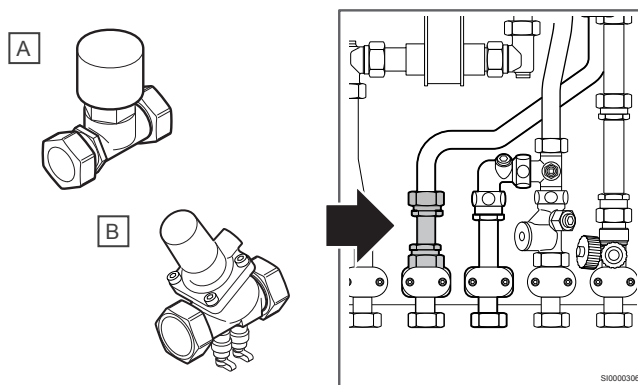
Note

Please read the installation manual from the pump manufacturer.



1. Connect the circulation line to the heat interface unit.
2. Connect the circulation pump to the power supply.
For information about the electrical connections, please see "Electrical installation, Page 17".




If required, a return temperature limiter (RTB) or a differential pressure regulator can be mounted.



Item	Description
A	Return temperature limiter (RTB)
B	Differential pressure regulator

1. Remove the distance piece preferably by using two wrenches.
2. Mount the return temperature limiter or differential pressure regulator.

6 Electrical installation

	Warning! Risk of electric shock if touching the components! The unit operates with a 230 V AC voltage.
	Warning! Required electrical connections and installations, commissioning and maintenance must only be performed by an authorised person in accordance with local standards and regulations.
	Warning! The Uponor system uses 50 Hz, 230 V AC power. In case of emergency, immediately disconnect the power.

6.1 Connecting the heat interface unit

Connect the heat interface unit as follows:

1. Connect the power supply to Combi Port E in accordance with the wiring diagram, see *Wiring diagrams, Page 30*.
2. Pull the battery protection foil on the right hand side of the heating station controller.
3. Option: Connect the BUS, outdoor sensor and/or individual room temperature controls.
4. Connection and registration of actuators: please follow the corresponding instructions for Uponor Smatrix Wave Pulse respective Uponor Base flexiboard.
5. Download the Combi Port E app, see *Combi Port E app, Page 22*
6. Establish the equipotential bonding by using a copper equipotential bonding conductor (cross-section of at least **6 mm²**)
7. Connect the earthing clamp to a suitable equipotential bonding rail in the building.

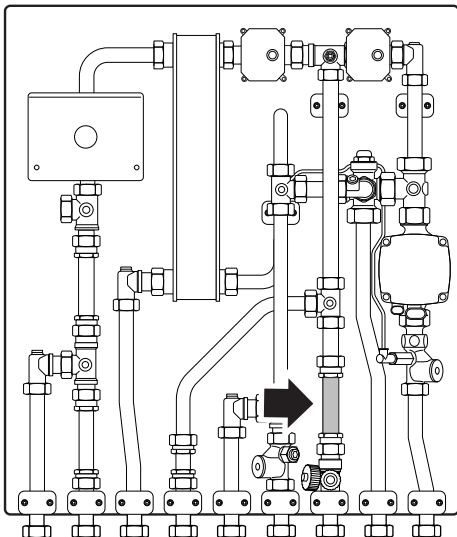
7 Additional installation

7.1 Heat meter or cold/warm water meter

Hot and cold water meters, and heat meters, can easily be installed for measuring the water and energy consumption.

Heat meter distance piece

- Note**
The heat meter to be installed must have following specifications: **Qn = 1.5** 1.5-2 seconds. Construction length of **110 mm** and **3/4"** external threaded connection.
- Note**
The heat meter distance piece is not suitable for continuous operation.



CD0000352

The heat meter distance piece is intended to be replaced with a heat meter to record energy consumption. This is recorded by adding a heat meter with a fast scanning frequency that fully measures the volume flow rate every 3-4 seconds, including kWh calculation.

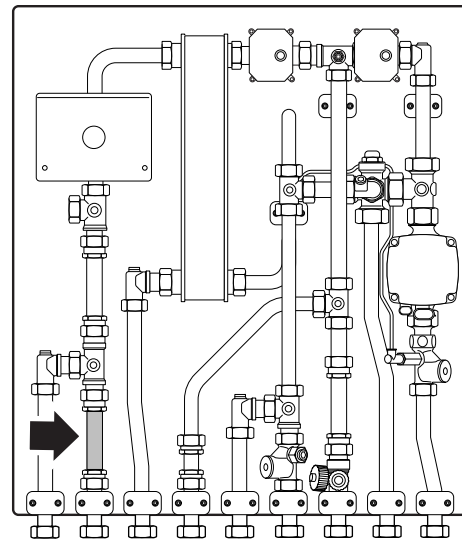
Sensor pocket heat meter

The sensor pocket (M10x1) is available for the flow sensor. The plug in the delivered condition must first be removed.

1. Remove plug with an internal hexagon key (**6 mm**).

Cold water meter distance piece

- Note**
Operating pressure: **PN 10**

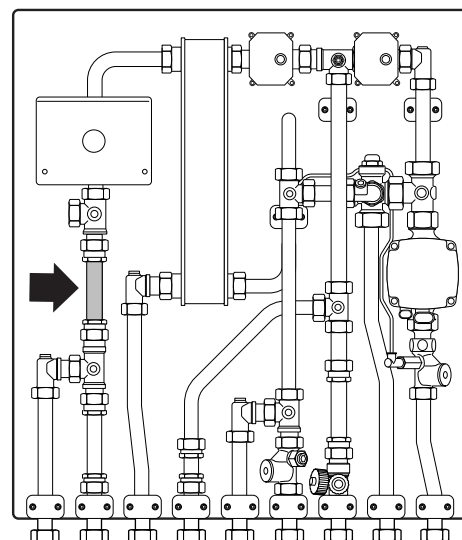


CD0000354

The cold water meter distance piece (**110 mm x 3/4"**) is intended to be replaced with a water meter that count the units overall cold water consumption.

Hot water meter distance piece

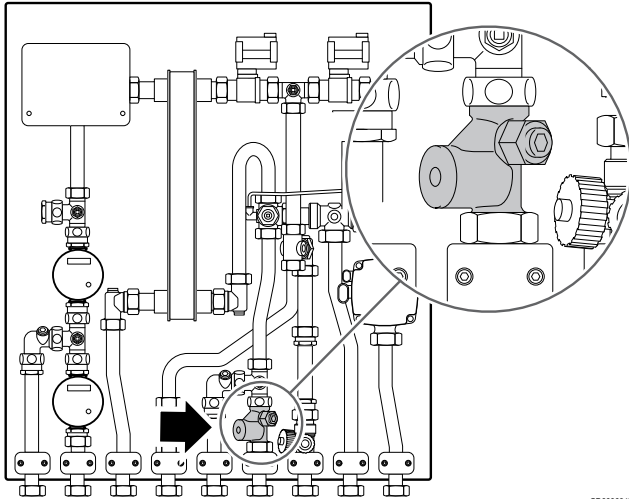
The hot water meter distance piece is intended to be replaced with a hot water meter to record water consumption.



CD0000353

7.2 Strainer

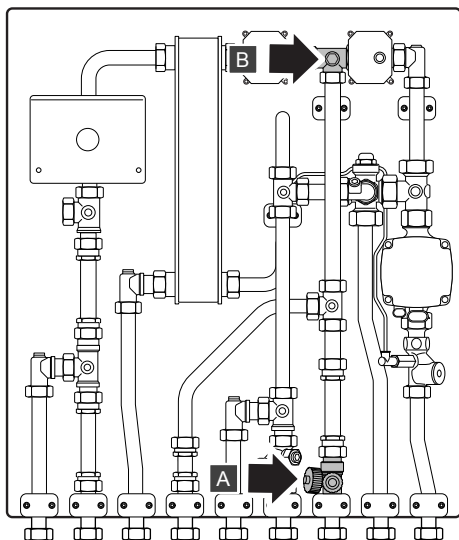
	Caution! Lock the unit and relieve the pressure before any work with the strainer.
	Note To open the cold water/primary flow strainer, use internal hexagon (6 mm).



CD0000347

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

7.3 Filling, flushing and venting



SI0000310

The filling and draining valve on the primary heating can be used for filling and flushing of the heating system.

Filling and flushing the system

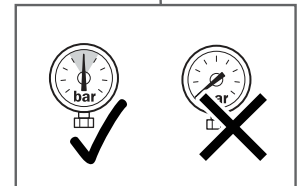
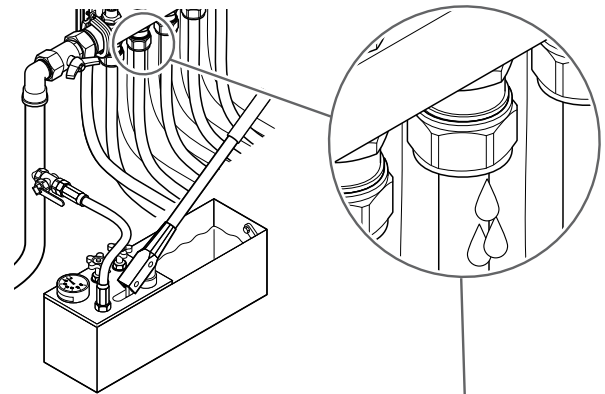
1. Open the draining valve (A).
2. Fill and flush the system with heating water.

Venting the system

1. Open the venting valve (B).
2. Vent the heat interface unit.

7.4 Tightness testing

	Warning! Leaking connections can cause personal injury and property damages.
	Caution! Pressure leaks may occur even at normal operating pressure, and must be fixed immediately.



SI0000308

1. Test the heating circuit for two hours according to the applicable guidelines.
2. Fix any leaks immediately.

7.5 Visual inspection

	Caution! Improper commissioning can lead to property damage.
	Note If an installation error is found during visual inspection, temporarily stop commissioning and rectify the error.

Complete commissioning by following these steps:

1. Make a complete check up of the installation prior to commissioning:
 - 1.1. Make sure that the hydraulics are connected correctly
 - 1.2. Check that any dirt accumulated during installation and/or dust on the unit has been removed properly. Check strainers and, if necessary, flush/clean them.
 - 1.3. Check the tightness of all seals on pipe - and device connections and tighten them if necessary. When tightening connections, always lock the opposite side
 - 1.4. Optional: Check that all electrical connections have been made correctly, including polarity of the mains connection and that grounding is assured.
2. Check that the installation is filled/flushed and vented.
3. Check the settings in the controller via the App.

8 Operation

8.1 Start up the hydraulic system

Connecting the hydraulic system



Warning!

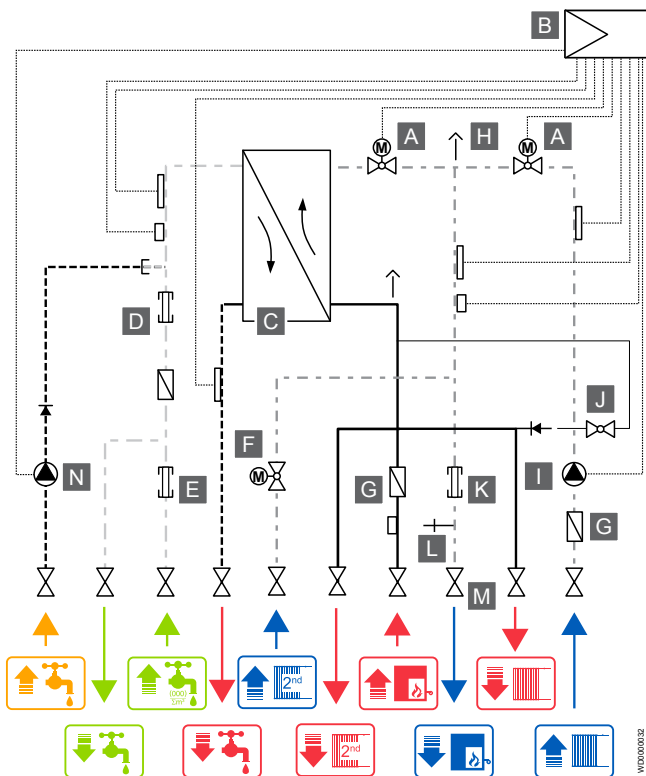
Risk of injury due to improper installation!

Ensure that the hydraulic connections are made in a correct way. Leaking connections can cause personal injury.

- Do not reduce the specified pipe cross-sections. The connections for optional components (e.g. meters) are capped with black plastic adaptors in the device.
- Replace the plastic fittings with stainless steel 1.4401 pipes if no optional components should be connected. These can be obtained from the supplier.
- Ensure to connect the heating supply and return as well as the hot and cold water correctly.
- Install a filling and draining valve on site at a suitable central point to fill the central heating system.

Hydraulic scheme

Observe the hydraulic diagram as an installation guide.



Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, swivel nut
N	Circulation pump (optional)

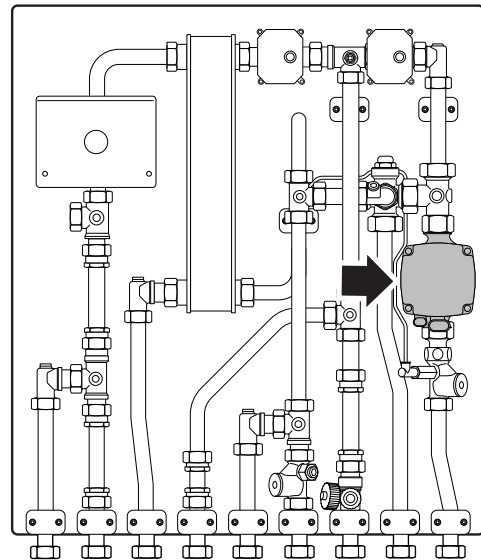
Constant pressure pump control



Note

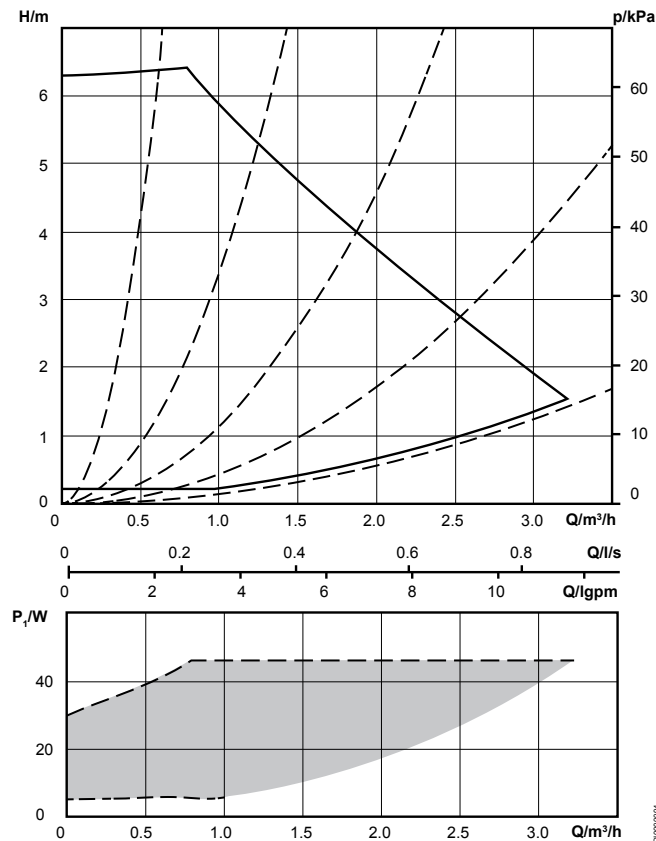
Please read the installation manual from the pump manufacturer.

The Combi Port E unit has an injection circuit. A non-return valve is mounted in the screw connection of the by-pass.



CD0000345

Constant values Δp -c



Changing the pump settings

Note

It is recommended that the pump runs at constant pressure when used for underfloor heating. The factory setting of the pump is not set to constant pressure and must therefore be changed.

The pump (Grundfos UMP3) has to be set to the constant pressure modus (Δp -c) to enable an optimal operation of the underfloor heating system.

The settings are done on the pump house as described below.

Pump settings

Note

Leave the pump on the selected program. It goes back into operation automatically and has saved the settings.

Enable setting	Press and hold, sec	Factory setting	Underfloor heating constant pressure	Step
	4		2 x	1
	4			2
	4			3

Pump effect

EEI ≤ 0.20 Part 3	Value
Speed	P ₁ [W]
Min.	2
Max.	33

Pump operation

Display view	Operation settings
	0 % ≤ P ₁ ≤ 25 %
	25 % ≤ P ₁ ≤ 50 %
	50 % ≤ P ₁ ≤ 75 %
	75 % ≤ P ₁ ≤ 100 %

Pump alarms

Display view	Alarm status
	Blocked
	Low voltage
	Electrical fault

Hydraulic balancing on the manifold

Setting the hydraulic balancing



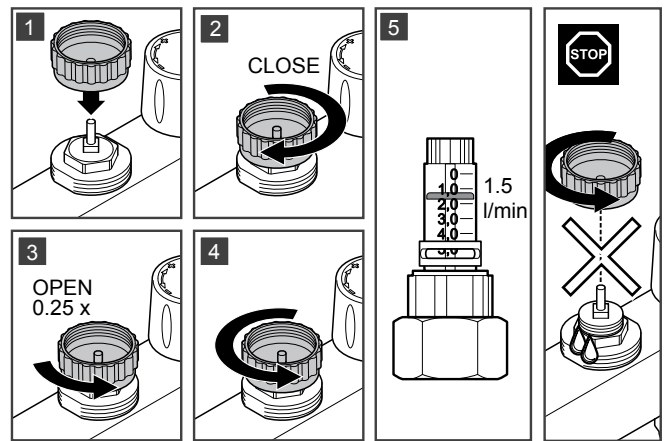
Warning!

The pressure in the valves can cause personal injury.



Caution!

Never turn the valves counter clockwise more than five (5) turns. When the cap is completely unscrewed, the valves will shoot out of the thread.

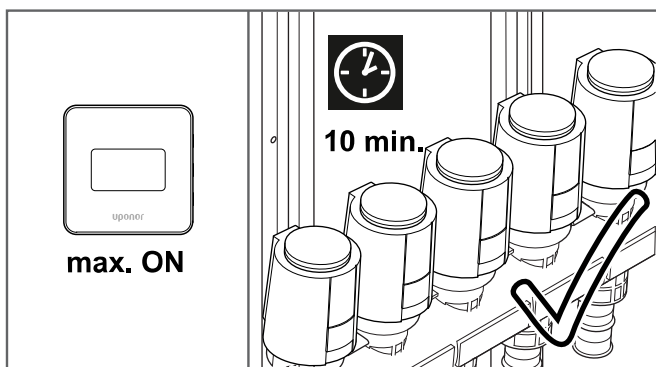


1. Remove the cap from the fill/flush valve on the return manifold bar. Turn it around until the square connector is down.
2. Close the valve.
3. Open the regulation valve **0.25 x**
4. Adjust the regulation valve as many turns as necessary to achieve desired loop setting.
5. Consider the planning documentation when adjusting the flow rate on the relevant top meter.

Connection of the room thermostat

Information about the connection of the room thermostat can be found in the installation and operation manual for the relevant control system.

Commissioning of the actuators



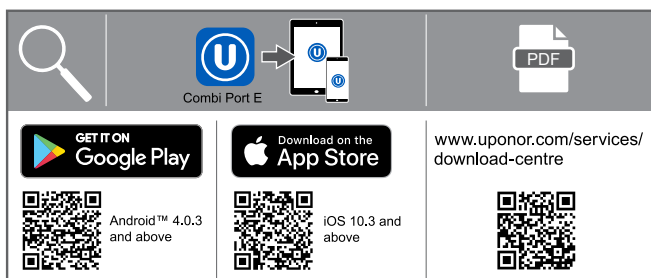
With the commissioning of the actuators, the First-Open-Function must be unlocked (actuators must carry current for at least 10 minutes). For this purpose, all room thermostats must be set to the maximum room temperature and must generate heat.

A precise description of the unlocking of the First-Open-Function with the Uponor Smatrix control modules can be found in the operation manual for the Uponor Smatrix room temperature control system under "Test of the actuator".

8.2 Combi Port E mobile application

The Combi Port E controller has preset default settings and is only operated via the app. Likewise, all settings for domestic water and heating are made via the app.

Combi Port E app



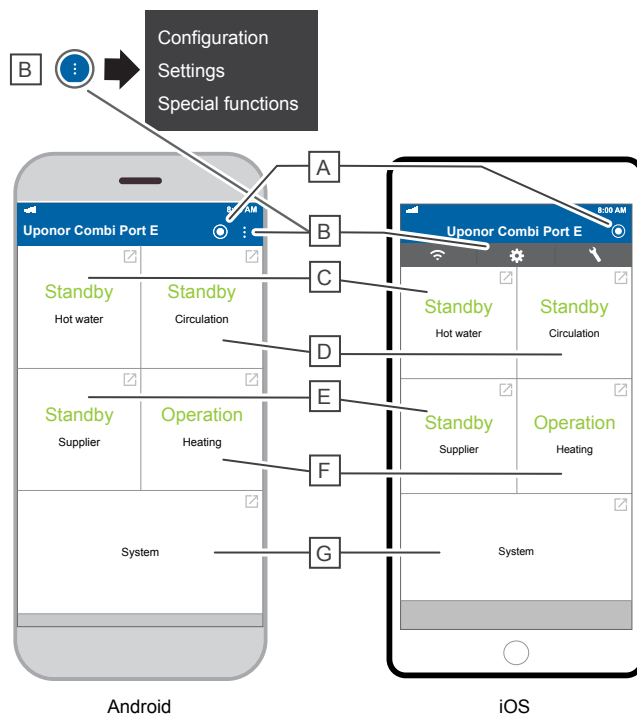
1. Download the Combi Port E app. It is available both for iOS and Android mobile devices.
2. Scan the QR code available on the Combi Port E controller.
3. Press the blue button in the middle of the Combi Port E controller until it flashes. Continue in the App.
4. Helptexts and guidance is available in the app.
5. The app consists of three different user levels. Access is given by activating the received code.

App advantages

- Display with live update of values, e.g. flow, temperature etc
- Software updates available (customer service only)
- Daily evaluation directly to service
- Commissioning protocol (content of all set points and operating modes)

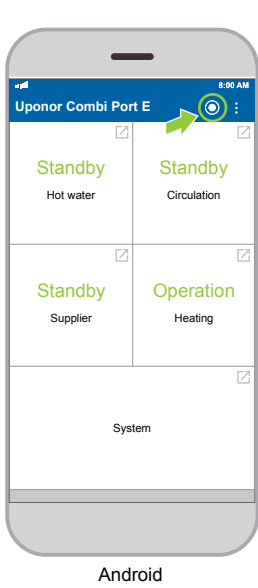
App structure

Overview

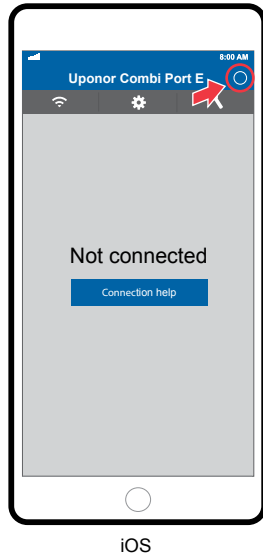


Item	Description
A	Connection status
B	Settings
C	Hot water
D	Circulation
E	Supplier
F	Heating
G	System

A Connection status



A

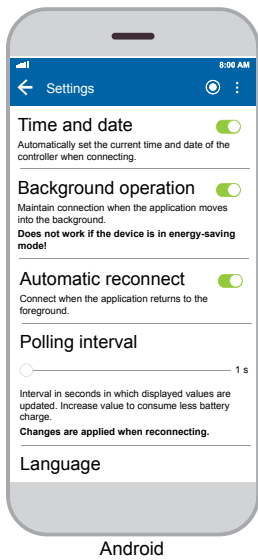


iOS

CD0000322

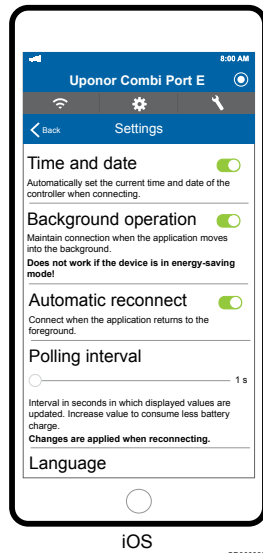
- Indication of successful connection
- Connection can be manually activated or deactivated

B Settings



Android

B



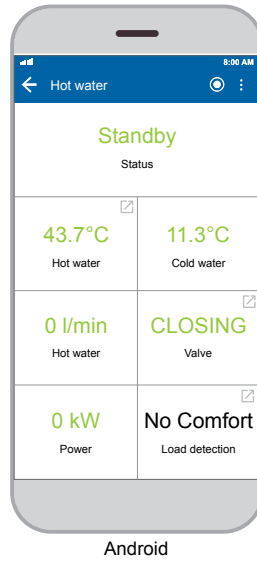
iOS

CD0000323

POSSIBLE SETTINGS

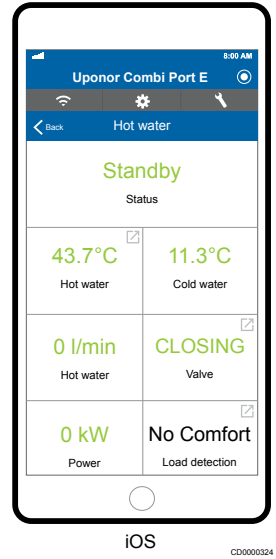
- Time/date
- Language
- Controller settings
- Load/save configuration
- Startup protocol

C Hot water



Android

C



iOS

CD0000324

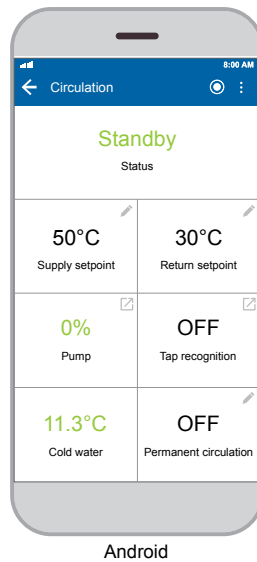
POSSIBLE SETTINGS

- Hot water temperature
- Valve position
- Load detection

DISPLAYED VALUES

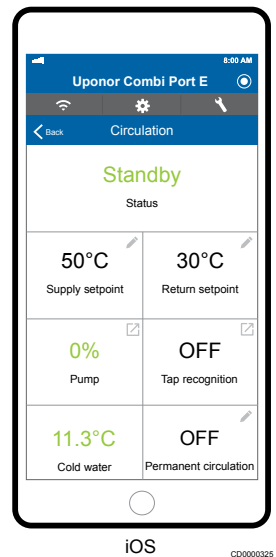
- Hot water temperature
- Hot water flow
- Cold water temperature
- Performance

D Circulation



Android

D



iOS

CD0000325

POSSIBLE SETTINGS

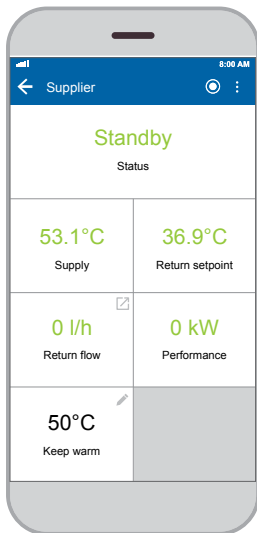
- Supply setpoint
- Return setpoint
- Follow-up time
- Permanent circulation
- Time program

DISPLAYED VALUES

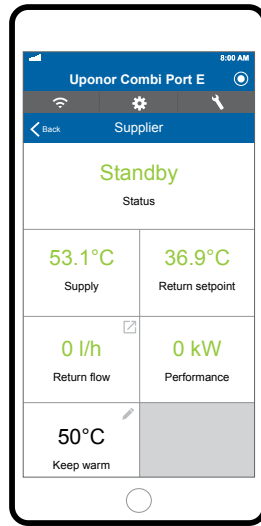
- Pump status

E Supplier

E



Android



iOS

CD0000328

POSSIBLE SETTINGS

- Supply primary
- Return primary
- Keep warm temperature

DISPLAYED VALUES

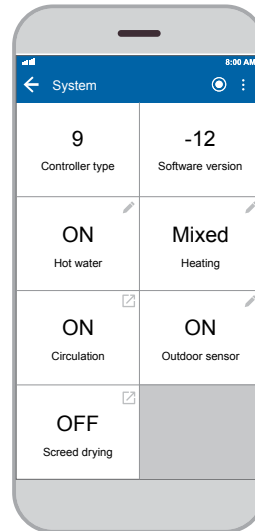
- Flow primary

DISPLAYED VALUES

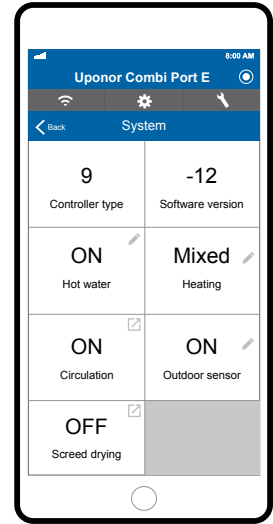
- Supply secondary
- Return secondary
- Outdoor temperature (optional)
- Room temperature (optional)
- External input (optional)

G System

G



Android



iOS

CD0000328

POSSIBLE SETTINGS

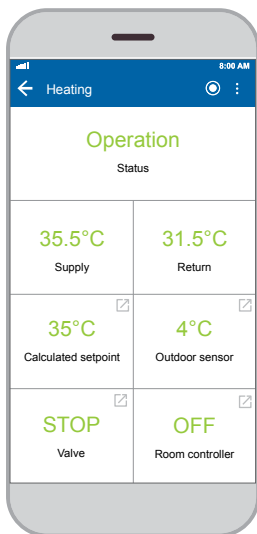
- Module selection
- Screenshot drying program
- Start up, step by step

DISPLAYED VALUES

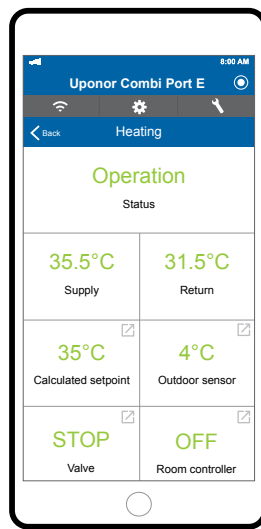
- Software version
- Controller type

F Heating

F



Android



iOS

CD0000327

POSSIBLE SETTINGS

- Operating mode
- Control mode
- Time program
- Heating curve (optional)
- ECO mode (heating)

8.3 Commissioning and hand over

1. Complete the acceptance/commissioning protocol via the App.
2. Hand over the documentation and protocol to the homeowner.

9 Maintenance

9.1 General information

Important information

To ensure the correct and safe operation of the system, this information must be read and followed.

Following these instructions will help avoid hazards and downtime and increase the reliability and life of the system.

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 assigned to a residential unit and is used to measure and control central heating and heating of the water.

The heat interface unit combines:

- water heating in the flow system via a plate heat exchanger (water heating is controlled without auxiliary energy)
- the metering of the energy consumption for central heating and hot water and, as an option, the amount of cold water
- heating control in the apartment with hydraulic balancing and energy saving by ECO-mode.

Hot water is only prepared when needed. Service water is not stored. This is one of the most convenient ways to heat fresh water. 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 (B). As an option there is a shut-off ball valve for installation purposes.

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

The ball valves (B) and (C) 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.

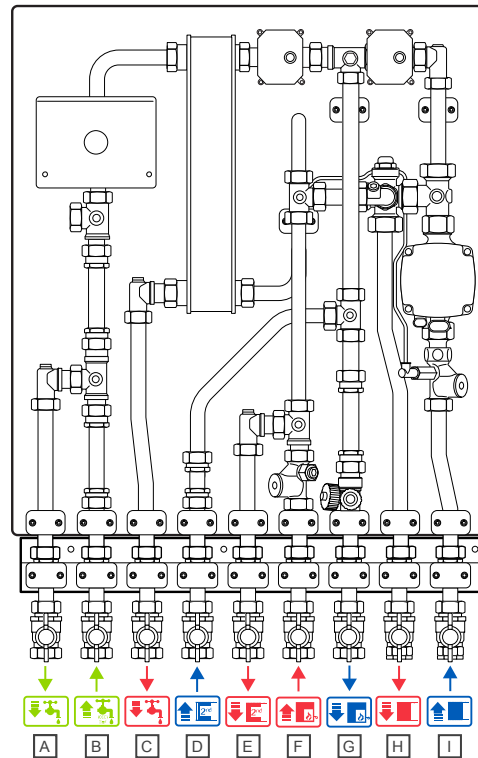
The tapping duration should then be around 1-2 minutes. The water must be allowed to run at least every 7 days for about 1-2 minutes.

9.2 Turning off heat interface unit

Note

If droplets of water are detected, call a qualified service personnel.

Ball valves must be closed in the event of malfunctions. A visual inspection is required every 3 to 6 months.



Item	Description
A	Cold water to apartment (CW)
B	Cold water from riser (CW)
C	Domestic hot water to apartment (DHW)
D	Heating circuit supply (secondary, 2nd)
E	Heating circuit return (secondary, 2nd)
F	Heating supply (primary)
G	Heating return (primary)
H	Heating supply (secondary)
I	Heating return (secondary)

If the system is to be shut down for a longer period:

- Close ball valves B, F and G. Close the cold water tap.
- Protect the heating unit against frost.
- Let the hot water run for about 5 minutes at restart.
- Switch off the controller (pull out the plug, settings remain saved).

10 Troubleshooting

10.1 Fault description

Fault description	Cause	Solution	
Hot water function			
Hot water temperature too low or volatile	Central heating		
	Buffer temperature too low	Buffer temperature must be 5-10 K above hot water setpoint	
	Heating circuit pump type not supported	The following pump type is supported: Grundfos UMP3	
	Setting for heating circuit pump is not correct	Heating circuit pump setting: Constant pressure	
	Pump performance too low	Check the pump performance	
	Setting for heating circuit control is not correct	Check the heating circuit control setting	
	Heating circuit control faulty	Check the heating control function	
	Air trapped in buffer storage	Vent buffer storage tank	
	Cold water pressure too low/too high	Cold water pressure at unit: Min. 2 bar, Max. 4 bar	
	Insufficient differential pressure	Clean the capillary of the differential pressure control, and check that the differential pressure control is working	
	Heat interface unit		
	Strainer in heating supply (primary) dirty	Clean the strainer in the heating supply (primary)	
	Air in the system	Vent the system	
	Insufficient heating volume flow passes through the heat exchanger	Check the volume flow	
	Heat meter type not supported	Use heat meter type with Qn 1.5 ultrasound	
	Insufficient heating volume flow	Increase differential pressure	
	Heat exchanger dirty	Clean the heat exchanger	
	Hot water temperature limiter setting is not correct	Check setpoints via the App, in the display "Hotwater"	
	Check the controller setting	Check setpoints via the App, in the display "Hot water"	
	Waiting time for hot water is too long	Check the pump setting in the central heating system	Pump setting: Constant pressure
The temperature setting in the controller is too low		Increase the temperature setting via the App in the display "Supply" or in the line	
Noise generation			
Noise generated in the station	Insulation is not closed or not present	Fully close the insulation cover	
Heating function			
Heating system does not heat up	General		
	Supply temperature too low at the heat source	Check the supply temperature at the heat source	
	Volumetric flow rate is too low	Check the fittings in the device	
	Check the heat meter type	The heat meter type must be Qn 1.5	
	Check the pump setting	Pump setting: Constant pressure	
	Air trapped in buffer storage	Vent the buffer storage tank	
	Air in the system	Vent the system	
	Setting for room thermostat is not correct	Check the setting at the room thermostat	
	Strainer is dirty	Clean the strainer	
	Check the controller setting	Check the setpoints via the App, in the display "Heating"	
	Heating system does not heat up	Underfloor heating controlled by setpoint values	
		Pump not connected	Check the pump connection
		Strainer is dirty	Clean the strainer
Pump setting is not correct		Check the pump setting	
Setpoint is not correct		Check the setpoints via the App, in the display "Heating"	
Underfloor heating, weather compensated			
Controller setting is not correct		Check the setting via the App, in the display "Heating"	
Outdoor sensor faulty		Replace the outdoor sensor	

Fault description	Cause	Solution
No hot water and no heating	Pump not connected	Check the pump connection
	Ball valves/locking devices closed	Open locking devices
	Controller is not working	Check if the check valve is installed in the circulation line (when the circulation set is installed)
	Central heating circuit pump not working	Check that the central heating circuit pump is working and correctly set
	Central strainer is dirty	Clean the central strainer
	Heating system is not working correctly	Check the heating system
	Buffer storage tank is not filled	Check the buffer storage tank filling

10.2 App alarms

Alarms occurring in the Combi Port E app are described directly in the app instead of in this installation and operation manual.

11 Technical data

11.1 Technical specifications

Combi Port E	Value
Medium	Heating water according to VDI 2035
Operating temperature	5-85 °C
Max. operating pressure	10 bar
Max. primary differential pressure	1.2 bar

Combi Port E controller	Value
Operating voltage	230 V AC, 50 Hz
Power consumption	1 W
Safety	T 2 A, 250 V
Ambient temperature	-10 °C ... +40 °C (max.)
Protection code	IP 42
Pump/relay output	230 V AC, 200 W (max.)
Valve output	See table below

Material	Value
Fittings, sanitary	CW617N
Fittings, heating	CW617N, CW614N
Seals	according to DVGW KTW, W270
Turbine	POM with KTW approval
Insulation	EPP
Plate heat exchanger	1.4404
Soldering	copper, vacinox
Pipes	1.4404

Uponor Vario S manifold	Value
Medium	Heating water according to VDI 2035
Operating temperature	5-60 °C
Operating pressure	6 bar

Grundfos pump UMP3	Value
Medium	Heating water according to VDI 2035
Operating temperature	5-60 °C
Operating pressure	10 bar
Connection	DN 15 (G1")
Power connection	230 V, 50/60 Hz
Electrical current, max.	0.44 A

11.2 Electrical connection controller


Electrical net connection, 230 V AC

Contacts	Description	Marking
L (X1)	Phase	Black/Brown Net
N	Neutral	Blue Net
PE	Protective conductor	Green/Yellow Net

Relay outputs, max 230 V AC, 200 W


Contacts	Description	Marking
L2 (X3)	Phase	Black/Brown Circulation pump
N	Neutral	Blue Circulation pump
PE	Protective conductor	Green/Yellow Circulation pump
L3 (X4)	Phase	Black/Brown Heating pump 1
N	Neutral	Blue Heating pump 1
PE	Protective conductor	Green/Yellow Heating pump 1

DC valve outputs for motor valves

Note	
	Only suitable for connecting motor valves.

Contacts	Description	Marking
V1 (X27)	Control signal	Red Valve cold water
	Control signal	Black Valve cold water
V2 (X28)	Control signal	Red Valve heating 1
	Control signal	Black Valve heating 1

Temperature sensor input

Note	
	Room thermostat and/or outdoor temperature sensor must be connected to a 2-pin connector on site.

Contacts	Description	Marking
⊥	Earthing on site for T1-T10	
T1 (X15)	Measurement signal	Domestic hot water
T2 (X16)	Measurement signal	Heating supply (primary)
T3 (X17)	Measurement signal	Heating supply (secondary)
T4 (X18)	Measurement signal	Heating return (secondary)
T7 (X22)	Measurement signal	Cold water
T8 (X21)	Measurement signal	Heating return (primary)
T9 (X23)	Measurement signal	Room thermostat
T10 (X24)	Measurement signal	Outdoor temperature sensor


Flow sensor input



Contacts	Description	Marking
I1 (X22)	Impulse signal	Cold water from riser (CW) (Flow sensor)
⊥	Earthing on site for I1	—
+	Supply for I1	—
I2 (X21)	Impulse signal	Heating return (primary) (Flow sensor)
⊥	Earthing on site for I2	—
+	Supply for I2	—

External On/Off

Contacts	Description	Marking
(X6)		Room thermostat for heating
(X7)		Safety temperature monitor (STW)

RS485 interface

Note	
	It is possible to read current measured values, controller - and output states with an external device (e.g. PC) and to change the setting values.

Contacts	Description	Marking
 (X13)	Earthing on site	RS485 for Modbus/terminal
	Earthing on site	RS485 for Modbus/terminal
B	B signal	RS485 for Modbus/terminal
A	A signal	RS485 for Modbus/terminal

11.3 Data output

Current measured values, controller status and output states can be read and value settings changed in an external device, e.g. computer.

RS485 interface (4-pin terminal X14)

- For terminal output or Modbus RTU communication.

Modbus RTU

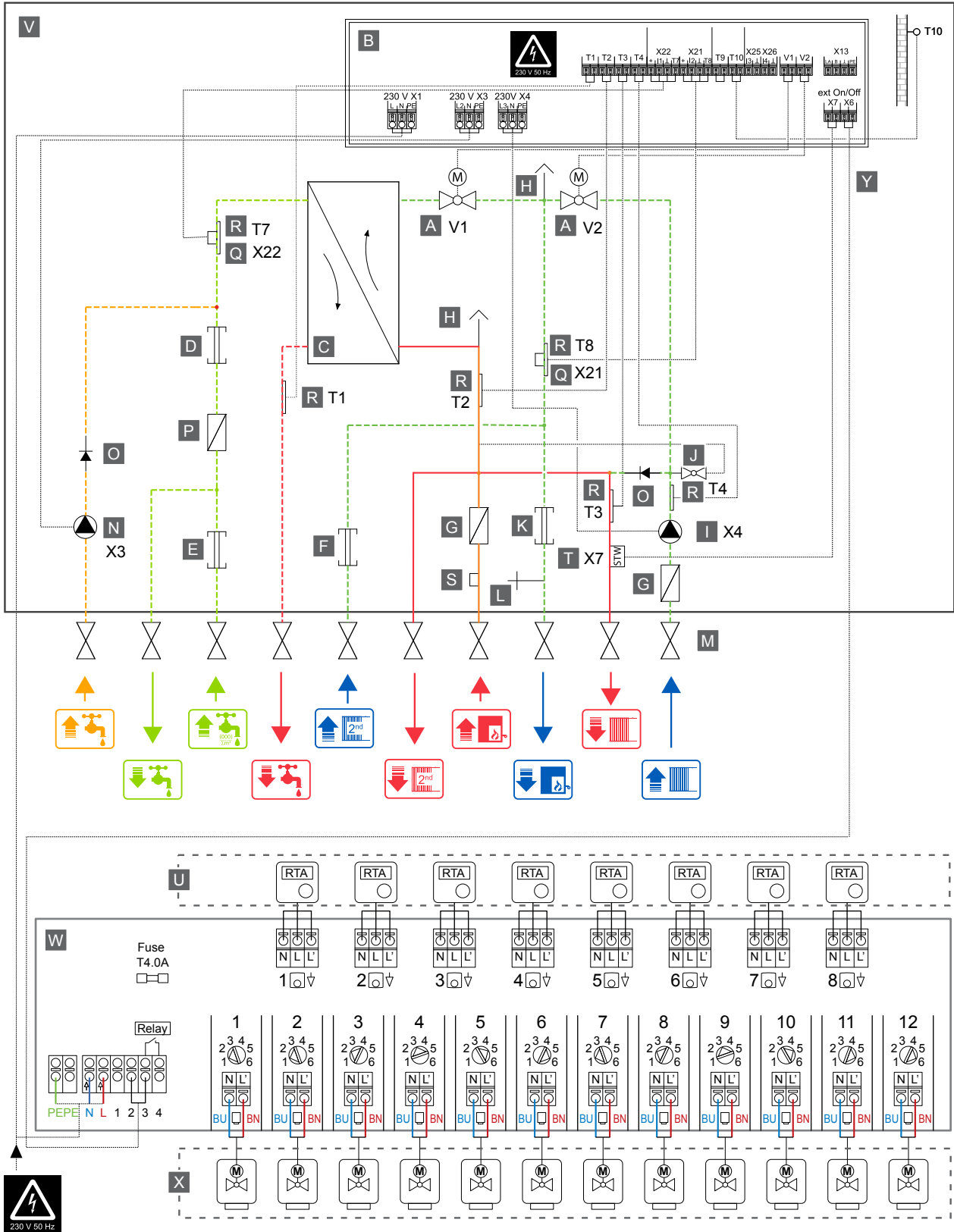
- For data output and possibility to change setting values.
- For communication, a Modbus RTU master program (download, for example "Modbus Poll") is required.
- SETUP value "Address" must be set to "1 ... 253".

Transfer settings

Description	Value
Transmission rate	19200 bit/s
Data bits	8
Parity	No
Stop bits	1
Protocol	No protocol
Address	1 ... 253 (for Modbus)

11.4 Wiring diagrams

Combi Port E with Uponor Base flexboard



W0000077

Description of wiring diagram

Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, ball valve
N	Circulation pump (optional)
O	Backflow preventer
P	Insert strainer
Q	Flow sensor
R	Contact sensor
S	Sensor pocket heat meter
T	Safety temperature monitor
U	Room thermostat RTA
V	EPP cover
W	Uponor Base flexiboard controller
X	Zone valve for limiting heating flow to apartment
Y	Potential free heat circuit distributor cable (optional)

Description of connection symbols

For description of the connection symbols, see *Connection description, Page 7*.

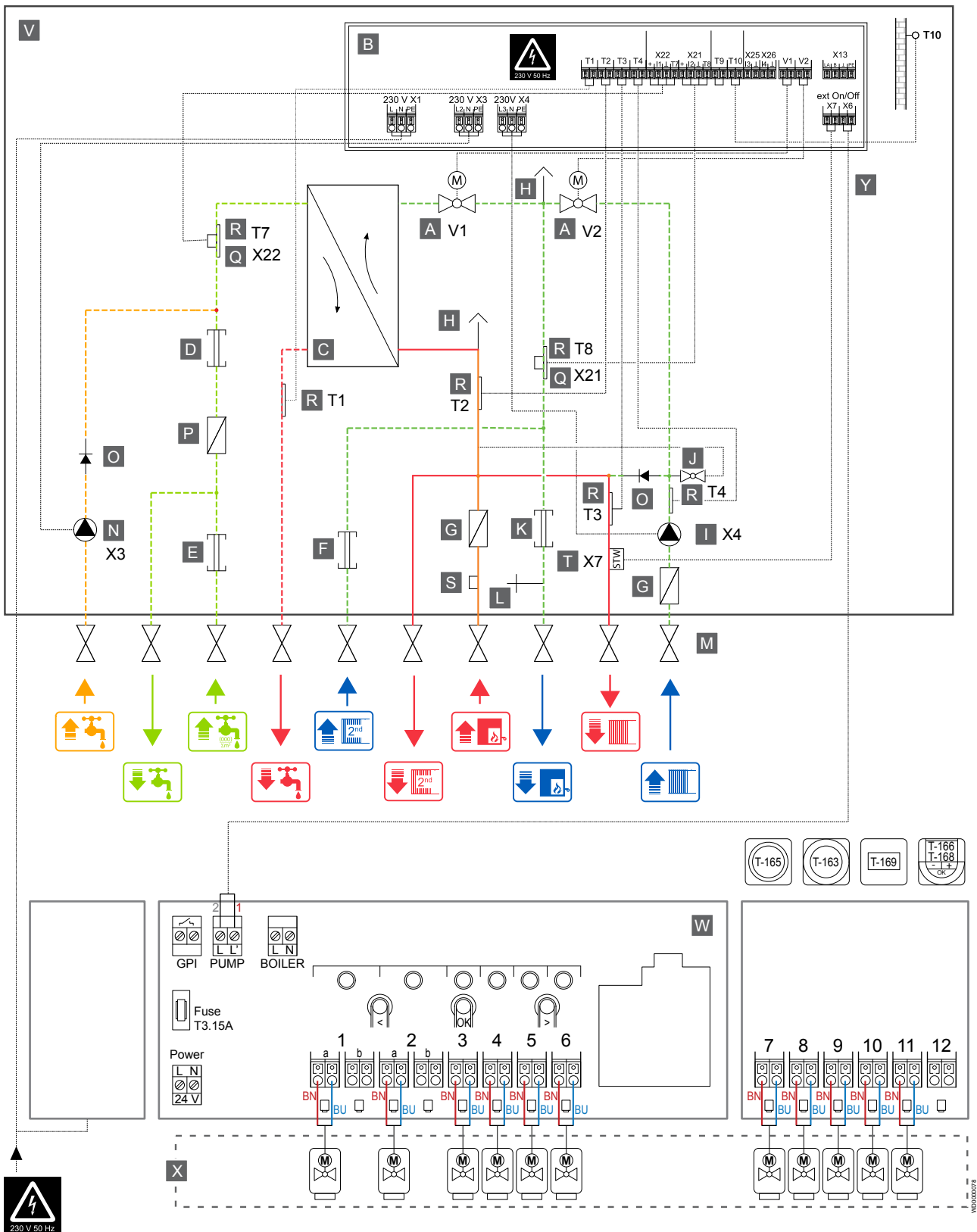
Flow sensors

Contact	Description	Colour cable tie
X21	Heating return (primary)	Blue
X22	Cold water from riser (CW)	Green
X25	(optional)	
X26	(optional)	

Temperature sensors

Contact	Description	Colour cable tie
T1	Domestic hot water	Red
T2	Heating supply (primary)	Orange
T3	Heating supply (secondary)	Yellow
T4	Heating return (secondary)	Black
T7	Cold water from riser (CW)	Green
T8	Heating return (primary)	Blue
T9	Room temperature sensor (optional)	
T10	Outdoor temperature sensor	

Combi Port E with Uponor Smatrix Wave Pulse



Description of wiring diagram

Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, ball valve
N	Circulation pump (optional)
O	Backflow preventer
P	Insert strainer
Q	Flow sensor
R	Contact sensor
S	Sensor pocket heat meter
T	Safety temperature monitor
U	Uponor Smatrix room thermostats (wireless)
V	EPP cover
W	Uponor Smatrix Wave Pulse room controller
X	Zone valve for limiting heating flow to apartment
Y	Potential free heat circuit distributor cable (optional)

Description of connection symbols

For description of the connection symbols, see *Connection description, Page 7*.

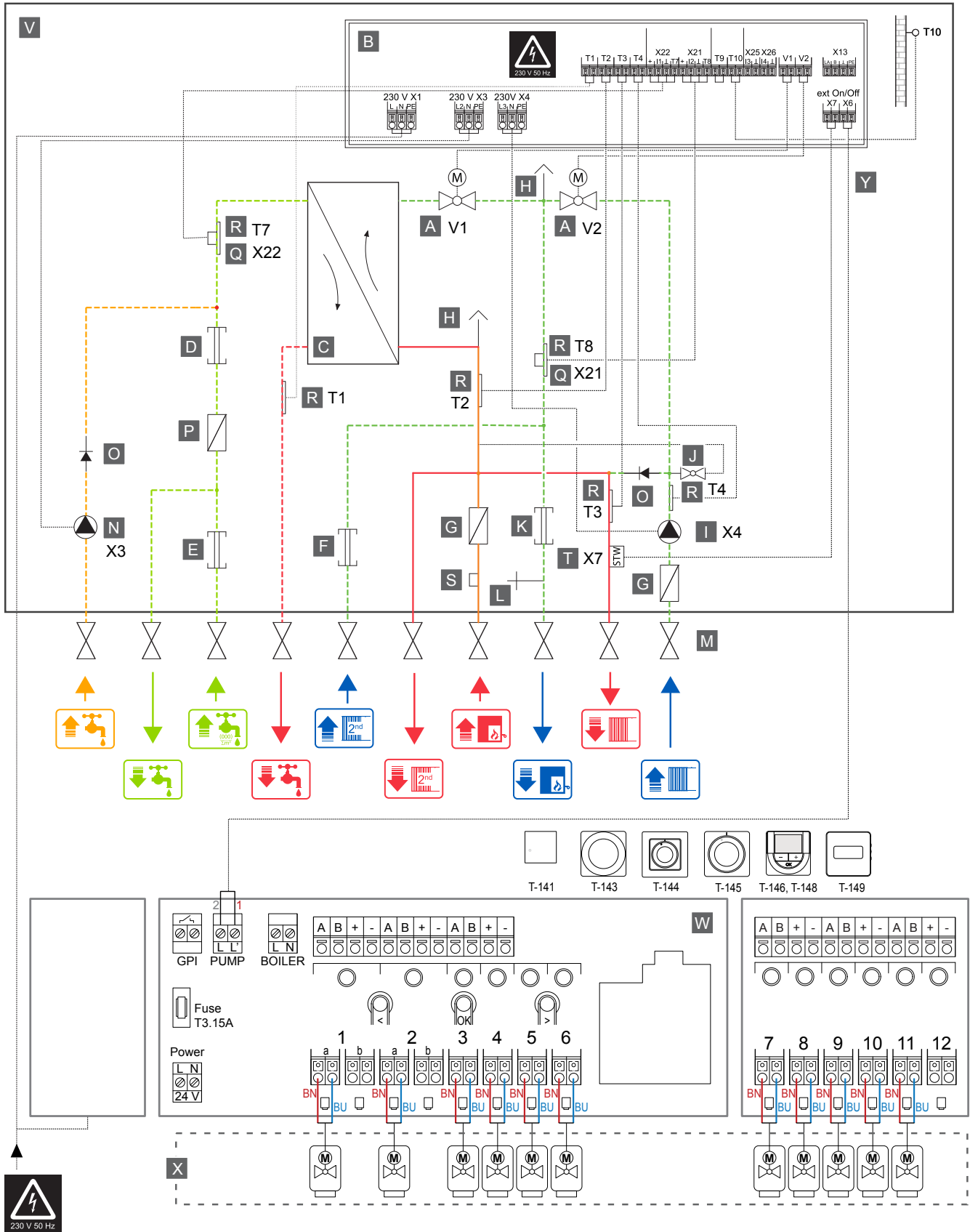
Flow sensors

Contact	Description	Colour cable tie
X21	Heating return (primary)	Blue
X22	Cold water from riser (CW)	Green
X25	(optional)	
X26	(optional)	

Temperature sensors

Contact	Description	Colour cable tie
T1	Domestic hot water	Red
T2	Heating supply (primary)	Orange
T3	Heating supply (secondary)	Yellow
T4	Heating return (secondary)	Black
T7	Cold water from riser (CW)	Green
T8	Heating return (primary)	Blue
T9	Room temperature sensor (optional)	
T10	Outdoor temperature sensor	

Combi Port E with Uponor Smatrix Base Pulse



W09000313

Description of wiring diagram

Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, ball valve
N	Circulation pump (optional)
O	Backflow preventer
P	Insert strainer
Q	Flow sensor
R	Contact sensor
S	Sensor pocket heat meter
T	Safety temperature monitor
U	Uponor Smatrix room thermostats (wireless)
V	EPP cover
W	Uponor Smatrix Base Pulse room controller
X	Zone valve for limiting heating flow to apartment
Y	Potential free heat circuit distributor cable (optional)

Description of connection symbols

For description of the connection symbols, see *Connection description, Page 7*.

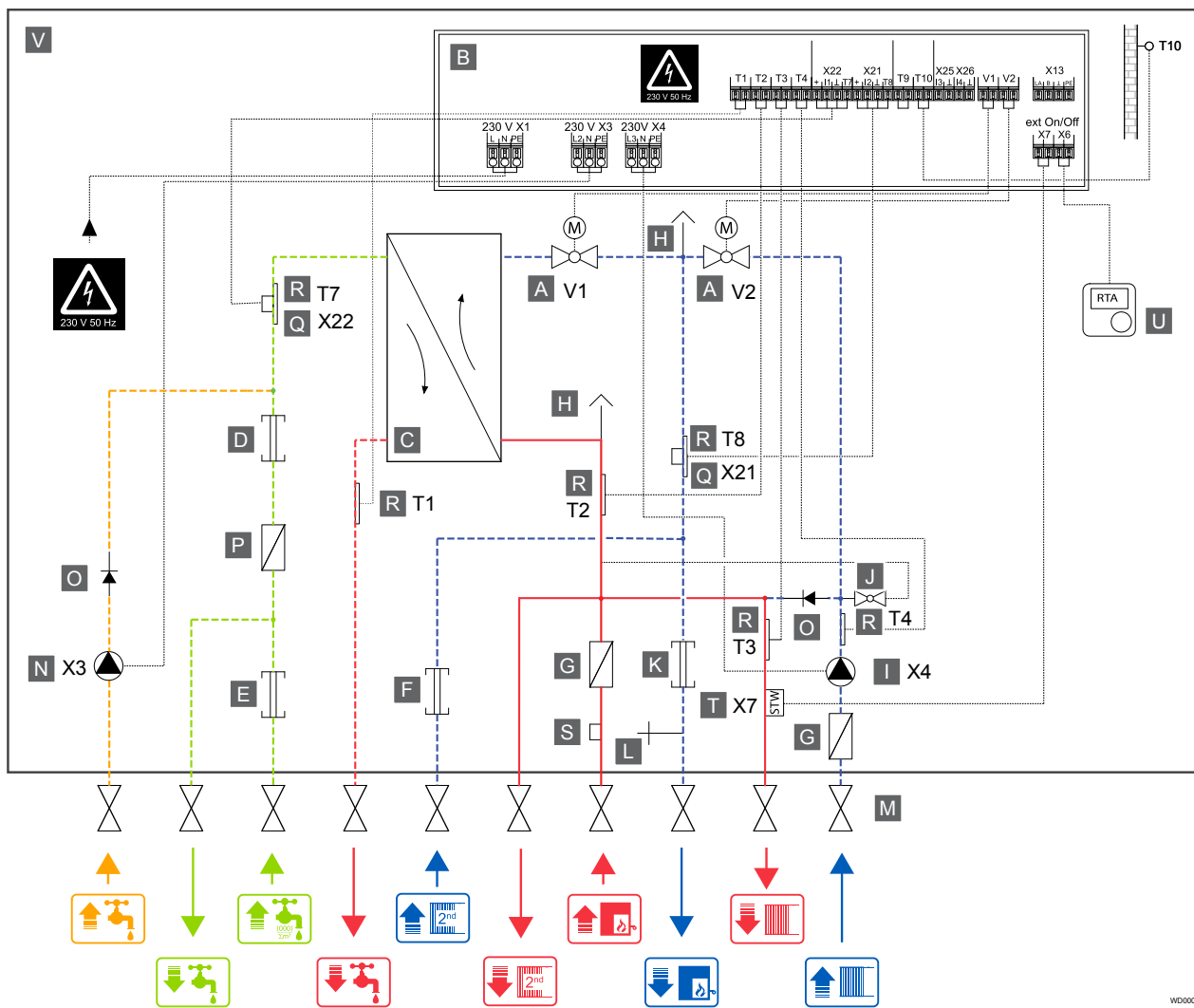
Flow sensors

Contact	Description	Colour cable tie
X21	Heating return (primary)	Blue
X22	Cold water from riser (CW)	Green
X25	(optional)	
X26	(optional)	

Temperature sensors

Contact	Description	Colour cable tie
T1	Domestic hot water	Red
T2	Heating supply (primary)	Orange
T3	Heating supply (secondary)	Yellow
T4	Heating return (secondary)	Black
T7	Cold water from riser (CW)	Green
T8	Heating return (primary)	Blue
T9	Room temperature sensor (optional)	
T10	Outdoor temperature sensor	

Combi Port E with single room thermostat



WD0000079

Description of wiring diagram

Item	Description
A	Motor valve
B	Combi Port E controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RTB) or differential pressure regulator
G	Strainer
H	Venting screw
I	Pump
J	Bypass valve
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, ball valve
N	Circulation pump (optional)
O	Backflow preventer
P	Insert strainer
Q	Flow sensor
R	Contact sensor

Item	Description
S	Sensor pocket heat meter
T	Safety temperature monitor
U	Room thermostat RTA
V	EPP cover

Description of connection symbols

For description of the connection symbols, see *Connection description, Page 7*.

Flow sensors

Contact	Description	Colour cable tie
X21	Heating return (primary)	Blue
X22	Cold water from riser (CW)	Green
X25	(optional)	
X26	(optional)	

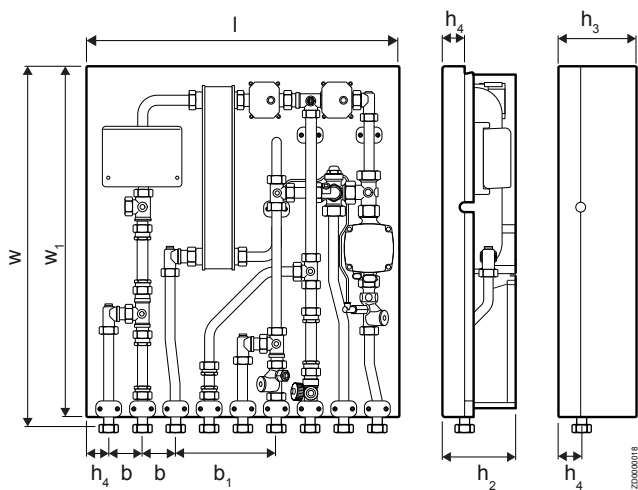
Temperature sensors

Contact	Description	Colour cable tie
T1	Domestic hot water	Red
T2	Heating supply (primary)	Orange
T3	Heating supply (secondary)	Yellow
T4	Heating return (secondary)	Black
T7	Cold water from riser (CW)	Green
T8	Heating return (primary)	Blue
T9	Room temperature sensor (optional)	
T10	Outdoor temperature sensor	

11.5 Dimensional drawings

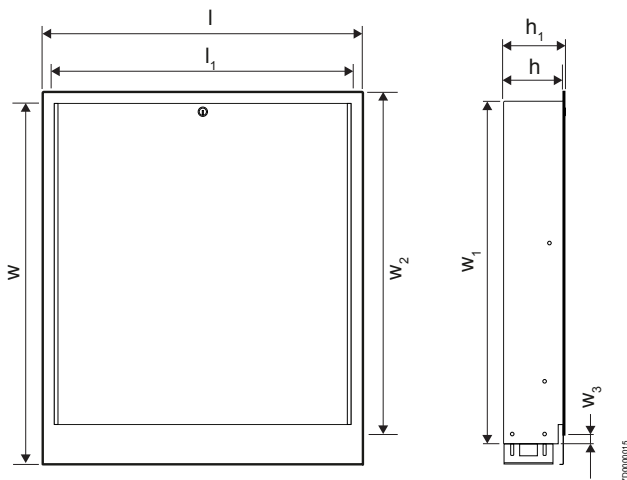
All dimensions are given in mm.

Combi Port E



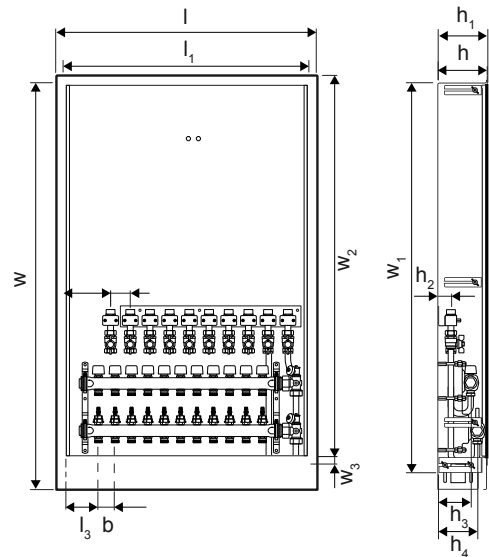
l	w	w ₁	h ₂	h ₃	h ₄	b	b ₁
560	648	630	132	140	40	60	180

In-wall cabinet 750 x 850



l	l ₁	w	w ₁	w ₂	w ₃	h	h ₁
795	750	901.5	850	849.5	22.85	150	151.5

In-wall cabinet 750 x 1200

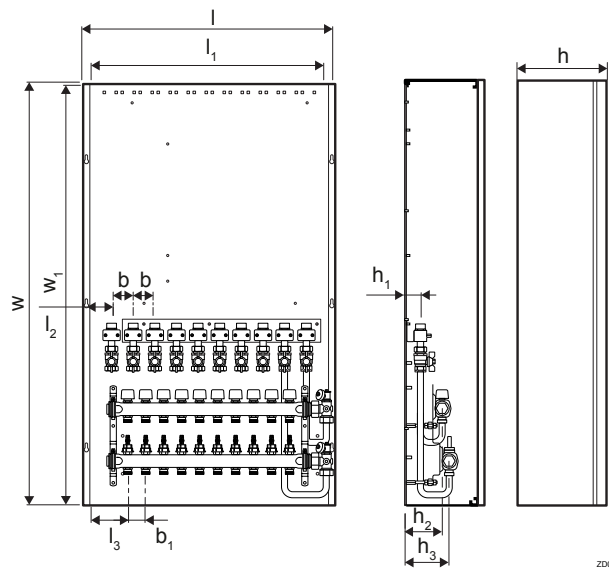


ZD0000017

l	l ₁	l ₂	l ₃	w	w ₁	w ₂	w ₃
795	750	144	105	1242	1190	1189.5	22.85

h	h ₁	h ₂	h ₃	h ₄	b	b ₁
150	151.5	40	100	120	50	60

On-wall cabinet

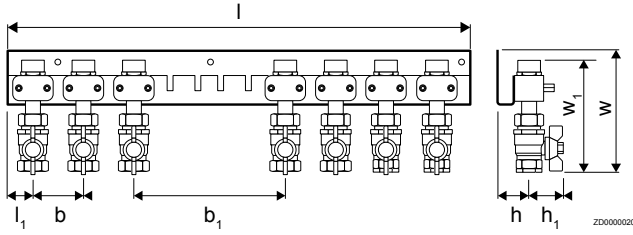


ZD0000016

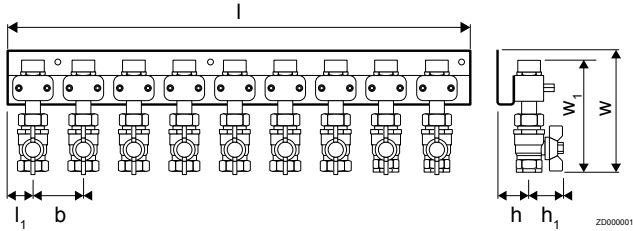
l	l ₁	l ₂	l ₃	w	w ₁
754	699	79	113	1150	1170

h	h ₁	h ₂	h ₃	b	b ₁
247	40	105	125	60	50

Rails with ball valves



l	l ₁	w	w ₁	h	h ₁	b	b ₁
550	30	144	131	40	83	60	180

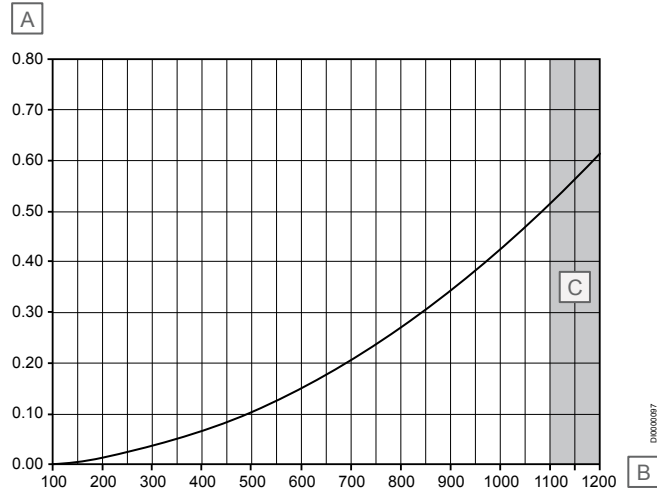


l	l ₁	w	w ₁	h	h ₁	b
550	30	144	131	40	83	60

11.6 Performance curves

Pressure losses with heat exchanger 24 plates

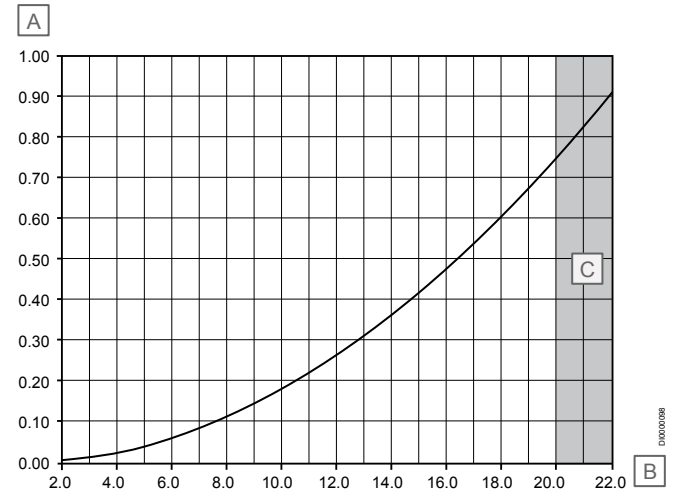
Heating side (primary)



Item	Description
A	Pressure loss in bar
B	Primary heating demand in litres/hour (l/h)
C	Max range

Pressure losses including ball valve. Additional pressure losses, e.g. heatmeter with $Q_n 1.5$ of approximately **0.05 bar** and other internal/external fixtures must be included.

Domestic hot water side (secondary)

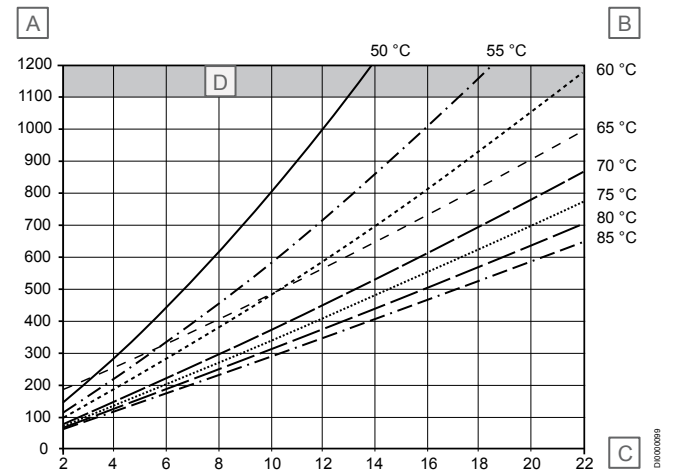


Item	Description
A	Pressure loss in bar
B	Tapping capacity in litres/minute (l/min)
C	Max range

Additional pressure losses of other external fixtures at drinking water must be included.

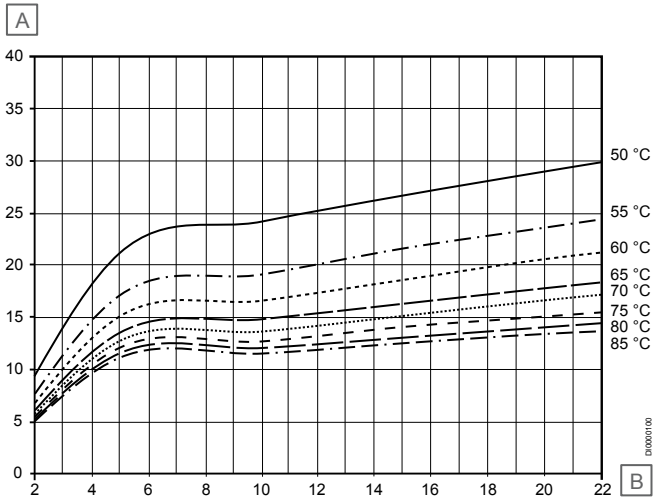
Primary heating demand and return temperatures with heat exchanger 24 plates

Cold water warming 35 K (10-45 °C)



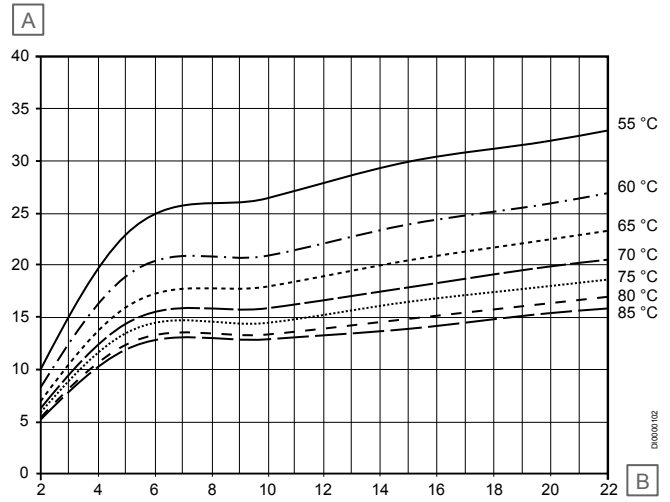
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



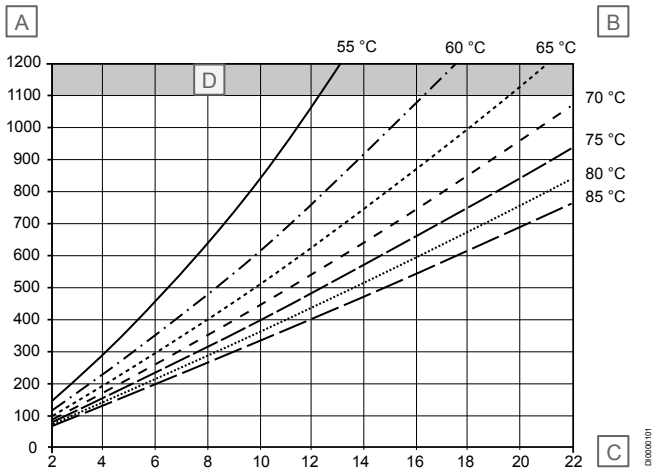
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Tapping capacity



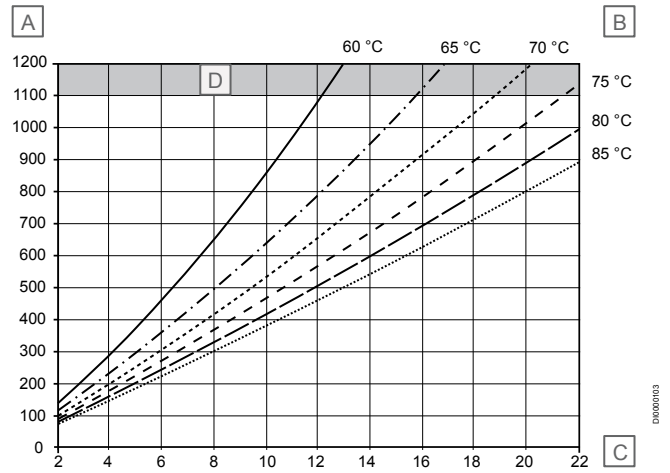
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 40 K (10-50 °C)



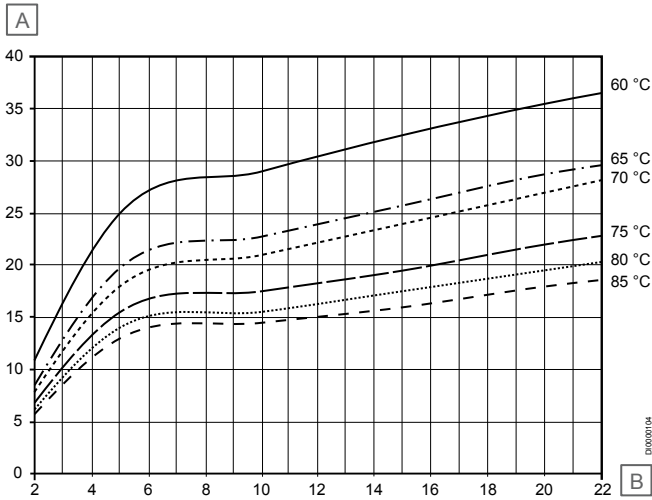
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Cold water warming 45 K (10-55 °C)



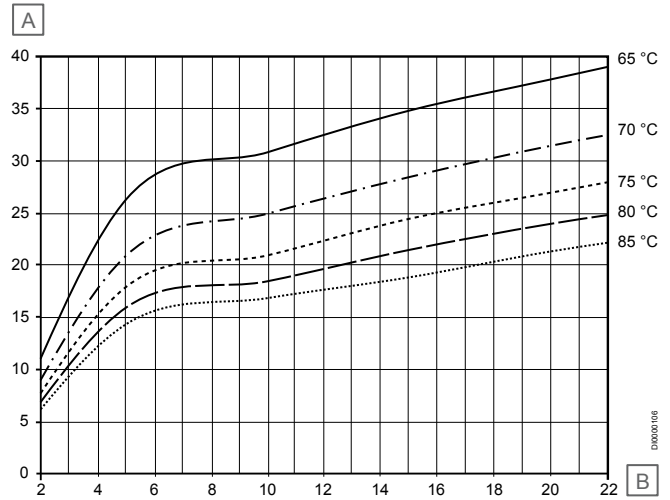
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



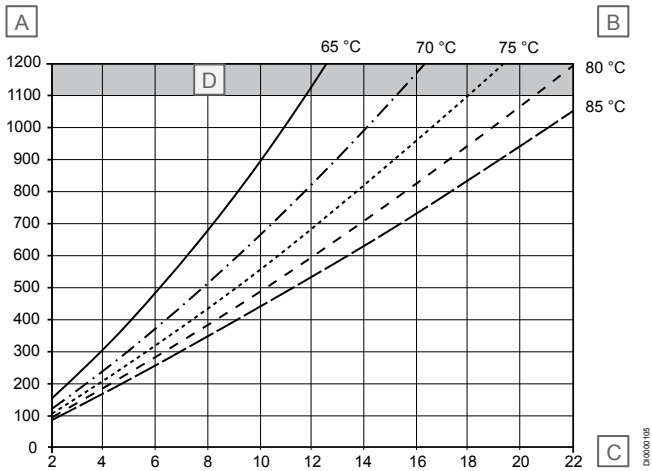
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Tapping capacity



Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

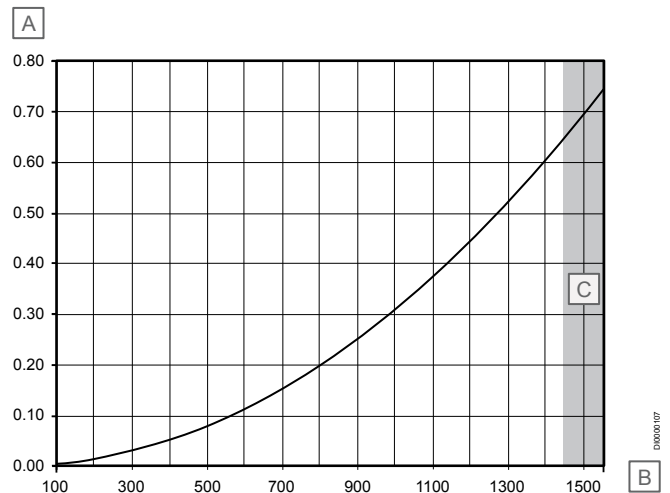
Cold water warming 50 K (10-60 °C)



Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Pressure losses with heat exchanger 40 plates

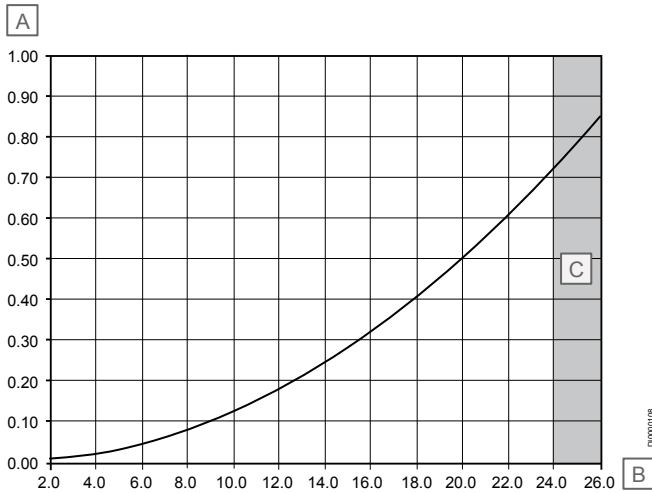
Heating side (primary)



Item	Description
A	Pressure loss in bar
B	Primary heating demand in litres/hour (l/h)
C	Max range

Pressure losses including ball valves. Additional pressure losses, e.g. heatmeter with $Q_n 1.5$ of approximately **0.05 bar** and other internal/external fixtures must be included.

Domestic hot water side (secondary)

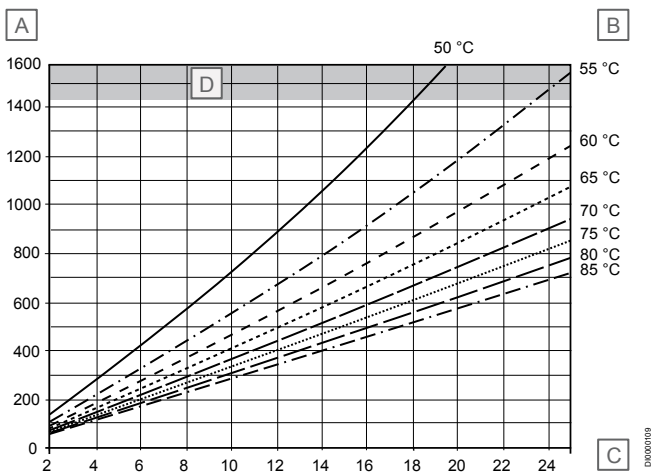


Item	Description
A	Pressure loss in bar
B	Tapping capacity in litres/minute (l/min)
C	Max range

Additional pressure losses of other external fixtures at drinking water must be included.

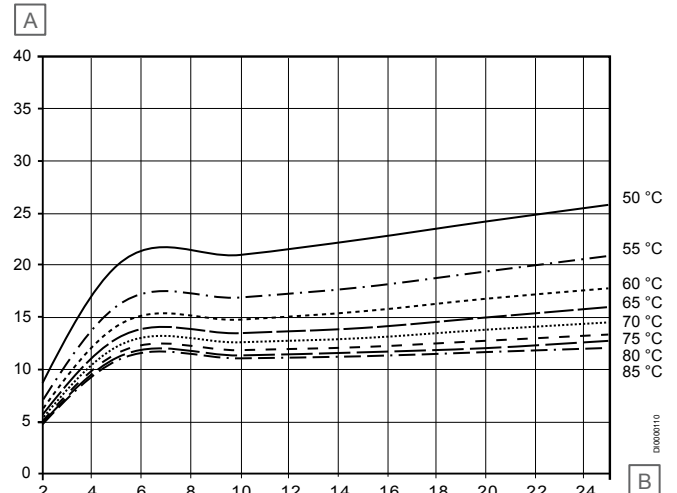
Primary heating demand and return temperatures with heat exchanger 40 plates

Cold water warming 35 K (10-45 °C)



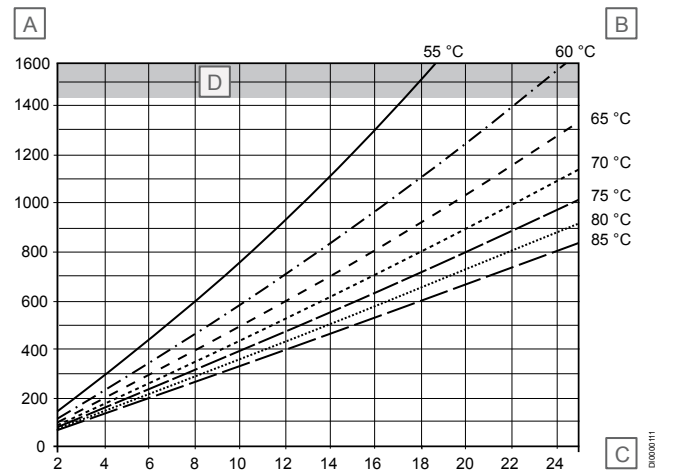
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



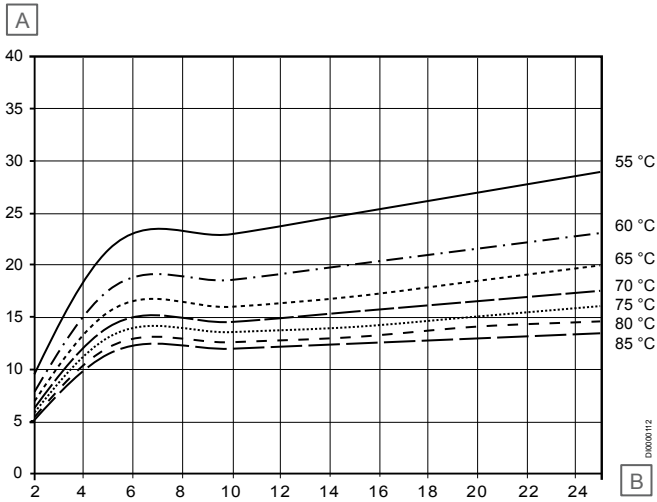
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 40 K (10-50 °C)



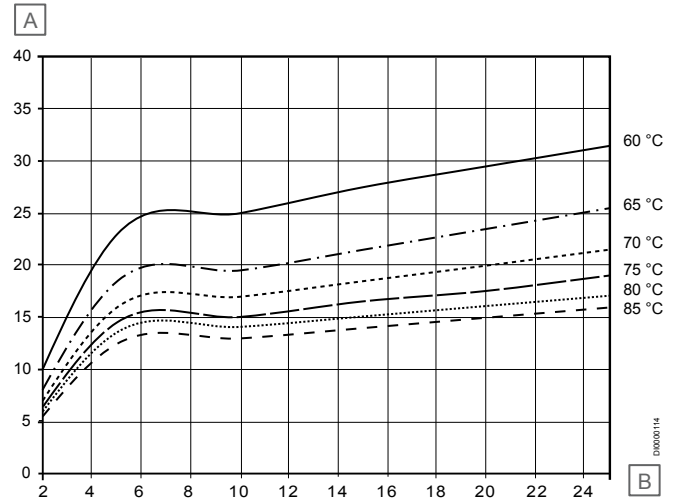
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



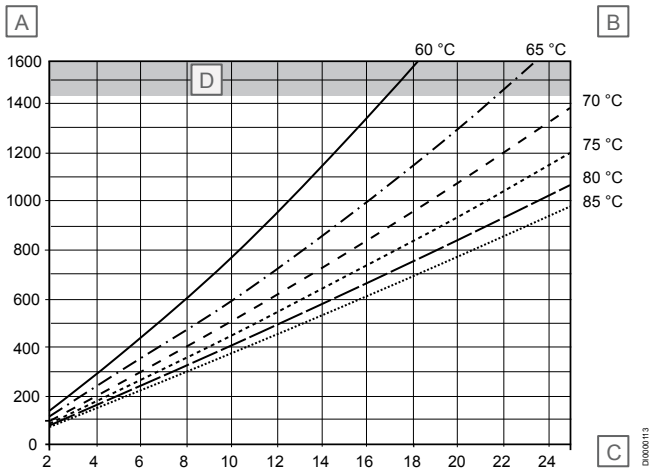
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Tapping capacity



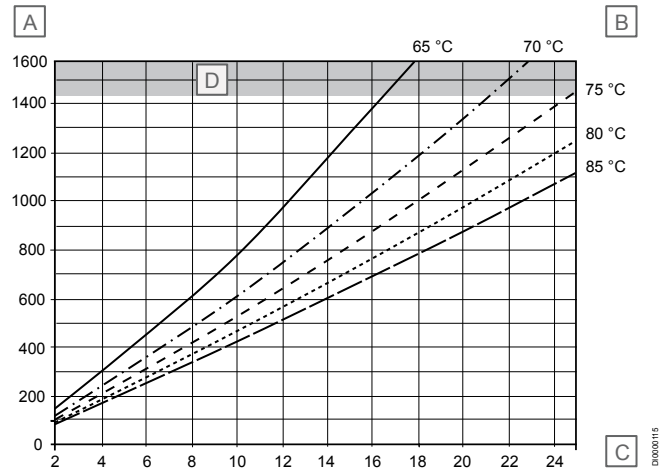
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 45 K (10-55 °C)



Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

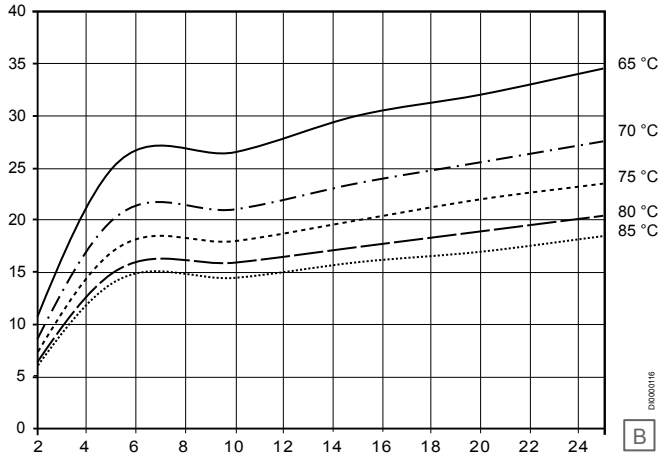
Cold water warming 50 K (10-60 °C)



Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity

A



B

Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)



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Production: Uponor/ELO

Uponor reserves the right to make changes, without prior notification, to the specification of incorporated components in line with its policy of continuous improvement and development.

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