

**The Fusion Range of Boilers
the ultimate solution for central heating**

**INSTALLATION
&
TECHNICAL MANUAL**

Fusion

MERCURY
COMBI

ehc

the electric heating company

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Mercury Combi



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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.

INTRODUCTION

Please read and follow the installation and operating instructions carefully, to ensure the long life and reliable operation of this appliance.

The Electric Heating Company may make minor changes if necessary in the appliance that will not be shown in the operating instructions, so long as the main features of the boiler remain the same.

All boilers come with a 24 month warranty that covers all defects originating from faulty materials and workmanship in the manufacture of the boilers.

The warranty covers the replacement of any faulty parts and labour costs.

The warranty will not cover any damage to the boiler from poor or incorrect installation work.

The warranty will not cover any call out charges that have not been organised by the Electric Heating Company Ltd.

The warranty will not cover water leaks into the boiler. All plumbing joints must be checked.

The warranty card must be completed and sent back to The Electric Heating Company as soon as possible for product registration, alternatively the boiler can also be registered online when you visit the link below.

<https://www.electric-heatingcompany.co.uk/support/warranty-registration/>

PREPARATION

Instructions and Building Regulations

This appliance must be fitted in accordance with the following instructions.

The Local Building Regulations

The Building Regulations

The Building Standards, (Scotland-consolidated) Regulations.
Local water bylaws. British Standards- code of practice

BS EN 12828

Heating systems in buildings. Design for water-based heating systems.

BS EN 12831

Heating systems in buildings. Method for calculation of the design heat load

BS EN 14336

Heating systems in buildings. Installation and commissioning of water based heating systems

BS7671

Requirements for electrical installations. IEE Wiring Regulations. Seventeenth edition.

BS EN 13831

Closed expansion vessels with built-in diaphragm for installation in water

C.O.S.H.H.

Materials used in the manufacture of this appliance are non-hazardous and no special precautions are required when fitting or servicing this appliance.

PREPARATION

1. Load Check

A load check should be taken into consideration when installing high output boilers.

2. Boiler location

The boiler must be fitted on a wall that will provide an adequate fixing, and should be fitted in a location that the boiler and pipe-work are not subject to frost and damp conditions.

3. Central heating (design & installation)

Detailed recommendations are given in BS EN 12828, BS 6700 and CP 342-2

Pipes forming part of the useful heating surface should be insulated to prevent any potential heat loss or frost damage (BS 6700).

Drain valves should be fitted at the lowest point of the system pipe work in an accessible position.

Drain valves should be in accordance with BS 2879 and copper tube to BS EN 1057. is recommended.



LOCATION

The boiler can be installed in almost any location within a domestic or commercial property, however consideration should be given to future maintenance. Never leave the boiler switched off if there is danger of having temperatures below 0°C in the room where it is located.

We recommend that a minimum clearance of 450 mm should be allocated for the removal of the front cover and adequate access to the boiler plumbing and the internal electrical connections. A 50 mm allowance should be made at either side of the boiler to allow free flow air into the boiler case and allow access to screws on the boiler case.

THE BOILER MUST BE INSTALLED IN THE UPRIGHT POSITION, FAILURE TO DO SO WILL INVALIDATE THE WARRANTY

INSTALLATION

1. General

Mercury boilers must be installed by a professional plumber or heating engineer. All Electrical works must be carried out by a fully qualified electrician in accordance with the current revision of BS7671 wiring Regulations.

The Electric heating Company Ltd will not be held responsible for faulty installations which are performed by unqualified tradespeople.

2. Pipe Connections

Mercury boilers Plumbing connections are of the compression type. (22mm for Flow & Return & 15mm for Hot & Cold).

3. Case Removal

Remove outer screw at the bottom of the boiler and pull the front cover outwards and upwards taking care to remove internal earth connection. Earth connections must be re-connected before the boiler case is re-installed.

4. Isolation Valves

We recommend that lever isolation valves are fitted on the flow and return pipework. Such valves must be „full bore“ and not „ball valves“. The installation of „ball valves“ will reduce the recommended flow through the boiler that could promote premature boiler shut-down.

5. Mains Water inlet

We recommend that a lockshield stopcock is fitted on the mains inlet of the boiler to allow you set the recommended flow rate. (Flow rates can be found in the technical table within this manual) When the boiler is fitted in hard water areas, a water softener must be used. **Note:** Salt softeners must not be used to fill the heating system.

6. Auto air vents

An auto air vent is integral within the boiler however an additional auto air vent must be fitted at the cylinder coil if the boiler is being used for central heating and domestic hot water.

7. Boiler Sizing

Calculate the „space heating“ requirements in accordance with BS EN 12831 and BS EN 14336. If the boiler is to heat the domestic hot water, an additional allowance of 3kW (10,239 Btu's) should be made to the 'space heating' calculation.

8. Insulation

Where practical, and if at all possible, we recommend that all pipe-work be insulated, in particular the pipe-work within a boiler cupboard. This is to reduce heat loss and reduce high cupboard temperatures from exposed pipe-work. (BS 6700).

9. System Design

Allowance should be made for a radiator to be installed within the heating circuit and locked open. This will be located in the room that has the room thermostat installed.

To comply with building regulations, Part L and Part J (in Scotland), room and cylinder stats must be fitted.

Water Connections, Provisions must be made for the replacement of water lost from the heating system (sealed systems).

Reference should be made to BS EN 14336 for the method of filling and make up of water. There must be no direct connection between the boilers central heating system and the main water supply. When mains water is required to fill the system directly, all local water bylaws must be observed, and any connection made must be disconnected after use.

10. Flushing

The system **must be flushed** to within 10% of mains water PPM to ensure that no debris is trapped in the system as this may result in boiler failure. Where existing radiators and pipe-work are utilized a power flush must be carried out .For further guidance please see - Commissioning section on page 6.

11. System pressures

All boilers are tested to 4.0 bar. The normal working pressure of the boiler should be set to approx 1.0 / 1.5 bar. All sealed systems should comply with the relevant building regulations and standards, including BS EN 13831 Specification for Expansion Vessels.

12. System types

The Fusion Mercury Combi Boilers can be used in various heating designs including underfloor systems. When the boiler is used with an underfloor manifold, the manifold must be of the type that has a thermostatic mixing valve fitted to protect the floor surface.

For standard radiator systems we recommend the use of thermostatic radiator valves on all radiators except in the room that has the wall thermostat fitted. This radiator should be fitted with lock-shield valves and left in the fully open position.

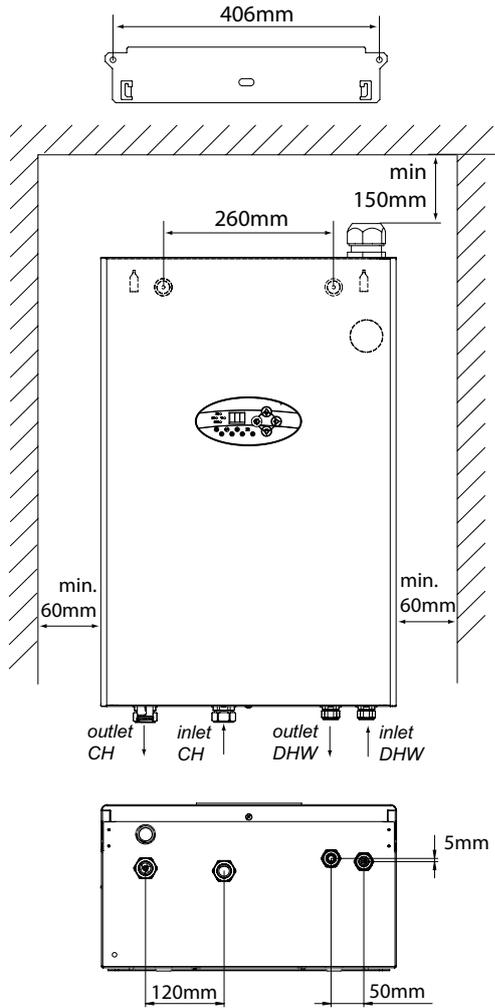
Systems should be designed to meet the current building regulations in force at the current time.

13. Hanging the Boiler

Hang the boiler in a vertical position using the mounting bracket and fixing screws provided. Make sure the boiler has the minimum recommended clearances as mentioned within this manual.

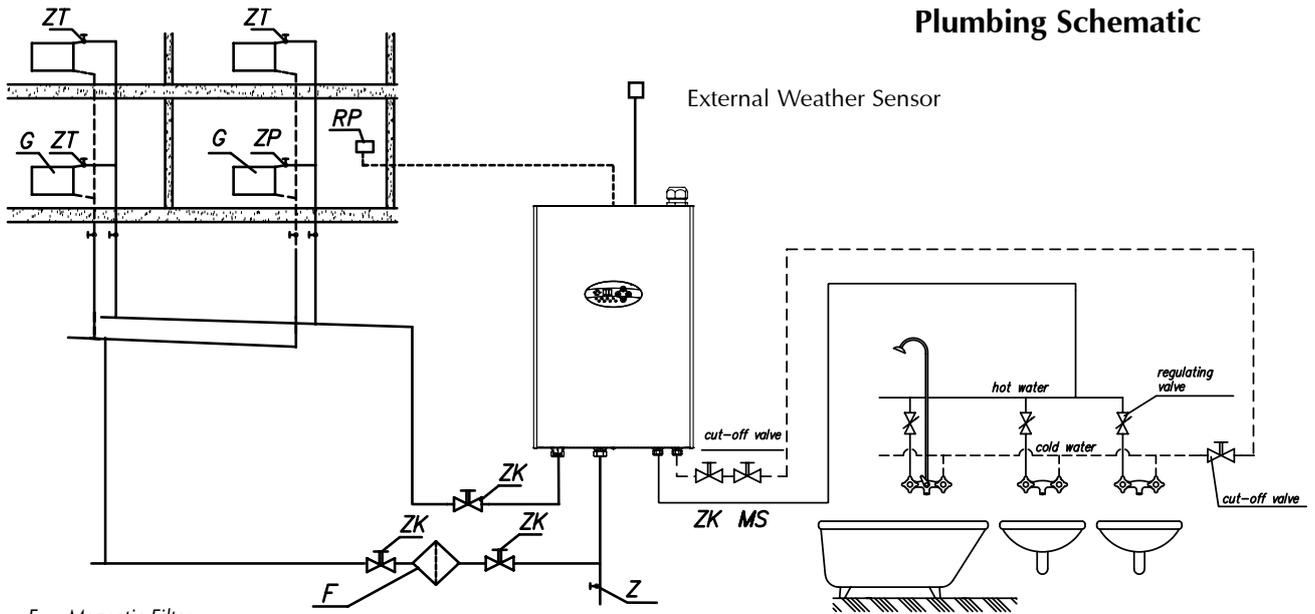
Connect the boiler to a heating system that is equipped with full bore isolation valves and external magnetic filter.

BOILER DIMENTIONS & PLUMBING SCHEMATIC



Width 451mm
Height 690mm
Depth 258mm

Plumbing Schematic



- F - Magnetic Filter
- ZK - Full Bore Isolation Valves
- Z - Drain Valve
- G - Radiator
- ZT/ZP - TRVs
- RP - Programmer / Thermostat Locksheild
- MS - Stop Cock (To regulate Flow)

Note:
We don't recommend the using single phase boilers to fill baths due to the lower flowrates produced by them.

COMMISSIONING

IMPORTANT:

Make sure that all plumbing connections are tight before filling the boiler and heating system.

Bleeding DHW pipework.

1. Open the DHW tap outlets one at a time.
2. Slowly open the mains Stopcock feeding the DHW circuit of the boiler, until the air has been removed from the hot water pipework, close each tap after water starts to flow.
3. Adjust the DHW flow rate.
4. Open one of the tap outlets and adjust the flow rate by slowly closing the (MS) regulator valve to the recommended flow rate for your boiler size. Refer to the technical table shown on page 17.
5. After the boiler has been electrically wired and tested, you can now turn on the electrical power supply to the boiler.
6. Make sure the programmer is not calling for heat at this stage.

Note: When the boiler is fitted in hard water areas, a water softener must be used. Salt softeners must not be used to fill the heating system.

Filling the Heating Circuit:

1. Turn on the electrical power supply to the boiler.
2. Make sure the programmer is not calling for heat at this stage.
3. Connect the filling loop and tighten.
4. Make sure that all connections are tight before filling.
5. Open the filling loop and allow the system to start filling.
6. Press the right arrow key on the boiler control panel until the A (bar) led is illuminated.
7. fill the system to 1,5 bar, then start to purge the radiators until all the air is out the system.
8. This will have to be repeated several times to fully purge the system re-filling as you go.

System protection:

Note: THE HEATING CIRCUIT MUST BE FLUSHED IN ACCORDANCE TO BS 7593

Failure to protect the system will invalidate the manufacturer's warranty.

1. Fill the system with cold mains water to the recommended pressure 1.5 bar and check for leaks, then drain the system thoroughly making sure all drain cocks are fully open and that the system is completely drained.
2. Add Fernox F3 cleaner to the system at the furthest point from the boiler, this is to allow the substance to fully dilute throughout the system. If you are unsure of the correct dose rate, contact Fernox on 03301007750 for advice.
3. Re-fill the system and circulate the F3 cleaner prior to the boiler being fired up. Commission the system in the normal way. The cleansing agent must be in the system for a minimum 1 hour with the system running at normal operating temperature. A longer period of time would be more beneficial to the cleansing process especially if excess flux was used or is an old system. F3 cleaner can be left in the system for up to a maximum of one week running on a normal heating cycle. (We recommend that existing systems are power flushed as per BS 7593 and PAS33 regulations)
4. Drain and flush the system thoroughly to remove the cleaning agent and any debris or contaminants. This is a critical part of the cleaning process and must be carried out correctly. Use a rinse test meter (TDS), such as the Fernox CTM. The reading must be within 10% of the mains ppm value.
5. After the system has been thoroughly flushed and TDS readings are within 10% you can now add Fernox F1. This will protect against the formation of scale, corrosion and microbiological growths. It is crucial however, that for the protector to work correctly, the system must be properly cleansed and flushed.
6. Now attach the label included within the Fernox F1 packaging completed and attached adjacent to the boiler. We recommend inhibitor levels are checked on an annual basis (usually during the service) or sooner if the system content is lost. This should be carried out using a Fernox inhibitor Test Kit. Fernox Technical Service Help line on 0870 870 0362 for further assistance.

ELECTRICAL CONNECTIONS AND CONTROLS

CURRENT IEE BS7671 WIRING REGULATIONS.

ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN.

Load check must be taken into consideration when installing high power boilers. This will be carried out by a qualified electrician. There may be an additional requirement to upgrade the incoming main fuse supplying the property if other high power devices are used within the property. E.g Electric Showers. If an electric shower is present we recommend that a Shower Sensor is installed within the system. This will cause an interrupt to the boilers control signal when the shower is in use. It will disable the boiler protecting the electrical system from overload.

All boilers Must be protected with a 30mA double pole RCD with a minimum of 3mm contact separation accompanied by a suitably rated MCB. If the boiler is not fitted local to the meter position then an additional isolation switch must be fitted local to the boiler for each supply. If the property is supplied by a rural power supply or prone to lightning strikes & power cuts it is recommended to install a suitable surge protection device to the boiler supply. This will reduce the risk of damage to the boiler electronics during these events.

THIS APPLIANCE MUST BE EARTHED.

All pipe-work must be earthed in accordance with the IEE BS7671 Wiring Regulations.

After completion of all electrical works, an electrical safety check should be carried out i.e. short circuit, earth continuity, resistance to earth and polarity check, and all relevant Test Certificates completed and issued to the customer.

Never open the front cover of the boiler until all power supplies to the boiler have been disconnected.

ELECTRICAL CONNECTIONS

The boiler connections are clearly marked inside the boiler L N E (24hr LIVE).

The 24hr live is the permanent Feed connection to the boiler from the mains supply. External controls will require an independent fused spur supplied from the same consumer unit & protected by the same RCD as the boiler itself. Where a single phase boiler is installed within a 2 Phase or 3 Phase installation the control circuit should also be supplied by the same phase as the boiler. The control circuit should be protected by a 6Amp.

MCB. The Boiler & control circuit RCD should be independent of all other domestic circuits. The boiler supply cable should be calculated by the means of a cable calculation in accordance with BS7671 by a suitably qualified electrician.

Boiler Protection The recommended protection for hard wired boilers are as follows:

Model No	Boiler size	Protection (per phase)
MER26KW 3ph	25,8 kW BOILER	3x40 AMP Protection
M ER19KW 3ph	19,5 kW BOILER	3x32 AMP Protection
MER15KW	14.4 kW BOILER	80 AMP Protection
MER12KW	12 kW BOILER	63 AMP Protection

External Controls

We recommend the use of the EHC SINGLE CHANNEL PROGRAMMER and EHC ROOM THERMOSTAT

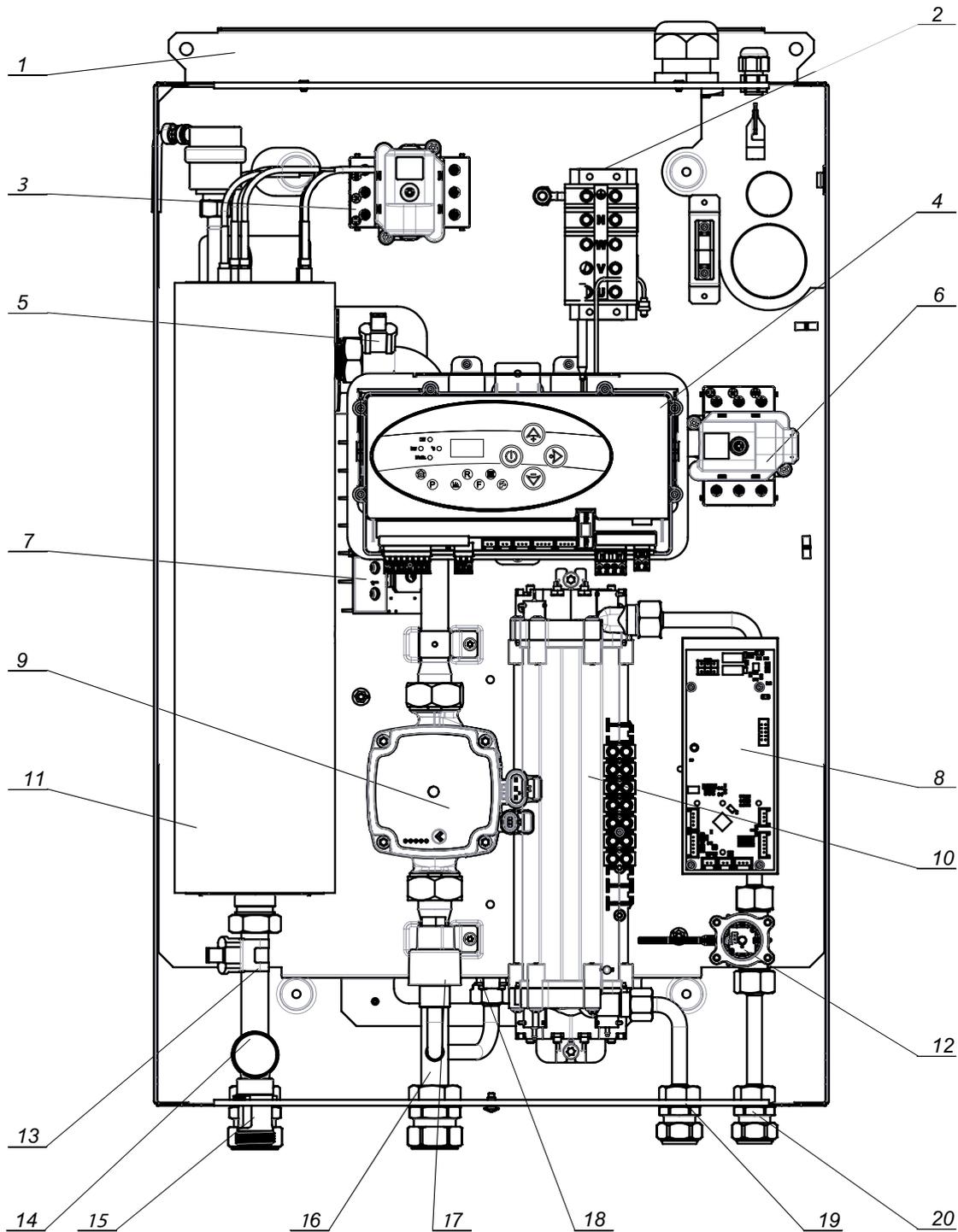
Note: This control method is recommended by BEAMA (The association of Control Manufactures) in order to comply with the current Building Regulations.

Electrical „mains” connection

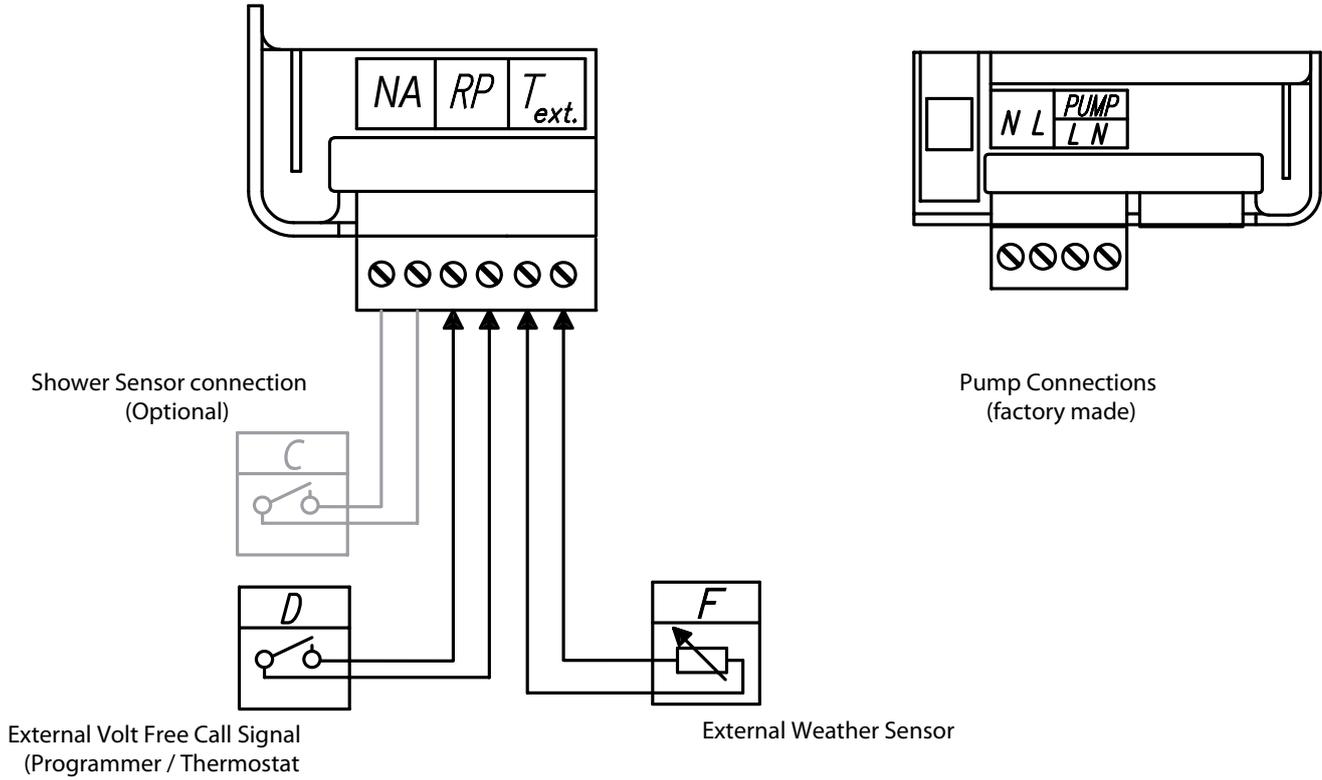


INSTALLATION BOILER INTERNAL LAYOUT

- | | |
|--------------------------------|------------------------|
| 1 - Wall Bracket | 11 - Heat exchanger |
| 2 - Main Electrical Connection | 12 - DHW flow Sensor |
| 3 - WT3 Thermal cut-out | 13 - Flow Temp Sensor |
| 4 - PSK Controller | 14 - PRV |
| 5 - Return Temp Sensor | 15 - Flow Outlet |
| 6 - Thermal WTC3 | 16 - Return Inlet |
| 7 - Power Board | 17 - Pressure Sensor |
| 8 - Water Heater PCB | 18 - Expansion pipe |
| 9 - Smart Pump | 19 - DHW outlet |
| 10 - DHW Heat Exchanger | 20 - Mains Water Inlet |



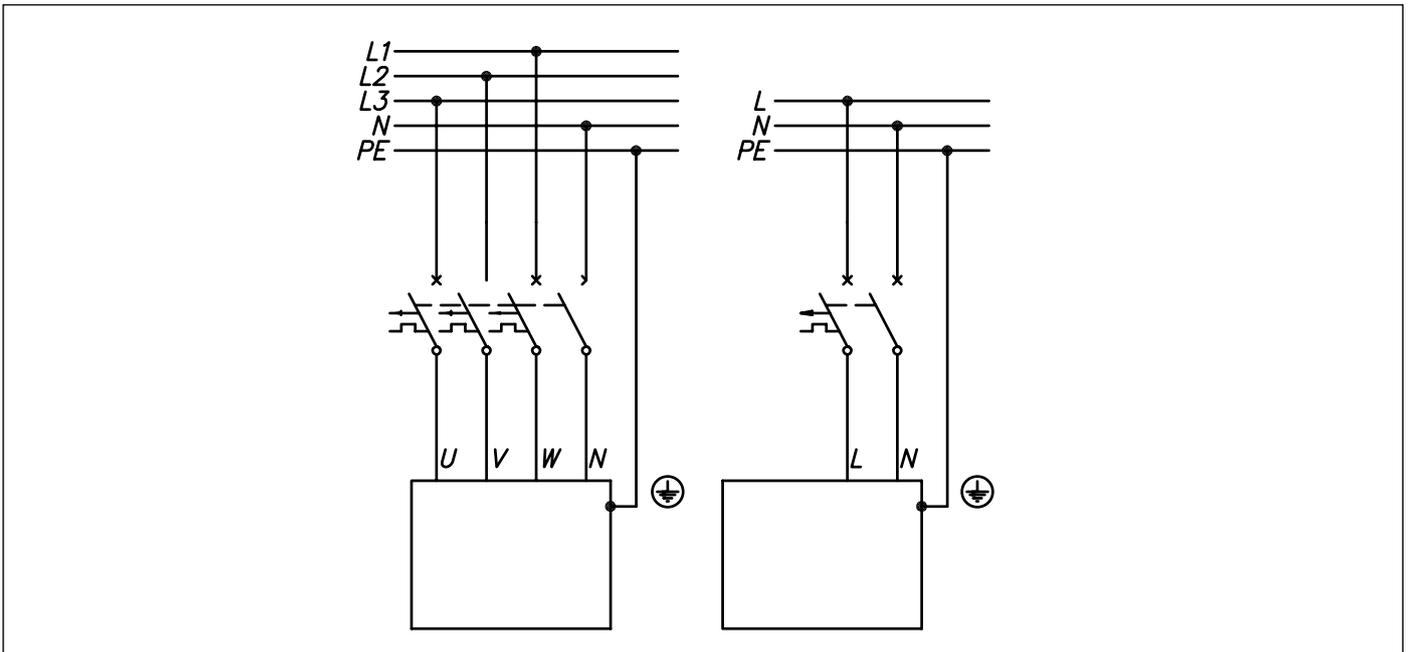
CONTROL PANEL WIRING (Volt Free)



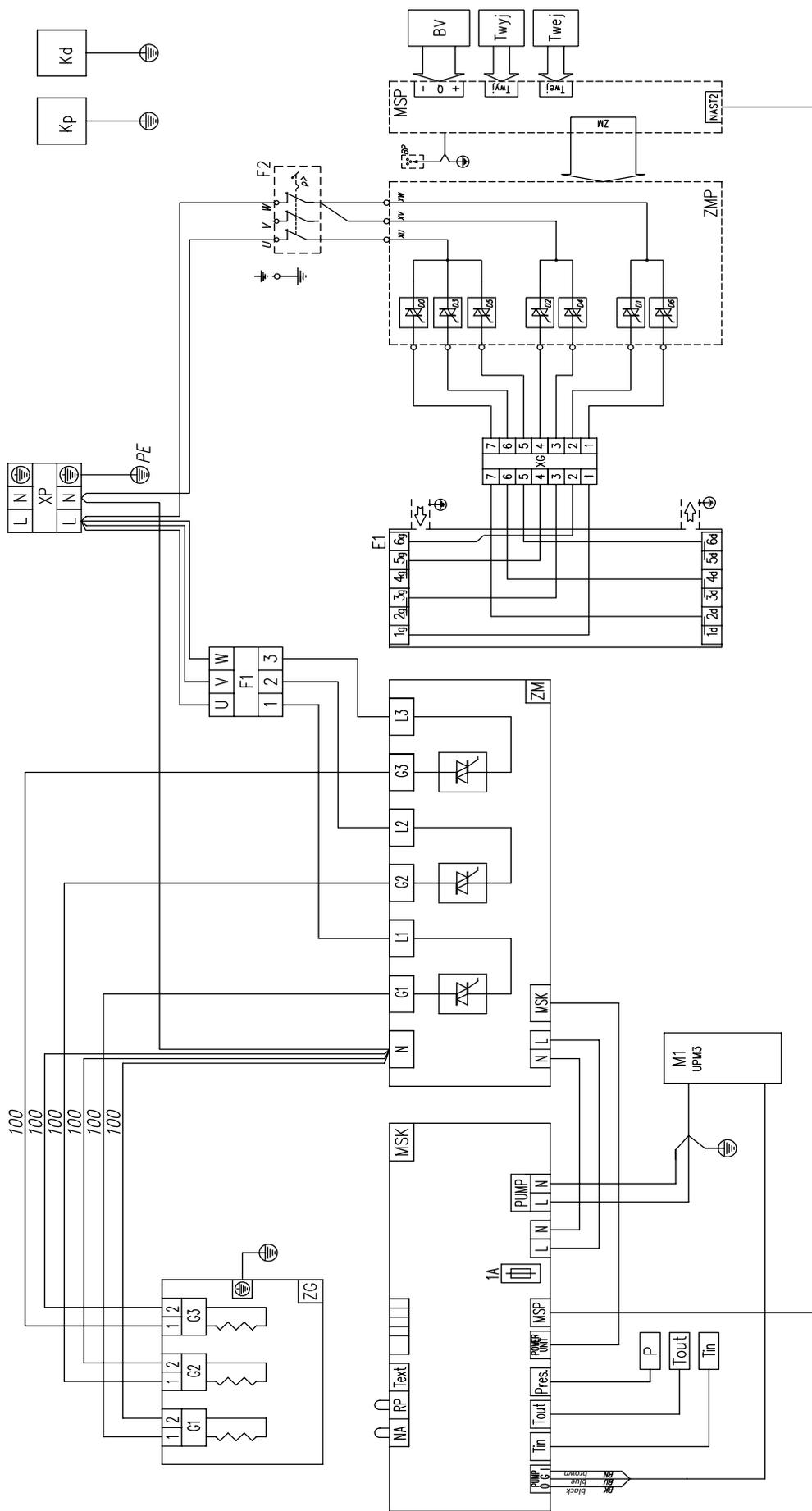
Note:
If the weather sensor is not used
it will have to be disabled in the
advance settings.

SAFETY NOTE: „RP”, and „NA” are signal conductors only. DO NOT CONNECT ANY VOLTAGE to these as this will damage the boiler and invalidate the boilers warranty!

EXTERNAL WIRING



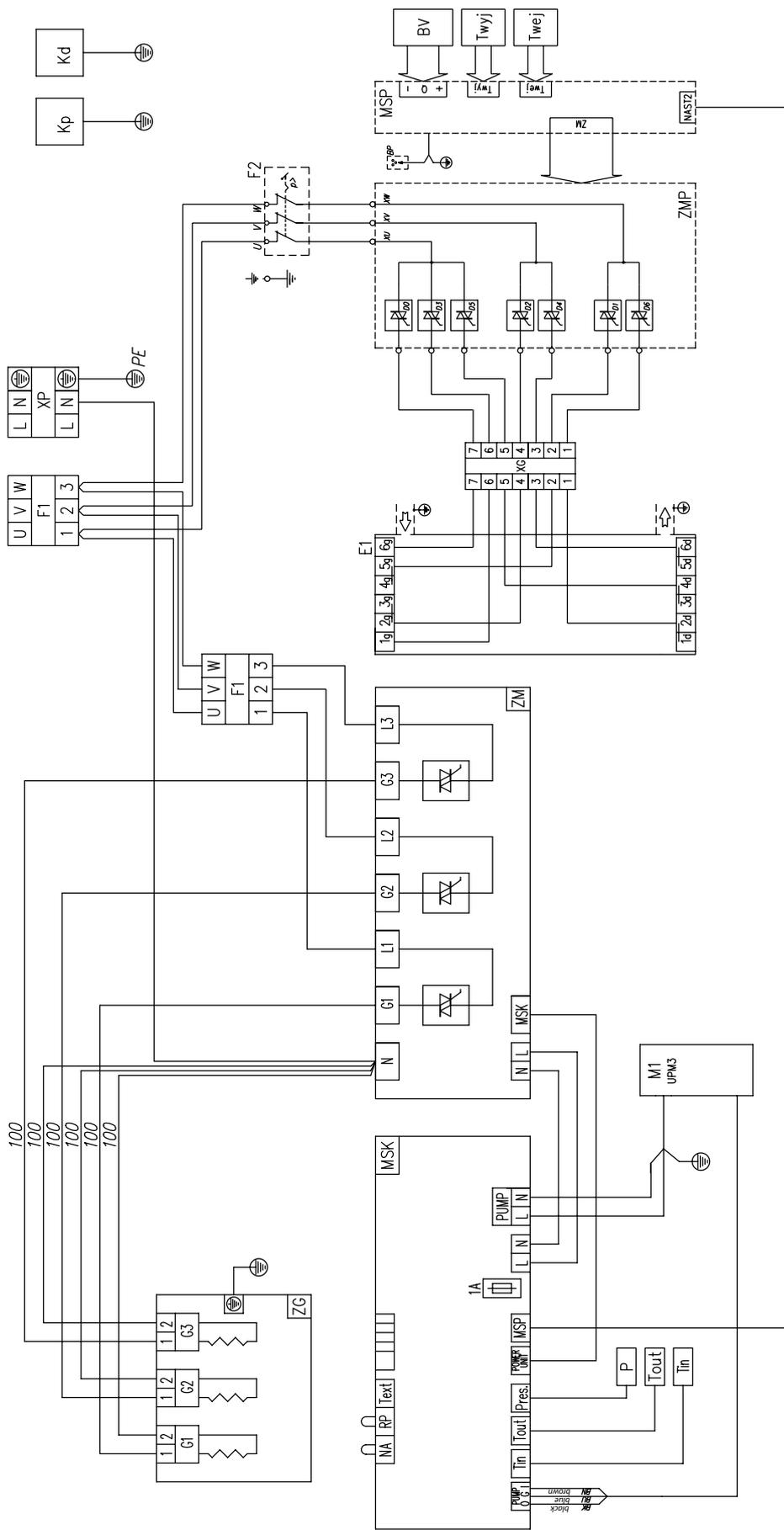
INTERNAL BOILER WIRING 12/15 kW



- ZG - heating element of boiler
- ZM - power board of boiler
- MSK - control module of boiler
- M1 - circulating pump of boiler
- P - pressure sensor
- Tin - inlet temperature sensor of boiler
- Tout - outlet temperature sensor of boiler
- F1 - safety temperature limiter
- XP - connection block
- Kp - cover
- Kd - base

- PE - Master supporter base
- E1 - heating element of water heater
- ZMP - power board of water heater
- MSP - control module of water heater
- Twyj - inlet temperature sensor of water heater
- Twyj - outlet temperature sensor of water heater
- BV - flow sensor of water heater
- F2 - thermal-pressure cut-off of water heater
- XP - connection block heating element of water heater
- Twyj - outlet heater

INTERNAL BOILER WIRING 19/26 kW

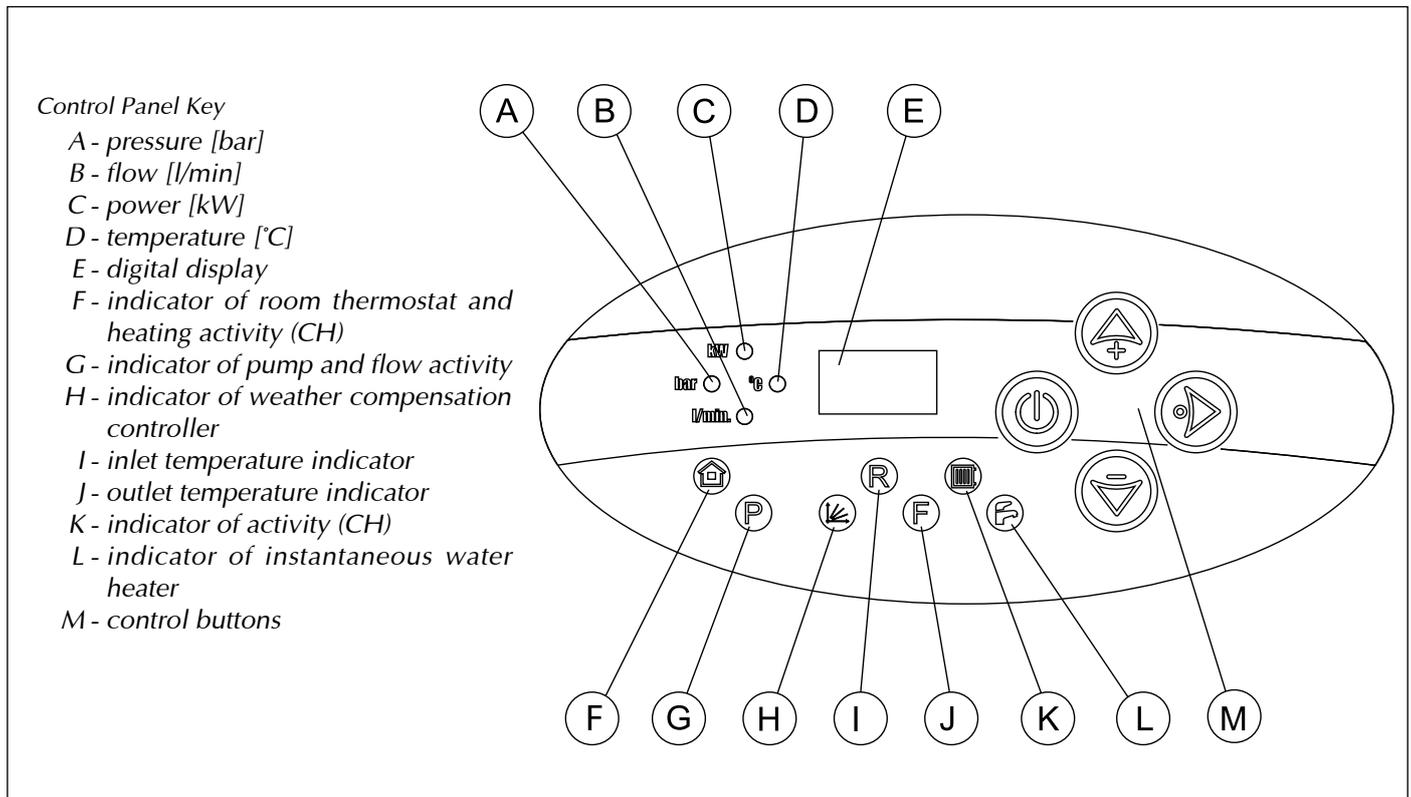


- ZG - heating element of boiler
- ZM - power board of boiler
- MSK - control module of boiler
- M1 - circulating pump of boiler
- P - pressure sensor
- Tin - inlet temperature sensor of boiler
- Tout - outlet temperature sensor of boiler
- F1 - safety temperature limiter
- XP - connection block
- Kp - cover
- Kd - base

- PE - Master supporter base
- E1 - heating element of water heater
- ZMP - power board of water heater
- MSP - control module of water heater
- Twj - inlet temperature sensor of water heater
- Twj - outlet temperature sensor of water heater
- BV - flow sensor of water heater
- F2 - thermal-pressure cut-off of water heater
- XP - connection block heating element of water heater
- Twj - outlet heater

USER INSTRUCTIONS

CONTROL PANEL



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 (NA entry is open) OR outside temperature sensor is above the set CH shutoff value in advance settings.
	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), a heating elements are off,
	red	heating on- boiler's CH mode
	green	desired temperature has been reached
		Device in domestic hot water heating mode (icon in red)
	temp. in CH system is lower than required but the required room temperature has been reached, RP entry is open, or room thermostat is blocked	
OFF	summer mode on	
	red	Device operates in domestic hot water heating mode.
A	flickering	installation pressure is not sufficient (below 0,5 bar), heating is blocked, pump is inactive
E	horizontal dashes	parameter out of range, temp. sensor failure or fault in domestic hot water module.
I or J	flickering	relevant temperature sensor failure
+D+K	ON	preview of outside temperature

USER INSTRUCTIONS

1. Start up

1. Check if required pressure has been set within the installation (see section "Technical Data"). In order to check use  or  button when control panel is in Stand-by mode.

If the bar L.E.D flashes on the control panel this indicates that the installation pressure is low. This does not apply to open vent/gravity fed 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 „G“ indicator is on with a constant light). The pump should vent itself after a short working time, however, if necessary, vent the pump in the following way:
 - close the flow isolation valve under boiler,
 - set the pump on the highest efficiency (see section "Advanced settings"),
 - leave the boiler with the pump running for 15-30 s.
 - open the flow isolation valve under boiler.
5. Switch the boiler off (press and hold  button for 3 seconds).
6. Set the pump to automatic mode (see section "Advanced settings").
7. Set parameters of heating curve adjusted to the building (heating curve coefficient and offset) - see section "Advanced settings". Reset of the curve slope so that it switches off weather compensation and starts boiler's operation in accordance with manual adjustments of the installation.
8. Switch the boiler on (press  button).
9. Set the programmer / room thermostat to call for heat

2. Boiler Operation

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

Winter mode is active when the icons   are active.

In winter mode (main view) the control panel displays icons describing the current device operation. The digital display shows the flow temperature of the central heating system or domestic water temperature, if heating conditions are present.

Pressing button  will show the 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 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.

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

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, 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.

ADVANCED SETTINGS

To enter Advanced settings the boiler must be in Stand-by mode. Stand-by mode is shown by a cyclic, short display of the "off" message on the display. If the controller is in winter mode or summer mode, it must be put into (⏻) Stand-by mode by holding down the power button until a long beep is heard and the message "off" is briefly shown on the display.

If the controller is in Stand-by mode, press and hold the button (⏻) until the appearance of a long beep and the message SET on the display.

To select parameter press (⏻) to change the value press (⏮) or (⏭):

Weather Compensation Settings (curve coefficient):

C= 4-25 (weather compensation active based on curve selected)

C= 0 (weather compensation deactivated, manual user temperature selection activated)

Heating Curve Offset:

O= -9°C ÷ 9°C

Outside Temperature Threshold:

0°C ÷ 25°C threshold set-point of outside temperature where CH is automatically switched off.

Pump Working Mode:

PA – Automatic Operation

PC – Constant operation

Pump Efficiency (Head):

E3.0 = 3.0m

E4.0 = 4.0m

E5.0 = 5.0m

E6.0 = 6.0m

E7.0 = 7.0m

E7.5 = 7.5m

Pump Pressure Mode:

Constant pressure difference (pressure indicator on).

Variable pressure difference (pressure indicator flashing).

CH Pressure Sensor:

1 = Pressure Sensor Active (On)

0 = Pressure sensor deactivated (Off – Open Vented Systems Only)

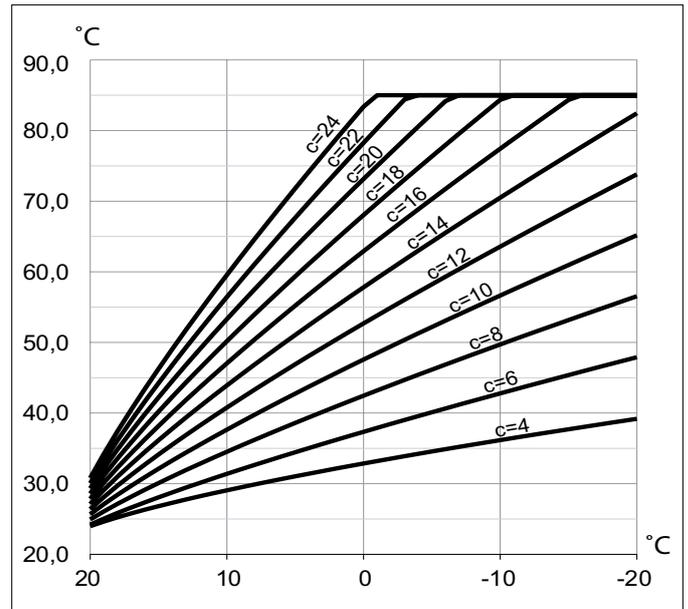
Maximum Set-point of CH Temperature:

20°C ÷ 85°C

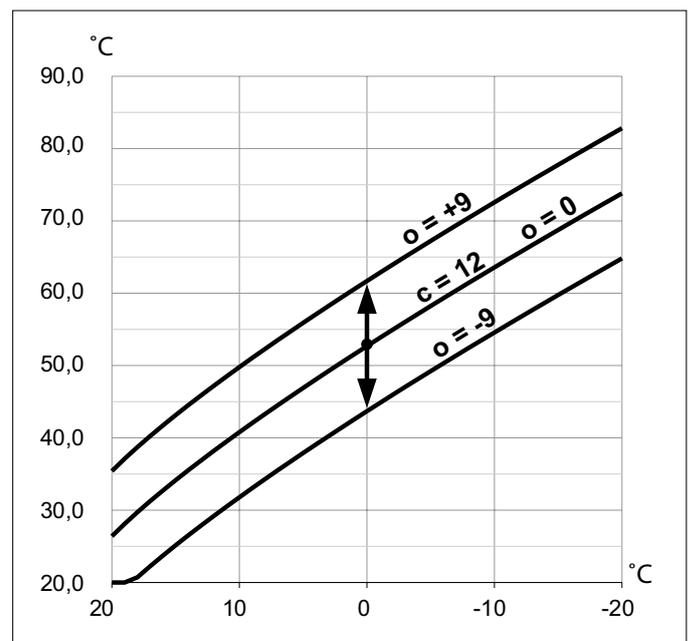
Kw Consumption History:

Read-only display of boiler kilowatt consumption.

To exit the "Advance Settings Menu" press and hold the power button for 3 seconds to re-enter stand-by mode, pressing the power button again will return the boiler to winter/summer mode respectively.



Heating curve coefficient.



Offset of the heating curve for c=12

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 Flashing	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 preview, 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 boiler-boiler's blockage	air locked central heating system, vent the installation, pump and boiler & re-set pressure
		check water quality of CH installation and clean the filter
	failure of pump's power supply	contact authorised service
F indicator is off (in winter mode), room thermostat indicates heating on	check room thermostat is providing continuity across RP connection	check programmer/thermostat. linked out RP & NA if no response, change PSK Controller
	failure of electronic module	contact authorised service
I indicator flickers	failure of outlet temp. sensor, heating blockage	contact authorised service
J indicator flickers	failure of outlet temp. sensor, heating blockage	contact authorised service
F indicator flickers and the boiler doesn't work	failure of installation that connects master appliance or shower sensor	check connecting installation
	outside temperature sensor is above the set CH shutoff value in advance settings.	boiler will reactivate once outside temperature drops below set value
Device does not switch to domestic hot water heating mode.	failure of electronic module	contact authorised service
H indicator flickers	failure of external temp. sensor	contact authorized service
L indicator flickers (red)	failure of cylinder water temp. sensor	contact authorized service

TECHNICAL SPECIFICATIONS

Boiler range	MERCURY 12kW (MER12KW)	MERCURY 15kW (MER14,4KW)	MERCURY 19kW (MER19,5KW)	MERCURY 26kW (MER25,8KW)
Pipe entry from boilers	Bottom	Bottom	Bottom	Bottom
Central heating flow & return pipes	22 mm 22mm compression connections			
Min water pressure	1 bar			
Max water pressure	3 bar			
Expansion vessel	6 lt.			
	Maximum system water volume about 60 litres at initial system pressure 1,5 bar			
Vessel charge pressure	1,5 bar			
Safety Class	IP22			
Overall dimensions(height x width x depth)	690 x 451 x 258			
Dry weight	19 kg			
Electrical supply	240V 1ph 50Hz		415V 3ph 50Hz	
Load/current	50,0 Amp.	60,0 Amp.	3 x 26,9Amp.	3 x 35,9Amp.
Minimum permitted cable diameter	16 mm ²		5 x 6 mm ²	
Heating output	40945 Btu	49134 Btu	61418 Btu	85303 Btu
Max. temp setting	85°C			
Min temp setting	20°C			
Overheat Protection	100°C			
Pump included	Yes			
Recommended Pump settings	Factory set to Max , See page 14 for settings			
Required Protection	63 Amp.	80 Amp.	3 x 32Amp.	3 x 40Amp.
The maximum allowed network impedance	0,24 Ω	0,22 Ω	0,27 Ω	0,37
ERP Rating	D	D	D	D
Water Heater				
Efficiency (at Δt = 30°C and water pressure at 0,4 MPa)	5,8 l/min	6,9 l/min	9,2 l/min	12,4 l/min
Pressure in the water mains	1 ÷ 6 bar			
Activation point (min. rate of flow)	2,5 l/min			
Temperature adjustment range	NORMAL mode	30 ÷ 60 °C		
	SHOWER mode	30 ÷ 55 °C		
Water fittings	15mm compression connections			
The minimal resistivity of water	at 15°C is 1100 Ω cm.			
Maximum Water Hardness	200ppm (softener to be used where value is exceeded)			

*Stated cable sizes are the minimum permitted for boiler installations, The Installer is solely responsible for verifying & selecting the correct diameter cable based on the characteristics of the installation by means of a cable calculation set out in BS7671.



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(Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems).

This marking shown on the product or its literature, indicates that it should not be disposed of with other household wastes at the end of its working life.

To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

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

