

# Strom Heat Only Boiler

## INSTALLATION GUIDE

1st ISSUE

**REMEMBER TO REGISTER**

[WWW.STROMLTD.COM/GUARANTEED](http://WWW.STROMLTD.COM/GUARANTEED)



**THE FUTURE OF HEATING**

IT'S ALL IN THE DETAILS...

# Electric Boilers

## INTRODUCTION

Please read the whole manual before attempting installation and follow these installation instructions carefully following the correct operating instructions to ensure long life of this Strom Electric Boiler. These instructions must be conserved and given to any new user.

All boilers come with a full **2-year warranty** from the date of registration unless purchased with a promotional warranty. The warranty relates to any manufacturing defects and covers the replacement of any faulty parts and labour costs. The warranty will not cover damage to the boiler through poor installation, and any consequent water damage or leaks into the boiler - All plumbing must be checked before the boiler is left with the end user for normal operation and water tightness. The warranty will not cover charges that have not been organised by Strom Ltd.

This appliance is not intended for use by anyone (including children) with reduced physical, sensorial or mental capacities, or lack of experience with the appliance, unless they have been given supervision or instruction by a competent person responsible for their safety.

### **BY FITTING THIS BOILER YOU AGREE:**

- YOU HAVE CARRIED OUT ALL HEAT LOSS CALCULATIONS ON THE PROPERTY AND ARE SURE THAT THIS BOILER IS SUITABLE FOR THE APPLICATION.
- YOU HAVE CARRIED OUT A VOLTAGE AND LOAD TEST TO DETERMINE THE CORRECT SIZED BREAKER & CABLE IS USED.
- THAT THE BOILER IS FITTED IN A MANOR AND LOCATION WHERE IT CANNOT BE ACCESSED BY UNAUTHORISED/UNQUALIFIED PERSONS.
- TO BE BOUND TO THE TERMS AND CONDITIONS ON THE LAST PAGE OF THIS MANUAL.
  - THE BOILER HAS BEEN RECEIVED IN GOOD CONDITION

This electric boiler must be fitted in accordance with the following: -

- The local building regulations
- UK building regulations

### **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 7593**

Code of practice for treatment of water in heating systems

#### 1. Load Check

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

#### 2. Central heating design

- Detailed recommendations are provided in BS EN 12828 and BS EN 6700

#### 3. Location

- The boiler can be installed in almost any location, but consideration should be given to the potential of frost or damp conditions, and to the future maintenance of the equipment. Clearance should be allocated for the removal of the front panel if necessary and for air flow into the boiler. The boiler must be installed in an upright position, failure to do so will invalidate the warranty. The wall where the boiler is being sited should be strong enough to support the weight of the boiler when full. The surface to be mounted on should be made of non-combustible materials and have a heat tolerance in excess of 100°C.



# Electric Boilers

## BOILER SPECIFICATION

	SINGLE PHASE BOILERS (230V)			
Product Code	SBSP6H	SBSP9H	SBSP11H	SBSP15H
Heat Output	6kW	9kW	11kW	14.4kW
Amps at 230VAC	26A	41A	48A	62A
Minimum Breaker Size	32A	45A	50A	63A
Minimum Cable Size	2.5mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>
Heating Temperature Range	20°C - 80°C			
Heating Pressure Range	0.5 - 1.5 Bar			
Heating Flow & Return Size	3/4" Male (We recommend flexi hoses or push fit irons)			
PRV Connection Size	15mm Compression			
ERP Rating (Heating)	D	D	D	D

1. BOILER

2. INTEGRATED WALL MOUNTING BRACKET

3. WALL MOUNTING GUIDE

4. 3 x EXPANDING WALL BOLTS

5. INSTALLATION MANUAL

# Electric Boilers

## INSTALLATION SCHEDULE

Please ensure that all steps of the installation schedule are carried out in this order, and only this order. Failing to carry out the installation in this order may result in damage to the boiler and incorrect function of the system.

## PRIOR TO INSTALLATION

### 1. HEAT LOSS CALCULATION.

Correctly calculate the correct size unit for the properties heating demand. We regret to inform you that after installation there is no way to boost the output of the unit so it is important you get the correct unit for the property. Strom are unable to assist with these calculations.

### 2. PUMP & EXPANSION CALCULATION

Strom Heat Only Boilers do not feature internal expansion, pumps or relief valve, you should ensure that a suitable vessel and pump has been specified and fitted. It is recommended that you use a sealed system kit incorporating Heating Vessel, Pressure Gauge, and Relief Valve, if not please make sure all these items are individually accounted for in the installation.

### 3. VOLTAGE & LOAD CALCULATION.

Typically the UK single phase supply is 230V, all our technical data is based on this, however you should do a measurement and correctly determine the correct input voltage, this will determine the size of breaker required. All our breaker recommendations are only that, and should be checked against your requirements.

Strom Electric Boilers are fixed resistance devices, as a result as Voltage goes up so too does the draw of the appliance, all our boilers are rated at 230V therefore any variance from this must be taken into account when calculating the correct breaker and cable size.

All of these considerations must be made prior to at least installation but preferably before purchase is made. Regretably once the box to the boiler has been opened we are unable to accept returns of the product unless the product is faulty or does not operate as advertised by Strom.

## IMPORTANT

It is important that once you start installing the boiler you do not leave it unattended with power connected or water in the circuits unless the whole installation and all steps have been completed. If you intend to leave the boiler unattended without completing the installation you should ensure that no leaks are present or possible, and that the electric have been isolated.

# INSTALLATION

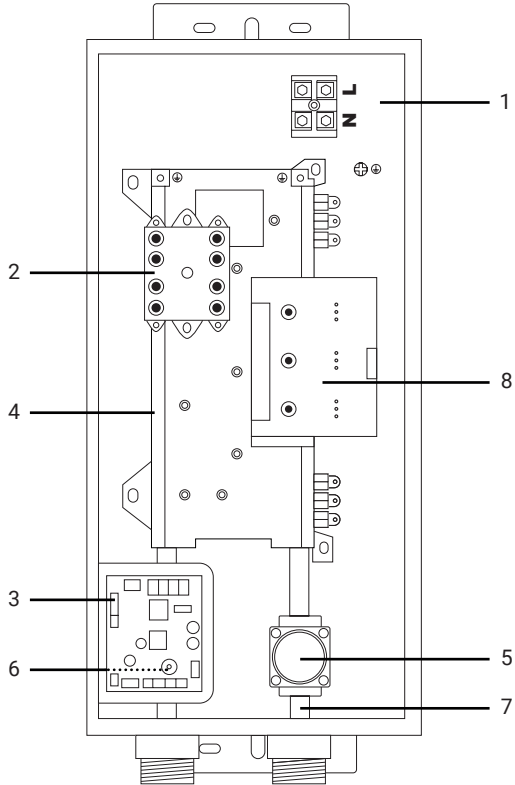
- |                                 |             |
|---------------------------------|-------------|
| 1. COMPLETE SYSTEM PIPING.      | SEE PAGE 12 |
| 2. WALL MOUNT THE BOILER.       | SEE PAGE 23 |
| 3. CONNECT, FILL & FLUSH BOILER | SEE PAGE 25 |
| 4. CHECK ALL WATER CONNECTIONS  | SEE PAGE 28 |
| 5. MAKE ELECTRICAL CONNECTION   | SEE PAGE 29 |
| 6. WIRE AN EXTERNAL THERMOSTAT  | SEE PAGE 30 |
| 7. CHECK ELECTRIC CONNECTIONS   | SEE PAGE 31 |
| 8. POWER ON THE BOILER          | SEE PAGE 32 |
| 9. SET BOILER PARAMETERS        | SEE PAGE 33 |
| 10. SET PUMP SPEED & PURGE AIR  | SEE PAGE 34 |

# POST INSTALLATION

- |                          |   |
|--------------------------|---|
| 1. PROGRAM THERMOSTAT.   | REFER TO MANUFACTURERS MANUAL   |
| 2. TEST HEATING          | SEE PAGE 36   |
| 3. COMPLETE CHECK LIST   | SEE PAGE 37   |
| 4. ASK OWNER TO REGISTER | REFER TO <a href="http://www.stromltd.com/guarantee">www.stromltd.com/guarantee</a> |

# Electric Boilers

## HEAT ONLY SCHEMATIC



- |    |  |    |                                    |
|----|--|----|------------------------------------|
| 1. | Power Connection Terminals             | 5. | Dedicated Heating Flow Sensor      |
| 2. | Thermal Cut-Outs                       | 6. | Temperature Sensor For Heat Flow   |
| 3. | Control PCB (thermostat connections)   | 7. | Temperature Sensor For Heat Return |
| 4. | Heating System Patented Heat Exchanger | 8. | Triac Control Board                |



# Electric Boilers

## DISPLAY INFORMATION



### RESERVED FOR FUTURE UPGRADE

This Icon is currently reserved in case of future update to the unit made by Strom.



### HEAT REQUIRED

This Icon means that the boiler has a thermostat connection and it is currently calling for heat.



### HEATING ELEMENT ON

When this Icon is lit the heating element inside the boiler is active. This lit can only be lit when the heating required and pump indicators are active.



### FROST PROTECTION

This boiler features simple frost protection and is designed to protect the boiler. Where a boiler is to be used in an unheated room an external frost stat should be connected inline with the manufacturers guidance.



### SET TEMPERATURE REACHED

The boiler has now reached the target temperature when this indicator is lit, the symbol will continue to show until the temperature differential set in the boiler has been met.



### PUMP INDICATOR

The pump indicator will flash when it is expecting a flow from the external pump, if the indicator is lit steady then the boiler has detected an ample flow from the external pump.

## BUTTON CONFIGURATION



POWER



MENU



INCREASE



DECREASE

# Electric Boilers

## SYSTEM PIPING

The boiler must be installed by a competent and certified plumber or heating engineer and systems should be designed to meet the current building regulations in force at the time of installation.

Strom Limited are not responsible for faulty installations which are performed by unqualified tradespeople.

## DESIGN NOTES:

### ISOLATION VALVES:

For ease of removal from the system full bore isolation valves should be fitted on the flow and return pipework from the boiler. Do not use standard ball valves, as this can restrict the flow in and out of the boiler and result in detrimental performance.

### AUTOMATIC AIRVENTS

An automatic air vent should always be fitted at the highest point in a system to aid in purging the system of any air, it may also be necessary to install more than one depending on the pipework lay out.

### AUTOMATIC BYPASS VALVE

An automatic bypass valve is integral to any system and **MUST** be installed as part of this installation. The ABV should be fitted to begin opening as the first valve, radiator, or actuator shuts in the system, this stops excess pressure from building in the system on the flow side. Failure to fit and set the ABV can result in poor performance and premature boiler failure.

### WATER CONNECTIONS

For filling the heating system, reference should be made to BS EN 14336. There must be no connection between the central heating systems and the main water supply, and all local water bylaws must be observed. Any connection made between the mains water and heating system must be disconnected after use.

### WATER PURGES

Install purges in the radiators and any high points in the heating system to aid in removing air.

### DRAIN POINT

A drain point should be fitted at the lowest point of the heating system. It is not acceptable to drain the boiler through a safety valve as debris can prevent the correct operation of the valve.

### HEATING EXPANSION VESSEL, RELIEF VALVE & PRESSURE GAUGE

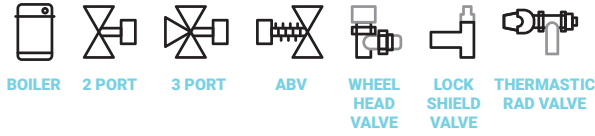
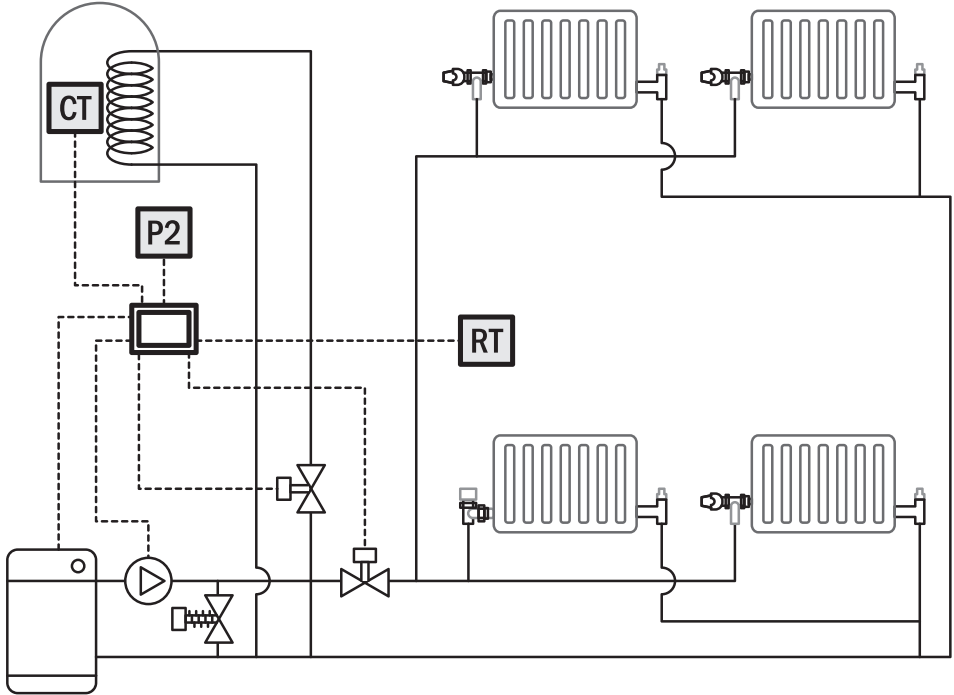
It is important that the installer fit and supply all three items in conjunction with this installation. The Expansion Vessel must be sized in accordance with the Vessel Manufacturers recommendations. Failure to fit any of these three items may cause failure of the boiler and render warranties and guarantees null and void.

**Remember to include:**

Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

### HEAT ONLY BOILER

PROGRAMMER, ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m<sup>2</sup>)



DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

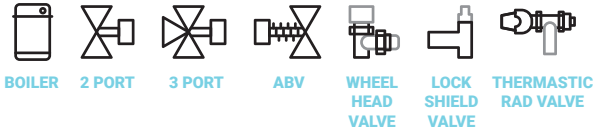
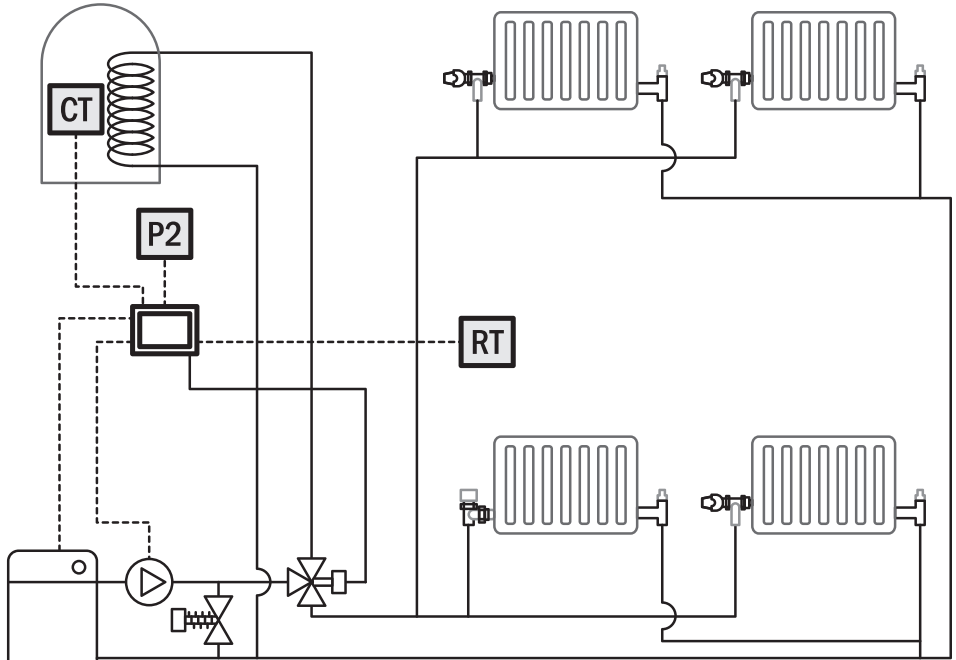
# Electric Boilers

## PART L COMPLIANT LAYOUTS

**Remember to include:**  
 Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

### HEAT ONLY BOILER

PROGRAMMER, ROOM THERMOSTAT & TRV'S - 3 PORT VALVE CONTROL (<150m<sup>2</sup>)



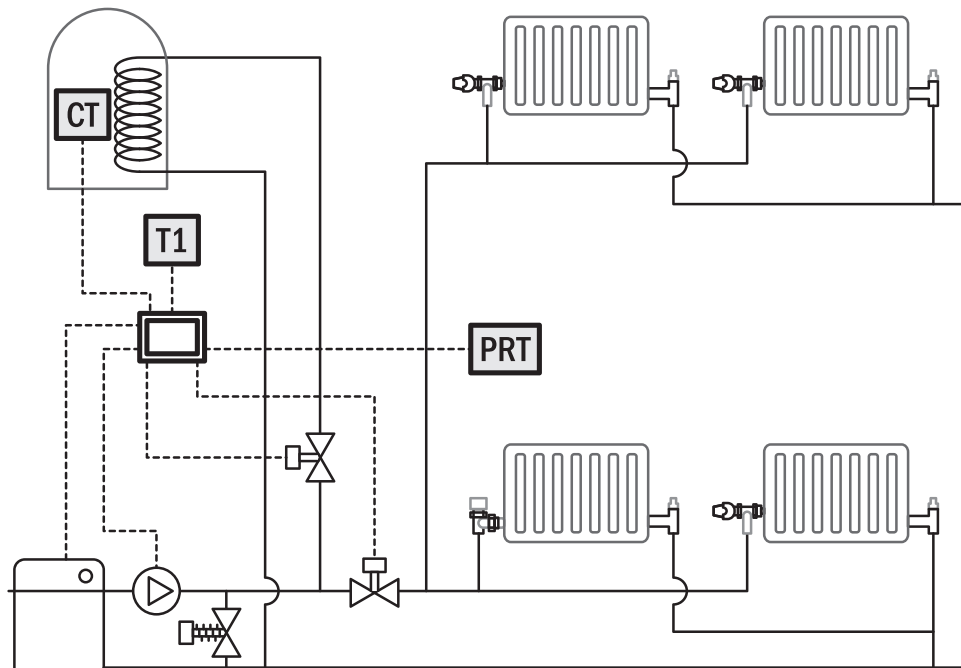
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER IN LINE WITH CURRENT PART L GUIDELINES.

**Remember to include:**

Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

# HEAT ONLY BOILER

PROGRAMABLE ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m<sup>2</sup>)



- BOILER
- 2 PORT
- 3 PORT
- ABV
- WHEEL HEAD VALVE
- LOCK SHIELD VALVE
- THERMASTIC RAD VALVE

- RT ROOM STAT
- PRT PROG ROOM STAT
- P3+ MULTI CHAN PROG
- P2 TWO CHAN PROG
- T1 ONE CHAN PROG
- CT CYL STAT
- JUNCT. BOX
- WIRING

DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

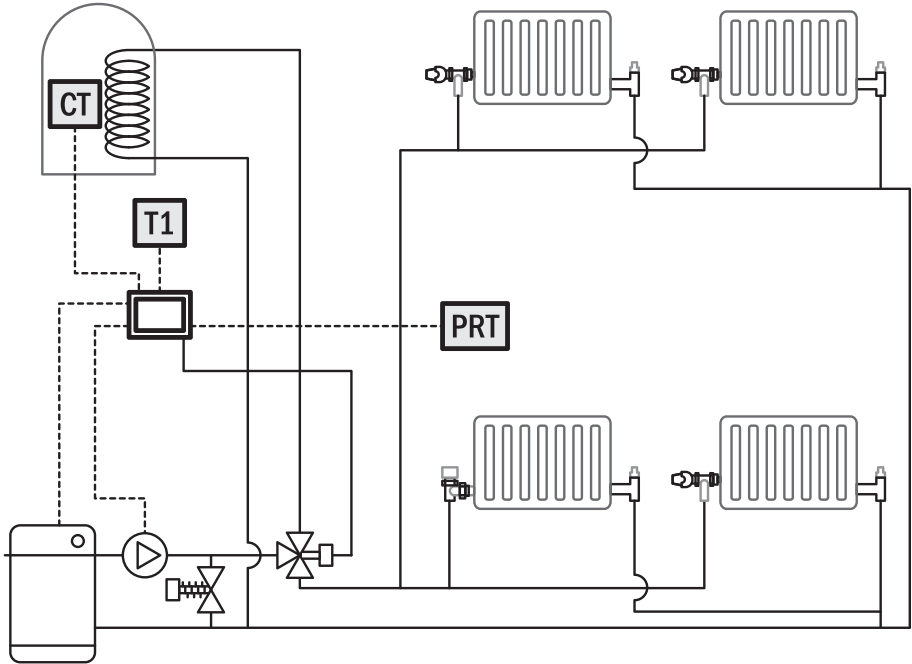
# Electric Boilers








## PART L COMPLIANT LAYOUTS

**Remember to include:**  
 Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

### HEAT ONLY BOILER

PROGRAMABLE ROOM THERMOSTAT & TRV'S - 3 PORT VALVE CONTROL (<150m<sup>2</sup>)



-   
BOILER
-   
2 PORT
-   
3 PORT
-   
ABV
-   
WHEEL  
HEAD  
VALVE
-   
LOCK  
SHIELD  
VALVE
-   
THERMASTIC  
RAD VALVE

-   
ROOM  
STAT
-   
PROG  
ROOM  
STAT
-   
MULTI  
CHAN  
PROG
-   
TWO  
CHAN  
PROG
-   
ONE  
CHAN  
PROG
-   
CYL  
STAT
-   
JUNCT.  
BOX
- WIRING

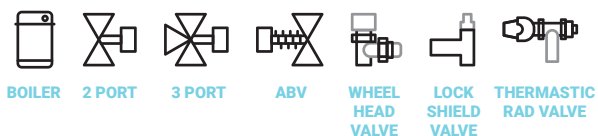
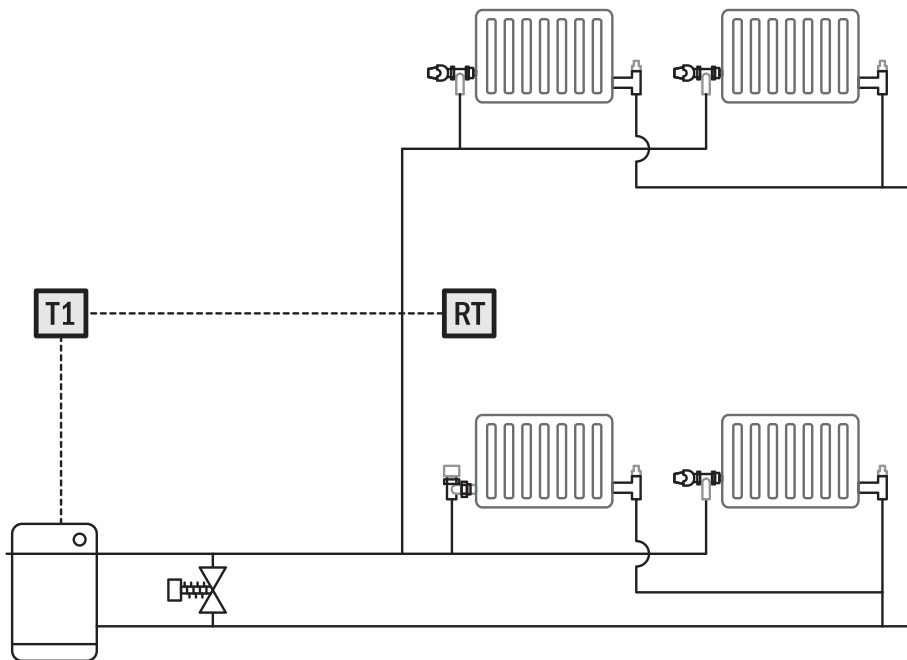
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER IN LINE WITH CURRENT PART L GUIDELINES.

**Remember to include:**

Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

# COMBINATION BOILER

PROGRAMMER, ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m<sup>2</sup>)



DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

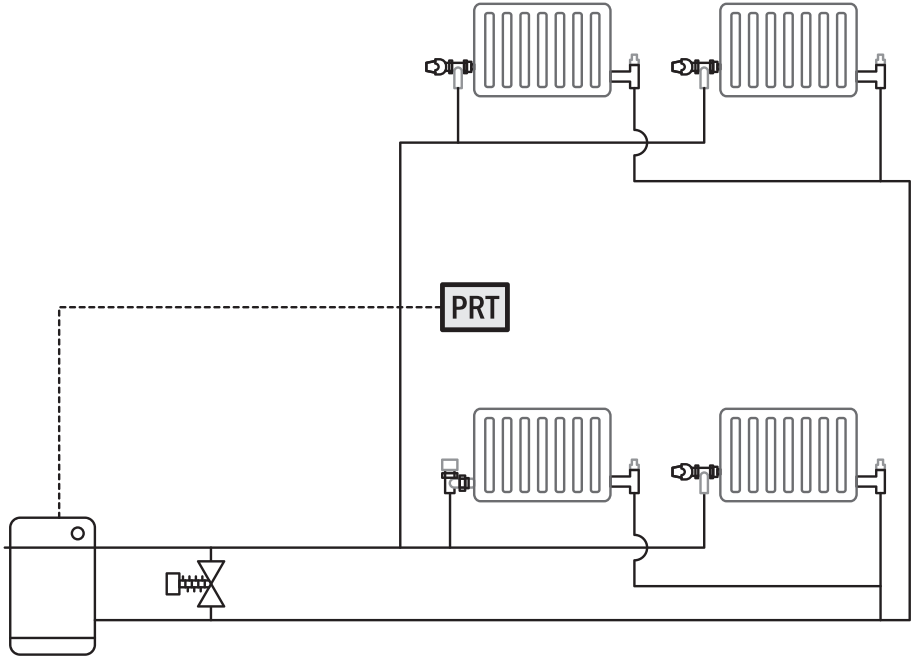
# Electric Boilers








## PART L COMPLIANT LAYOUTS

**Remember to include:**  
 Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

### HEAT ONLY BOILER

PROGRAMABLE ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m<sup>2</sup>)



-   
BOILER
-   
2 PORT
-   
3 PORT
-   
ABV
-   
WHEEL  
HEAD  
VALVE
-   
LOCK  
SHIELD  
VALVE
-   
THERMASTIC  
RAD VALVE

- RT

  
ROOM  
STAT
- PRT

  
PROG  
ROOM  
STAT
- P3+

  
MULTI  
CHAN  
PROG
- P2

  
TWO  
CHAN  
PROG
- T1

  
ONE  
CHAN  
PROG
- CT

  
CYL  
STAT
- 

  
JUNCT.  
BOX
- WIRING

DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER IN LINE WITH CURRENT PART L GUIDELINES.

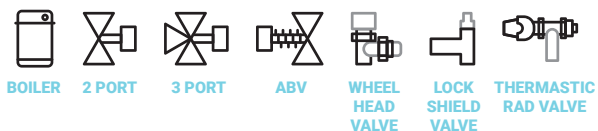
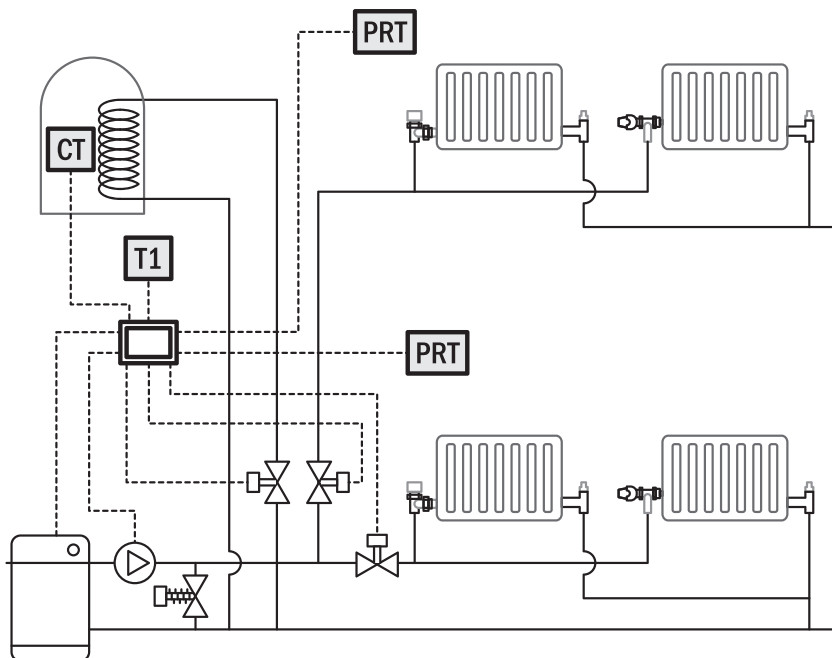


**Remember to include:**

Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

# HEAT ONLY BOILER

PROGRAMMABLE ROOM THERMOSTATS & TRV'S (150m<sup>2</sup>+)



DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

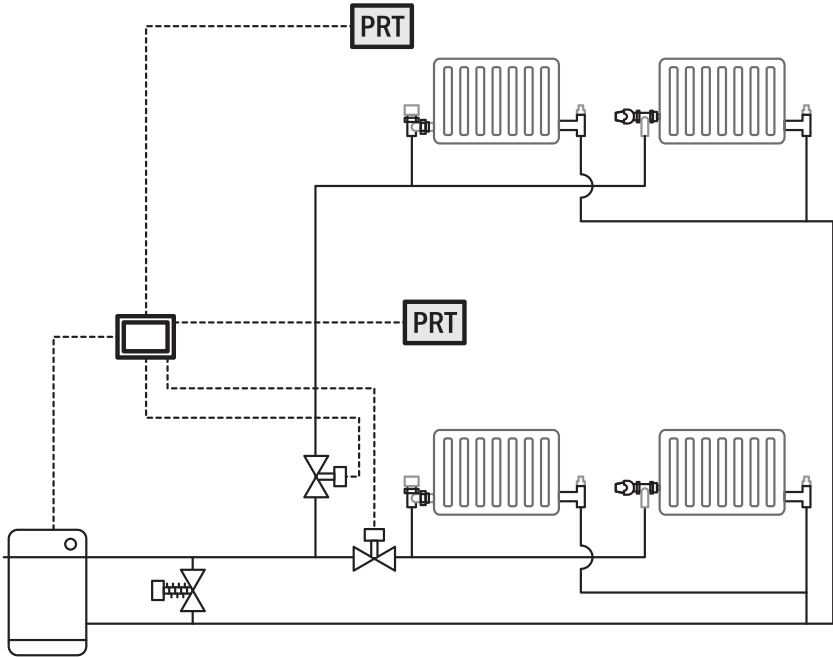
# Electric Boilers








## PART L COMPLIANT LAYOUTS

**Remember to include:**  
 Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

### HEAT ONLY BOILER

MULTI CHANNEL PROGRAMMER, ROOM THERMOSTATS & TRV'S (150m<sup>2</sup>+)



-   
BOILER
-   
2 PORT
-   
3 PORT
-   
ABV
-   
WHEEL  
HEAD  
VALVE
-   
LOCK  
SHIELD  
VALVE
-   
THERMASTIC  
RAD VALVE

- RT**  
ROOM  
STAT
- PRT**  
PROG  
ROOM  
STAT
- P3+**  
MULTI  
CHAN  
PROG
- P2**  
TWO  
CHAN  
PROG
- T1**  
ONE  
CHAN  
PROG
- CT**  
CYL  
STAT
-   
JUNCT.  
BOX
- WIRING

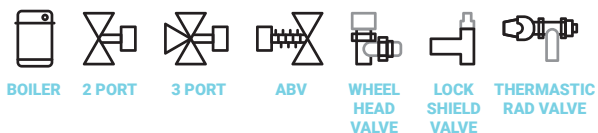
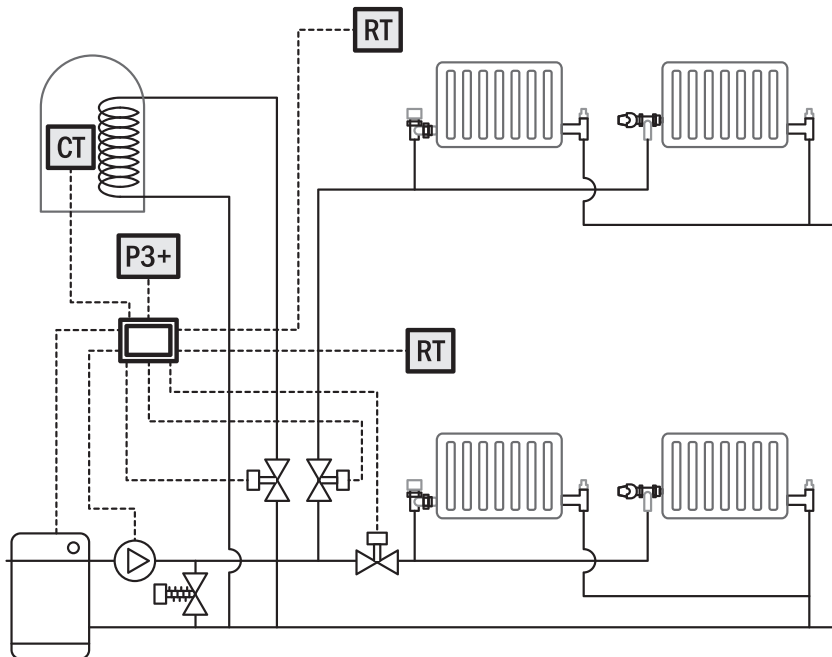
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

**Remember to include:**

Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.

# COMBINATION BOILER

PROGRAMMABLE ROOM THERMOSTATS & TRV'S (150m<sup>2</sup>+)



DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

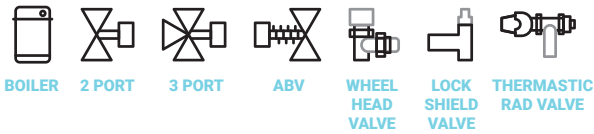
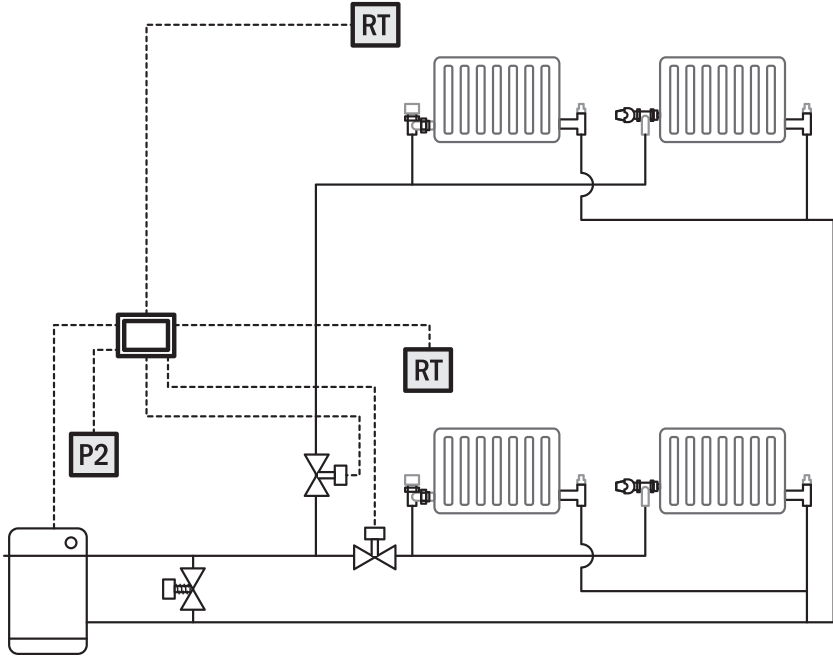
# Electric Boilers

## PART L COMPLIANT LAYOUTS

### COMBINATION BOILER

TWIN ZONE PROGRAMMER, THERMOSTATS & TRV'S (150m<sup>2</sup>+)

**Remember to include:**  
 Heating Vessel, Pressure Relief Valve(s), Airvent(s), Pump(s), Drain Off(s), & Pressure Gauge.



DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

## WALL MOUNTING THE BOILER

### IMPORTANT

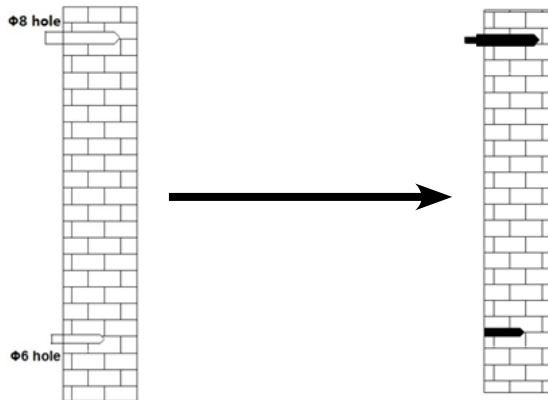
When choosing a location to mount the boiler it is important that you consider clearance, servicing the boiler, and safe and suitable operation.

The boiler should be fitted out of the reach of children, people of deminished responsibility, and people who may otherwise access the boiler internals without the proper skills and qualifications as opening the boiler should only be done by a qualified electrician after first isolating the electrical supply. If there is the possibility that the boiler could be opened without first isolating the electrical supply then you must install it in a fashion that prevents access to the boiler, such as a lockable cupboard.

In terms of clearance strom recommend at least 100mm from all fixed obstructions on all sides of the boiler.

Please ensure that the designated wall for mounting the boiler has the structural integrity to support the unit when full. The following guidance is provided for sound solid brick wall mounting, your mounting may vary. The mounting surface should be made of a non combustable material rated to in excess of 100°C.

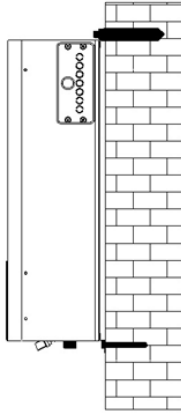
1. Using a drill create 6 holes as per the including wall mounting diagram. The upper holes should be  $\Phi 8$  diameter, and the lower holes  $\Phi 6$ .
2. Secure the 3 supplied  $\Phi 8$  expansion bolts into the top three holes.



# Electric Boilers

## WALL MOUNTING THE BOILER

3. Hang the boiler from the top three bolts before securing the boiler to the wall using standard fastenings at the bottom.



4. Please make sure that the boiler is now firmly fixed in position and unable to move. Failure to secure the boiler may cause damage to the wall and boiler in the future.

### MAKING CONNECTIONS:

- The connections for flow and return must be carried out according to the colour scheme and labelling marked on the boiler.
- The connections for mains water inlet and outlet must be carried out according to the colour scheme and labelling marked on the boiler.
- When tightening or loosening threaded connections, always use suitable tools such as open-end adjustable spanners. Do not use pipe wrenches, extensions or unsuitable tools that may cause damage or water leaks.
- High temperature flexible hoses are recommended for all connections, however if you are using irons please ensure that you secure both connections and do not apply more torque than necessary as you may split in the internal pipework of the boiler or weaken it, both will render the warranty void and increases the chances of a leak that would not be covered by the warranty.

### HEATING FLOW & RETURN:

These connections are  $\frac{3}{4}$ " for connection to 22mm pipe. Suitable diameter service valves should be installed at the flow and return to allow the boiler to be isolated for maintenance without draining the entire heating system. We recommend flexi-hoses as overtightening irons may damage the boiler internals which is not covered under warranty.



# Electric Boilers

## FILLING & FLUSHING

### FLUSHING:

The system must be flushed to 10% of mains PPM (chloride and otherwise) or lower to ensure that the water system is not detrimental to the lifespan of the boiler. If the boiler is being installed into an existing heating system, a power flush must be carried out on the radiators and pipework to remove any potential debris.

### HEATING SYSTEM INITIAL FILL:

Ensure that both flow and return isolation valves fitted as part of your installation are fully open. With the filling loop in your system connected open the valve fully and allow the system to fill slowly until the pressure gauge reads between 1 and 1.5 bar, at which point the valve should be shut. Ensure that you add inhibitor to your system, refer the manufacturers guidance for dilution rates. For the moment please leave the filling loop connected until you have purged the air out of the system.



## CHECK WATER CONNECTIONS

It is important not only to check for leaks on the pipework installed by yourself, but also to check the internals of the boiler for any leaks over a few hours after installing the boiler.

Every boiler is pressure tested inside our factory however after a long journey and installation it can sometimes be necessary to tighten connections when water escapes occur. Please do not unnecessarily tighten connections, or over tighten them, only as required in the few hours after initial installation.

If you are unable to check for leaks in the few hours after installation please drain down and only fill the system again when you have the time to do so.

# Electric Boilers

## ELECTRICAL CONNECTIONS

### POWER SUPPLY:

The supply cable to the boiler should be of sufficient size to carry the load capacity required. It should be wired through a linked isolator switch with minimum contact gaps of 3mm in every pole, and the system protected by a suitably rated circuit breaker.

It is essential that the boiler is properly earthed, and the wiring tested to current IEE regulations.

The following table shows the specification for the full selection of Strom Boilers, please check carefully your model and read off from the table below. Calculations should always be done to ensure that the information is correct for your circumstances, as variances in installations can change the breaker size and or cable size, for instance voltage varies from property to property and does not necessarily follow any regional variances.

Rated Boiler Output	6kW	9kW	11kW	14.4kW
Single / Three Phase	Single	Single	Single	Single
Rated Voltage	230VAC	230VAC	230VAC	400VAC
Current (A) @ Rated Voltage	26	41	48	62
Minimum MCB/RCB (A)	32	45	50	63
Minimum Cable Size (mm <sup>2</sup> )	2.5	6	10	10

The terminal connection block is at the top right-hand side of the boiler and is accessible via the removal of the front panel. The supply cable should be safely routed to this point through the cable entry point at the top of the right-hand panel of the boiler.

Ensure the connection cables are correctly wired into the correct terminals and are securely in position.

Remember an electric boiler is a fixed resistance device, if the voltage goes up so to does the draw. This will need to be accounted for in the sizing of the cable and breaker.

### CABLE TYPE:

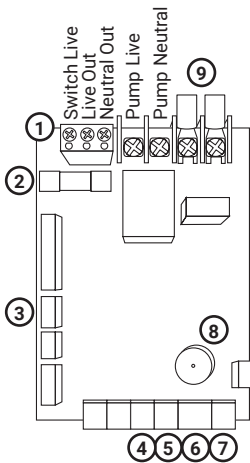
For ease of installation Strom always recommend a multi strand high temperature flexible cable such as H07 cable, please consult your electrical distributor, and always make sure that size of cable is correct for the number of amps used as different cables can have different ratings at different core sizes. Please remember to check the manufacturers specific current carrying capacity of the cable you have chosen to install.

## CONNECTING EXTERNAL THERMOSTAT

Because no programming or temperature control can be done by the boiler itself it is necessary to fit an external thermostat. It is recommended that you fit time and temperature control in the form of separate programmer and thermostat(s) or in the form of all in one programmable thermostat(s). More information can be found on system types on page 11.

The following information is provided as a guide only and refers to Strom manufactured heating controls, however you should follow the guidance of the manufacturer when connecting the thermostat to the Strom Boiler. We regret that we cannot offer any wiring advice of competitor products, and can only refer in those circumstances to the connections on our boiler.

### BOILER WIRING:

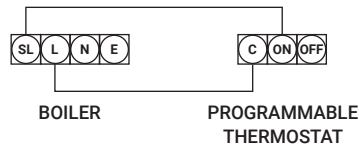


The PCB control board for the heating circuit is located in the right hand side of the boiler between the pump and the main electrical supply point.

- |                            |                              |
|----------------------------|------------------------------|
| 1. Terminal Block          | 6. Return Temperature Sensor |
| 2. 6 Amp Fuse              | 7. Heating Flow Sensor       |
| 3. Traic Control           | 8. Buzzer                    |
| 4. Display Connection      | 9. Power Supply              |
| 5. Flow Temperature Sensor |                              |

### THERMOSTAT WIRING:

(Provided as an example using Strom Programmable Thermostat)



The switch live signal on the boiler must be wired in such a way that the heating zones are fully opened before activating the boiler, this could be via a microswitch on an actuator or using a time delay relay if a microswitch actuator is not available.

### PUMP WIRING:

The heating pump for the system must be wired as per the board diagram above.

*All wiring must be carried out in accordance with current IEE BS7671 wiring regulations.*

All electrical connections must be made by a qualified electrician.

# Electric Boilers

## CHECKING ELECTRICAL CONNECTIONS

It is important before powering on the boiler for the first time that all electrical connections are checked, this is not only your own connections but also the factory made ones too. Whilst all factory made connections are tested at the factory it is possible that during transit or installation connections may have come loose.

For Screwed connections please check for cable movement and tighten with a Screwdriver if necessary and for ribbons and push plastic connectors please gently apply pressure to make sure they are firmly seated. Please check the following connections:

1. The main power supply connections to the unit, both installer and factory made.
2. The spade connections labelled as number 9 on the PCB control board opposite.
3. The thermostat connections labelled as number 1 on the PCB control board opposite.
4. Push connectors labelled 3 - 7 if present on the PCB control board opposite.
5. All terminations on the heating element (these are the braided connections).
6. All connections made on the PCB above the heating element (these are braided connections).
7. All earth terminations both factory made and installer made.

### IMPORTANT

Before powering on the boiler for the first time please make sure you have completed the following:

1. All aspects of the manual proceeding this section have been completed as instructed.
2. The fitted thermostat or programmer is set to the off position, or where off is not possible the thermostat is set to the lowest possible temperature.
3. Make sure that the boiler casing front panel is secured.
4. The boiler can now be powered on by activating power at the breaker in the consumer unit. The boiler will initially power on in standby mode. The power button will bring the boiler out of standby mode, but for the time being leave the boiler in this mode so that the boiler settings can be configured.

# Electric Boilers

## SET THE BOILER PARAMETERS

The boiler has 2 key parameters that need to be set in order to make the boiler function correctly:

### **BOILER FLOW TEMPERATURE**

This should be set to the design temperature of the heating system, in many cases on existing properties with standard radiator systems 65°C will be correct, however underfloor heating systems and low temperature radiator systems may be as low as 35°C. If this is not adjusted on set correctly the boiler may cycle and experience overheating problems. If a hot water cylinder is present most systems would be remain set at 65°C

### **BOILER DIFFERENTIAL**

When the boiler finally reaches the flow temperature set on the boiler the heat exchanger will turn off to allow heat to dissipate in the system. It will only fire again when the temperature drops by the number degrees set in this setting. For example if FLOW is set as 65°C and DIFF is set as 15°C when the boiler flow hits 65°C it will not reactivate until 50°C is reached.

## CHANGING THE SETTINGS:

To change the boiler target flow temperature settings, **with the boiler still in the standby position** press the Menu button (see page 9) the Heat Required Icon should not light up, using the up and down button press set the required temperature in degrees celcius.

Pressing the Menu button again will cause the Target Temperature Reached Icon to light up, here you can set the temperature differential.

You can continue to cycle between these two options to change the settings as required.

Press and hold the power button for a few seconds waiting for the boiler to beep and for the Admin menu to be exited.

# Electric Boilers

## SET PUMP SPEED & PURGE AIR

Before moving the boiler out of standby mode please check and complete the following actions:

1. The boiler has been properly configured in the previous step.
2. Your airvents in the system are open
3. Set your pump speed according to system design and manufacturers instructions.

The boiler can now be activated, press and hold the power button until the boiler beeps and exits standby mode.

Activate the thermostat so that it is now calling for heat, the Heat Required symbol should now be lit and your external pump should have fired.

While the pump is running you should begin to purge all air from the system by bleeding all radiators and airvents in the system. Once bled the system should run almost silently with very little noise coming from the boiler or pump. Once all air is purged you can begin to alter the pump speed to suit your needs, normally a 15 to 20 degree differential between the flow and return is desirable, and the pump speed can be increased or decreased to achieve this differential.

You should also now take the time to set the Automatic Bypass Valve on the system, with all TRV's on the system open and the pump set at the correct speed set the Autobypass Valve to only just closed, now confirm you have the correct setting by closing only one of the TRV's, the bypass valve should now start to allow small amounts of water to pass.

Finally now that all the air has been purged from the system check the final pressure reading of the heating circuit, and top up if required. Once set please disconnect the filling loop, and ensure that all connections are capped off until required again at a future date.

# Electric Boilers

## TESTING HEATING

Before completing the installation checklist please take the time to check the Heating Circuit. This final check is important to ensure that you do not have to reattend site at a later date to correct any issues.

### HEATING TEST

1. Set the thermostat to a temperature approximately 4-5 degrees above current room temperature and ensure that the boiler fires.
2. Leave the boiler running for several minutes and check that the radiators are beginning to get warm.
3. After approximately 15 minutes check the temperature differential between the flow and return is approximately 15 to 20°C, if not please refer to setting the pump speed on page 34.
4. Wait until the thermostat reaches temperature and deactivates the boiler.
5. Now set the thermostat 4-5 degrees higher and waiting for a few minutes check to see if the boiler successfully fires again.
6. Return the thermostat to its required position to complete testing.



### PLUMBER TO COMPLETE...

COMPANY NAME:

PLUMBERS NAME:

COMPANY ADDRESS:

COMPANY TELEPHONE:

DATE OF INSTALLATION:  /  /  PRODUCT CODE:

WAS THIS A EXISTING INSTALL OR NEW INSTALL?  EXISTING  NEW INSTALL

HOW MANY HEATING ZONES ARE INSTALLED?  1  2  3+

HAS THE FILLING LOOP BEEN REMOVED & CAPPED OFF?  YES  NO

WAS AN ABV FITTED? AT WHAT SETTING?  YES  NO SETTING:

WHAT IS THE HEATING PRESSURE SET AT?  .  Bar

WHAT IS THE INCOMMING MAINS PRESSURE?  .  Bar

WHAT HAS THE BOILER FLOW TEMPERATURE BEEN SET AT?   °C

WHAT HAS THE BOILER DIFFERENTIAL TEMP. BEEN SET AT?   °C

WHAT PUMP SPEED HAS BEEN SET ON THE BOILER?

NOTES:

BY SIGNING YOU AGREE THAT YOU HAVE INSTALLED THE BOILER IN ACCORDANCE WITH THIS MANUAL AND THAT THE BOILER IS WORKING AS INTENDED WITHOUT ANY LEAKS AND ALL INSTALLER MADE AND FACTORY MADE CONNECTIONS HAVE BEEN CHECKED.

SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

# Electric Boilers

## ELECTRICIANS CHECKLIST

### ELECTRICIAN TO COMPLETE...

COMPANY NAME:

ELECTRICIANS NAME:

COMPANY ADDRESS:

COMPANY TELEPHONE:

DATE OF INSTALLATION:  /  /

WHAT IS THE INCOMING MAINS VOLTAGE AT THE FUSE BOARD?    VAC

WHAT IS THE INCOMING MAINS VOLTAGE AT THE APPLIANCE?    VAC

WHAT SIZE BREAKER HAS BEEN FITTED FOR THE BOILER?   AMPS

WHAT IS THE DRAW OF THE APPLIANCE FOR HEATING?   AMPS

WHAT IS THE DRAW OF THE APPLIANCE FOR HOT WATER?   AMPS

WHAT SIZE CABLE WAS INSTALLED TO THE APPLIANCE?   .  MM<sup>2</sup>

WHAT IS THE APPROXIMATE CABLE RUN TO THE BOILER?    M

WHAT TYPE OF CABLE HAS BEEN USED?

NOTES:

BY SIGNING YOU AGREE THAT YOU HAVE INSTALLED THE BOILER IN ACCORDANCE WITH THIS MANUAL AND THAT THE BOILER IS WORKING AS INTENDED WITHOUT ANY LEAKS AND ALL INSTALLER MADE AND FACTORY MADE CONNECTIONS HAVE BEEN CHECKED.

SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

# Electric Boilers

## FAULT FINDING

ERROR CODE	POTENTIAL CAUSE	SOLUTION
E1	Loose connections between heating outlet temperature sensor & PCB	Check the wiring and reseal connection if loose.
	Faulty temperature sensor for heating outlet.	Call Strom on 0333 344 24 74
E2	Loose connection between the heating return temperature sensor & PCB	Check the wiring and reseal connection if loose.
	Faulty temperature sensor for heating return.	Call Strom on 0333 344 24 74
E3	Heating system flow temperature overheating.	Check that there is sufficient system circulation. If the boiler has been set for temperatures in excess of 75°C please reduce to between 70 & 75.
E4	Heat exchanger overheating.	The boiler will automatically begin circulating again once the heat exchanger has cooled.
E5	Inadequate Flow	The boiler requires a minimum flow rate of 3lpm, please check: <ul style="list-style-type: none"><li>• Pump Speed</li><li>• Air in the system</li><li>• ABV is installed &amp; set</li><li>• There is no blockages in the inlet and return line strainers</li></ul>



# Electric Boilers

## FAULT FINDING

EA	Power supply to the boiler is too high.	Check supply voltage & correct. Re-check all wiring to the unit.
Indicators on the control panel are off.	Power supply failure.	Re-check all wiring to the unit.
	Loose connection from the control board to main PCB.	Check the wiring and reseal connection if loose.
Control panel is not registering touch commands.	Display board failure.	Thermal Cut-out triggered
	Display board failure.	
Heating temperature is low/the device is not heating up.	Heating element failure	
	Thermal cut-out failure	
	Triac burnout	
	Control board failure	

### **STROM BOILERS DO NOT REQUIRE PARTICULAR MAINTENANCE OTHER THAN THE FOLLOWING:**

The heating system must be filled and maintained when the water is cold, between a pressure of 1 – 1.5 bar. Frequent refilling of the system can cause scaling, corrosion and damage to a heating system and should be avoided wherever possible. Regular pressure loss could be indicative of a leak within the system and should be investigated. When the system is refilled always check the level of inhibitor in the system and re-fill where necessary.

### **UNDER NO CIRCUMSTANCES SHOULD THE BOILER BE SWITCHED ON WHEN THE SYSTEM IS DRY.**

The boiler contains an installed frost-protection program. For this to operate, power must be supplied to the boiler at all times. Anti-freeze can be added to the heating system (no more than 20% by volume) if the boiler is going to be stood unused for long periods of time. Otherwise, the boiler should be disconnected from the electricity supply and the system fully drained to avoid any frost damage.



# Electric Boilers

## WARRANTY INFORMATION

All Strom products are supplied in accordance with standard Terms & Conditions (available on request or via our website). This Policy also applies in addition to our terms and conditions to any Strom Electric Boilers and by fitting this product you are agreeing to be bound by these Terms & Conditions and this Policy. This Policy sets out the Warranty Period and exclusions which apply to Electric Boilers, for other products please see our website or their corresponding manuals. This Policy is subject to our Standard Terms and Conditions and should be read in conjunction with those terms. We reserve the right to amend this policy at any time.

### Warranty Details:

Subject to the exclusions set out below and any applicable points in our Terms and Conditions, faulty parts and products will be replaced or repaired free of charge by Strom, or one of its representatives during the applicable Warranty Period. Where work is carried out by personnel not associated with Strom, or without Strom's knowledge we will be unable to cover the associated costs, parts, and labour charges. If Strom or its representatives are unable to attend your property in a timely manor we reserve the right to allow third parties to undertake the work once a pre-agreed cost has been agreed with Strom directly (agreements via third parties will not be accepted).

### Exclusions:

1. This policy only applies where:

- i. The product is installed and used strictly in accordance with the Terms and Conditions and the instructions supplied with the product; and
- ii. the failure is not due to accident, misuse, abuse, unsuitable water conditions (including contaminants or inappropriate water pressure), limescale build up, or to any alteration, modification or repair by any party not expressly nominated by Strom.
- iii. Unsuitable water conditions include:
  - a) Private water supplies that are not regulated by water authorities
  - b) Hard water that is left untreated
  - c) Water additives that lead to product corrosion
  - d) The absence of corrosion inhibitor in heating circuits

2. This warranty does not cover damage resulting from non-operation of the product or consequential damage to any other goods, furnishings or property.

3. This warranty does not apply to any consumables associated with the product.

4. Installations that have not been carried out by person/s that do not hold the relevant qualifications required in their field to carry out the works undertaken (we reserve the right to ask for a copy of the electrical installation certificate)

5. Warranties are non-transferable and must be purchased as new from one of our distributors.

### Warranty Periods:

All Strom Boilers comes with a standard out of box warranty of 1 year, however by completing the included promotional guarantee procedure within 45 days of purchase (please see warranty documentation) the warranty will be extended to the offered promotional duration free of charge. The promotional period may vary dependent on supplier, model, or package purchased. All details set out in the included warranty documentation.





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