Centrometal

Guidebook for installation, handling and maintenance – ENG

Electric heater HPe2/4CM

Electric heater for outdoor and indoor installation

FU-HPe2/4CM-04/2021

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1. Objašnjenje simbola i uputstva za siguran rad

1.1 Description of symbols

Warnings

Warnings in text are marked by gray triangle, background warnings are framed

Electric shock danger is marked by lightning symbol in warning triangle

The signal words at the beginning of the warning mean the way and level of consequences if protective measures are not applied

- **NOTE** means that smaller material damages may occur
- **CAUTION** means that smaller to middle injuries may occur
- **WARNING** means that heavy injuries may occur
- **DANGER** means that heavy injuries may occur

Important information

Important information, meaning no danger for people and things, are marked by the symbol displayed in the following text. These are limited by lines, above and below the text.

Further symbols

Symbol	Meaning
▸	Action step
→	Directives to other places in document or to other documents
•	Enumeration/Entry from the list
–	Enumeration/Entry from the list (2.)

Table 1: Symbols

1.2 Instructions for safe work

General safety instructions

Non-compliance with safety instructions may cause heavy injuries – or lethal outcomes and material damages and environment pollution.

- Electrical installation should be examined by an expert prior to the device assembly.
- All electric works should be performed by authorised person in accordance with corresponding regulations.
- Commissioning and maintenance and repairs should be done by authorised service only.
- Technical acceptance of installations should be performed in accordance with corresponding regulations.

Danger because of disrespecting security rules in alert situations, for example fire.

- Never expose your-self to life danger. Own security always has priority.

Damage occurred because of wrong handling

Wrong handling may lead to injuries of persons and/or installation damage.

- Make sure that device is available only to professionals.
- Installation and commissioning, and maintenance and repair, must be done only by service authorised for electrical works.

Installation and commissioning

- Placement of device can be done only by authorised service.
- Boiler can be turned on only if installation is with corresponding pressure level and working pressure regular. Do not close security valves in order to avoid damage caused by too high pressure. During warming water can leak on security valve of the hot water circuit and hot water pipes.
- Install this device only in the room where freezing is not possible to occur.
- Do not store or dispose inflammable materials or liquids in the vicinity of this device.
- Keep safe distance in accordance with valid regulations.

Life threat of electric power shock

- Secure electric power connecting is done by authorised service! Comply with connecting scheme
- Prior to any work: turn off electric power supply. Secure against accidental turn on
- Do not mount this device in moist rooms.

Control examination / Maintenance

- Recommendation for user: conclude agreement on maintenance with authorised service to perform annual maintenance and controlling examinations
- User is responsible for safety and environmental acceptance of the installation
- Comply with safety work instruction as given in the chapter *Cleaning and Maintenance*.

Authentic spare parts

There shall not be undertaken any responsibility for damage occurred due to spare parts not delivered by the manufacturer

- Use only original spare parts.

Material damages due to freezing

- When there is damage due to freezing drain water from the boiler, tank and pipelines for heating. Danger of freezing does not exist only when entire installation is dry.

Instructions for service

- Inform users about mode of work of device and instruct them in maintenance
- Inform users not to perform any modifications or repair on their own
- Warn users that children cannot stay near heating installations
- Fill in and submit Commissioning log and Handover log attached in this document
- Deliver technical documentation to the user.

Waste disposal

- Dispose packaging materials in ecologically Acceptable manner
- Secure device in ecologically acceptable manner and in authorised place

Cleaning

- Clean outside of device with wet cloth.

2. Device data

These instructions contain important information about safe and professional assembly, commissioning and maintenance of the boiler.
These instructions are for installers who have knowledge for work with heating installations due to their professionalism and experience.

2.1 Typology

These instructions are related to the following kind of device:

HPe2/4CM	*6 kW*

2.2.1 Statement on compliances

We hereby state that devices are tested in accordance with the following directives: 2014/35/EU (low voltage directive, LVD) and 2014/30/EU (electro-magnetic compatibility directive, EMC).

2.2.2 Regular application

HPe2/4CM may only be used in conjunction with a heat pump, as a supplementary heat source controlled via a heat pump. Any other use will be considered improper and the manufacturer assumes no responsibility for damage caused by improper use.
To ensure proper use, it is necessary to follow the operating instructions, data on the nameplate and technical data.

2.3 Instructions for mounting

Use only original spare parts of the manufacturer or spare parts approved by the manufacturer. There shall not be any responsibility for damages caused by spare parts which have not been delivered by the manufacturer.

When mounting heating installations keep with the following instructions:

- Valid regulations in construction industry
- Regulations and norms on safety-technical equipment of heating installations
- Changes on the place of mounting according to valid regulations propisima

2.4 Instructions for work

When working with heating installation follow next instructions:

- ► Boiler should work in working range up to max temperature of 80°C and min pressure of 0.7 bars to max pressure of 2.6 bars, which should be controlled on regular basis.
- ► Boiler should be handled only by adults who are familiar with instructions and work of the boiler
- ► Do not close safety valve
- ► Inflammatory objects must not be put on the boiler surface or close to it (within safety distance)
- ► Boiler surface clean only with non-inflammatory products
- ► Inflammatory substances do not keep in the room for boiler installation (e.g. petroleum, oil, etc.)
- ► During the work no one lid must be open
- ► Keep safe distance in accordance with regulations

2.5 Inhibitors and anti-frost products

It is not allowed to use protective products against frost neither inhibitors. Id it is not possible to avoid anti-frost protection then should use anti-frost products allowed for heating installations.

Anti-frost products:
- Reduce lifetime of the boiler and its parts
- Reduce heat transmission

2.6 Norms, regulations and standards

This product is in compliance with the following regulations:

- EN 50110-1:2003 – Handling and work with electrical installations
- EN 55014:2001 – Electrical-magnetic compatibility – conditions for consumers' devices for households, electric devices and similar devices
- EN 60 335-1+ed.2:2003 Electric devices for households
- EN 60 335-1+ed.2 zm.A1:2005 Electric devices for households
- EN 61000-3-2 ed.3:2006 Electrical-magnetic compatibility (EMC) – emission limits for harmonic power
- EN 61000-3-3:1997 Electrical-magnetic compatibility (EMC) – Law on determination of fluctuation of voltage and frequency of low power distributive network

2.6 Tools, materials and auxiliary measures

Standard tools for heating installations, water supply and electric-installations are needed for mounting and maintenance of the boiler.

2.8 Minimum distances and burnable construction materials

Inflammability of components		
A	Non-inflammable	
A1:	Non-inflammable	Asbestos, stone, wall tiles, baked clay, plaster (with no organic additives)
A2:	With smaller quantity of added elements (organic components)	Plaster cardboards plates, base felt, glass fibres, plates of ACUMIN, ISOMIN, RAIOT, LOGNOS, VELOX, AND HERACLITUS
B	Inflammable	
B1:	Hardly inflammable	Beech, oak, veneered wood, felt, HOBREX, VERSALIT and UMAKART plates
B2:	Normally inflammable	Pine, larch and spruce, veneered wood
B3:	Inflammable	Asphalt, cardboard, cellulose materials, tar-paper, plywood plates, cork plates, polyurethane, polystyrene, polyethylene, floor fibre materials

Table 2: *Ignitable materials and composition of elements according to DIN 4102*

Depending on valid regulations, other minimum distances could be applied, different than mentioned below.

- Comply with regulations of electrical installations and minimum distances which are in force in the subject country.
- Minimum distance for heavy inflammable and self-extinguishing materials is 200 mm.
- The minimum distance for flammable materials is 400 mm.

2.9 Product description

The HPe2/4CM is designed to support a heat pump and can only work in conjunction with a heat pump. This device does not have a working thermostat (it has a protective thermostat), but forwards the information from the temperature sensor to the thermoregulator of the heat pump. The heat pump thermostat decides whether and when the electric heater will be switched on.

HPe2/4CM plays an important role in the proper operation of the heat pump. Its activation is necessary (sometimes desirable) in the following situations:

• If the water temperature is less than ≈20 ° C, the heat pump will not be able to start without preparation (heating) using an electric heater (it is necessary to turn on the electric HPe2/4CM)

• Defrosting when the air temperature is low can be long-lasting or impossible without the help of an electric heater (it is necessary to turn on the electric HPe2/4CM).

• On extremely cold days when the heat pump COP has the lowest value, HPe2 / 4CM is switched on as a backup to keep the heating of the building at a comfortable level (preferably switching on the electric HPe2/4CM).
• In case of failure (servicing) of the heat pump, the HPe2/4CM takes over the heating of the building - until the pump is operational (preferably switching on the electric HPe2/4CM).

For these reasons, this device does not have the option of manual on / off, because in that case - if it is manually turned off, the heat pump could enter the blockage. The HPe2 / 4CM must always be ready for operation, and the decision to switch on is made by the heat pump.

HPe2/4CM is designed for wall mounting. The HPe2/4CM is wall-mounted using the supplied mounting kit.

The basic components of HPe2/4CM are:

•HPe2/4CM body with electric heaters
•Safety valve 3bar
•Switchboard with automatic
•Info panel

The HPe2/4CM body consists of a welded heat-insulated sheet steel vessel in which an electric heater is mounted. The built-in thermal insulation is vapor-tight, reduces heat loss and prevents condensation on the HPe2/4CM vessel. This allows the HPe2/4CM not to have to be disconnected from the mains (by bypass valve) when the heat pump is running in cooling mode.
The safety thermostat and temperature sensor are located on top of the HPe2/4CM vessel.
HPe2/4CM formwork is made of pickled sheet metal, protected by electrostatic plasticization.
When the HPe2 / 4CM door is opened, a switchboard with a safety assembly, connection terminals and relays for switching on the heater is available.

2.10 Waste disposal

- ► Dispose packaging materials in ecologically sound manner
- ► Components that should be changed dispose in ecologically sound manner

2.11 Delivery scope

When delivery the HPe2/4CM, stick to the following:

- ► Check if packaging is damaged during delivery
- ► Check if delivery is complete

Part	Pieces
Electric heater HPe2/4CM	1
Assembly Set	1
Instructions for handling	1

2.12 Factory plate

Factory data plate is placed on the external side of the HPe2/4CM and contains the following technical data:

- HPe2/4CM type
- Batch / Catalogue number
- Power
- Input power
- Maximum temperature
- Working pressure
- Mass
- Electric power supply
- Protection grade
- Manufacturer

2.13 Transportation

NOTE: Transport damages

- ► Pay attention on instructions for transportation on packaging
- ► Use adequate transportation means, i.e. carts for bags with tighten strip.
- ► The product should be **in horizontal position** during transportation
- ► Avoid shocks or collisions

- Packed HPe2/4CM put on carts for bags if needed secure it with strip and drive it to its mounting place.
- Remove packaging.
- Remove packaging materials and dispose it in ecologically acceptable manner.

3. Dimensions and technical data

3.1 Dimensions HPe2/4CM

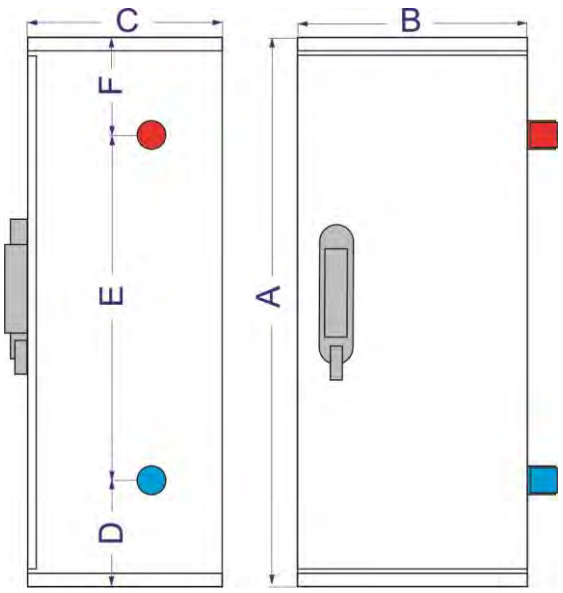


Image 1: Dimensions HPe2/4CM

	A	B	C	D	E	F
HPe2/4CM	620	260	220	120	390	110

Table 3 Dimensions (mm) HPe2/4CM

3.2 Components

1 Casing of HPe2/4CM
2 Exchanger in HPe2/4CM
3 Electric heater in HPe2/4CM
4 Thrust line
5 Return line
6 Safety valve 3bar
7 Safety valve drain pipe
8 3-pole circuit breaker with upgraded DA10 - Safety circuit
9 Signal clamps for switching on relays and connecting temperature sensors
10 Relay for switching heating group
12 Temperature sensor
13 Safety thermostat (STB)
14 Thermal insulation HPe2/4CM

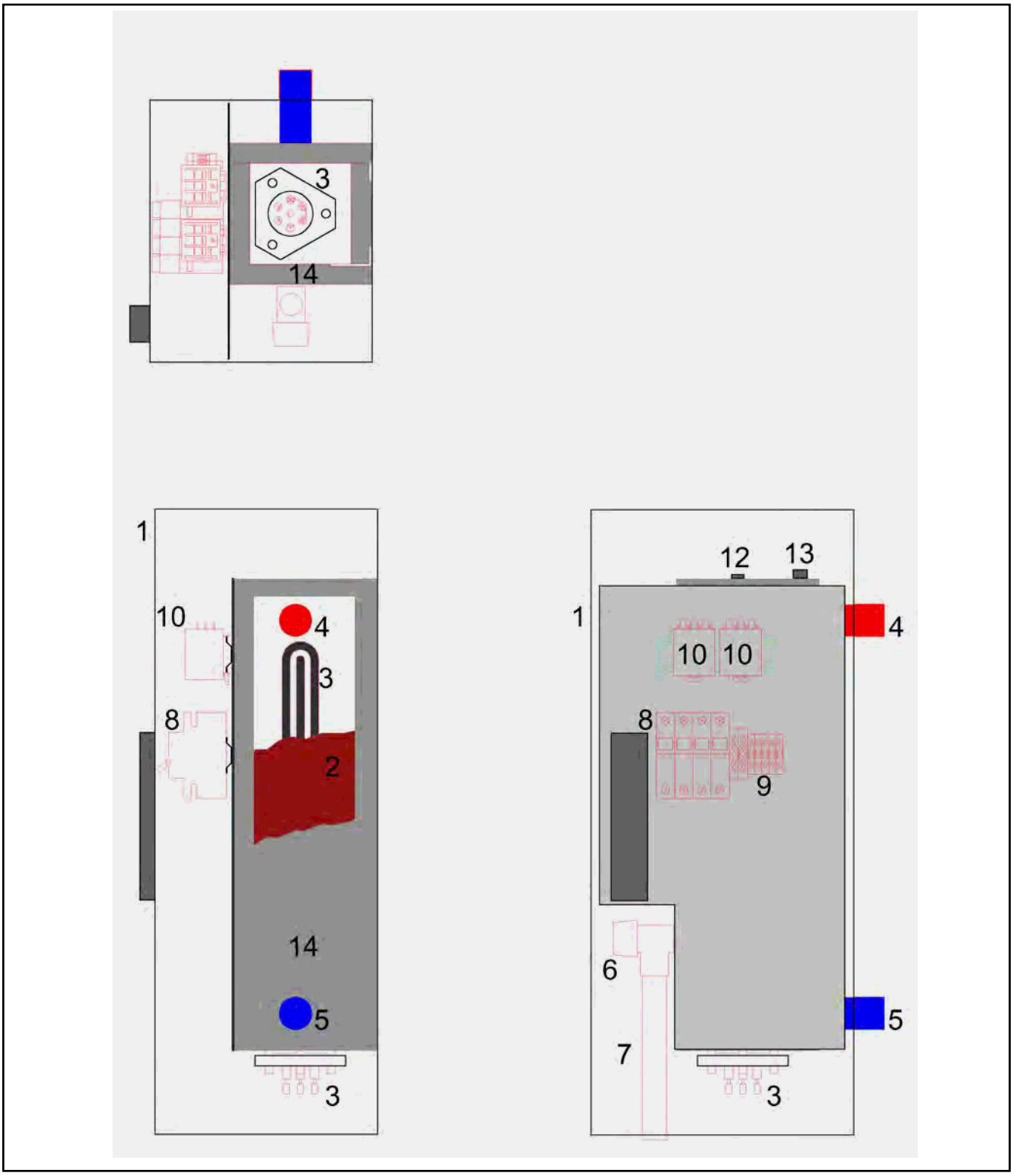


Image 2: HPe2/4CM components

3.3 Technical data HPe2/4CM

	Unit	Mono-phase power supply		Three-phase power supply
Power	kW	2	4	6
Usability level	%	99	99	99
Number of power grades		1	2	2
Division of power grades	kW	1×2	2×2	2+4
Network voltage	VAC	1N ~ 230V 50Hz		3N ~ 400/230V 50Hz
Ingress protection rating		IP54		
Main fuse required	A	1×16	1×25	3×16
Min. cable cross-section	mm²	3×2,5	3×4	5×2,5
Max. allowed working pressure	bar	3,0		
Min. allowed working pressure	bar	0,5		
Max. temperature	°C	80		
Water volume	l	4,5		
Discharge line connection		DN25 (1”) SN		
Return line connection		DN25 (1”) SN		
Device weight (without water)	Kg	10,5		

Table 4: technical data HPe2/4CM

4. Installation of device

CAUTION: Human or material damages occurred because of irregular installation!

- Never install HPe2/4CM without expansion dish (AG) and safety valve.
- HPe2/4CM must not be installed in protective zone of important area or at the place of bath.

NOTE: Material damage due to freezing!

- HPe2/4CM must be installed only in room safe of freezing.

4.1 Be careful prior to assembly

NOTE: Material damage occurred due to incompliance with further instructions!

- Respect instructions for boiler and all installed components.

Prior to installing take care of the following:

- All electrical connectors, protective measures and fusses should be done by professional person respecting all valid norms, regulations and local laws
- Electric connector should be done according to the connecting plans
- After corresponding installation of device execute grounding of the plant
- Before opening device and all works turn off electric supply
- Non-professional and non-authorised attempts to connect device under voltage can produce material damage of device and hazardous electrical shocks.

4.2 Distances

DANGER: Fire threat due to burnable materials and liquids!

- Do not dispose burnable materials and liquids close to the HPe2/4CM.
- Let know the user the valid regulations for minimum distances from burnable materials (section 2.8).

- Comply with regulations on electric installations and minimum distances in force in subject countries.
- Place HPe2/4CM on the wall in such manner to leave free space as illustrated in the Image 3

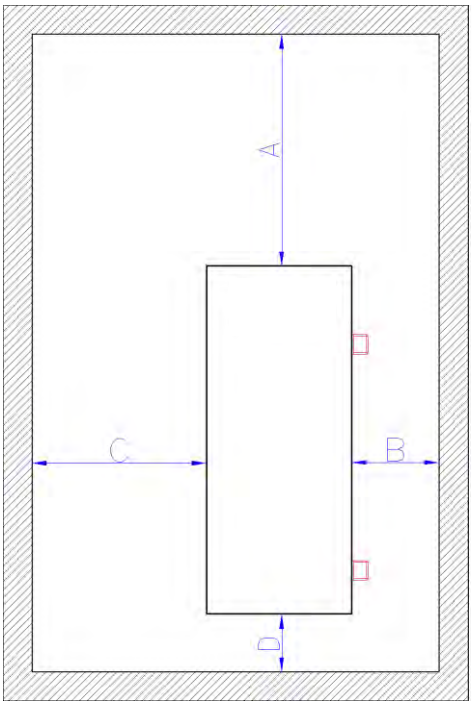
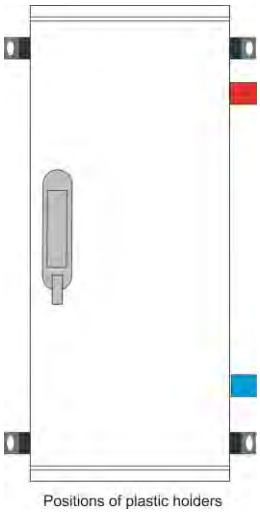


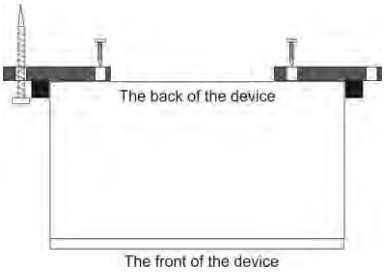
Image 3: *Minimum distance during installation*
A = 500mm / B = 250mm / C = 500mm / D = 200mm

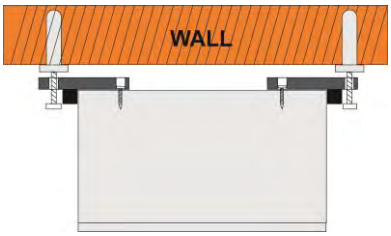
4.3 Front door opening procedure for HPe2/4CM

The electric heater door can be opened very easily in a few steps.

- ▶ Remove the key that is attached to the front door lock.
- ▶ Insert the key into the lock.
- ▶ Turn the key to the lock (unlock).
- ▶ Gently pull the handle towards you.
- ▶ Turn the handle to the right and the electric heater door will open.







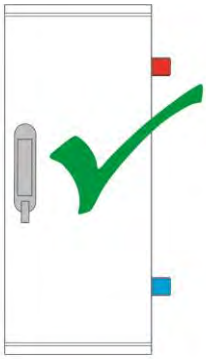
4.4 WALL MOUNTING HPe2/4CM

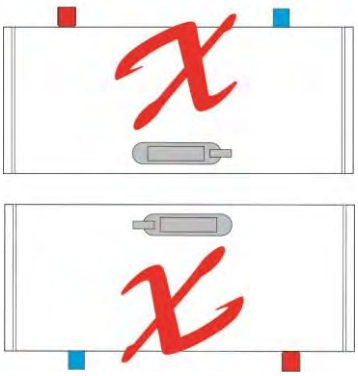
NOTE: Material damage occurred by irregular installation on the wall!

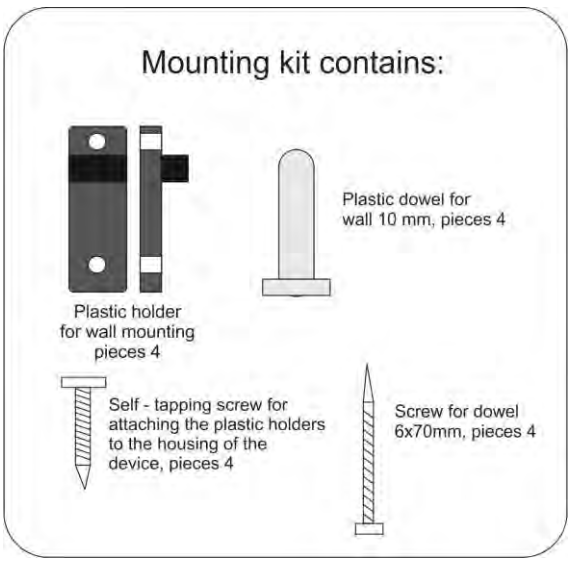
- ▶ It is necessary to use proper material for fixing

This chapter describes mounting the HPe2/4CM on a wall.

- Plot the drill hole positions for the mounting kit respecting the minimum free space dimensions next to the HPe2/4CM (Image 3) and the dimensions in Table 5.
- Drill the holes according to the dimensions for the given type of HPe2/4CM.
- Insert plastic dowels that are part of the device packaging (or dowels adequate for a non-standard wall type) into the drilled holes.
- Then fasten the bracket with the screws supplied with the dowels.
- Carefully hang the device on the wall
- Make sure the HPe2/4CM is upright.







Take care of the correct position during installation

4.5 Hydraulic attachments execution

NOTE: Material damages caused by permeable connections!

- ▶ Attachment duct lines install without connecting on HPe2/4CM connections.

Heating duct lines connect as follows:

- Connect return line on connection **5** (**image 2**).
- Connect start line on connection **4** (**image 2**).

4.6.1 Filling the HPe2/4CM with heating water and sealing test

- Waterproof should be tested prior to put on the boiler.

DANGER: Injuries and/or material damages can occur with overpressure when testing watertight!

- ▶ High pressure can damage regulatory and safety devices and reservoir.
- ▶ After filling with water set the HPe2/4CM on pressure that is equal to the opening pressure of safety valve.
- ▶ Comply with maximum pressure of installed components.
- ▶ After testing sealing, open again closing valves.
- ▶ Make sure that all pressures, regulatory and safety parts work correctly

DANGER: Health threat due to mix of drinking water!

- ▶ It is demanding to respect state norms and regulations on avoiding mix drinking water (with water from heating installations).
- ▶ Comply with EN 1717.

NOTE: Material damage due to temperature tension.

- ▶ If you fill the HPe2/4CM in hot condition, temperature tension can cause cracks due to tensions. HPe2/4CM will start to leak
- ▶ Fill the HPe2/4CM only in cold condition (temperature of empty duct can be max 40°C)
- ▶ Fill the HPe2/4CM only through quick valve on pipe installation (return line) of the HPe2/4CM

NOTE: Installation damage due to bad quality of water! Heating installation can be damaged by corrosion or scale depending on water characteristics.

- ▶ Comply with filling requests for water according to VDI 2035 or project documentation and catalogue.

- Connect the filling hose to the water supply network and slowly fill it with water so that all the air comes out of it and the water starts to flow continuously.
- Close the tap on the water supply network and connect the free end of the hose to the tap for filling and emptying the heating installation. Secure the hose with a clamp.
- Open the installation filling and draining tap and slowly charge the HPe2/4CM. Monitor the pressure rise and close the tap when the operating pressure is reached.
- Bleed the installation via the valve on the radiator.
- If the operating pressure drops by venting, the water must be topped up.
- Test for leaks according to local regulations.
- After you have tested the tightness, open all the elements that you closed due to filling.
- Check that all safety elements are working properly.
- If the HPe2/4CM is tested for leaks and no leakage is observed, set the required operating pressure, according to the pre-pressure of the expansion vessel.
- Remove the hose from the filling and emptying tap.
- Enter the operating pressure and water quality values in the operating instructions.

4.6.2 Heating pump air emission and de-blocking

This device does not have a circulation pump in it.
When the external pump is blocked, do the following:

- Unscrew the center screw in the middle of the "head" of the pump
- Carefully try to unlock the pump shaft with a suitable screwdriver.

4.6.3 HPe2/4CM venting and installation

- This device does not have a built-in vent, because the construction of the HPe2/4CM vessel is such that air cannot remain trapped in the boiler but exits the HPe2/4CM through the pressure pipe.
- Ventilation must be installed on the installation, so as to ensure venting of the air that can come out of the pressure pipe, as well as venting of the entire installation.

5. Electric connecting

DANGER: Life threat from electric shock!

- Electric works must be done only by qualified person.
- Turn off voltage supply before opening device and secure it against accidental turn on.
- Comply with assembly regulations.

When connecting HPe2/4CM on electric installation take care on connections scheme and connecting plans. Respect mandatory diameters of cables and fusses power outside the HPe2/4CM.

This device is manufactured for connection to three-phase power supply (3N ~ 400/230V 50Hz).
Connection to a single-phase network is possible with a power limit of 2kW or 4kW, where the connection must be fixed (no connection is allowed with a socket) and the cross-section of the connection cable must be according to Table 7a (7b).

5.1 Connecting HPe2/4CM to three phase mains

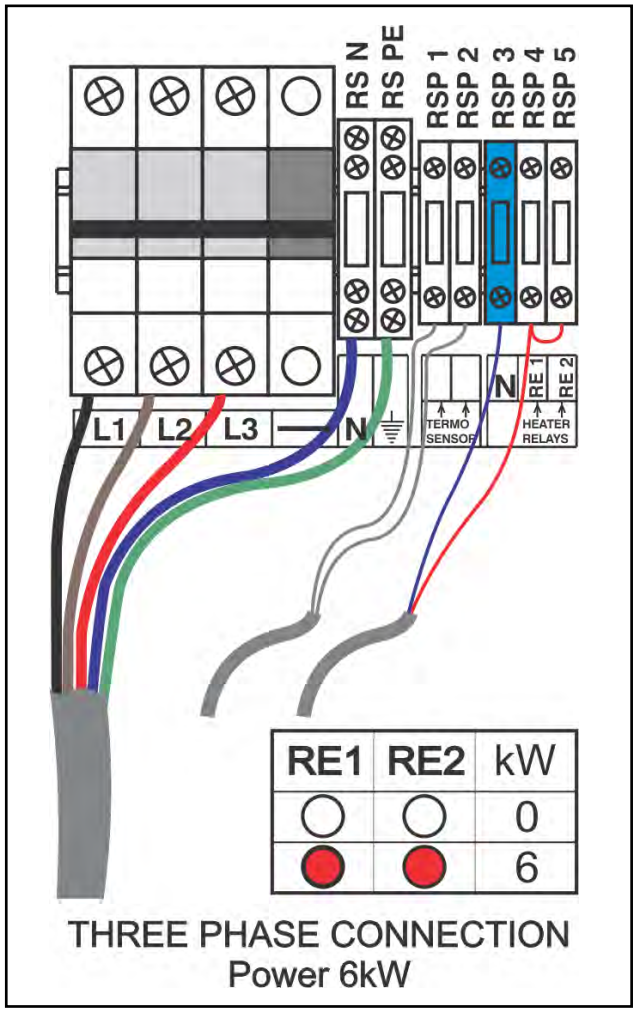


Image 6a: Connection to a three phase network

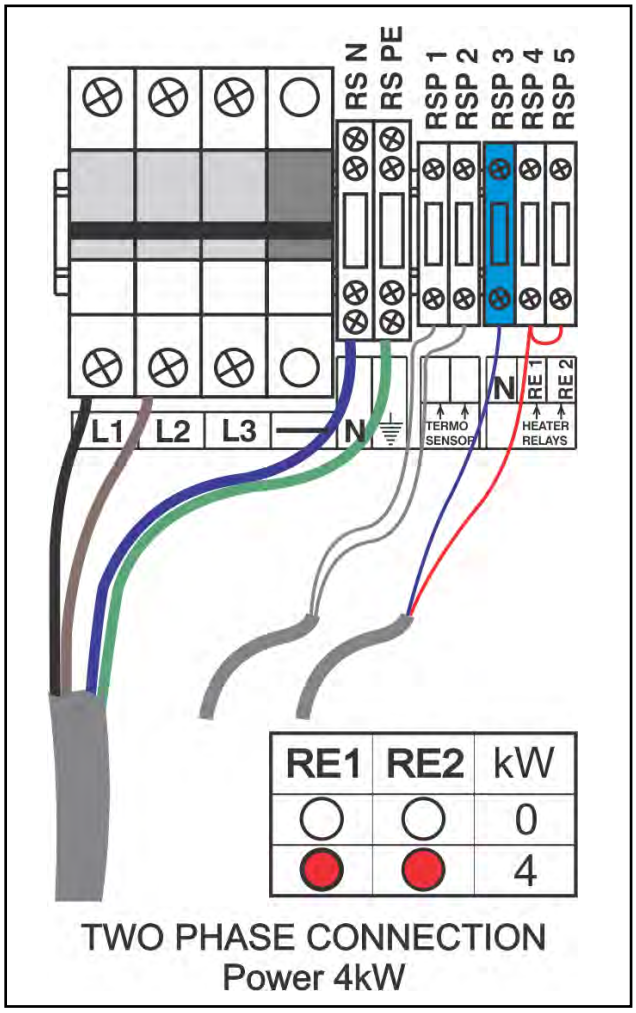


Image 6b Connecting in two phases

RSP1, RSP2 – Temperature sensor connection clamps (with Heat Pump)
RSP3 – Neutral line connection clamps (from Heat Pump)
RSP4, RSP5 – Signal connection clamps (230V AC) for switching on the heater relay (from the Heat Pump).

3N ~ 400/230V 50Hz	***TK - 6***
In[A]	*3 × 8,7*
Main fuses [A]	*3 × 16*
Min. cable cross section	*5 × 2,5mm²*

Table 6: Nominal current, el. fuses and cross-section of power cables for HPe2/4CM 6kW for three-phase power supply.

In case only 2 phases are available, the boiler can be connected according to Figure 6b, where the power is limited to 4kW, the cross-sectional dimensions of the cable and fuse from Table 6 apply.

NOTE:
If the heat pump is supplied via a differential current protection device - RSD (FID switch), and the HPe2/4CM is supplied directly from the mains, or via another FID switch, ***the neutral line (N) from the heat pump must be connected to the RSP3 clamps*** *- to prevent until the FID switches "fall"*
If both the HPe2/4CM and the Heat Pump are supplied from the same place or there are no FID switches on the installation, a neutral line from the RSN clamps can be fed to the RSP3 clamps.

5.2 Connection of HPe2/4CM to single phase mains

Connection to a single phase network is possible with a power limit of 2kW or 4kW, where the connection must be fixed (no connection is allowed with a socket) and the cross-section of the connection cable must be according to Table 7a, or 7b for 4kW power.

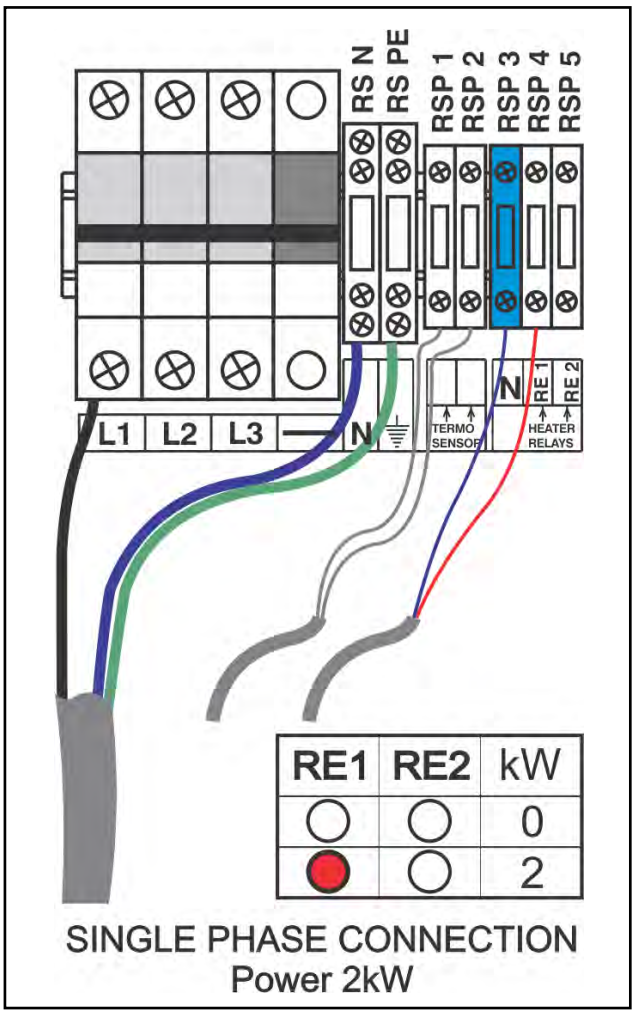


Image 7a: Shema for connecting cable to mono-phase power supply

RSP1, RSP2 – Temperature sensor connection terminals (with heat pump)
RSP3– Neutral line connection clamps (from Heat Pump)
RSP4 – Signal connection clamps (230V AC) for switching on the heater relay (from the Heat Pump).

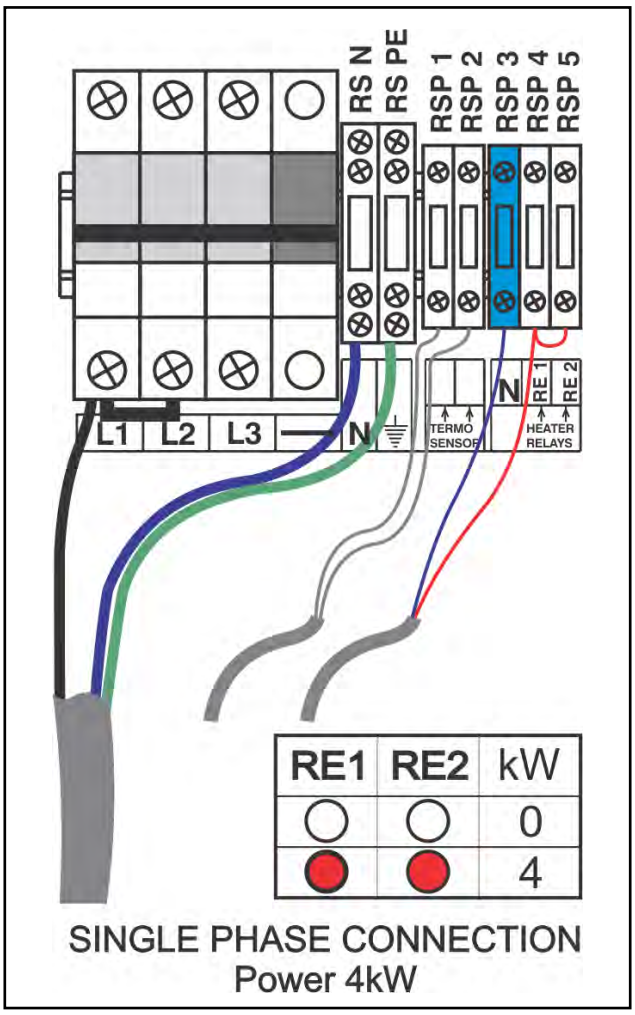


Image 7b: Shema for connecting cable to mono-phase power supply

RSP1, RSP2 – Temperature sensor connection terminals (with heat pump)
RSP3– Neutral line connection clamps (from Heat Pump)
RSP4, RSP5 – Signal connection clamps (230V AC) for switching on the heater relay (from the Heat Pump).

1N ~ 230V 50Hz	***LIMITED POWER – 2kW***
In[A]	*1 × 8,7*
Fuses [A]	*1 × 16*
Min. cable cross section	*3 × 2,5mm²*

*Table 7a: Nominal current, el. fuses and cross section of power supplies 2kW limited power cables for **single phase power supply**.*

1N ~ 230V 50Hz	***LIMITED POWER – 4kW***
In[A]	*1 × 17,4*
Fuses [A]	*1 × 25*
Min. cable cross section	*3 × 4mm²*

*Table 7b: Nominal current, el. fuses and cross section of power supplies 4kW limited power cables for **single phase power supply**.*

5.3 Connecting the power cable – Safety circuit

- The connection is made according to the wiring diagram given for each type of connection.
- Phase conductors are connected to circuit breakers, and line terminals of appropriate dimensions according to HPe2/4CM power are provided for connecting neutral and protective conductors.

A remote voltage trigger has been upgraded to the automatic fuses, so that together they form a SAFETY ASSEMBLY. In the event of overheating of the HPe2 / 4CM, the safety thermostat sends a signal to the remote voltage trigger, which activates and switches off the "fuse" of the circuit breakers, ie the HPe2 / 4CM remains without power - thus preventing any major breakdown. In order for the HPe2 / 4CM to continue to operate, the automatic fuses must be activated manually, which must be done by a service technician, after determining the cause of the overheating.

ATTENTION! When connecting phase conductors, be sure to tighten the screws in the terminal blocks well to achieve the best possible connection between the conductors and the clamps.

DANGER! Failure to connect the conductor and clamps properly may result in overheating of the terminal and failure.

NOTE! The connection of this device must be carried out by a qualified person who is qualified to perform this type of work.

- The neutral (neutral) line is connected to the appropriate clamps block (N). The neutral clamps line is blue.
- Connect the earth conductor to the clamps block marked with the earth sign. The line clamps for grounding the device is yellow-green.
- When inserting the power cord into the HPe2/4CM, carefully route the cable to the clamps blocks, taking care not to damage the cables inside the device.

5.4 Electrical scheme

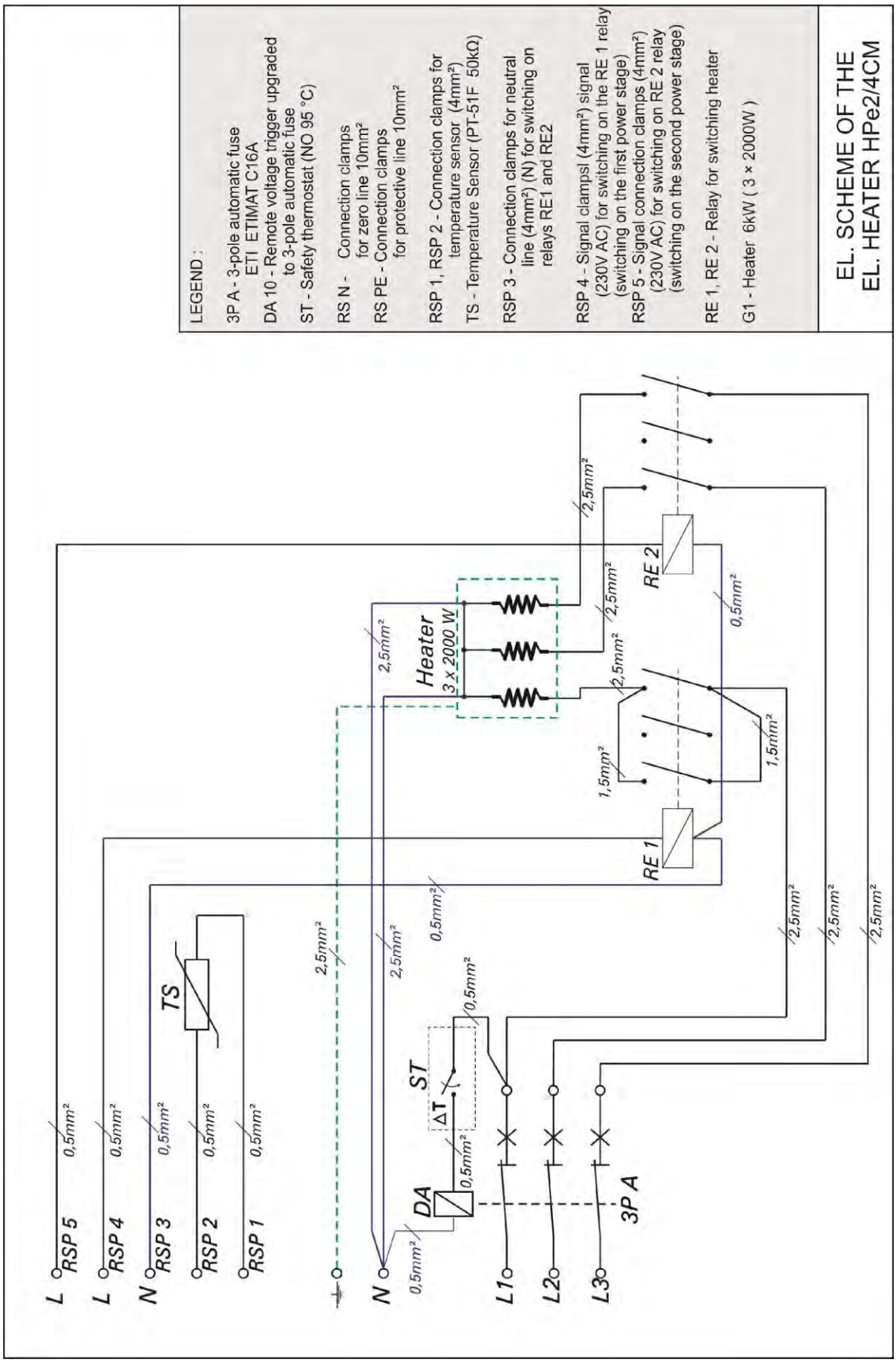


Image 8: Electrical scheme HPe2/4CM rated power 6 kW

6. Commissioning

When complete below described works fill in the Commissioning log (chapter 6.3)

6.1 Before commissioning

NOTE: Material damage occurred due to unprofessional operating!
Start-up without sufficient quantity of water destroys device.

▶ Turn on the HPe2/4CM and use it only if there is sufficient quantity of water

HPe2/4CM must work with minimum pressure of 0.5 bars
.

Before turn on, test if the following elements and joints are connecter correctly and work correctly:

- Watertight of heating installation
- All pipes connected into ducts
- All electric connectors

6.2 First turn on

NOTE: Material damage due to incorrect handling!
Klijenta/korisnika uređaja uputite u
rukovanje uređajem.

- Prior to commissioning for the first time, make sure that the heating system is filled with water and vented
- Check all electrical connections
- Switch on circuit breakers (protective circuit)

6.3 Start-up log

Commissioning works		Measured values	Notes
1.	HPe2/4CM type		
2.	Serial number		
3.	Set thermostat regulation	☐	
4.	Fill and air-vent heating installation and check sealing of all connectors	☐	
5.	Operating pressure established • Checked expansion vessel pressure	☐ _____ bar	
6.	Test safety devices	☐	
7.	Set electric connection according to local regulations	☐	
8.	Test function	☐	
9.	Users informed, technical documentation submitted	☐	
10.	Confirmation of professional commissioning	Service seal / Signature / Date	

Table 5: *Start-up log*

7. Operating the electric heater

7.1 Operating instructions

Safety instructions

- Only adults familiar with instructions and working mode may operate the HPe2/4CM
- Make sure there are no children in the HPe2/4CM area
- Do not dispose or store inflammable materials within safe distance of 400 mm round the boiler
- Inflammable materials must not be placed on the HPe2/4CM
- User must comply with instructions for operating the HPe2/4CM
- User may only turn on the HPe2/4CM (except the first start-up), adjust temperature on the regulating device and turn off the HPe2/4CM. All other operations must be performed by authorised service
- Authorised person who performed installation is obliged to inform the user about handling and correct and safe work of HPe2/4CM
- In the event of alert situation, explosion, fire, gas or steam leaking, the HPe2/4CM must not work
- Be aware of inflammable characteristics of components (**Instructions on installations and maintenance**)

8. Cleaning and maintenance

DANGER! Life threat of electric power shock!

- ▶ Electric power work must be done only by qualified person.
- ▶ Before opening device: turn heating installation off electric power supply using safety switcher and disconnect it from power supply net through corresponding fuse
- ▶ Secure heating installation against accidental turn on.
- ▶ Comply with instructions for installation.

WARNING: Material damage due to unprofessional maintenance!
Insufficient or unprofessional maintenance of HPe2/4CM can lead to damage or destruction and to loss of Warranty rights

- ▶ Secure regular, entire and professional maintenance of heating installation.
- ▶ Electric parts and work units protect against water and humidity.

Use only spare parts delivered by the manufacturer or those approved by manufacturer. There will be no responsibility for damage occurred due to spare parts not delivered by the manufacturer.

Control examination log is provided on chapter 8.4

- Perform works in accordance with log on control and maintenance
- All deficiencies remove immediately.

8.1 HPe2/4CM cleaning

Clean this device externally with wet cloth.

8.2 Check working pressure; re-fill water and air-vent installation

DANGER: Health threat due to mix of drinking water!

- ▶ It is demanding to respect state regulations to avoid mix of drinking water (with water from heating installations)
- ▶ Comply with EN 1717.

Establish an operating pressure of at least 0.5 bar, depending on the installation height

The volume of newly filled water is reduced in the first days after charging due to heating. This creates airbags that create interference in the heating system.

Testing working pressure

- Working pressure of new heating installation should control on daily basis at the beginning of its work. If needed, re-fill water and air vent the system
- Later check working pressure once per month. If needed, re-fill water and air vent the system
- Check working pressure. If it decreases below 1 bar re-fill water
- Re-fill the water
- Air vent the heating installation
- Check working pressure again

8.3 Re-fill the water and air-vent the installation

WARNING: Material damage due to heat tension. Filling heating installations in warm condition can produce cracks due to tension

- ▶ Fill heating installation only in cold condition (temperature of starting duct lines of max 40 °C)

WARNING: Material damage due to frequent re-filling!
Due to frequent water re-filling installations can be damaged by corrosion and carbonate layers depending on water characteristics

- ▶ Test sealing and watertight of heating installations and expansion dish on functionality.

- Connect hose on water faucet
- Fill the hose with water and connect to connector for filling/draining
- Tighten the hose and open the water faucet for filling/draining
- Slowly fill the heating installation while following up with pressure (manometer)
- During filling procedure air vents the system
- When reach working pressure close the drainage faucet
- When reach working pressure close the drainage faucet
- Remove the hose from filling/drainage faucet

8.4 Inspection and maintenance log

At least once a year perform maintenance or when a check shows the status of installations that require maintenance.

The commissioning, inspection and maintenance record serves as an attachment for copying

- Executed works should be authorised by signature and date.

	Inspection and maintenance works when needed	Date: _____	Date: _____	Date: _____
1.	Check condition of installations	☐	☐	☐
2.	Visual and functional control	☐	☐	☐
3.	Making working pressure • Check pre-pressure of expansion dish • Working pressure set on … • Heating installation air vent • Check safety heating valve	☐ _____ bar ☐ ☐	☐ _____ bar ☐ ☐	☐ _____ bar ☐ ☐
4.	Clean water filter	☐	☐	☐
5.	Check if there is any damage on electric duct lines	☐	☐	☐
6.	Check if electric control connections and used elements are fitted; tighten it if needed	☐	☐	☐
7.	Check thermo-regulator on boiler	☐	☐	☐
8.	Check function of safety parts	☐	☐	☐
9.	Check remote control function	☐	☐	☐
10.	Check insulation of the rod heater	☐	☐	☐
11.	Check function of grounding device	☐	☐	☐
12.	Check insolation of electric switchboard	☐	☐	☐
13.	Check heating pump function	☐	☐	☐
14.	Make final control of inspection works and document results of measuring and inspecting	☐	☐	☐
15.	Certification of professionally conducted inspection	Seal/Signature	Seal/Signature	Seal/Signature

Table 13: *Inspection and maintenance log*

9. Environment protection /Waste disposal

One of the basic concepts of business is environment protection. Quality of products, thriftiness and environment protection are equally valuable goals for us.
It is critical to strictly comply with law and regulations on environment protection. In order to protect environment and respecting economy concepts we use only the best technique and materials.

Packaging

Regarding packaging, we respect system of recycling which is specific in certain states and which secure optimal recycling
All materials applied for packaging do not harm environment and It is possible to recycle it.

Old devices

Old devices contain valuable materials that can recycle. Structures are easily demountable and plastic materials are labeled. In such manner structures can be sorted and deliver for recycling.

10. Troubles and troubleshooting

Troubleshooting on regulations and hydraulics must be done by an authorised firm.

For repairs use only original spare parts.

TROUBLE	DESCRIPTION	CAUSE	MEASURE
HPe2/4CM does not react after turn on of main switcher	Display does not react, other components do not work	• HPe2/4CM is out of power supply • Fuses on bottom plate are off • Vanishing of managing phase • Damage of main fuse ON/ OFF	• Provide power supply • Turn on fuses • Check if fuses have three phases on output • Change damaged part
HPe2/4CM does not heat or insufficiently heat/heating pump works	All on display are within recommended values but HPe2/4CM does not make hot water	• Lack of 1 or 2 phases • Small power of HPe2/4CM • Some relay damaged • Some heater damaged	• Check all three phases • Check set power of HPe2/4CM • Change damaged part • Change damaged part
HPe2/4CM heats but it is very noisy	Higher level of noise during work	• Air in the system • Small water flow • Possible carbonate layer on heater	• Check if the system is air vented and vent it • Check valves below boiler and open it Clean filter below HPe2/4CM • Take out heaters and clean it (this is not included in claims during warranty period)
HPe2/4CM turns on quickly	Reaches temperature too quickly and turns on	• Valves below the HPe2/4CM off • Pump fuse stop to work • Pump inaccurate	• Open valves • Change inaccurate part • Change inaccurate part
Great oscillations of working pressure	Too fast and too big changes of working pressure	• One valve off • Expansion dish pressure inadequate • Inaccurate dish	• Open the valve • Check pressure in expansion dish and if needed set dish pressure adequately • Change inaccurate part

Table 14: *Troubles and troubleshooting*

11. Product data sheet (in accordance with EU regulation no. 811/2013)

1.	Manufacturer	MIKOTERM DOO
2.	Brand name	Centrometal – HPe2/4CM
3.	Models	HPe2/4CM

4.	Room heating: Seasonal energy-efficiency class			D
5.	Room heating: Nominal heat output(*8) (*11)	P_{rated}	kW	6
6.	Room heating: Seasonal energy efficiency(*8)	η_S	%	99
7.	Annual energy consumption(*8)	Q_{HE}	kWh	6600
8.	Sound power level, indoor	L_{WA} indoor	dB(A)	3
9.	All specific precautions for assembly, installation and maintenance are described in the operating and installation instructions. Read and follow the operating and installation instructions.			
10.	All of the data that is included in the product information was determined by applying the specifications of the relevant European directives. Differences to product information listed elsewhere may result in different test conditions. Only the data that is contained in this product information is applicable and valid.			

(*8) For average climatic conditions

(*11) For boilers and combination boilers with a heat pump, the nominal heat output "Prated" is the same as the design load in heating mode "Pdesignh", and the nominal heat output for an auxiliary boiler "Psup" is the same as the additional heating output "sup(Tj)"

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