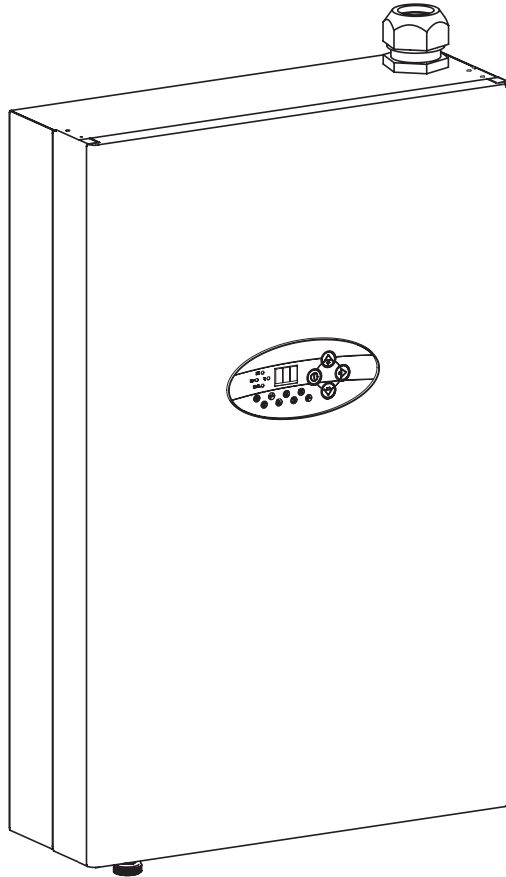




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## Electric Central Heating Flow Boiler



**EKP.LN2M**

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**Assembly and operating instructions**



***This appliance can be used by children aged from 3 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.***

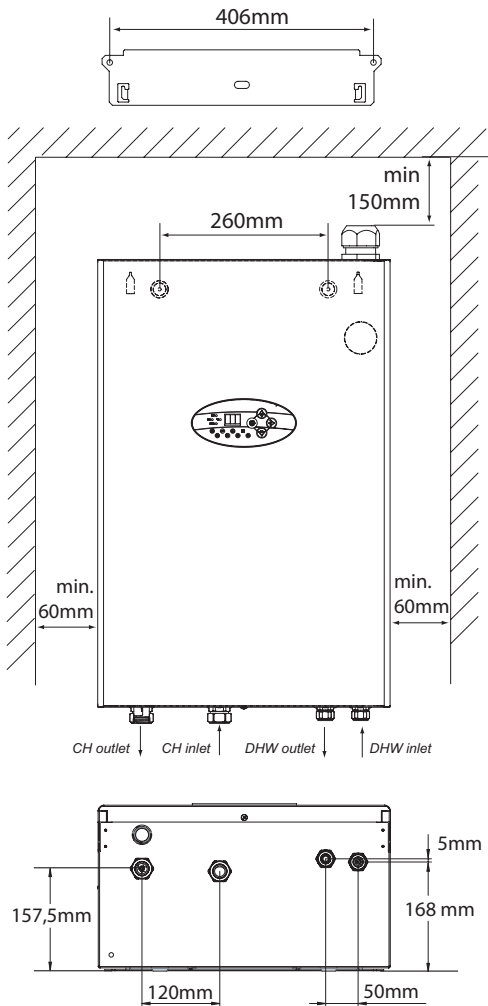
## ***Safety instructions***

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1. Read and strictly follow the installation and operating instructions to ensure a long life and reliable boiler operation.
2. An efficient electrical installation which has been completed in accordance with the binding norms of electric installation.
3. A wet central heating system equipped with appropriate expansion vessel made according to binding norms of hydraulic installation- closed system.
4. A wet central heating system must be flushed before boiler installation.
5. Do not install any barrier fittings (e.g. valves) on the outlet of the safety valve.
6. Boiler must be installed on an even wall surface.
7. Boiler must not be installed in a humid place, in a place exposed to the danger of explosion or in a place where the ambient temperature may drop below 0°C.
8. Boiler installation and all electrical and hydraulic work must be performed by a qualified professional installer.
9. All installation work must be performed when the power and water supply is turned off.
10. Electric installation should be equipped with residual current protective devices and other solutions which will ensure disconnecting the heater from the source of power (intervals between all their poles should not be less than 3 mm).
11. Electronically controlled heater is a electrical surge sensitive device, therefore the electrical installation must contain surge protection devices.
12. Do not drain the water from central heating system after the heating season.
13. Leave the controller in stand-by mode and do not cut off power supply between the heating seasons.
14. The water heater is designed to heat DHW in households, sanitary facilities, laboratories and workshops etc.
15. The maximum inlet water temperature should not exceed 60°C.
16. The instant heater should always be vented before initial start-up. Vent the unit each time after the water has been emptied from the heater or pipes (e.g. when water supply system has been repaired or maintained).

17. Plastic pipes at the inlet and outlet may be used to connect the water heater, and in the case of the outlet pipes, their strength shall be at least 20 bar at 70°C.
18. Make sure that the heater is not emptied of water, which may occur if there is no water in the supply network.
19. Failure to install the magnetic filter on water supply pipe can cause unit damage.
20. Lime scale built-up on heater's elements may limit water flow and lead to heater's damage. Such damages are not subjected to warranty rights. Water heater and sanitary fittings should be periodically descaled, whereas, frequency of this process should be adjusted to water hardness in given installation. Lime scale built-up may be partially limited by usage of magnetic descalers installed on the cold water inlet pipe.
21. Appropriate precaution must be taken when using hot water. Temperature of water over 40°C may cause hot feeling and can be dangerous for children, whereas, temperature above 50°C may lead to first degree burn (especially amongst small children).

# Assembly and installation

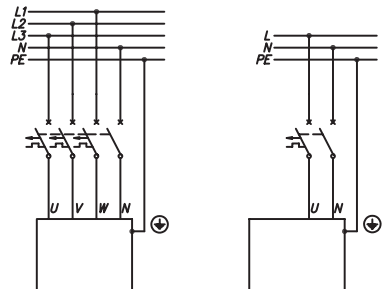


1. Hang the boiler up in a vertical position on fixing screws with the inlet and outlet pipes to the bottom, maintaining clearances from the walls and the ceiling.
2. Connect the boiler to the central heating system equipped with a cut-off valves.
3. Fill the central heating system with treated water or non-freezing liquid.
4. Connect the water heater to the water system.
5. Vent the central heating system.
6. Open the cold water supply valve and check the tightness of the water connections.
7. Vent the DHW system according to "DHW system venting" section.
8. Connect the device to the electric system.
9. Mount the room thermostat in accordance with device's manual.
10. Connect the room thermostat (by using two wires 2 x 0,35 mm<sup>2</sup>) to the terminal of control panel (RT entry).
11. Once you have finished the above procedures, you can start the boiler. See the „Start-up” section.

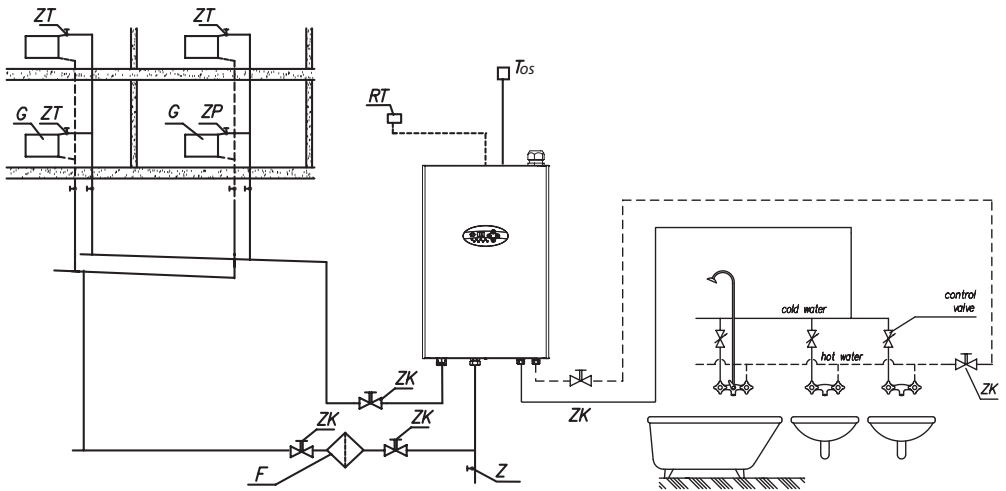


**While mounting the room thermostat make sure there is no voltage on its entry!**

**Do not connect any voltage into RT, NA, Tos entries. This can result in permanent controller damage.**



## Boiler connection to the CH system



ZK - cut-off valve

ZT - thermostatic valve

ZP - passage valve

F - magnetic filter

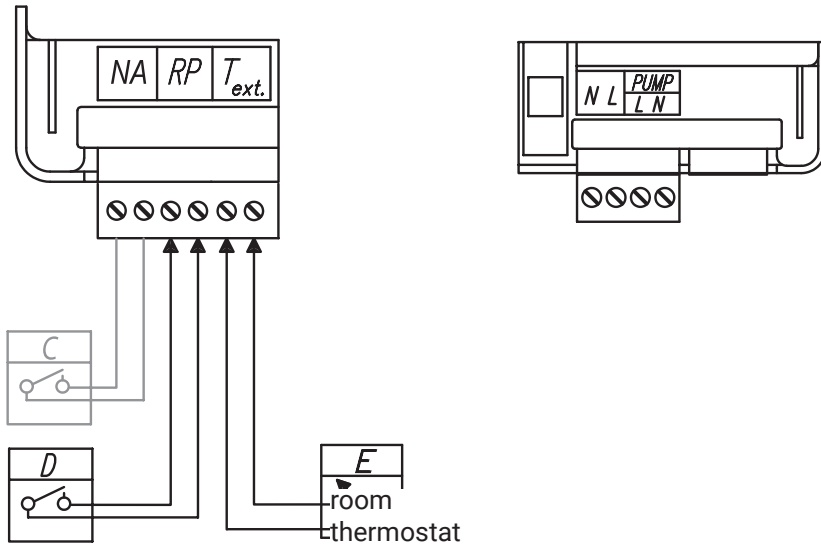
G - radiator

RT - room temperature thermostat

Tos - outside temp. sensor WE-027

Z - drain valve

# Connection of external appliances



**Room thermostat (RT entry)** – when the voltage free contact gets opened the boiler will stop heating. The entry is responsible for boiler's control depending on the room temperature (room thermostat connection details – section 'Installation', sub clause 10).

**Master appliance (MA entry)** - you can limit the power used, i.e. the boiler can be switched off while another appliance consumes electricity. To do it, an electrician should install in line an extra open contact to the MA entry (voltage free entry), so that when a master appliance gets on, the contact will be opened and the boiler will be switched off. When the MA contact gets opened, heating will be turned off and the pump will be stopped. If the device works as a secondary heat source, the master boiler stops the heating by opening the MA contact.

**WE-027 outside temperature sensor (Tos entry)** - for connection details please, refer to the figure. If there is need to extend the wire- it is necessary to make it as short as possible. The wires should not run close to mains cables and they must not go around other electric wires. It is recommended to mount the sensor on the northern or north-west facade of the building away from windows and exhaust fans.

**Note!** If outside temperature sensor hasn't been connected then it is necessary to switch off the weather compensation in the advanced settings section.






## **DHW system venting**

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1. Shut off the heater's electric supply.
2. Turn the flow on (turn the hot water tap on) in order to vent the water installation (for about 15-30 seconds), until the flow of water becomes constant and even.
3. Switch on the electric supply.

## **Start up - CH system**

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1. Check if required pressure has been reached within the installation (see section "Technical Data"). In order to check it use  or  button when control panel is „on”.  
Flashing A symbol (see section "Failures") indicates too low installation pressure. Above description does not apply to open type installations.
2. Set the pump at constant mode (see section "Advanced settings").
3. Switch the boiler on (press  button).
4. Check if the appropriate medium flow rate has been reached (the „H” indicator is on with a constant light). The pump should auto-vent itself after a short working time, however, if necessary, vent the pump in the following way:
  - close the cut-off valve on the outlet,
  - let the boiler with the pump on run for 15-30 s.
  - open the cut off valve.
5. Switch the boiler off (press and hold  button for 3 seconds).
6. Set the pump at automatic mode (see section "Advanced settings").
7. Connect the room thermostat.
8. Switch the boiler on (press ).
9. Set parameters of heating curve adjusted to the building (heating curve coefficient and offset) - see section "Advanced settings".  
Reset of the curve's slope switches off weather compensation and starts boiler's operation in accordance with manual adjustments of the installation.

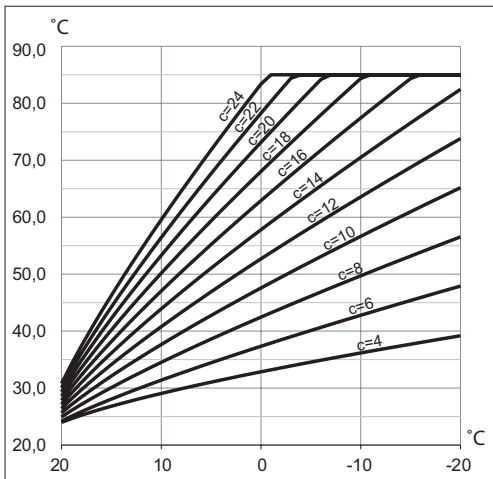


# Advanced settings

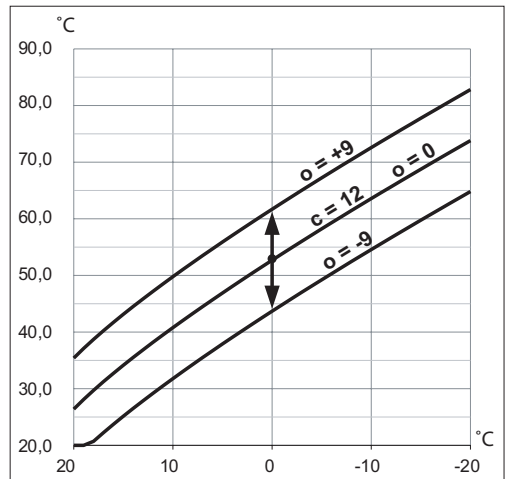
For advanced settings switch the control panel to stand-by mode (press and hold  $\odot$  button for approximately 3 seconds) then press and hold  $\rightarrow$  button, and for a short period of time press  $\odot$  and let go.

To select parameter press  $\rightarrow$  to change the value press  $\uparrow$  or  $\downarrow$ :

- heating curve coefficient, weather compensation switch off:
  - $f = 4 - 25$ ,
  - $f = 0$  - weather compensation switched off, manual regulation of installation's temperature.
- heating curve offset:
  - $o = -9^{\circ}\text{C} \div 9^{\circ}\text{C}$ .
- outside temperature of CH switch off: setting outside temperature above which CH circuit is switched off.



Heating curve coefficient

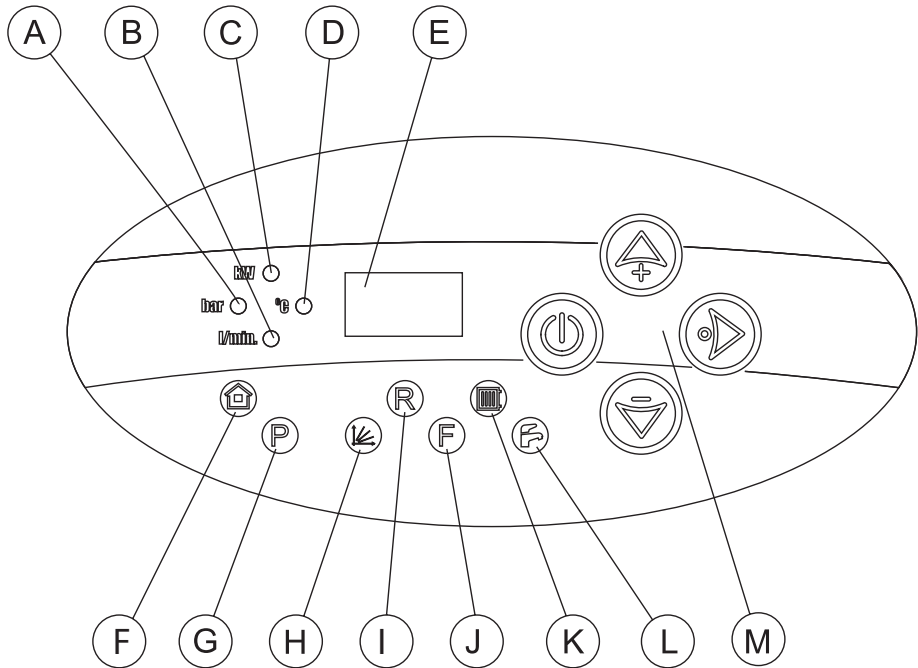


Offset of the heating curve for C=12

- pump's working mode:
  - PA - automatic,
  - PC - constant.
  
- pump's efficiency [E]:
  - E3.0 - 3.0m,
  - E4.0 - 4.0m,
  - E5.0 - 5.0m,
  - E7.0 - 7.0m,
  - E7.5 - 7,5m.
  
- pump pressure mode [PPn]:
  - constant pressure difference (pressure indicator- on),
  - variable pressure difference (pressure indicator- flushing).
  
- pressure sensor in CH installation,:
  - active (1),
  - inactive (0), sensor should be deactivated in open type installations.
  
- maximum temperature of CH installation.
  
- number of active heaters [AH].
  
- work time counter of boiler (read-only). Counter displays digits (without preceding zeros) from the most significant one with 0,5 sec breaks- after the display of the least significant digit, display is blanked for 2 sec.

# Control panel

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A - pressure [bar]

B - flow [l/min]

C - power [kW]

D - temperature [°C]

E - digital display

F - indicator of room thermostat and heating activity (for central heating)

G - indicator of pump and flow activity

H - indicator of weather compensation controller

I - inlet temperature indicator


J - outlet temperature indicator

K - indicator of boiler activity (CH)




L - indicator of boiler activity (DHW)

M - control buttons

## Stand-by mode

In stand-by mode the pump is activated everyday for 2 min, which prevents seizure of the pump. To switch between stand-by mode and summer/winter mode press and hold the power button  for 3 seconds.


**Stand-by is indicated by briefly showing on the display followed by the display turning blank.**





Pressing  or  buttons displays parameter of installation pressure. After 1 min of inactivity the display becomes blank again. Pressing , button in the stand-by mode shifts boiler's operation to winter or summer mode depending on the valid settings adjusted before activation of stand-by mode.


## Winter mode (CH)

Winter mode is activated when   icon is on.

In winter mode control panel displays pictograms which describe current boiler's operation mode- digital display indicates heating medium's temperature.

Pressing  button shifts to the preview of current parameters and settings of boiler's operation in the following order:


- domestic water temperature setting (indicators L and D). Using buttons  or  - you can change the domestic water setting value,
- domestic water temperature at the inlet (indicators I, L, D),
- domestic water temperature at the output (indicators J, D and L),
- value of water flowing through the heater (indicators L and B),
- current power consumed by the water heater (indicators C and L),
- CH medium temperature adjustment (indicators K and D), indicator H is on when weather compensation regulator is active (advanced settings). Indicator H flashes when there is no possibility to determine installation temperature due to the lack or failure of outside sensor- the boiler shifts to manual adjustments. Pressing  or  buttons when heating medium temperature is indicated on the display results in heating medium value change. Note, it works only when weather compensation regulator is switched off (advanced settings - parameter C=0) or when there is no outside sensor,
- inlet temperature CH (indicators I, K and D),
- outlet temperature CH (indicators J, K and D),
- outside temperature (indicators F, D, K), if the weather compensation regulator is disabled, the parameter is ignored. In case of a failure of the external sensor and the weather compensation controller is turned on, are shown on the digital display characters such as “---”
- flow of the medium through the boiler (indicators K and B),
- pressure in CH installation (indicators K and A),
- current power charged by boiler (indicators K and C).



If the control panel is in the preview / parameter setting mode, pressing the  button or if the keyboard is not used for 1 minute, it will return you to the main view.


## Summer mode

Summer mode is active when the icon  is active and the icon  is inactive.

In summer mode (main view) the control panel displays icons describing the current device operation. Digital display shows the output temperature of domestic water, if heating conditions exist.







Pressing button  shows preview of current parameters and device settings in the following order:

- domestic water temperature setting (indicators L and D). Using buttons  or  you can change the domestic water setting value,
- domestic water temperature at the inlet (indicators L, I, and D),
- domestic water temperature at the output (indicators J, D and L),
- value of water flow through the heater (indicators L and B),
- current power consumed by the water heater (indicators C and L),

If the control panel is in the preview / parameter setting mode, pressing the button  or if the keyboard is not used for 1 minute, it will return you to the main view.

If the control panel is in the main view, short press the button to enter to winter mode.

## Icons and indicators

Indicator	Status	Details
	ON	room thermostat allows the boiler to heat
	OFF	required temperature has been reached (boiler doesn't heat)
	flickering	master appliance doesn't allow to heat (MA entry)
	ON	pump is active, a proper flow rate of medium has been reached
	flickering	lack of flow or insufficient flow rate of medium (failure condition), heating elements are off,
	red	heating on- boiler's CH mode
	green	desired temperature has been reached
		boiler co-operates with DHW cylinder (icon  in red)
		temp. in CH system is lower than required but the required room temperature has been reached, RT entry is open, or room thermostat is blocked
OFF	OFF summer mode on	
	red	instantaneous water heater's performance
A	flickering	installation pressure is not sufficient (below 0,5 bar), heating is blocked, pump is inactive
E	horizontal dashes	parameter out of range or temp. sensor failure
K or L	flickering	respective temperature sensor failure
	ON	previev of outside temperature

## Fault finding

Symptom	Reason	Action
Indicators on control panel are off	lack of device's power supply.	check parameters of power network and fuses
		contact authorised service
A indicator flickers	insufficient pressure (below 0,5 bar)	shift the controller to the pressure view, increase pressure within the installation to required level (1.5bar Cold)
	pressure sensor failure	switch the controller to pressure pre-view, if display E indicates "--" contact authorised service
G indicator flickers	pump blocked or seized	unblock pump's rotor
	lack of medium's flow through the boilerboiler's blockage	air locked central heating system, vent the installation, pump and boiler & re-set pressure
	failure of pump's power supply	check water quality of CH installation and clean the filter
	failure of pump or flow sensor	contact authorised service
F indicator is off (in winter mode), room thermostat indicates heating on	check room thermostat is providing	check programmer/thermostat. linked out RT & MA if no response, change PSK Controller
	continuity across RT connection	contact authorised service
I indicator flickers	failure of inlet temp. sensor, heating blockage	contact authorised service
J indicator flickers	failure of inlet temp. sensor, heating blockage	contact authorised service
F indicator flickers and the boiler doesn't work	failure of installation that connects master appliance	check connecting installation
	failure of electronic module	contact authorised service
H indicator flickers	failure of outside temp. sensor	contact authorised service
L indicator flickers (red)	failure of DHW temp. sensor	contact authorised service

## Technical data

EKPLN2M		11	13	18	24
Rated power	kW	11	13.2	18	24
Rated voltage		230V~		400V 3N~	
Rated current	A	52.2	57.5	3x26.3	3x34.6
Min. connecting wires section	mm <sup>2</sup>	3x16		5x4	5x6
Max. connecting wires section	mm <sup>2</sup>	3 x 25		5 x 25	
The maximum allowed network impedance	Ω	0.24	0.22	0.27	0.13

Water heater					
Efficiency (at $\Delta t = 30^{\circ}\text{C}$ and water pressure at 0,4 MPa)	l/min	5.3	6.3	8.7	11.6
Pressure in the water mains	MPa	0.1 ÷ 1.0			
Activation point (min. rate of flow)	l/min	2,5			
Temperature adjustment range	°C	30 ÷ 60			
Water fittings		ø 15mm (connections position 50mm)			
The minimal resistivity of water 15°C	Ωcm	1100			



EKP.LN2M		11	13	18	24
Rated power	kW	10.1	12.1	16.3	21.7
Rated voltage		220V~		380V 3N~	
Rated current	A	54.5	60.0	3x27.3	3x36.5
Min. connecting wires section	mm <sup>2</sup>	3x16		5x4	5x6
Max. connecting wires section	mm <sup>2</sup>	3 x 25		5 x 25	
The maximum allowed network impedance	Ω	0.24	0.22	0.27	0.13

Water heater					
Efficiency (at $\Delta t = 30^{\circ}\text{C}$ and water pressure at 0,4 MPa)	l/min	4.9	5.8	7.8	10.3
Pressure in the water mains	MPa	0.1 ÷ 1.0			
Activation point (min. rate of flow)	l/min	2.5			
Temperature adjustment range	°C	30 ÷ 60			
Water fittings		ø 15mm (connections position 50mm)			
The minimal resistivity of water 15°C	Ωcm	1100			

## CH boiler

Max. pressure	MPa	0,3 (3 bar)
Min. pressure	MPa	0,05 (0,5 bar)
Outlet temperature	°C	20 ÷ 85
Max. temperature	°C	100
Dimensions (height x width x depth)	mm	690 x 451 x 258
Weight	kg	~19
Boiler's connections		ø 22mm
Expansion vessel	l	6
Safety class		IP 21



Used product can't be treated as general communal waste. Disassembled appliance has to be delivered to the collection point of electrical and electronic equipment for recycling. Appropriate utilisation of used product prevents potential negative environmental influences that may occur as a result of inappropriate handling of waste. In order to get more detailed information about recycling this product you should contact the local government unit, waste management service or the shop where this product has been purchased.



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