

Combi Port E-Pro

EN Installation and operation manual

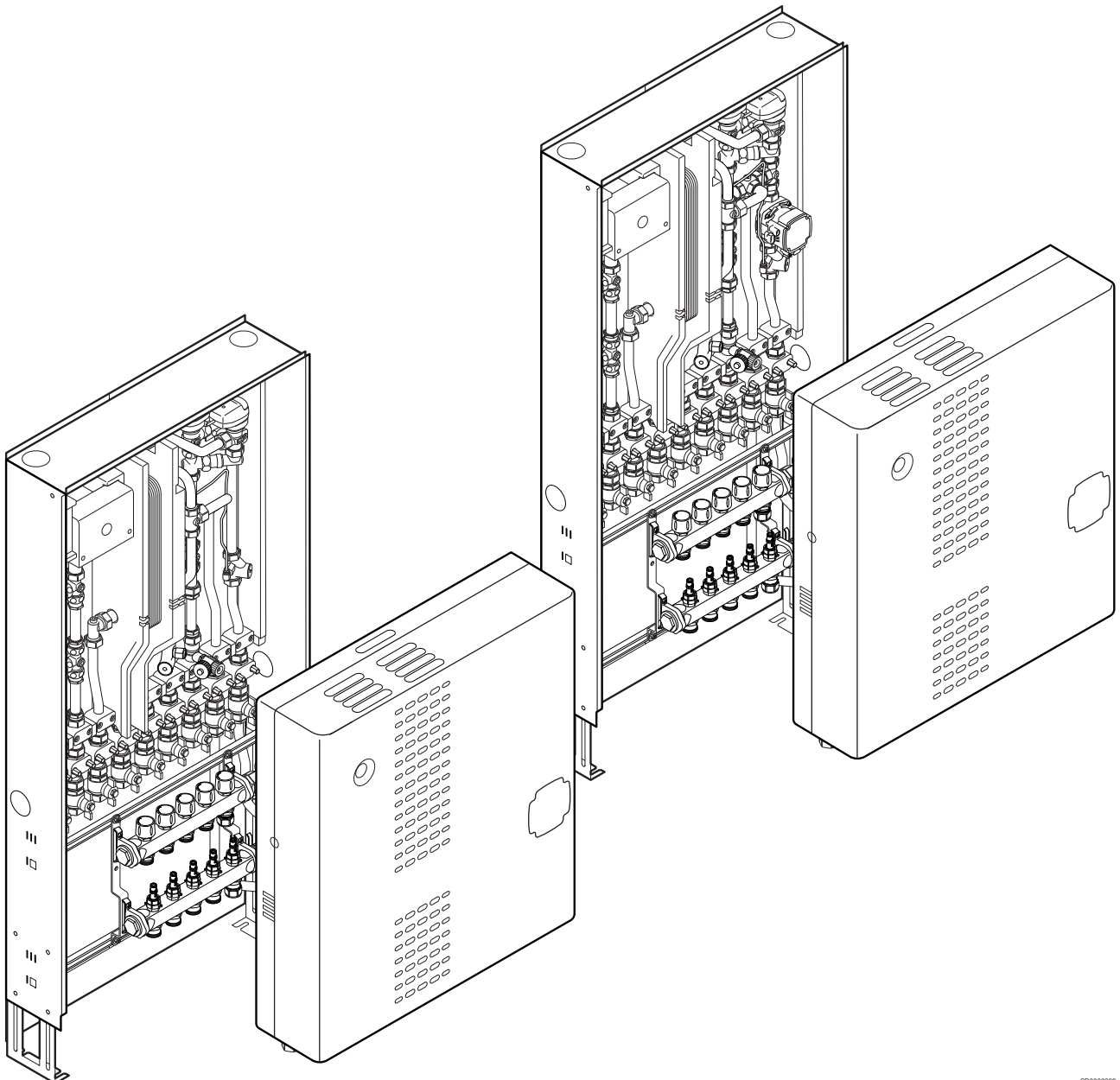


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2 Preface

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


	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

	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! Uponor system power supply: 230 V AC, 50 Hz. 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 data cables away from components bearing power of more than 50 V.
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Safety measures


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

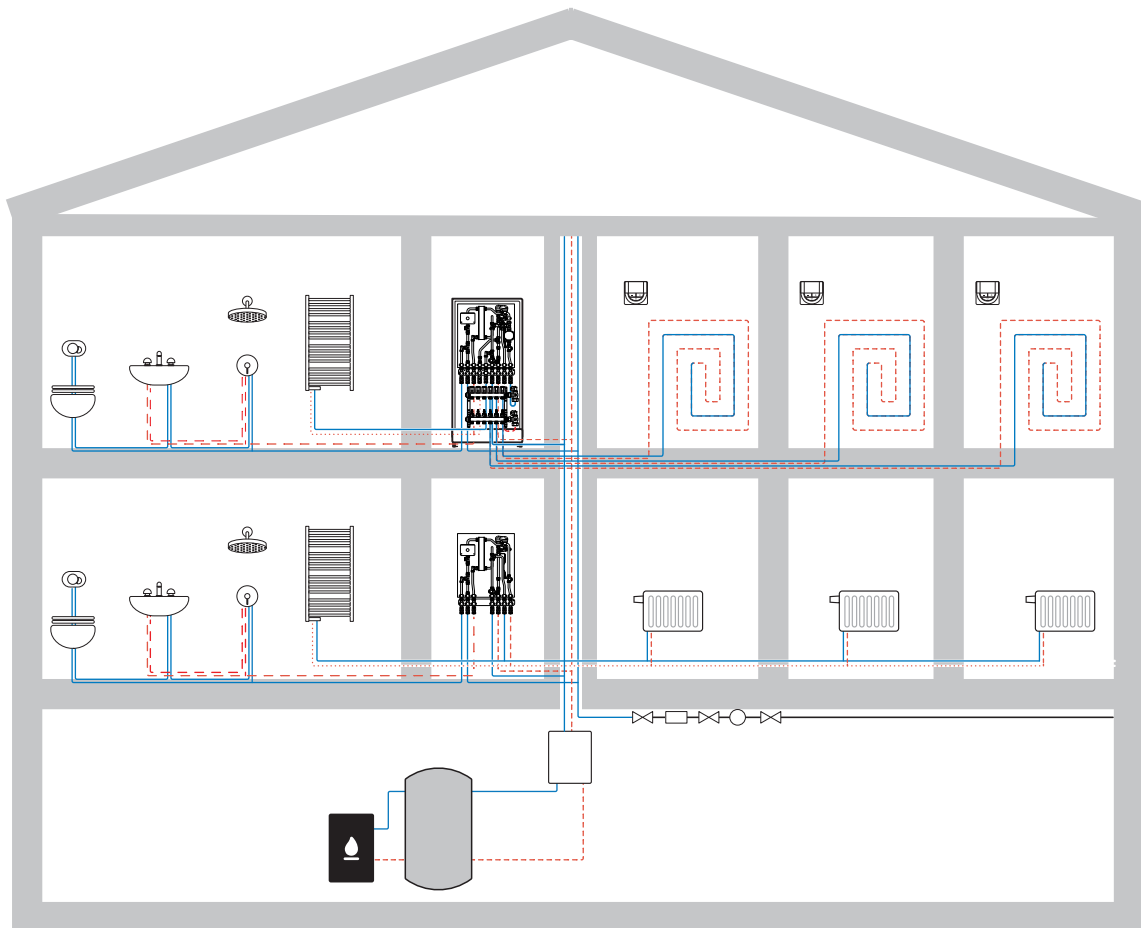
Business users should contact their supplier and check the terms and conditions of the purchase contract. Do not dispose this product with other commercial waste.

3 System description

Uponor Combi Port E-Pro 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, control of the domestic

heating system, measurement of heating energy and water consumption.

3.1 Operating principle



SD0000340

3.2 Functional description

In the Uponor Combi Port E-Pro, 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.

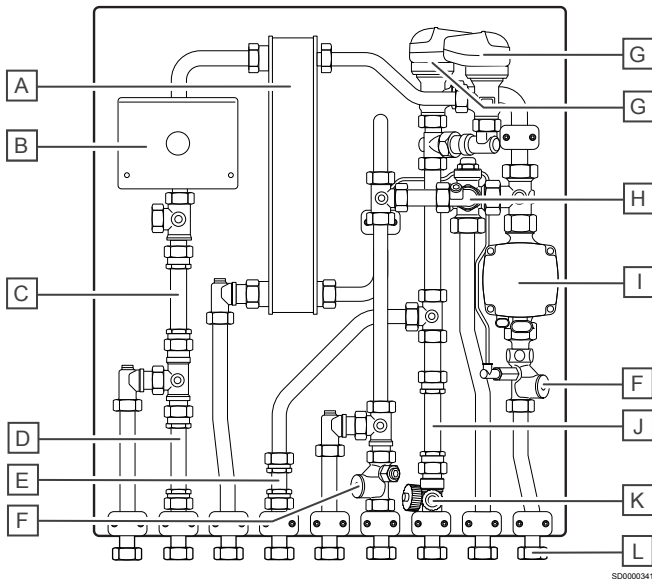
Domestic heating: The Uponor Combi Port E-Pro manages independently the hydraulic balancing between hot water and heating. This is achieved through the integrated regulating valves.

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.

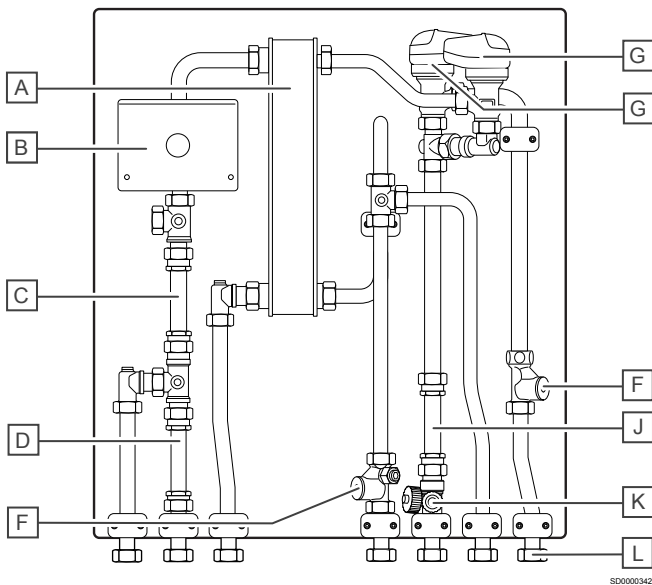
The room temperature control is carried out with either Uponor Smatrix or Uponor Base flexiboard.

3.3 Components

Uponor Combi Port E-Pro UFH



Uponor Combi Port E-Pro RC



Item	Description
A	Plate heat exchanger
B	Controller
C	Hot water meter distance piece
D	Cold water meter distance piece
E	Distance piece for return temperature limiter (RL)
F	Strainer
G	Motor valve
H	Bypass valve / Backflow preventer in the screw connection
I	Pump
J	Heat meter distance piece
K	Draining and filling valve
L	Connection, swivel nut

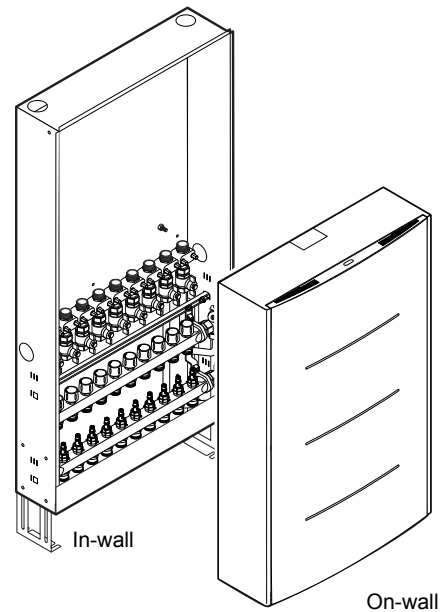
Connection description

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 Uponor Combi Port E-Pro. 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	

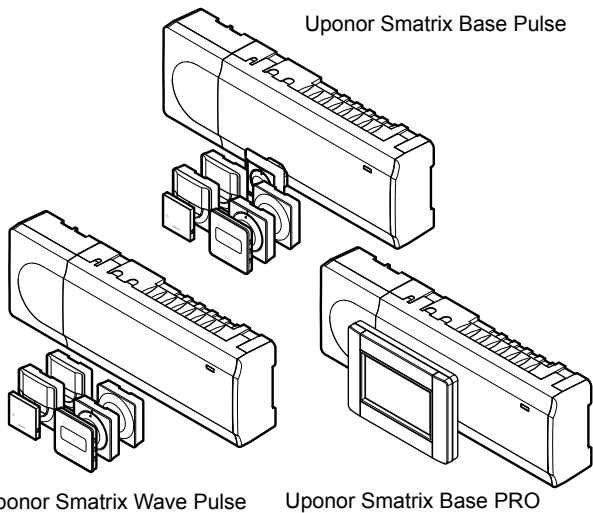
Room temperature control



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

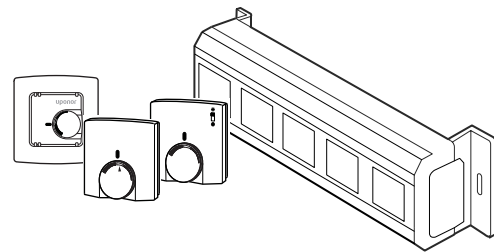
This list shows available functions for the different systems.

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	✓	✓	
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

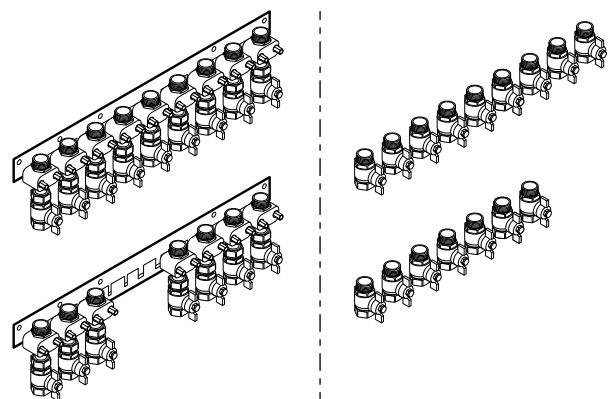
Uponor Base flexiboard



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.

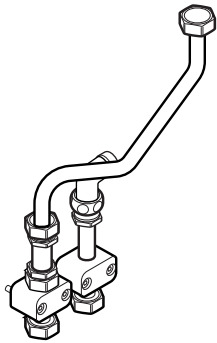
Ball valve sets



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.

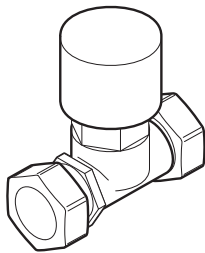
Connection set 2nd heating circuit



CD0000267

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

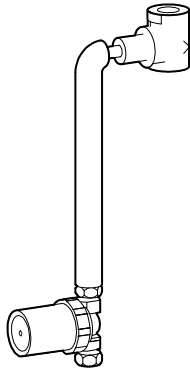
Return temperature limiter (RL)



CD0000754

A return temperature limiter (RL) can be connected on demand. The return temperature limiter has a setting scale printed on the handwheel. It is pre-set at the factory.

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

	<p>Warning!</p> <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>
	<p>Warning!</p> <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>
	<p>Caution!</p> <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 the heat interface unit ensure that:

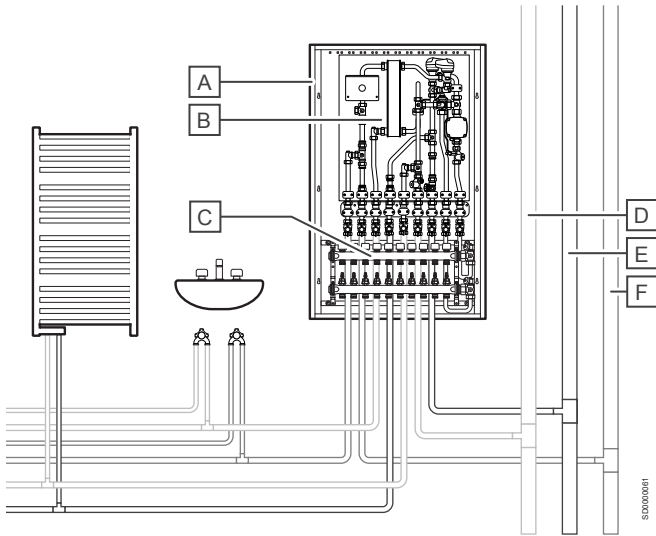
- the primary pipes are laid in the building site.
- the primary pipe installation is flushed and checked for leaks.
- the power and ground cables are routed to the installation site.
- the unit can be installed in a dry and frost-free room with an ambient temperature lower than +40 °C.
- the unit can be installed 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



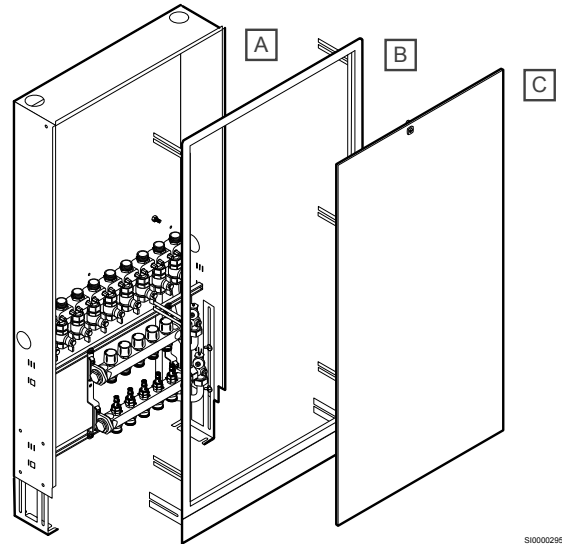
Item	Description
A	In-wall cabinet
B	Heat interface unit
C	Underfloor heating manifold
D	Heating supply (primary)
E	Heating return (primary)
F	Cold water from riser (CW)

The above installation example shows a typical installation with Uponor Combi Port E-Pro 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



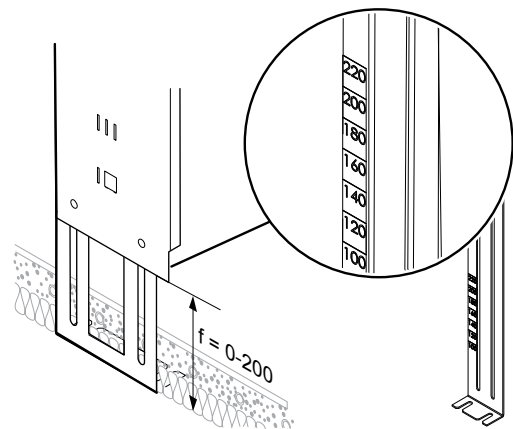
Item	Description
A	Cabinet body
B	Frame
C	Door

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 recess in height and depth.

The recess 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.



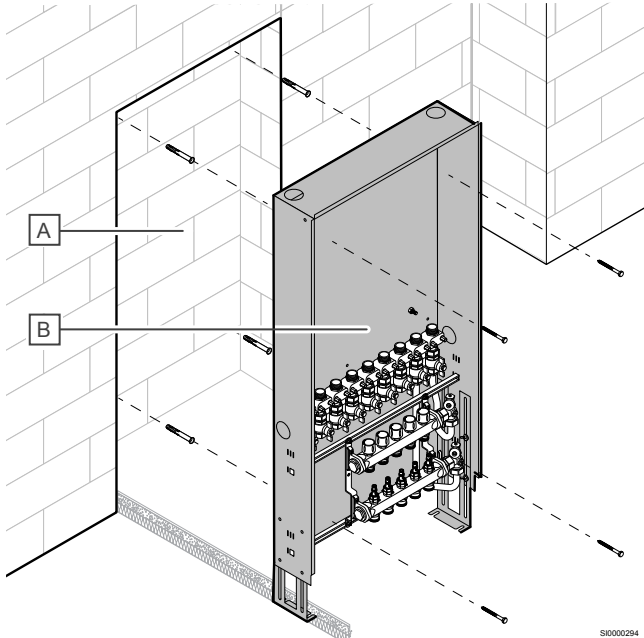
Dimensions of in-wall mounted cabinet (width x height x depth mm)	Recess dimensions in-wall (width x height x depth mm)
750 x 850 x 150	770 x (850 + 30 + f) x 155
750 x 1200 x 150	770 x (1190 + 30 + f) x 155

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.

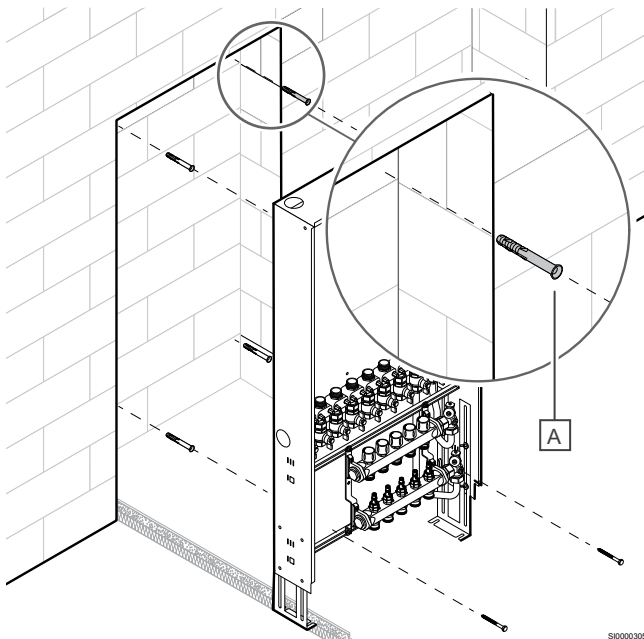
1. Mark the hole positions in the wall recess. Use the in-wall cabinet holes as a pattern.



SI0000294

Item	Description
A	Wall recess
B	In-wall mounted cabinet

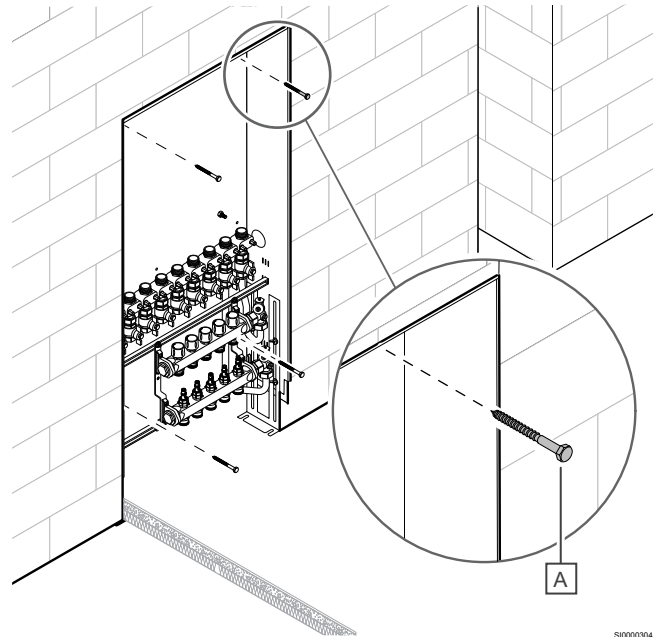
2. Drill holes suitable for the plug.
3. Mount the enclosed plugs in the drilled holes and place the in-wall box in the wall recess.



SI0000305

Item	Description
A	Wall plug (4 pcs)

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



SI0000304

Item	Description
A	Hexagon bolt (4 pcs)

Connecting the primary supply pipes

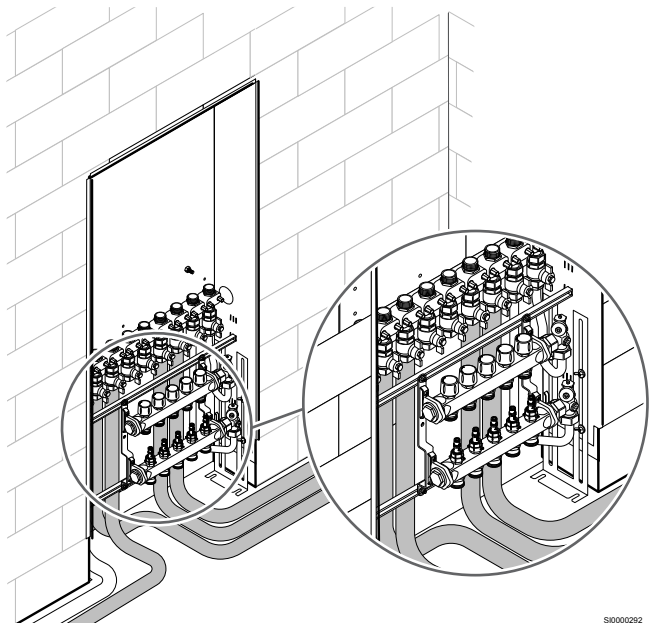
Note

Install the pipes in accordance with the planning documentation.

Note

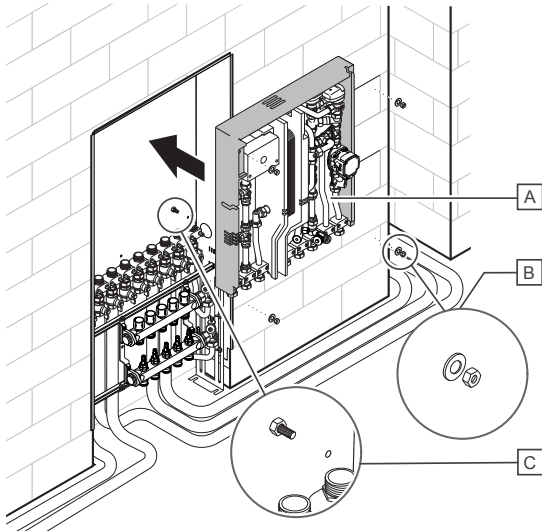
Ensure that pipe insulation and fixing is made in accordance with EnEV.

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



SI0000292

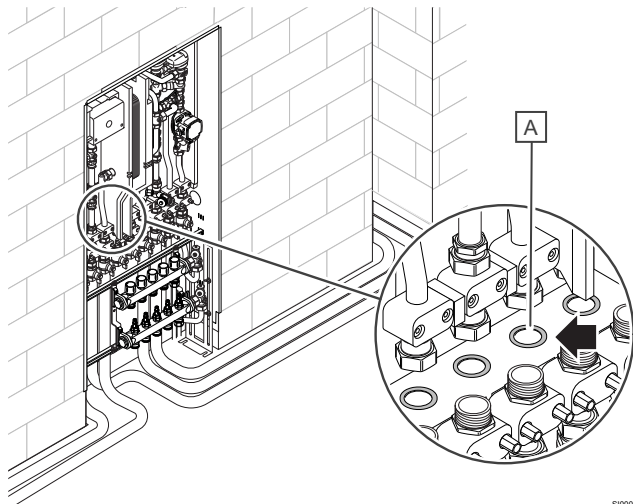
Install the heat interface unit



SI0000291

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.



SI0000296

Item	Description
A	Flat gasket

Note

Check the flat gasket/-s for damage.

4. Tighten the 3/4" swivel nuts.

Connecting the pipes



Note

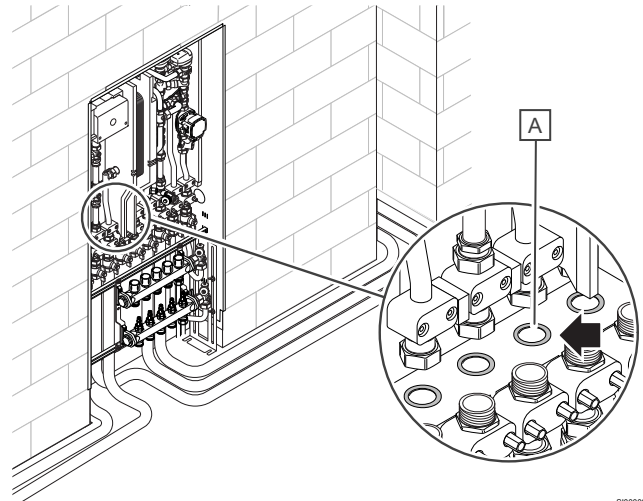
Install the pipes in accordance with the planning documentation.



Note

Ensure the use of supplied seals when connecting the pipes!

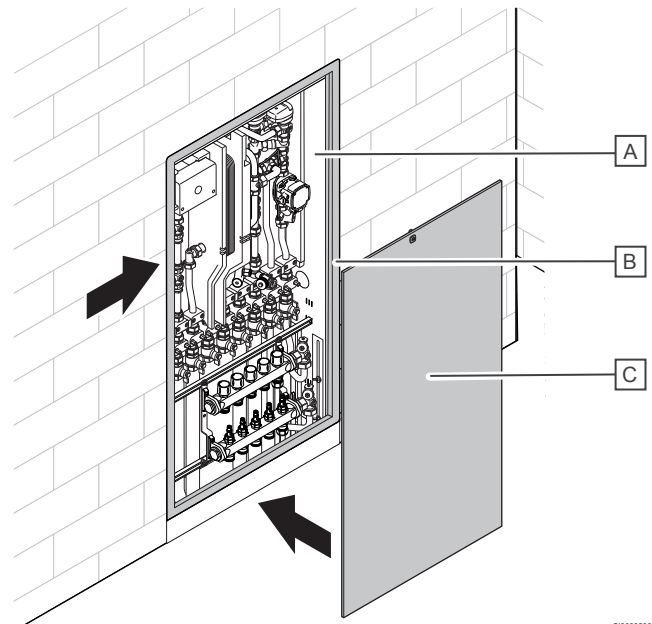
Connect the underfloor heating pipes to the manifold.



SI0000296

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

Install the frame and door to the cabinet



SI0000296

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.

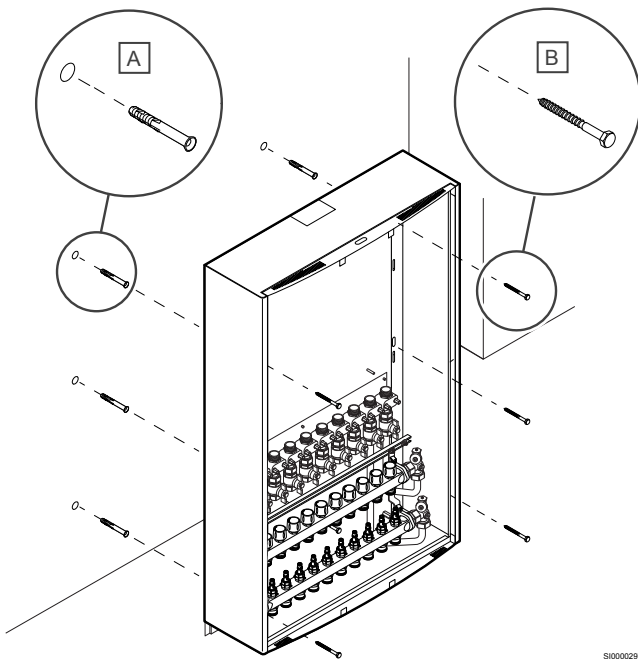
5.3 On-wall installation

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	Wall plug (6 pcs)
B	Hexagon bolt (6 pcs)

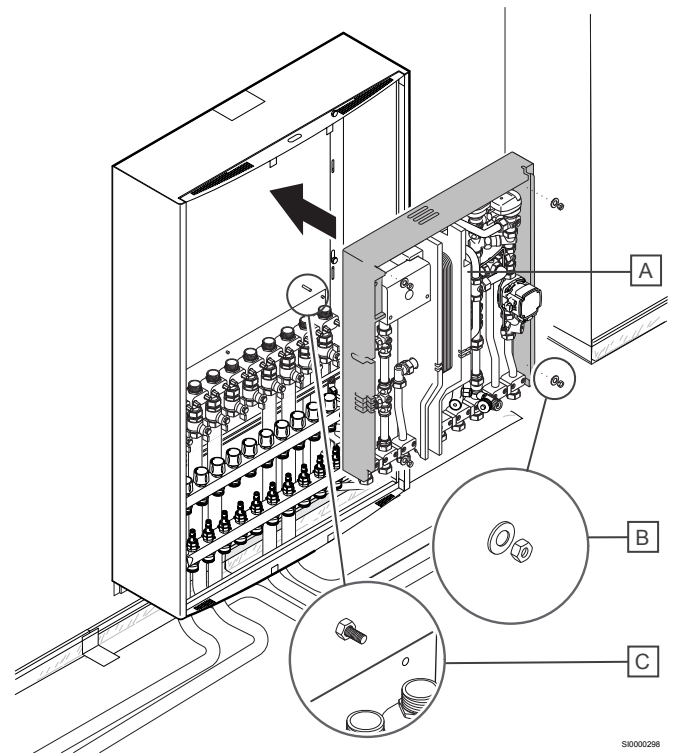
1. Mark the hole positions on the wall and drill holes using a **6 mm** drill.
2. Insert the plug in the drilled holes.

Note

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

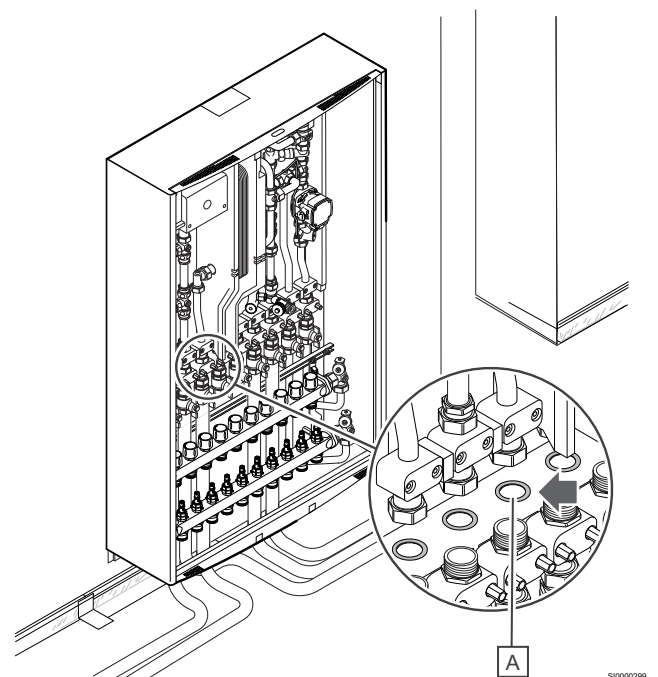
3. Attach the on-wall cabinet to the wall using the hexagon bolts.
4. Connect all pipes to the on-wall rail connections following the same process as for the in-wall cabinet.

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.

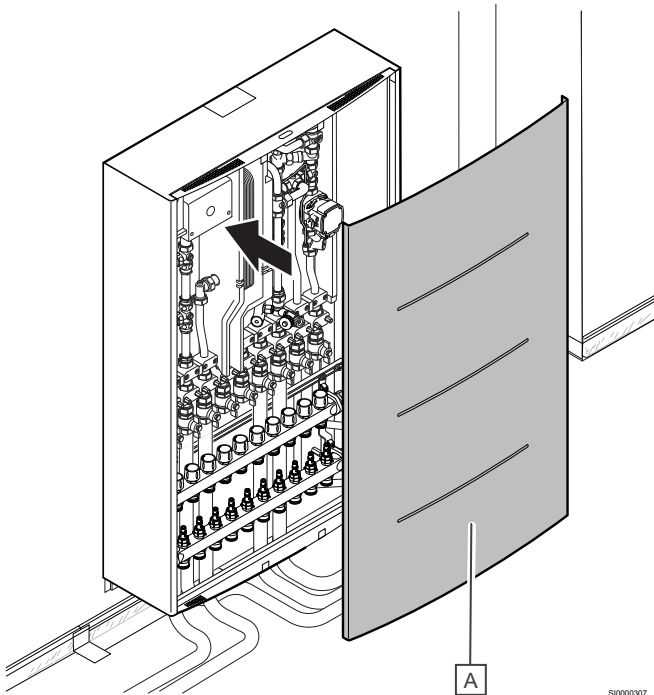
3. Tighten the $\frac{3}{4}$ " swivel nuts.

Install the on-wall covering



Caution!

Mount according to the condition of the walls and supports

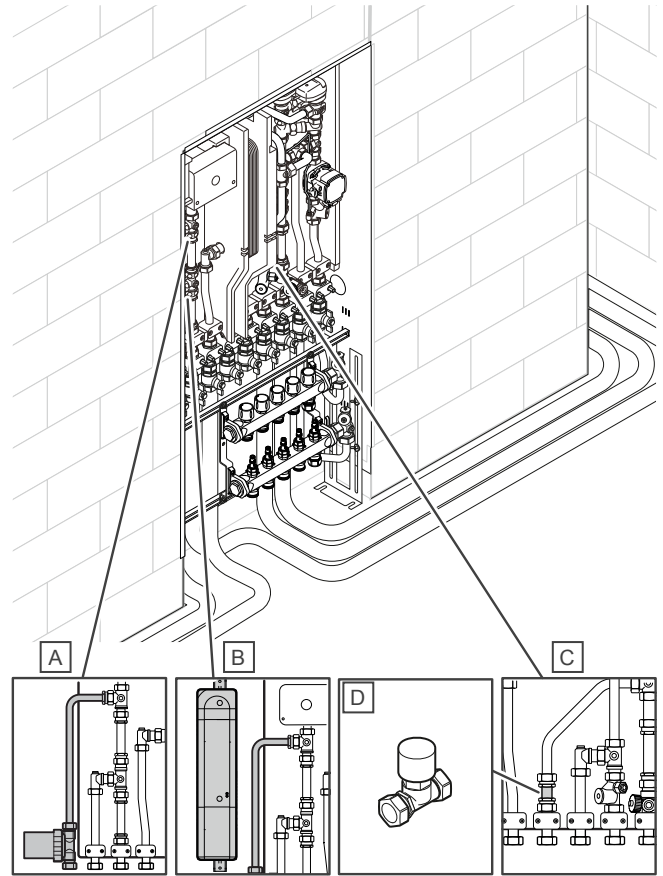


SI0000307

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



SI0000289

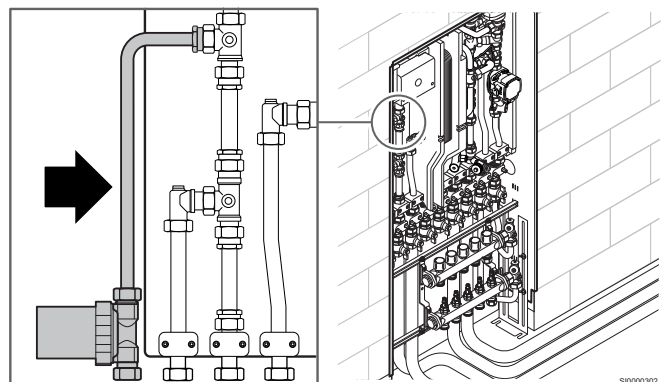
Item	Description
A	Circulation line
B	Room temperature control
C	Heating circuit (secondary, 2nd)
D	Return temperature sensor

Install the circulation line



Note

Read the pump manufacturer's documentation.

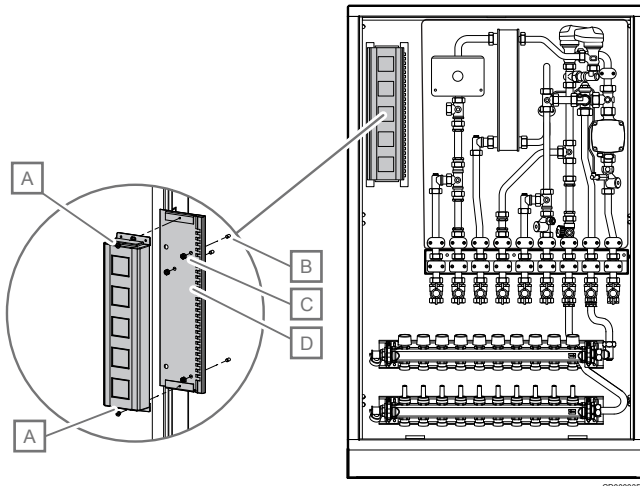


SI0000302

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 see the chapter "Electrical installation".

Install the room temperature control

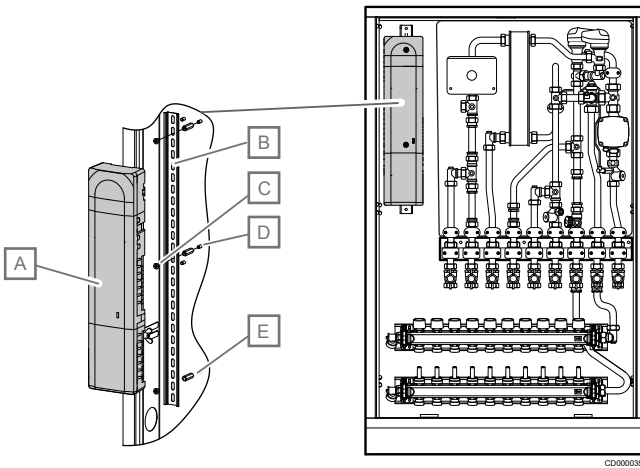
Uponor Base flexiboard



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



Uponor Smatrix
Uponor Base Flexiboard

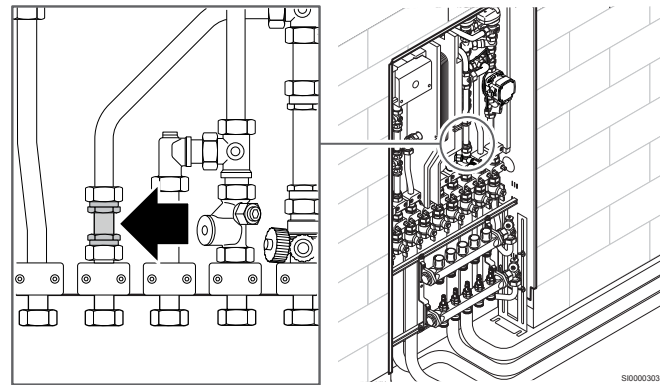


www.uponor.com/services/download-centre

Install the heating circuit (secondary)

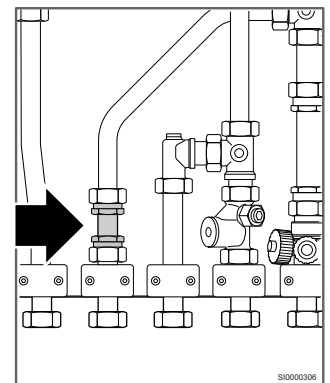
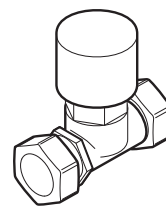
Note

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, see the chapter "Electrical installation".

If required, a return temperature limiter (RL) can be mounted.



1. Remove the distance piece preferably by using two spanners.
2. Observe the flow direction and mount the return temperature limiter.

6 Electrical installation

	Warning! Risk of electric shock if touching the components! The unit operates with a 230 V AC 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: 230 V AC, 50 Hz. 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 the Uponor Combi Port E-Pro in accordance with the wiring diagram, see the chapter "Wiring diagrams".
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: follow the corresponding instructions for Uponor Smatrix Wave Pulse respective Uponor Base flexiboard.
5. Download the Uponor Combi Port E-Pro app, see chapter "Uponor Combi Port E-Pro mobile application".
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.

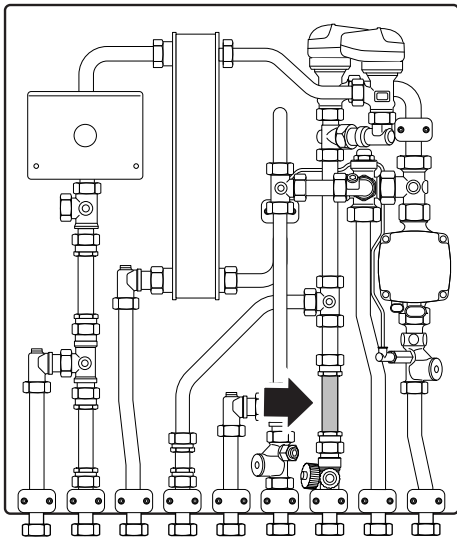
7 Additional installation

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: $Q_n = 1,5$ 1,5-2 seconds. Construction length of **110 mm** and $\frac{3}{4}$ " 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. Install a heat meter with a fast scanning frequency that fully measures the volume flow rate every 3-4 seconds, including kWh calculation.

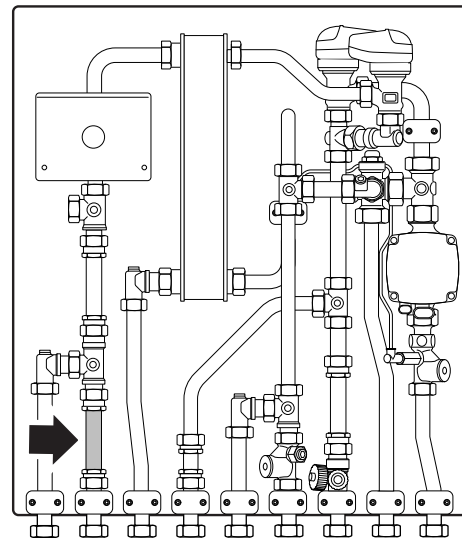
Sensor pocket heat meter

The sensor pocket (M10x1) is available for the flow sensor. The plug installed by the factory must be removed.

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

Cold water meter distance piece

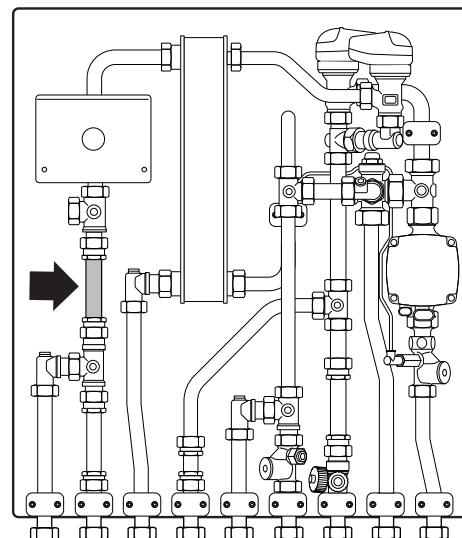
- Note**
Operating pressure: **PN 10**



CD0000354

The cold water meter distance piece (**110 mm x $\frac{3}{4}$ "**) is intended to be replaced with a water meter to measure the overall cold water flow through the unit.

Hot water meter distance piece

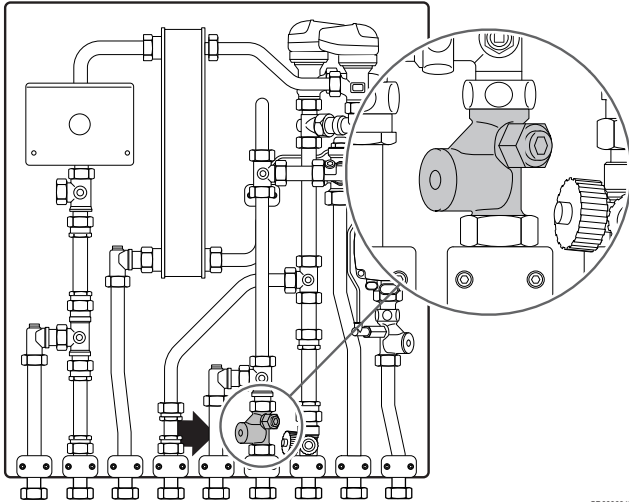


CD0000353

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

7.2 Strainer

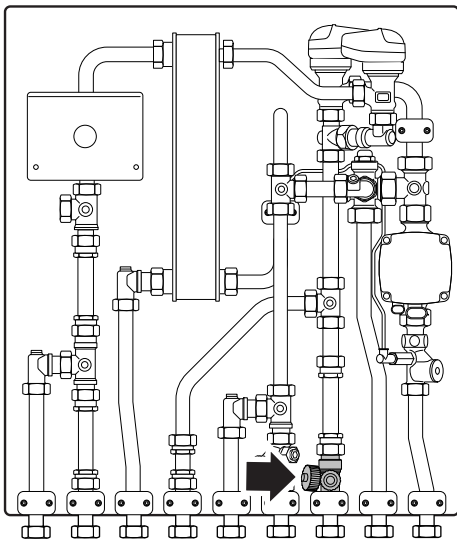
	Caution! Shut off the water supply to the unit and relieve the pressure before any work with the strainer.
	Note To open the cold water/primary flow strainer, use internal hexagon (6 mm).



CD0000347

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

7.3 Filling and flushing



SI0000310

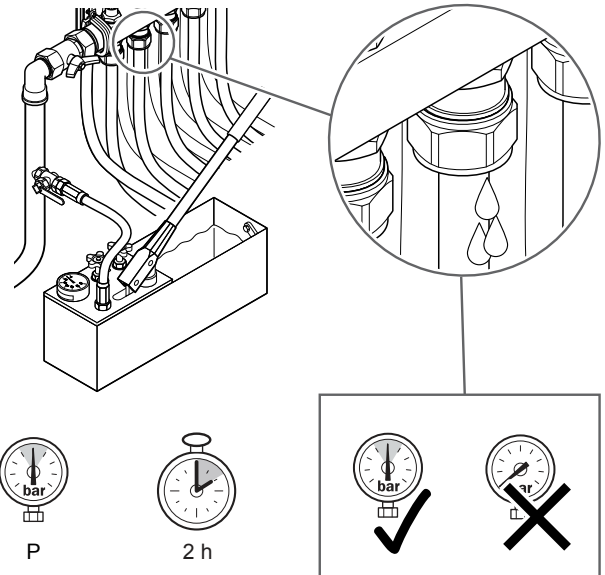
The filling and draining valve on the primary heating can be used for filling and flushing of the heating system.

Filling and flushing the system

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

7.4 Tightness testing

	Warning! Leaks can cause personal injury and property damages.
	Caution! Pressure leaks may occur even at normal operating pressure and must be repaired immediately.



SI0000308

1. Test the heating circuit for two hours, refer to the applicable guidelines.
2. Repair any leaks immediately.

7.5 Visual inspection

	Caution! Incorrect finishing of the installation can lead to property damage.
	Note If an installation error is found during visual inspection, temporarily stop and correct the error.

Finish the installation by following these steps:

1. Check the complete installation:
 - 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 gaskets 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 earthing is assured.
2. Check that the installation is filled/ flushed and vented.

8 Operation

8.1 Start up the hydraulic system

Connecting the hydraulic system



Warning!

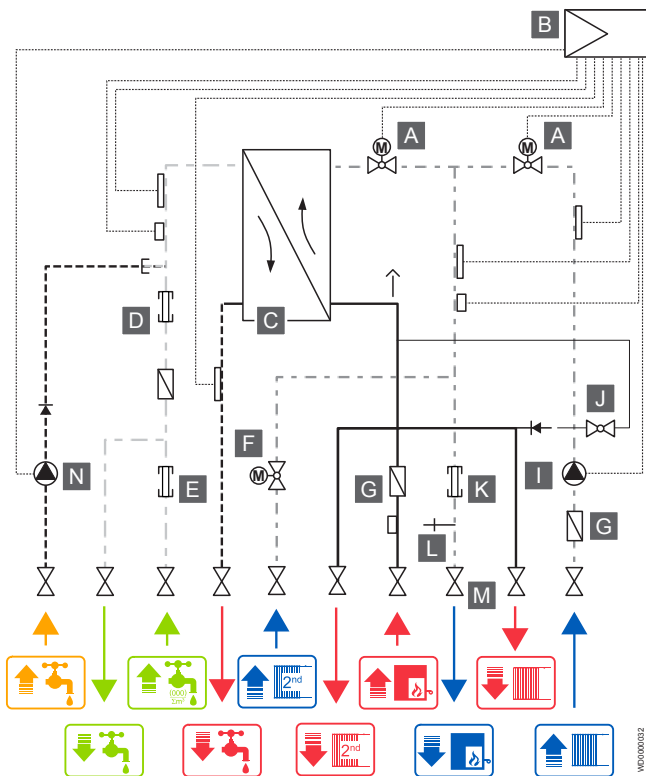
Risk of injury due to improper installation!

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	Uponor Combi Port E-Pro controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RL)
G	Strainer
I	Pump
J	Bypass valve / Backflow preventer in the screw connection
K	Heat meter distance piece
L	Draining and filling valve
M	Connection, swivel nut
N	Circulation pump (optional)

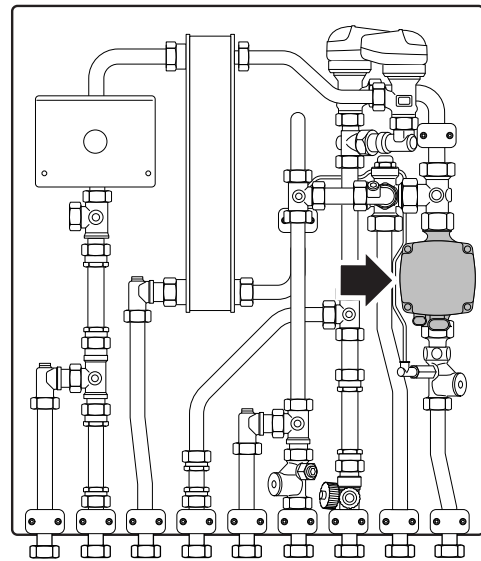
Constant pressure pump control



Note

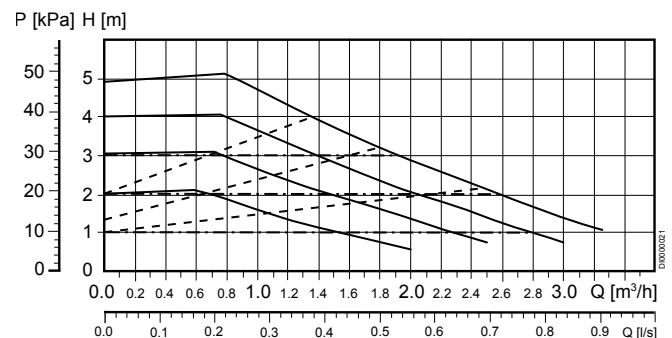
Please read the installation manual from the pump manufacturer.

The Uponor Combi Port E-Pro unit has an injection circuit. A backflow preventer is mounted in the screw connection of the bypass valve.



CD0000345

Constant values Δp -c UPM3 15-50, 5 m



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 UPM3) 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		3 x		2
	4		4 x		3

Pump effect

EEI ≤ 0.20 Part 3	Value
Speed	P_1 [W]
Min.	2
Max.	33

Pump operation

Display view	Operation settings
	$0\% \leq P_1 \leq 25\%$
	$25\% \leq P_1 \leq 50\%$
	$50\% \leq P_1 \leq 75\%$
	$75\% \leq P_1 \leq 100\%$

Pump alarms

Display view	Alarm status
	Blocked
	Low voltage
	Electrical fault

Hydraulic balancing on the manifold

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

2

3

4

6 mm

1,5 L/min

1,5 L/min

Uponor floor heating calculations
 Uponor Fußbodenheizungsberechnung
 Uponor vloerverwarmingberekening
 Calculations du chauffage par le sol Uponor
 Calcolo riscaldamento a pannelli radianti Uponor

Room No.	Heating circuit No.	Quantity of radiators	Value adjustment
1	1	2	0,5
1	2	5	3
2	3	2	1
3	4	4	4
4	5	1,5	2

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.

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

max. ON

10 min.

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 Uponor Combi Port E-Pro mobile application

The Uponor Combi Port E-Pro 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.

Uponor Combi Port E-Pro app



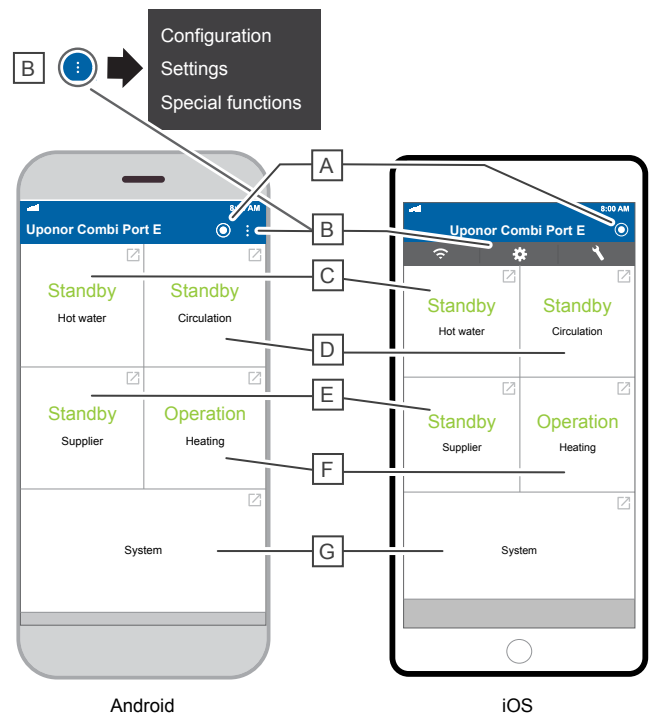
1. Download the Uponor Combi Port E-Pro app. It is available both for iOS and Android mobile devices.
2. Scan the QR code available on the Uponor Combi Port E-Pro controller.
3. Press the blue button in the middle of the Uponor Combi Port E-Pro controller until it flashes. Continue in the App.
4. Helptexts and guidance is available in the app.
5. The app consists of three different user levels (user, installer, etc). Access is given by activating the received code.
 - 5.1. Fill in the code in menu "Settings".
 - 5.2. Reconnect the controller to get the new level (push A, see "App structure - Overview").

App advantages

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

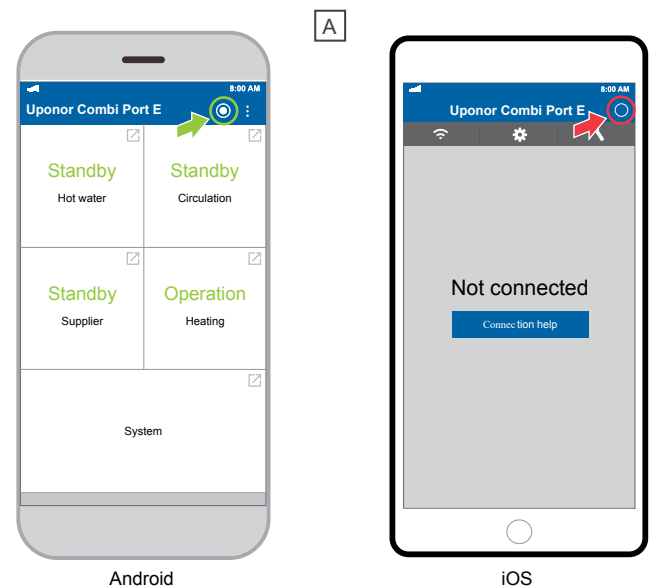
App structure

Overview



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

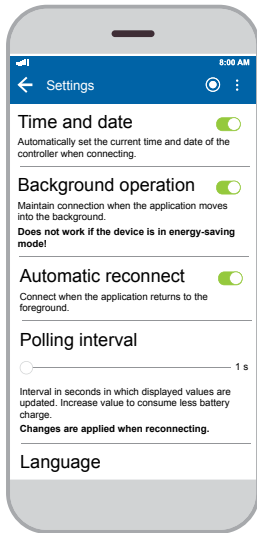
A Connection status



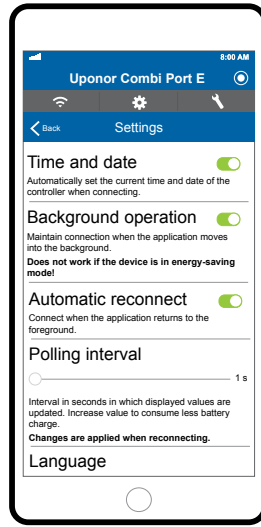
- Indication of successful connection
- Connection can be manually activated or deactivated

B Settings

B



Android



iOS

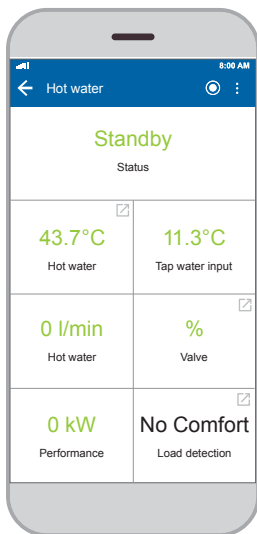
CD0000323

POSSIBLE SETTINGS

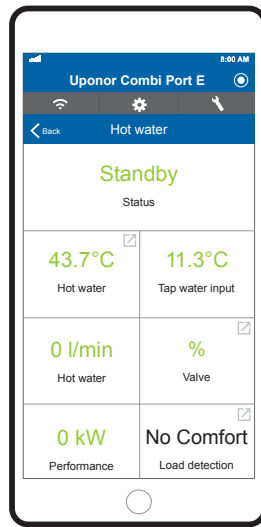
- Time/date
- Language
- Controller settings
- Load/save configuration
- Startup protocol

C Hot water

C



Android



iOS

CD0000324

POSSIBLE SETTINGS

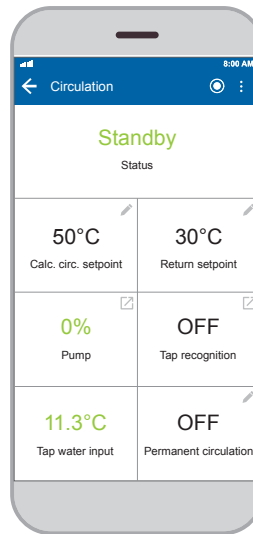
- Hot water temperature
- Valve position
- Load detection
- Adaption period
- ECO keep warm
- RTL

DISPLAYED VALUES

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

D Circulation

D



Android



iOS

CD0000325

POSSIBLE SETTINGS

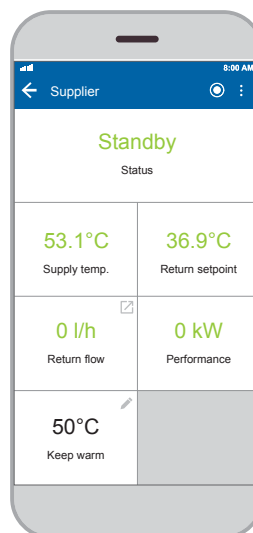
- Calculated circulation setpoint
- Return setpoint
- Follow-up time
- Permanent circulation
- Time program circulation

DISPLAYED VALUES

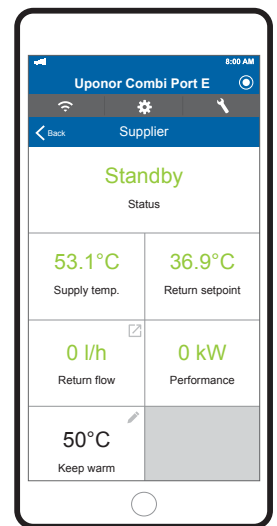
- Pump status

E Supplier

E



Android



iOS

CD0000326

POSSIBLE SETTINGS

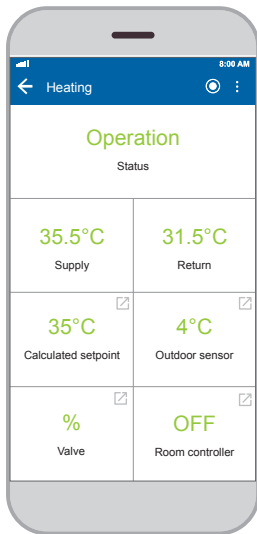
- Supply temperature primary
- Return primary
- Keep warm temperature

DISPLAYED VALUES

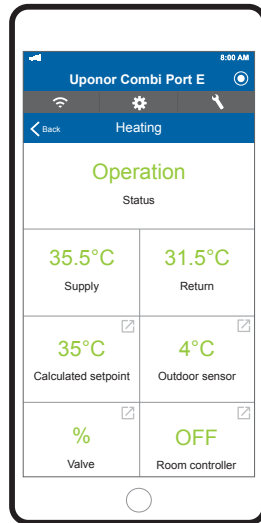
- Flow primary

F Heating

F



Android



iOS

CD0000327

POSSIBLE SETTINGS

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

DISPLAYED VALUES

- Software version
- Controller type

8.3 Finishing the installation and hand over



Caution!

Incorrect finishing of the installation can lead to property damage.

Follow these steps and finish the installation:

1. Check the settings.
2. Complete the acceptance/ finishing protocol in the app.
3. Hand over the documentation and the protocol to the homeowner.

POSSIBLE SETTINGS

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

DISPLAYED VALUES

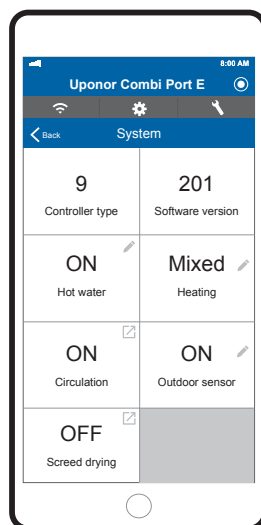
- Supply secondary
- Return secondary
- Outdoor temperature (optional)
- Room temperature (optional)
- External input (optional)

G System

G



Android



iOS

CD0000328

9 Maintenance

9.1 General information

Important information

Read and obey these instructions to ensure the safe and correct operation. This increases the reliability and lifespan 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 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 recording 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 and not stored. This is one of the most convenient ways to heat water and 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.

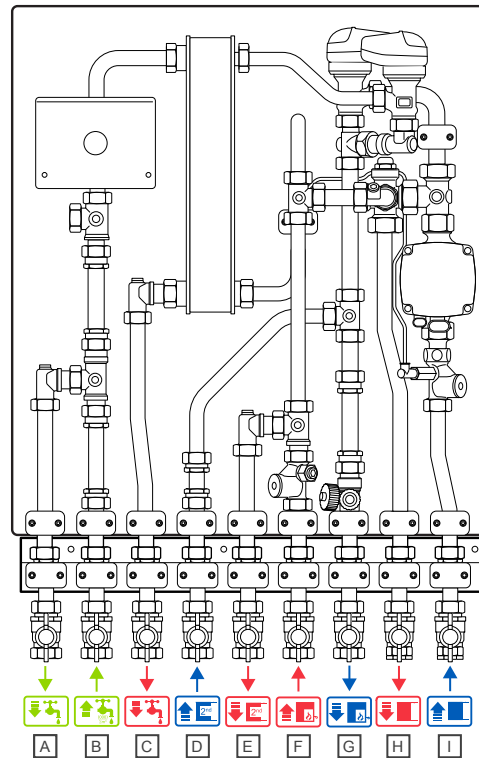
9.2 Turning off heat interface unit



Note

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

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



CD000055

Item	Description
A	Cold water to apartment (CW)
B	Cold water from riser (CW)
C	Domestic hot water to apartment (DHW)
D	Heating circuit return (secondary, 2nd)
E	Heating circuit supply (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 Uponor Combi Port E-Pro 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-Pro	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-Pro 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 UPM3	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
LO (X2)	Phase	Black/Brown Plug-in power supply 230 V
N	Neutral	Blue Plug-in power supply 230 V
PE	Protective conductor	Green/Yellow Plug-in power supply 230 V (Idle)
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

DC input 12 V power supply (ESBE SLB123)

Contacts	Description	Marking
V3 (X29)	Phase	+12 V DC Power supply 12 V DC 2VA
	Neutral	Earth Power supply 12 V DC 2VA
	Protective conductor	Idle

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)

Contacts	Description	Marking
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

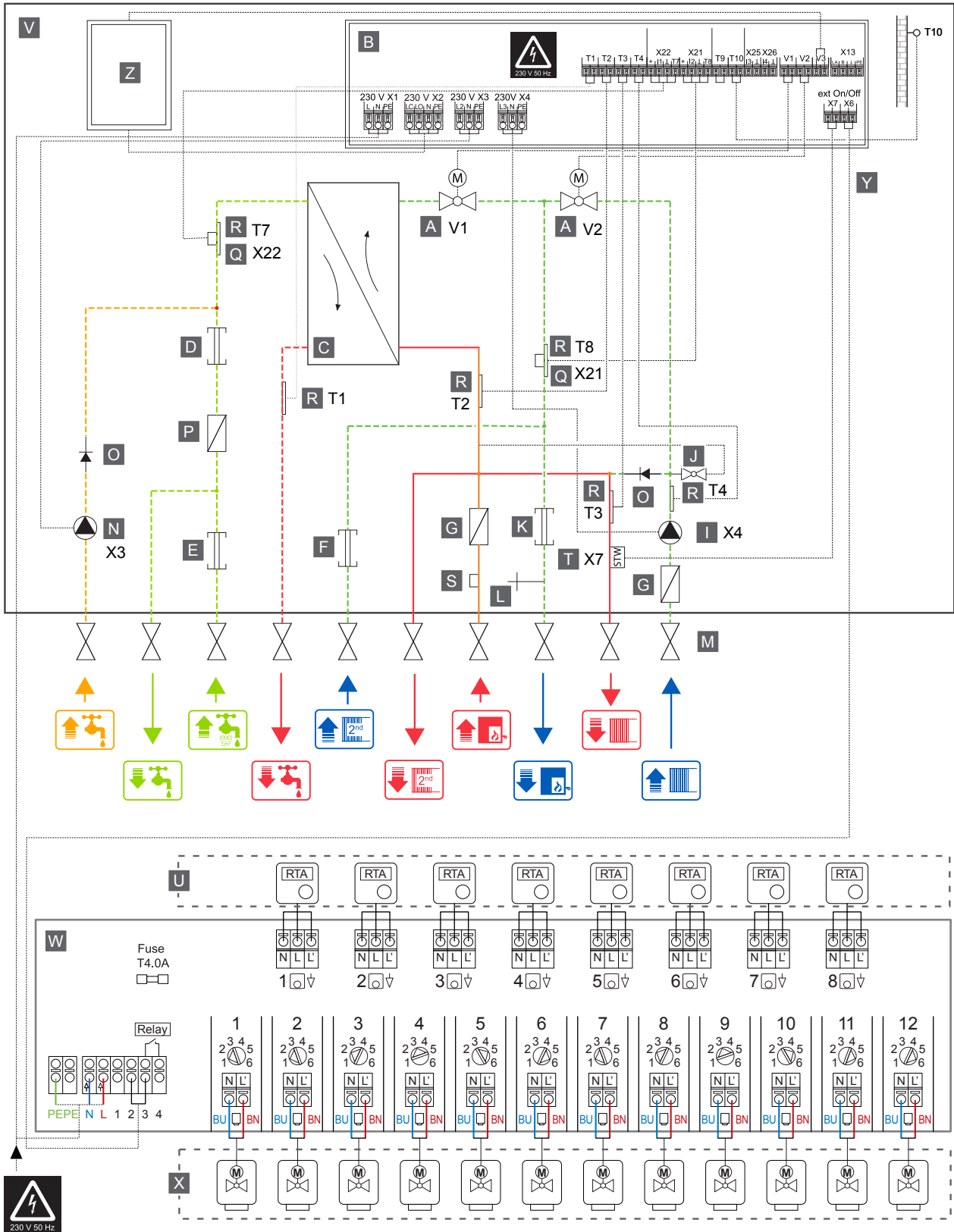
- For data output and possibility to change setting values.
- For communication, a Modbus RTU master program (download, for example "Modbus Poll") is required.
- SETUP value "Address" must be set to "1 ... 253".

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

Uponor Combi Port E-Pro with Uponor Base flexiboard



W0000077

Description of wiring diagram

Item	Description
A	Motor valve
B	Uponor Combi Port E-Pro controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RL)
G	Strainer
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 the flat
Y	Potential free heat circuit distributor cable (optional)
Z	Plug-in power supply 230 V

Description of connection symbols

For a description of the connection symbols, see chapter System description, Components, Connection description.

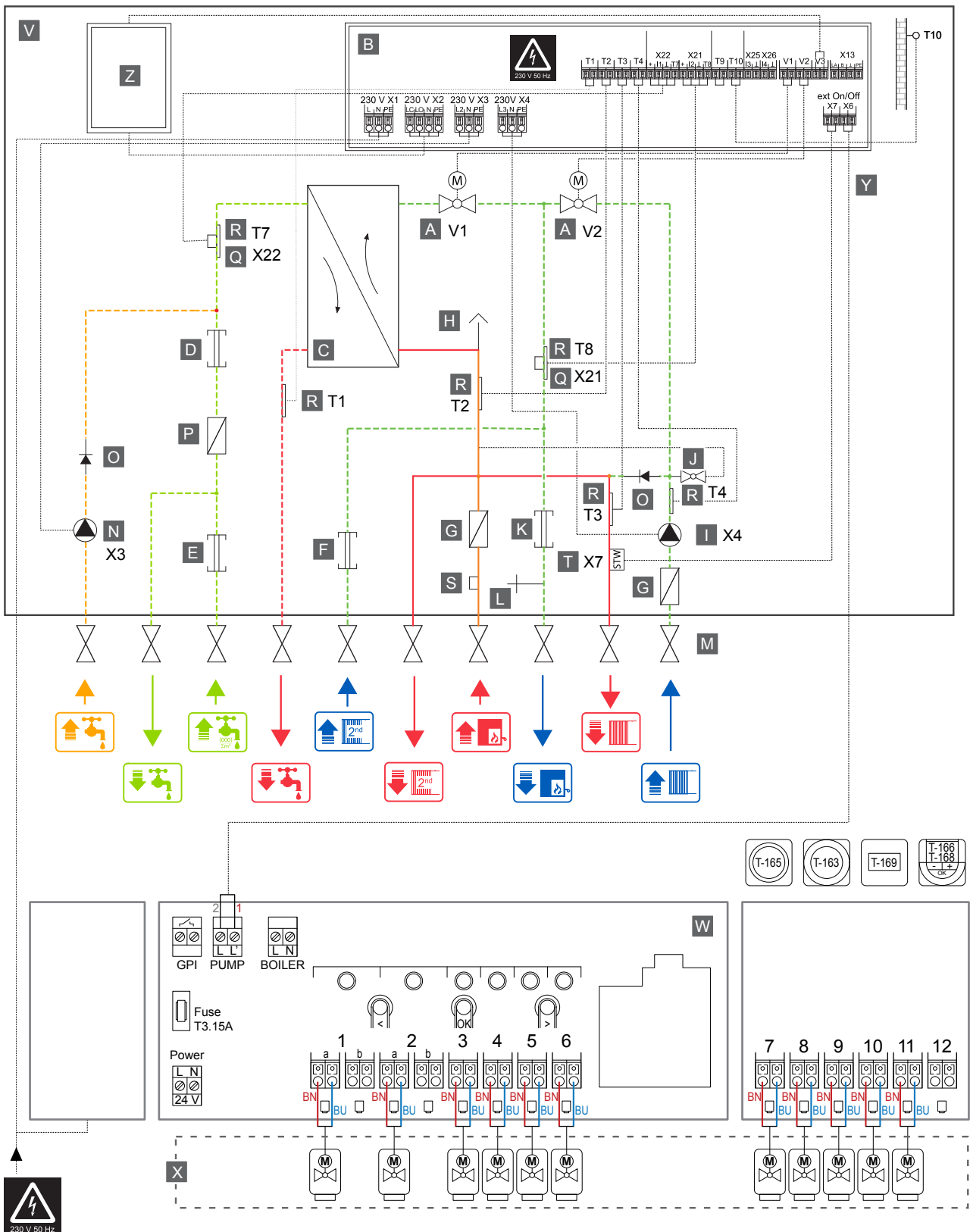
Flow sensors

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	

Uponor Combi Port E-Pro with Uponor Smatrix Wave Pulse



Description of wiring diagram

Item	Description
A	Motor valve
B	Uponor Combi Port E-Pro controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RL)
G	Strainer
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 the flat
Y	Potential free heat circuit distributor cable (optional)
Z	Plug-in power supply 230 V

Description of connection symbols

For a description of the connection symbols, see chapter System description, Components, Connection description.

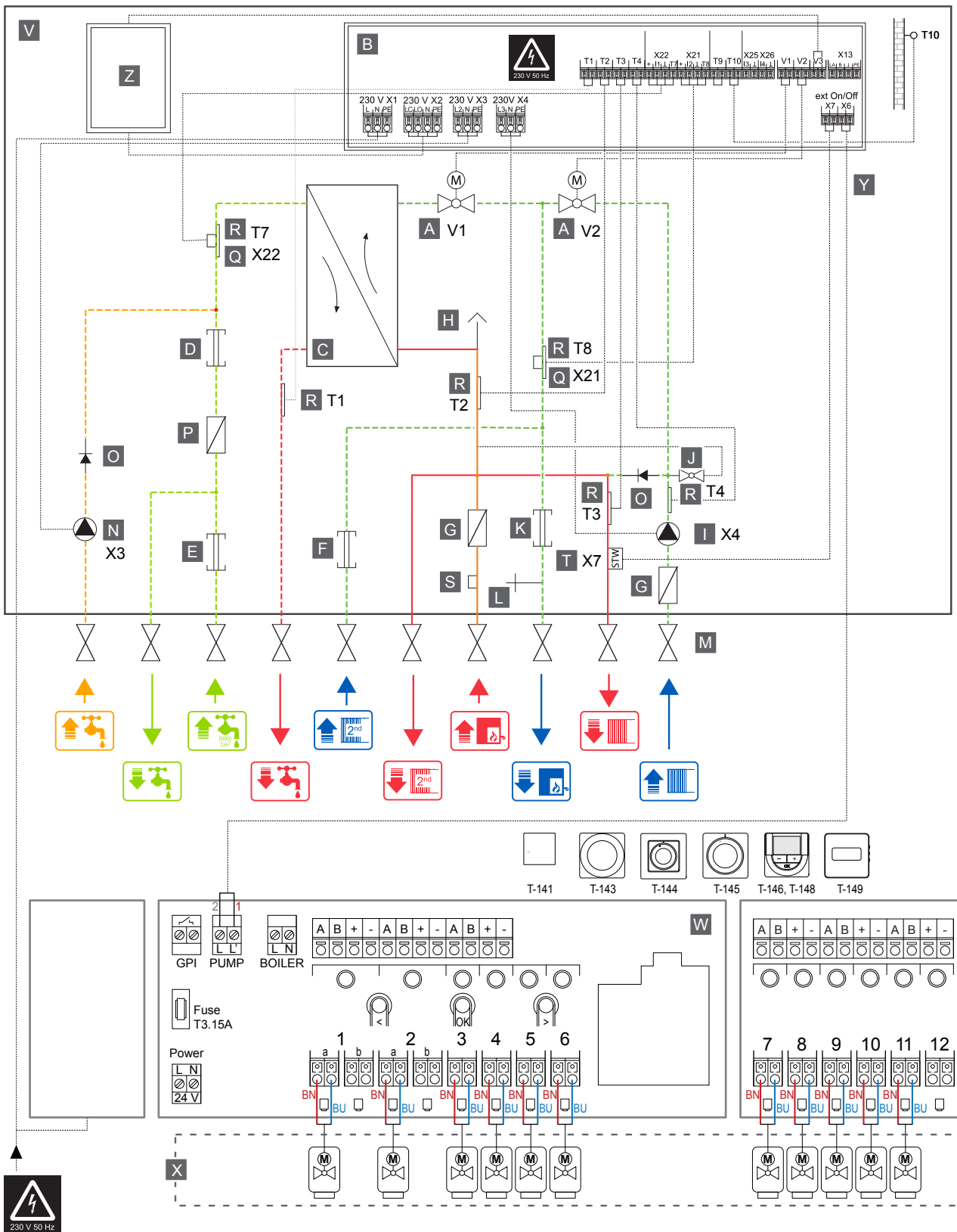
Flow sensors

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	

Uponor Combi Port E-Pro with Uponor Smatrix Base Pulse



W10000033

Description of wiring diagram

Item	Description
A	Motor valve
B	Uponor Combi Port E-Pro controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RL)
G	Strainer
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 the flat
Y	Potential free heat circuit distributor cable (optional)
Z	Plug-in power supply 230 V

Description of connection symbols

For a description of the connection symbols, see chapter System description, Components, Connection description.

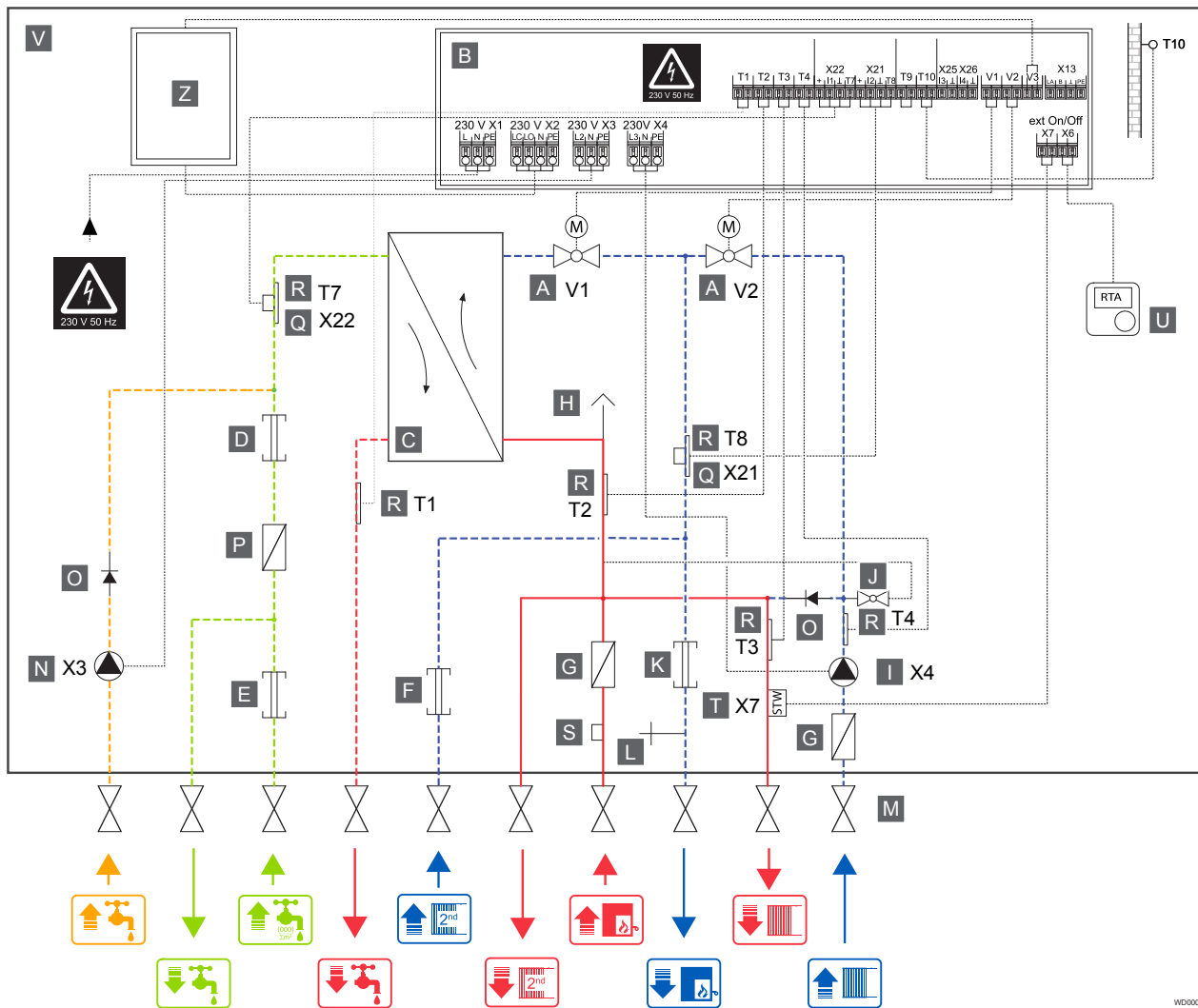
Flow sensors

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	

Uponor Combi Port E-Pro with single room thermostat



WD0000079

Description of wiring diagram

Item	Description
A	Motor valve
B	Uponor Combi Port E-Pro controller
C	Plate heat exchanger
D	Hot water meter distance piece
E	Cold water meter distance piece
F	Distance piece for return temperature limiter (RL)
G	Strainer
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

Item	Description
U	Room thermostat RTA
V	EPP cover
Z	Plug-in power supply 230 V

Description of connection symbols

For a description of the connection symbols, see chapter System description, Components, Connection description.

Flow sensors

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

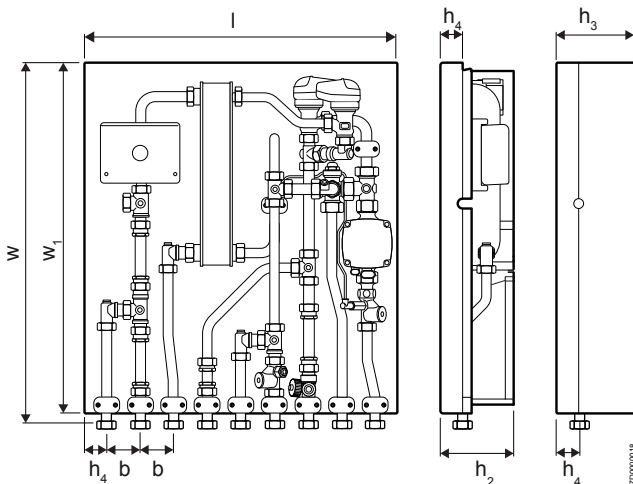
Temperature sensors

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

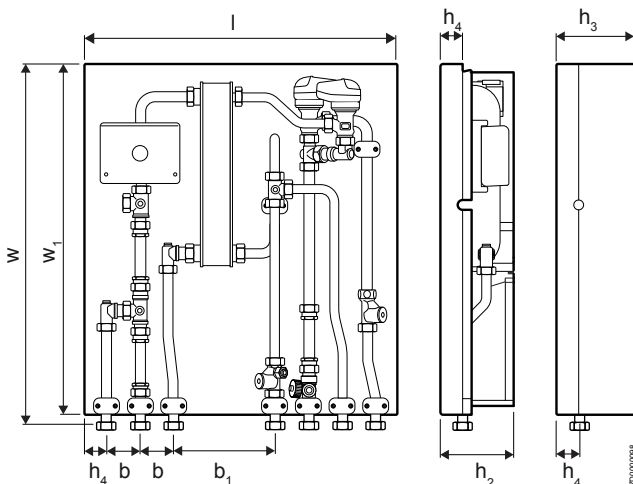
All dimensions are given in mm.

Uponor Combi Port E-Pro UFH



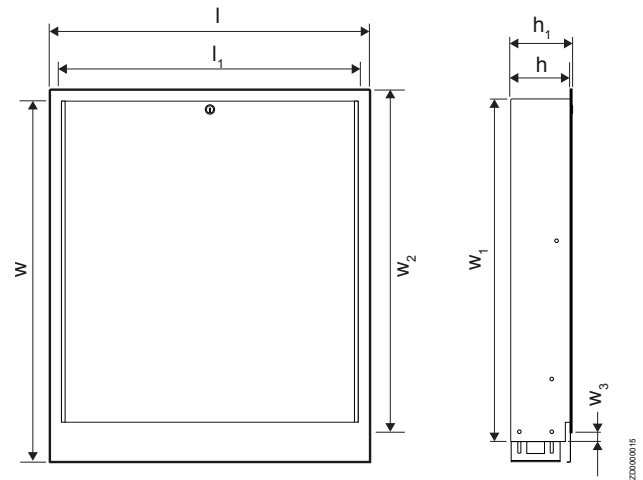
l	w	w ₁	h ₂	h ₃	h ₄	b
560	648	630	132	140	40	60

Uponor Combi Port E-Pro RC



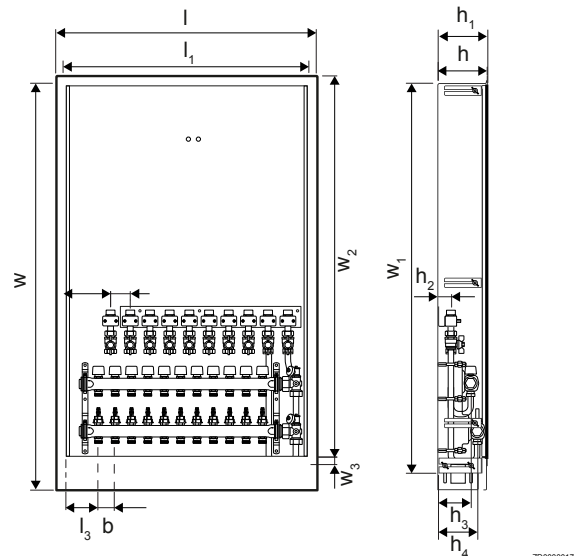
l	w	w ₁	h ₂	h ₃	h ₄	b	b ₁
560	648	630	132	140	40	60	180

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

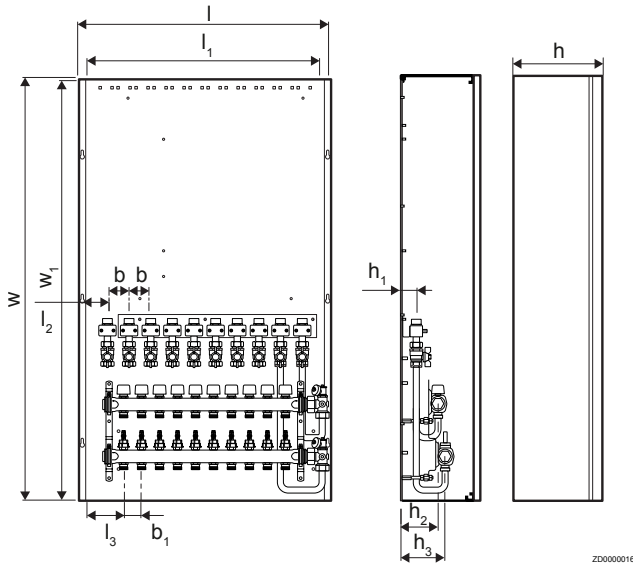
In-wall cabinet 750 x 1200



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

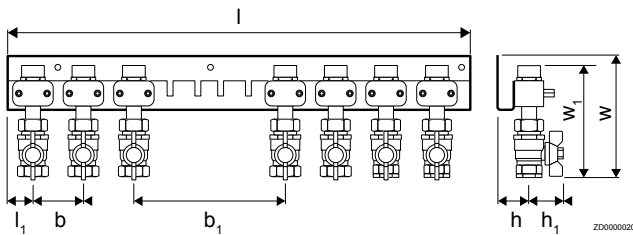
h	h ₁	h ₂	h ₃	h ₄	b	b ₁
150	151.5	40	100	120	50	60

On-wall cabinet

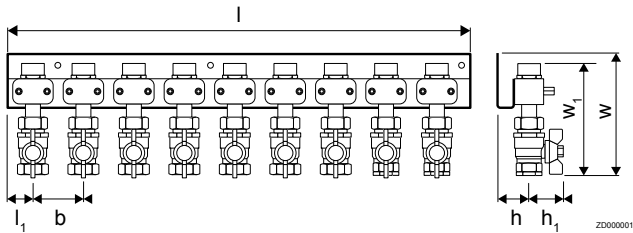


l	l₁	l₂	l₃	w	w₁
754	699	79	113	1150	1170
h	h₁	h₂	h₃	b	b₁
247	40	105	125	60	50

Rails with ball valves



l	l₁	w	w₁	h	h₁	b	b₁
550	30	144	131	40	83	60	180

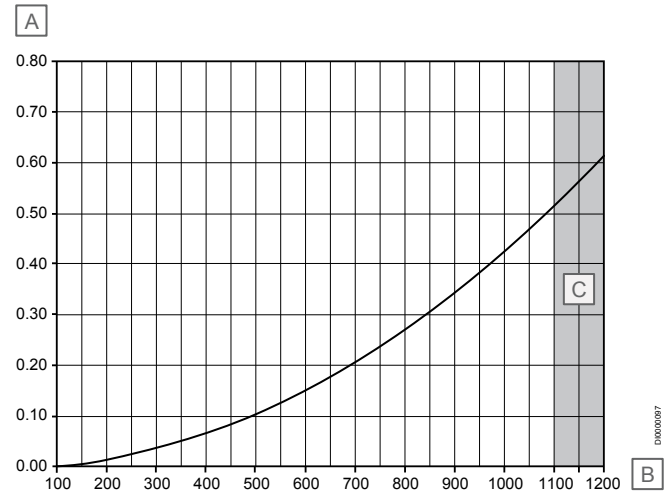


l	l₁	w	w₁	h	h₁	b
550	30	144	131	40	83	60

11.6 Performance curves

Pressure drops with 24 plates

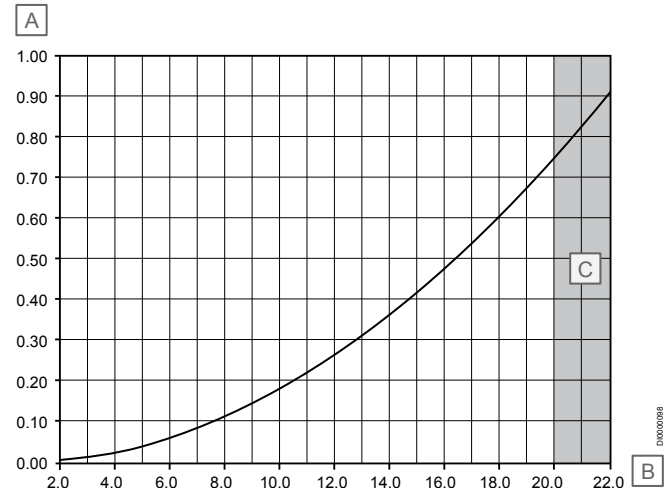
Heating side (primary)



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

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

Domestic hot water side (secondary)

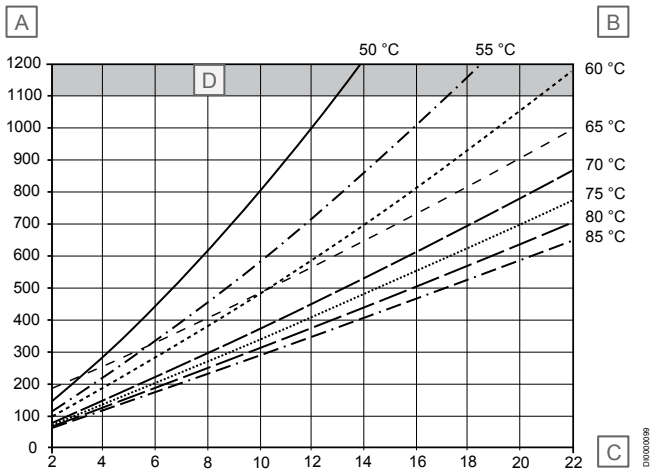


Item	Description
A	Pressure drop in bar
B	Tapping capacity in litres/minute (l/min)
C	Max range

Additional pressure drops of other external fixtures in the fresh water installation must be included.

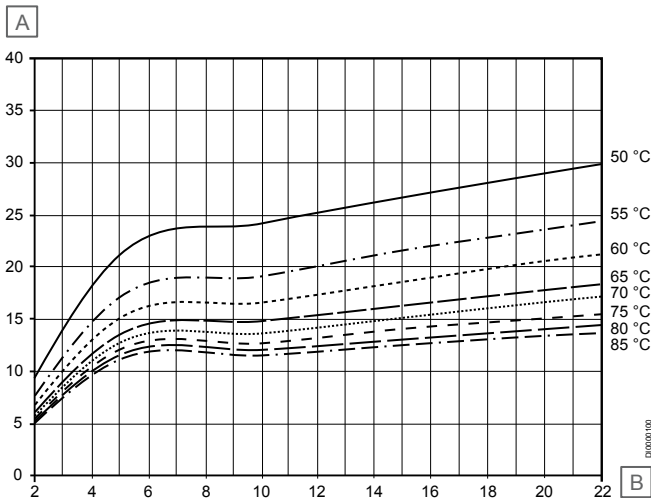
Primary heating demand and return temperatures with heat exchanger 24 plates

Cold water warming 35 K (10-45 °C)



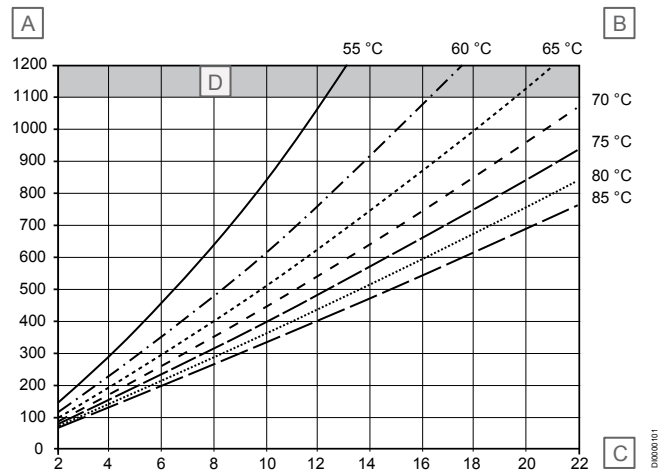
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



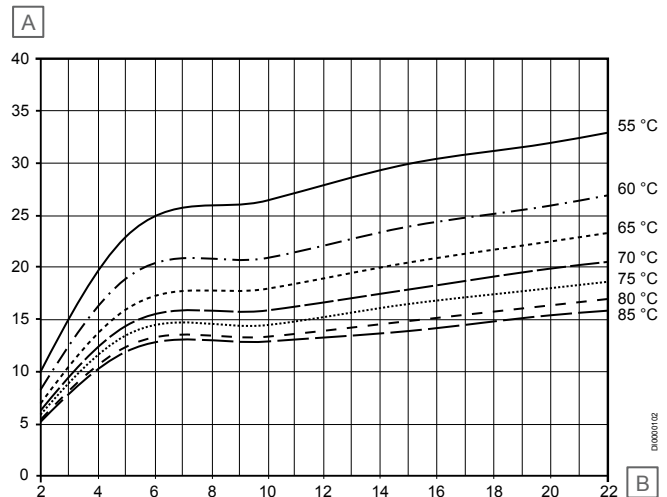
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 40 K (10-50 °C)



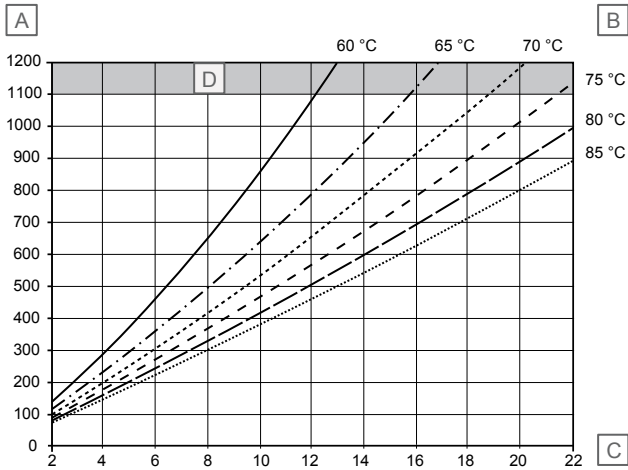
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



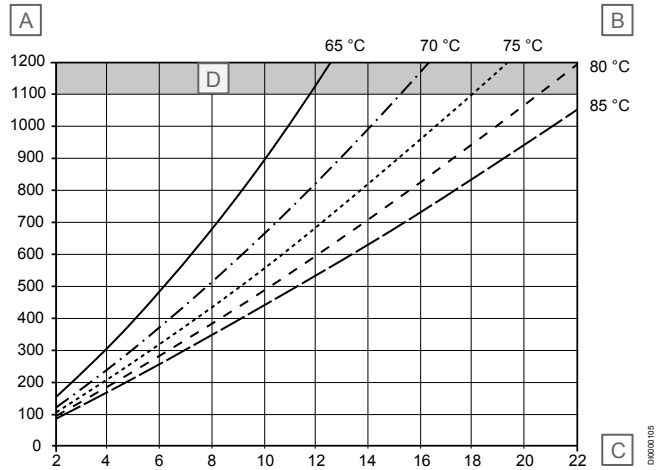
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 45 K (10-55 °C)



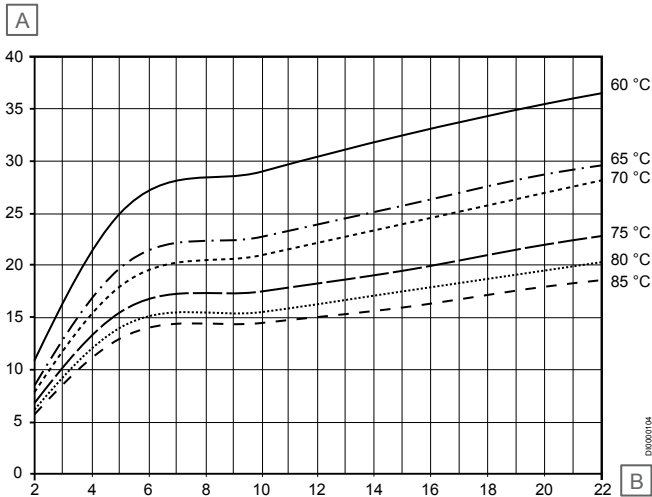
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Cold water warming 50 K (10-60 °C)



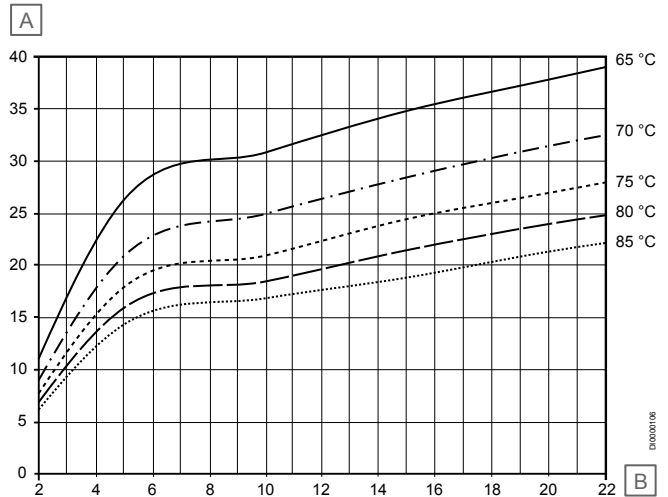
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



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

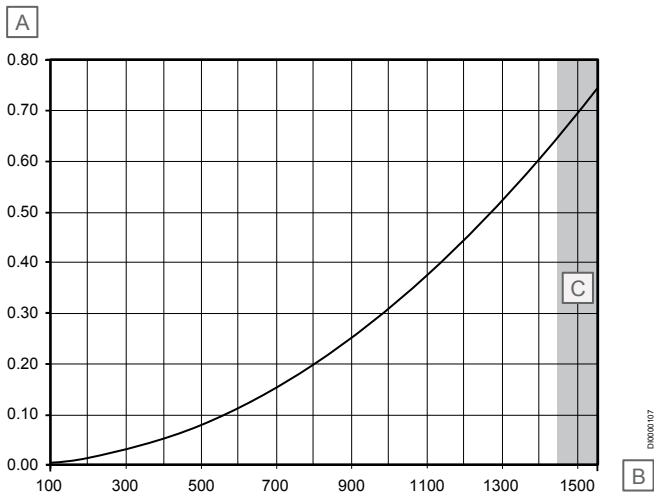
Tapping capacity



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

Pressure drops with 40 plates

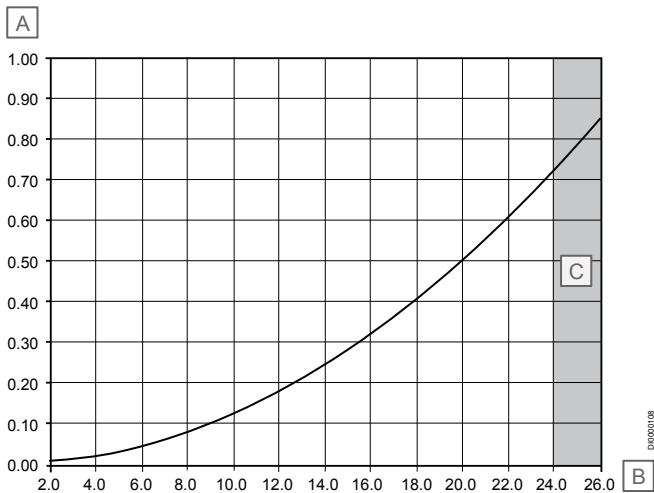
Heating side (primary)



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

Pressure drops including ball valves. Additional pressure drops, 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)

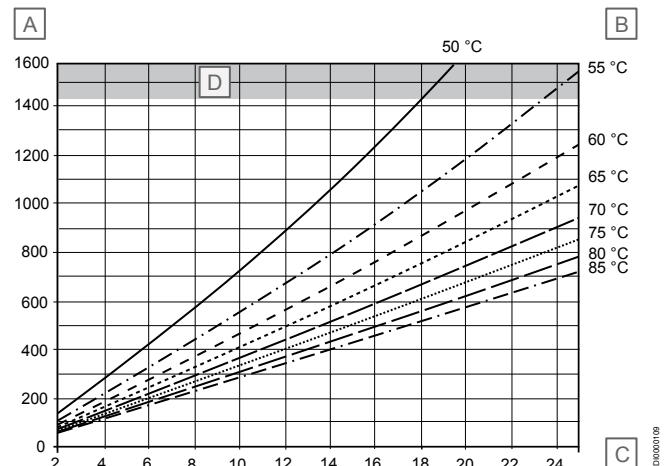


Item	Description
A	Pressure drop in bar
B	Tapping capacity in litres/minute (l/min)
C	Max range

Additional pressure drops of other external fixtures in the fresh water installation must be included.

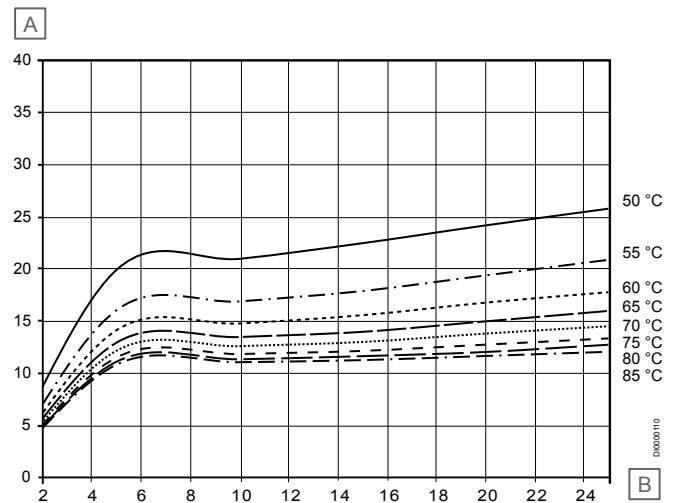
Primary heating demand and return temperatures with heat exchanger 40 plates

Cold water warming 35 K (10-45 °C)



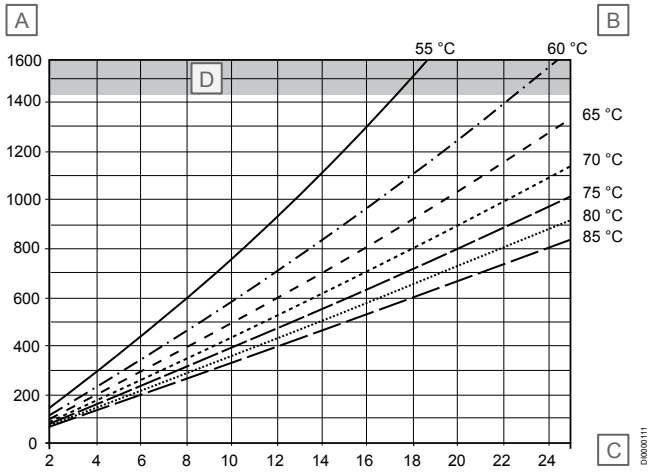
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



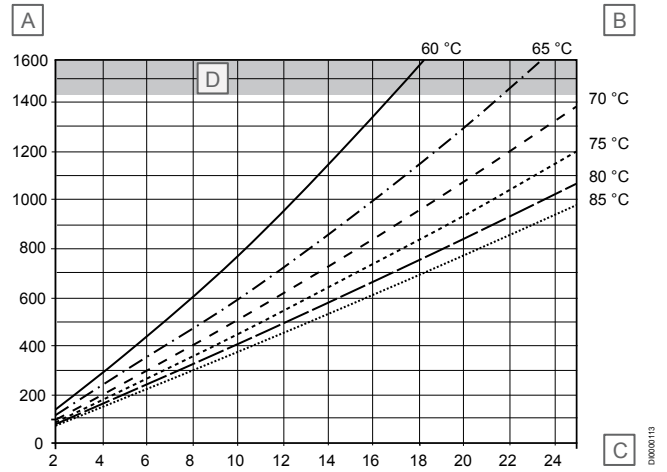
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Cold water warming 40 K (10-50 °C)



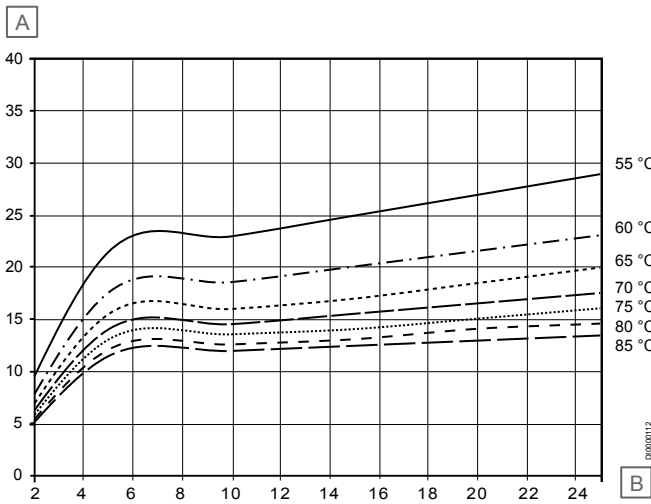
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Cold water warming 45 K (10-55 °C)



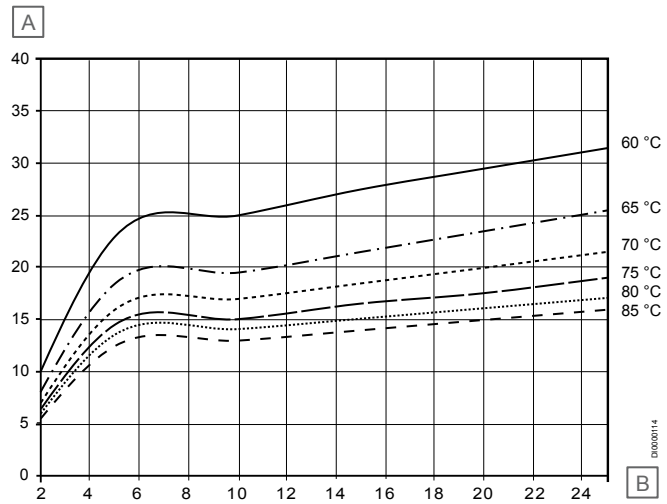
Item	Description
A	Primary heating demand in litres/hour (l/h)
B	Primary heating supply temperatures
C	Tapping capacity in litres/minute (l/min)
D	Max range

Tapping capacity



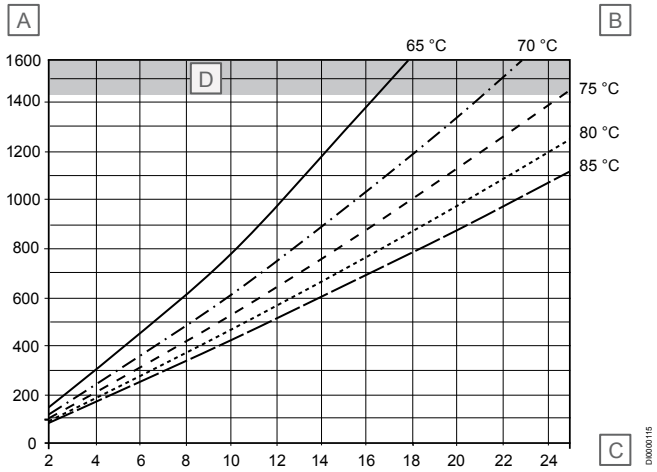
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

Tapping capacity



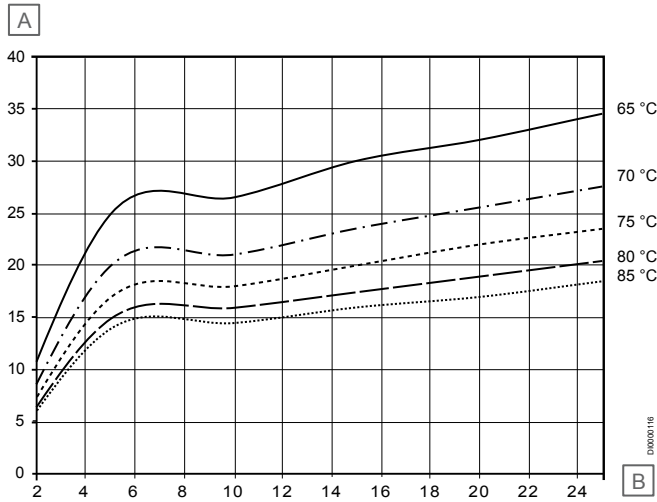
Item	Description
A	Return temperature °C
B	Tapping capacity in litres/minute (l/min)

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

Tapping capacity



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

Uponor

Uponor GmbH

Industriestraße 56,
D-97437 Hassfurt, Germany

1143309 v2_05-2024_EN
Production: Uponor/DCO

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continuous improvement and development.



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