The Strom E-Boiler INSTALLATION GUIDE STH ISSUE FOR REV 2 BOILERS ONLY

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STROM

THE FUTURE OF HEATING IT'S ALL IN THE DETAILS...



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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 (registration must occurr within the first 45 days of purchase) 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 IS USED.
- YOU HAVE CHECKED IN THE CASE OF THE COMBINATION BOILER THAT THE HOT WATER FLOW RATE IS SUFFICIENT FOR THE APPLICATION
 - THAT THE BOILER IS FITTED IN A MANOR AND LOCATION WHERE IT CANNOT BE ACCESSED BY UNAUTHERISED/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.
 - AN ELECTRICAL CERTIFICATE WILL BE PROVIDED IMMEDIATELY AFTER A LIVE CONNECTION HAS BEEN MADE TO THE BOILER, THIS IS A CONDITION OF THE WARRANTY. PART P REGULATIONS CLEARLY STATE THAT WHEN ANY NEW CIRCUIT OR ALTERATION TO AN EXISTING CIRCUIT HAS OCCURED A CERTIFICATE MUST BE PROVIDED.
 - A PART P CERTIFICATE WILL BE ISSUED IN ACCORDANCE WITH BUILDING REGULATIONS UK. BOILERS REGARDLESS OF FUEL TYPE ARE CLASSED AS NOTIFIABLE WORKS.

RELEVANT STANDRARDS

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.



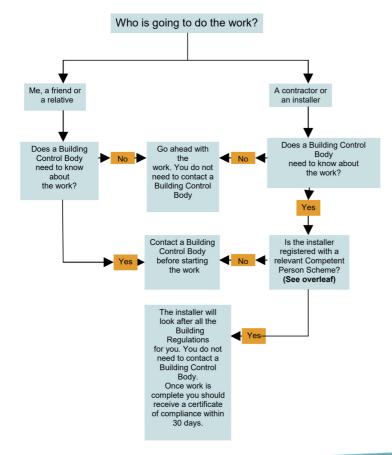
Electric Boilers STAYING COMPLIANT

When installing an electric boiler it is important to pay attention to all national and local laws and by-laws to make sure that you are safe and your installation is compliant.

Installations of electric boilers should only be completed by qualified electricians who are members of a compentant persons scheme. It is a requirement in law and of the schemes that an electrical installation certificate is provided for electric boiler installs as this will class as a "a new circuit or significant alteration of an existing circuit".

Building regulations also stipulate that boiler installations regardless of fuel type are notifiable by law. The easiest way to comply is to use a compentant person who in addition to the electrical installation certificate will need to legally provide you with a Part P certificate.

Below is an extract from the Department For Communities & Local Government showing what is required:



Remember even as the homeowner it is your job to ensure that your property complies with this law. Failure to do so may result in legal fines being levied, insurance policies being cancelled, and possible prison sentances. Selling your house may also prove difficult without the correct paperwork in place.

For more information about the requirements for electrical works being carried out look at a component persons scheme website like:

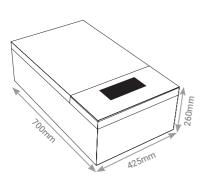
www.NICEIC.com

Or check out the building regulations approval site at:

https://www.gov.uk/buildingregulations-approval

BOILER SPECIFICATION

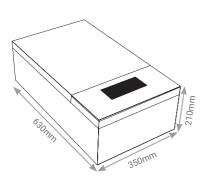
COMBINATION ALL ELECTRIC BOILER...



	SINGLE PHASE			THREE PHASE		
	7kW	11kW	14.4kW	18kW	21kW	24kW
Voltage	230V	230V	230V	400V	400V	400V
Amps	32A	55A	62A	27A	32A	36A
Recommended Breaker	40A	63A	63A	32A	40A	40A
Recommended Cable Size	4mm ²	10mm ²	10mm ²	3x4mm ²	3x6mm ²	3x6mm ²
Max. Heating Pressure	1.5 Bar					
Min. Heating Pressure	0.5 Bar					
Max. DHW Pressure		6.0 Bar				
DHW Flow Rate (Itrs/min)*	4	6	7	9	10	12
Heating Connection Size	3/4" Male (We Recommend Flexi Hoses, Not Irons)					
DHW Connection Size	1/2" Male (We Recommend Flexi Hoses, Not Irons)					
PRV Connection Size	1/2" Female					

*Recommended Flow Rate To Offer 30 Degree Temperature Rise Of Incoming Cold Mains Supply

SYSTEM ALL ELECTRIC BOILER ...



	SINGLE PHASE			THREE PHASE		
	7kW	11kW	14.4kW	18kW	21kW	24kW
Voltage	230V	230V	230V	400V	400V	400V
Amps	32A	55A	62A	27A	32A	36A
Recommended Breaker	40A	63A	63A	32A	40A	40A
Recommended Cable Size	4mm ²	10mm ²	10mm ²	3x4mm ²	3x6mm ²	3x6mm ²
Max. Heating Pressure	1.5 Bar					
Min. Heating Pressure	0.5 Bar					
Max. Flow Temp		80°C				
Min. Flow Temp	20°C					
Heating Connection Size	3/4" Male (We Recommend Flexi Hoses, Not Irons)					
PRV Connection Size		1/2" Female				

WHATS IN THE BOX?

1. BOILER

2. INTEGRATED WALL MOUNTING BRACKET

3. WALL MOUNTING GUIDE

4.3 x EXPANDING WALL BOLTS



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. HOT WATER CALCULATION.

COMBI BOILER ONLY

For combination units ensure that the boiler has a sufficient heat output to provide the correct temperature & flow of water required for the application. If you need help calculating this please contact Strom.

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 varience from this must be taken into account when calculating the correct breaker and cable size.

4. MAINS WATER PRESSURE.

COMBI BOILER ONLY

The maximum rated pressure of the units is 6bar, where water pressure is approaching this limit, or where dynamic pressure varies and may exceed this a pressure reducing set on the mains supply should be installed.

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
11. SET DHW FLOW & TEMPERATURE	SEE PAGE 35

POST INSTALLATION

1. PROGRAM THERMOSTAT.

2. TEST HEATING & HOT WATER

3. COMPLETE CHECK LIST

4. ASK OWNER TO REGISTER

REFER TO MANUFACTURERS MANUAL

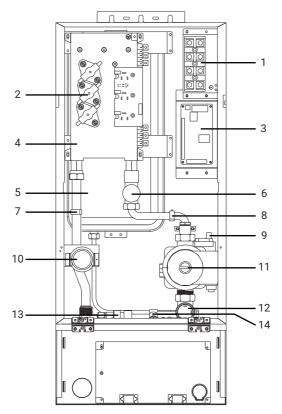
SEE PAGE 36

SEE PAGE 37

REFER TO www.stromltd.com/guarantee



HEAT ONLY SCHEMATIC



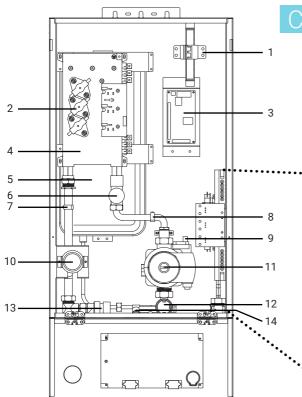
1.	Power Connection Terminals
2.	Thermal Cut-Outs
3.	Control PCB (thermostat connections)
4.	Heating System Patented Heat Exchanger
5.	Heating Expansion Vessel
6.	Dedicated Heating Flow Sensor

7. Temperature Sensor For Heat Flow

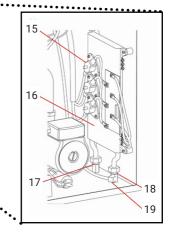
- Temperature Sensor For Heat Return
- 9. Automatic Air Vent (access behind pump)
- 10. Pressure Gauge
- 11. Pump

8.

- 12. Pressure Sensor (linked to gauge)
- 13. Pressure & Expansion Relief Valve
- 14. Heating System Filling Valve







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

Pump

11.

19.

- 12. Pressure Sensor (linked to gauge)
- 13. Pressure & Expansion Relief Valve
- 14. Heating System Filling Valve
- 15. Thermal Cut-Outs
- 16. Hot Water Patented Heat Exchanger
- 17. Temperature Sensor For Hot Water Outlet
- 18. Temperature Sensor For Cold Water Inlet
 - Flow Sensor For Domestic Hot Water



Electric Boilers SCREEN DIAGRAM

SUN MON TI **POWER INDICATOR** Shows if the boiler is receiving power & powered on BOILER **ACTIVITY** shower Shows if the heating boiler is heating water or central heating. (Combi Only) **POWER BUTTON INCREAS** Turns the boiler On or Increases va MENU BUTTON Off. temper Used by the installer to enter configuration mode



IGNITION

The boiler is currently heating up either for heating or hot water.



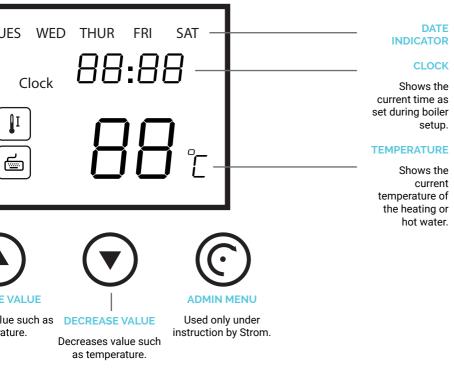
RETURN TEMPERATURE

The return temperature is above desired temperature.



RETURN TEMERATURE

The return temperature has reached the temperature differential set by the installer.





PUMP RUNNING

While lit solid the pump is running and is performing as expected.



FROST PROTECT

The boiler is too cold and is entering a defrost cycle in attempt to prevent damage to the boiler.

THERMOSTAT STATUS



While lit solid there is an external thermostat fitted and there is a demand for heat, while flashing their is either no thermostat fitted or no demand for heat.



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, it is essential that full bore isolation valves are 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 is already built into the boiler. However, if the boiler is to be used in tandem with a hot water cylinder, an additional air vent should be fitted in the vicinity of the cylinder coil. An airvent should always be considered at the highest point in a system to aid in purging the system of any air.

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.

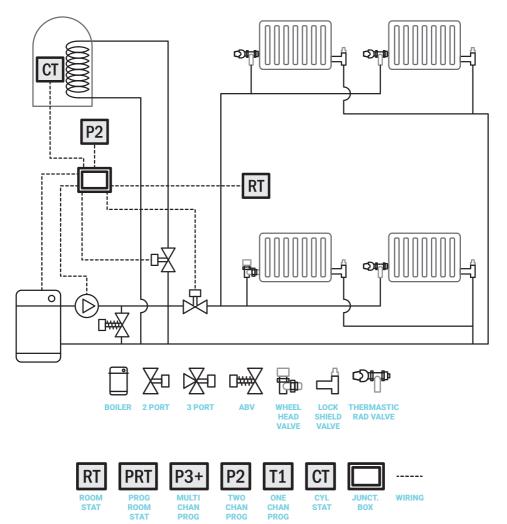
HEATING EXPANSION VESSEL

An expansion vessel is fitted internally within the boiler to provide room for thermal expansion of water under regular operating conditions. However, if the system contains significant volumes of water, an additional heating expansion vessel should be fitted externally.

PART L COMPLIANT LAYOUTS

HEAT ONLY BOILER

PROGRAMMER, ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m²)



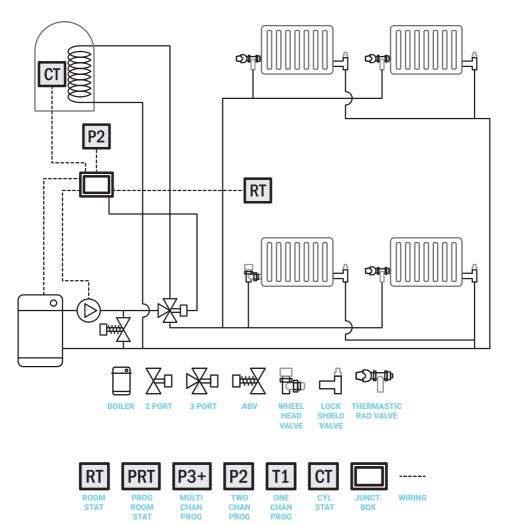
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.



PART L COMPLIANT LAYOUTS

HEAT ONLY BOILER

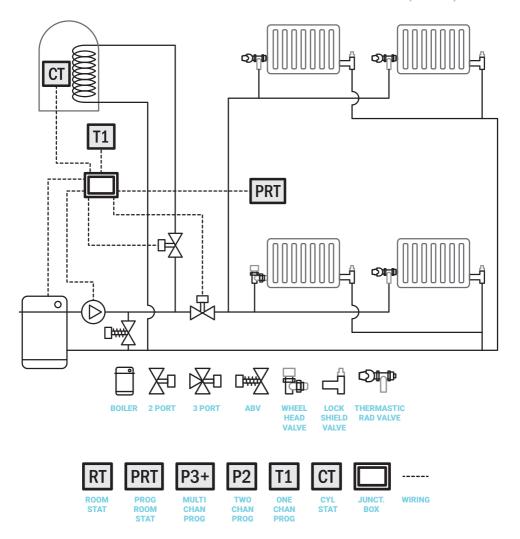
PROGRAMMER, ROOM THERMOSTAT & TRV'S - 3 PORT VALVE CONTROL (<150m²)



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

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HEAT ONLY BOILER PROGRAMABLE ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m²)



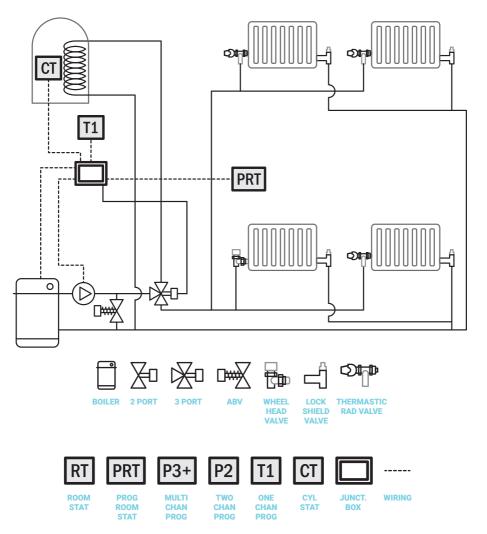
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PART L COMPLIANT LAYOUTS

HEAT ONLY BOILER

PROGRAMABLE ROOM THERMOSTAT & TRV'S - 3 PORT VALVE CONTROL (<150m²)

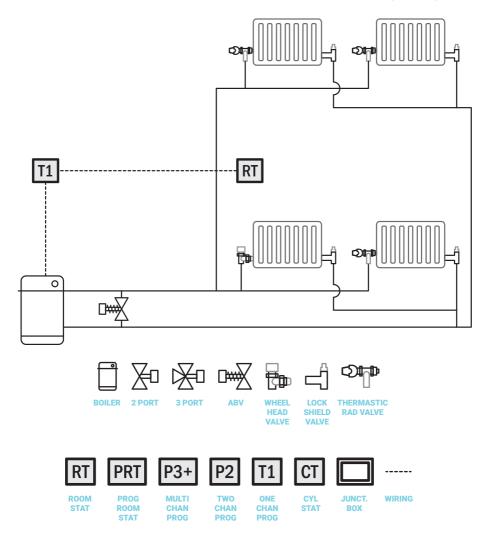


DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.

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COMBINATION BOILER

PROGRAMMER, ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m²)



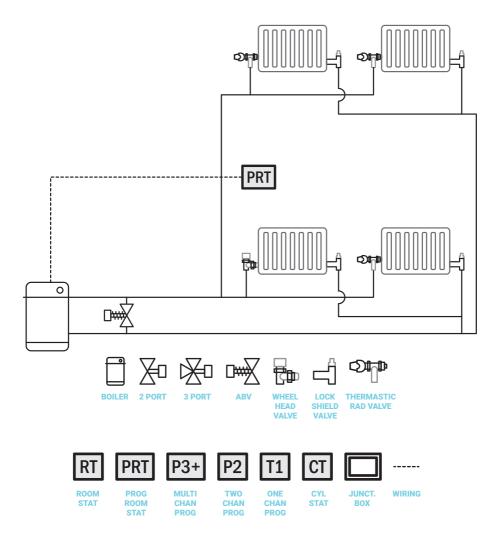
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.



PART L COMPLIANT LAYOUTS

HEAT ONLY BOILER

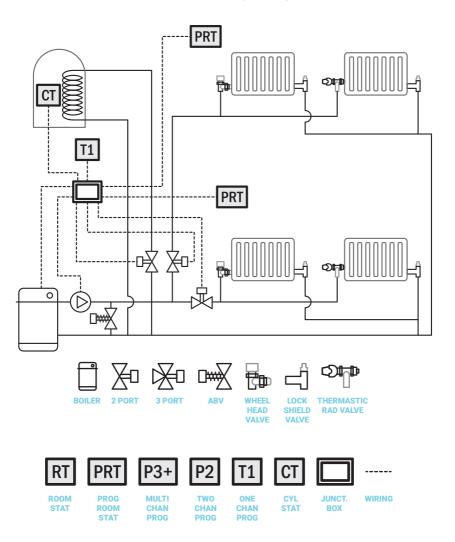
PROGRAMABLE ROOM THERMOSTAT & TRV'S - 2 PORT VALVE CONTROL (<150m²)



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

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HEAT ONLY BOILER PROGRAMMABLE ROOM THERMOSTATS & TRV'S (150m²+)



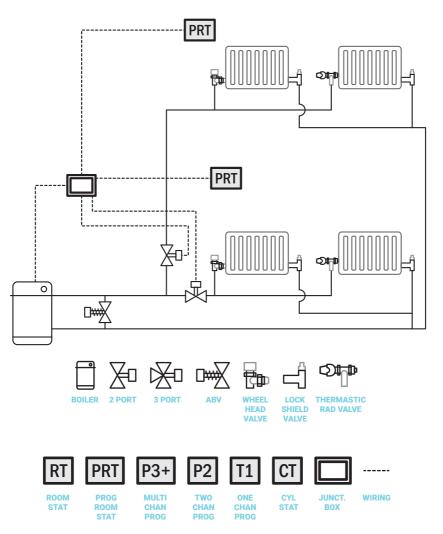
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.



PART L COMPLIANT LAYOUTS

HEAT ONLY BOILER

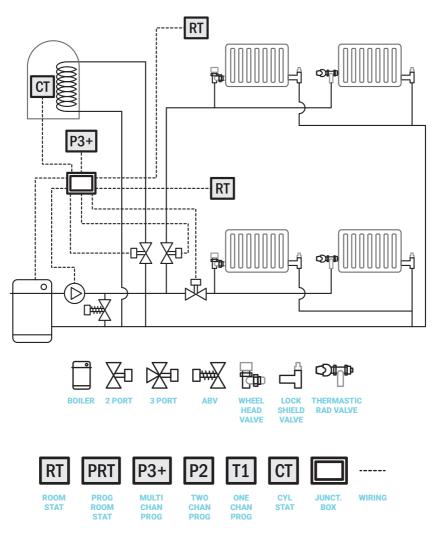
MULTI CHANNEL PROGRAMMER, ROOM THERMOSTATS & TRV'S (150m²+)



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

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COMBINATION BOILER PROGRAMMABLE ROOM THERMOSTATS & TRV'S (150m²+)



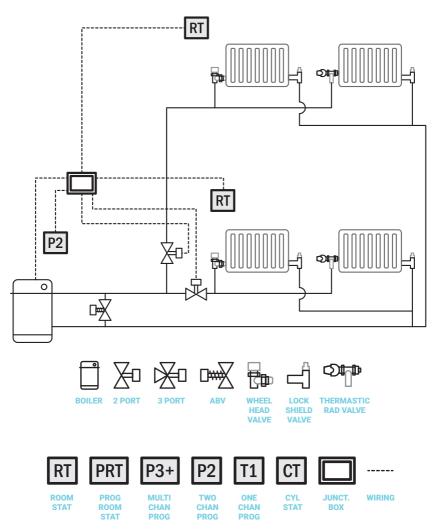
DIAGRAMS PROVIDED AS GUIDANCE ONLY, FINAL DESIGN SHOULD BE DECIDED UPON BY A QUALIFIED PLUMBER INLINE WITH CURRENT PART L GUIDELINES.



PART L COMPLIANT LAYOUTS

COMBINATION BOILER

TWIN ZONE PROGRAMMER, THERMOSTATS & TRV'S (150m²+)



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

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WALL MOUNTING THE BOILER

IMPORTANT

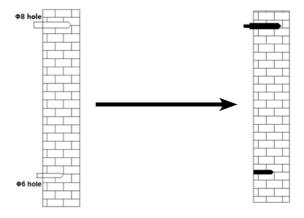
When choosing a location to mount the boiler it is important that you consider clearance, servicing the boiler, and safe and suitable operation.

The boiler should be fitted out of the reach of children, people of deminished responsability, 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 electrican 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.

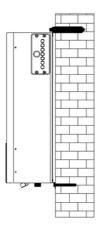
- 1. Using a drill create 6 holes as per the including wall mounting diagram. The upper holes should be $\Phi 8$ diameter, and the lower holes $\Phi 6$.
- 2. Secure the 3 supplied Φ8 expansion bolts into the top three holes.





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.

WATER CONNECTIONS

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 ³4" 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.

HOT WATER INLET & OUTLET: (COMBINATION BOILERS ONLY)

These connections are 1/2" for connection to 15mm pipe with service valve on the inlet for flow restriction. We recommend flexi-hoses as overtightening irons may damage the boiler internals which is not covered under warranty.

PRESSURE RELIEF VALVE:

The boiler comes with a barb fitting for quick connection in temporary applications, however we recommend the removal of this to expose a 1/2" female connection, this can then be converted to 15mm copper pipe and discharged according to current building regulations.



WATER CONNECTIONS

FILLING POINT:

A convenient fill point has been added to the boiler called the "water replenishing valve". A temporary connection should be made to this point when initially filling the boiler or topping the water pressure up. This must be closed once the system is up to pressure and the air has been purged. Alternatively, this can be left closed and a traditional filling loop can be used for filling of the heating system and replacing any water lost during servicing or bleeding the system. The filling loop should be installed in close vicinity to the boiler or connected to the water replenishing connection. The filling loop should be installed to current water regulations and should be removed after filling and the valves sealed with suitable caps.

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. Find the Automatic Airvent behind the pump and ensure that the cap is freely moving and not screwed down in the closed position. Connect the filling loop to the Water Replenishing connection, 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 replenishing valve should be shut. Ensure that you add inhibitor to your system, refer the manufacturers guidance for diluation rates. For the moment please leave the filling loop connected until you have purged the air out of the system.

HOT WATER INITIAL FILL: (COMBINATION BOILERS ONLY)

Ensuring that the isolating valve before the cold water inlet is fully open, open all hot water taps on the hot water circuit 1 at a time and run until all air has ceased coming out of the tap, it is important to wait a moment until all spluttering has stopped. If any air remains in the hot water element of the boiler when power is turned on the water heating element can prematurely fail.



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 by 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 intial 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. This applies to one circuit on a system boiler and both circuits on a combination boiler.

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 variences 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 variences.

Rated Boiler Output	7kW	11kW	14.4kW	18kW	21kW	24kW
Single / Three Phase	Single	Single	Single	Three	Three	Three
Rated Voltage	230VAC	230VAC	230VAC	400VAC	400VAC	400VAC
Current (A) @ Rated Voltage	32	55	63	27.3	31.8	36.4
Minimum MCB/RCB (A)	40	63	63	32	40	40
Minimum Cable Size (mm ²)	4	10	10	3 x 4.0	3 x 6.0	3 x 6.0

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 HO7 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.

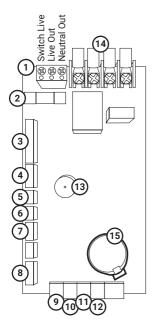


CONNECTING EXTERNAL THERMOSTAT

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 seperate 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:

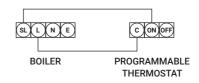


The PCB control board for the heating circuit is located in the right hand side of the boiler between the pump and the main electrical supply point.

- 1. Terminal Block
- 2. 6 Amp Fuse
- 3. Heating Power Board
- 4. Water Power Board
- 5. Water Outlet Temp. Sensor
- 6. Water Inlet Temp. Sensor
- 7. Water Flow Sensor
- 8. Touch Control Panel

- 9. Pressure Switch
- 10. Heating Cut-out
- 11. Heating Flow Temperature
- 12. Heating Return Temperature
- 13. Buzzer
 - 14. Heat Exchanger Power
 - 15. Internal Memory Battery

THERMOSTAT WIRING:



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

All electrical connections must be made by a qualified electrician.

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 Screwdiver 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 14 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 12 if present on the PCB control board opposite.
- 5. All terminations on the heating elemement (these are the braided connections).
- 6. All connections made on the PCB above the heating element (these are braided connections).
- 7. All terminations on the hot water elements (these are the braided connections) Combi only.
- 8. All earth terminations both factory made and installer made.



Electric Boilers POWERING ON THE BOILER

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 termperature.
- 3. Make sure that any power isolators inside the boiler are turned on, the boiler casing is secured, and the lower flap is in the upright position.
- 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.

SET THE BOILER PARAMETERS

The boiler has 3 key parameters that need to be set in order to make the boiler function correctly:

CLOCK

The time function displays the Time on the front of the boiler during normal operation, this helps the homeowner to confirm that the programmer has been programmed correctly by letting them see the time the boiler has become activated.

BOILER FLOW TEMPERATURE

The boiler flow temperature displays on the boiler as "HEAt". The default position is 40°C, this should however 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

The boiler differential temperature displays on the boiler as "dIFF". 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. Default position for this setting is 15°C.

CHANGING THE SETTINGS:

To change the settings **with the boiler still in the standby position** press and hold the Menu button (see page 10) untill "CLOCK" begins to flash, using the up and down button press set the time, pressing the menu button again to move from hours to minutes. If the boiler doesnt enter the admin mode it is likely the boiler is not in the standby position, press and hold the power button until the boiler enters standby and try again.

Pressing the Menu button again will cause HEAt to be displayed, again using the up and down button set the heat output to the correct design temperature.

Finally press the Menu button again and dIFF will be displayed, finally using the up and down buttons for the final time set the heat differential of the boiler.

Press the power button for the Admin menu to be exited.

To change or turn off certain boiler functions, ensure the boiler is still in the standby position and apply single presses to the menu button. Each single press will change the boiler functionality. Here you can decide if you would like both the heating and hot water functioning (represented by both 'shower' and 'heating' being displayed) or just the hot water functioning (represented by just 'shower' being displayed) Once you have adjusted to the desired functionality leave the boiler display to go inactive and revert back to the standby display and your setting will have been saved.



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. The airvent on the pump is open with the dust cap moving freely.
- 3. Set the pump to pump speed one, this for many installations should be adequate.

The boiler can no be activated, press and hold the power button until the boiler bleeps and exits standby mode. The first thing you will notice is the flashing Thermostat Status Symbol, this means that currently there is no demand from the thermostat for heating.

Activate the thermostat so that it is now calling for heat, the Thermostat Status Symbol should now remain static and lit. The pump will fire up and after a few seconds the ignition symbol should illuminate and heat should start being produced.

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. One 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 desireable, 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 or water supply to the water replenishment valve, and ensure that all connections are capped off until required again at a future date.

SET DHW FLOW & TEMPERATURE

COMBINATION BOILERS ONLY

The hot water side of the electrical combination boiler relies on setting the correct flow rate of water going in to the unit, if the water going in to the unit is too fast then the unit will be unable to cope with the demand and the water will come out cold. You should aim to set your boiler to approximately the following flowrates, you can do this by restricting the isolation valve fitting on the cold water of the inlet during installation.

Rated Boiler Output	7kW	11kW	14.4kW	18kW	21kW	24kW
Recommended Flowrate (LPM)	4	6	7	10	12	13

With the hot water tap open and running the temperature of the hot water outlet can now be set on the boiler by using the up and down button. The temperature cannot be adjusted without a hot tap being open. Remember this setting does not guarantee the output, it only sets the maximum possible output, the output temperature will rely on the flow rate going in to the boiler as above.



TESTING HEATING & HOT WATER

Before completing the installation checklist please take the time to check the Heating Circuit and Domestic Hot Water Circuit (Combi's only). 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 begining 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.

HOT WATER TEST

- 1. Open a hot water tap and ensure that the boiler fires.
- 2. Give the boiler a few minutes to reach temperature.
- 3. Check that the tap is ouputting water at the correct temperature, if not please refer to setting the hot water flow and temperature on page 35.
- 4. Close the hot water tap to complete testing.

PLUMBERS CHECKLIST

PLUMBER TO COMPLETE...

COMPANY NAME:						
PLUMBERS NAME:						
COMPANY ADDRESS:						
COMPANY TELEPHONE:						
DATE OF INSTALLATION:						
WAS THIS A EXISTING INSTALL OR NEW INSTALL?						
HOW MANY HEATING ZONES ARE INSTALLED?						
HAS THE FILLING LOOP BEEN REMOVED & CAPPED OFF? YES NO						
WAS AN ABV FITTED? AT WHAT SETTING?						
WHAT IS THE HEATING PRESSURE SET AT?						
WHAT IS THE INCOMMING MAINS PRESSURE?						
WHAT HAS THE BOILER FLOW TEMPERATURE BEEN SET AT?						
WHAT HAS THE BOILER DIFFERENTIAL TEMP. BEEN SET AT?						
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:	
11111111111111111111111111111111111111		8
(37)		STROM

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 ²
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
E0	Heating system contains a lack of water or pressure is not sufficient for circulation.	Add treated water to the heating system and bring the pressure to a suitable level.
	Loose connection for pressure switch.	Check the wiring and reseat connection if loose.
E1	Loose connections between heating outlet temperature sensor & PCB	Check the wiring and reseat connection if loose.
E2	Loose connection between the heating return temperature sensor & PCB	Check the wiring and reseat connection if loose.
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: Pump Speed Air in the system ABV is installed & set There is no bloackages in the inlet and return line strainers
E6	Loose connection between domestic hot water outlet temp. sensor & PCB.	Check the wiring and reseat connection if loose.
E7	Domestic hot water temperature greater than 73°C	Reduce temperature setting on the boiler, or increase the mains water flow rate.
E8	Loose connection between domestic hot water inlet temp. sensor & PCB	Check the wiring and reseat connection if loose.
EA	Power supply to the boiler is too high.	Check supply voltage & correct. Re-check all wiring to the unit.

Continued on next page...



FAULT FINDING

ERROR CODE	POTENTIAL CAUSE	SOLUTION
Display is not illuminated.	No power to the boiler.	Add treated water to the heating system and bring the pressure to a suitable level.
murmitateu.	Loose connection between display board and PCB.	Reseat connection.
Control panel is not registering touch commands.	Ensure boilers status is correct for the function you require.	As per page 33 of this manual to adjust time, heat settings and boiler functionality the boiler needs to be in standby mode before the menu and arrow buttons will work.
	Thermal cut outs have triggered and need resetting.	Isolate power to the boiler and reset thermal cut outs by pressing firmly against the grey buttons in the centre of the component. These cut outs are located on the left hand element as shown on page 8 and 9 (figure 2)
	Heating function has been turned off.	Turn heating function back on as per information on page 33.
Heating temperature is increasing too slow or not at all.	Boiler is not recognising a thermostat calling for heat or a thermostat has not been installed.	 Install a thermostat. Thermostat is not wired correctly or is defective (Please check the manufacturers manual for confirmation. Strom can only advise on how to wire into the boiler but not advise the wiring into third party products) Fuse on control circuit has blown. The fuse location is shown on page 30 (figure 2) replace with 6 amp fuse.
Heating is turning off at a low temperature.	Default heating temperature requires to be adjusted.	Please follow the instructions on page 33 for information on how to adjust your default heating temperature.
	Loose electrical connection.	This may be a connection made during installation a pre factory made connection. Please check all connections and ensure they are tight and secure.
Nuisance tripping (internal or external breaker)	Incorrect cable size and/or external breaker used for installation.	Please double check that the specifi- cation of your installation is correct. As stated on pages 2 and 29, ultimate- ly the voltage at the installation will in- fluence the external breaker and cable size required for this installation. Use ohms law to calculate if the correct specifications have been applied to the installation. Adjust accordingly.

FAULT FINDING

	Thermal cut outs have triggered and need resetting.	The boiler will automatically begin circulating again once the heat exchanger has cooled.	
	Flow rate too high.	Isolate power to the boiler and reset thermal cut outs by pressing firmly against the grey buttons in the centre of the component. These cut outs are located on the right hand element as shown on page 9 (figure 15)	
Hot water temperature is increasing too slow or not at all.	Boiler is not recognising a flow of water.	 Measure flow rate and adjust accordingly as advised on page 35. Pipe work is reversed (boiler inlet connected to outlet pipework and vice versa) please correct this accordingly. Loose connection between flow sensor and PCB. Flow sensor location is shown on page 9 (figure 19) Debris / limescale build up in flow sensor. Isolate water and check inlet and sensor for signs of blockage, clear accordingly. 	

IMPORTANT Please ensure that any processes where you are required to enter inside the boiler or access the electrical connections of your boiler, these are done so by a qualified and competent installer.

To clear any error codes on the display, simply press and hold the power button until the boiler beeps. Ensure the issue has been addressed and then test your boiler function again.

It is essential before contacting Strom all troubleshooting steps are followed and completed by your installer so that you are potentially able to resolve any issues significantly quicker. For anything and everything else, we are on hand to help on 03333442474.



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.



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. An electrical installation certificate from a qualified electrician must be provided for your install, failure to supply this certificate will render any warranties null and void.

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 warranty guarantee procedure within 45 days of purchase (please see warranty documentation) the warranty will be extended to the offered warranty duration free of charge. The warranty period may vary dependent on supplier, model, or package purchased. All details are set out in the included warranty documentation.

TERMS & CONDITIONS

CONDITIONS OF SALE

 DEFINITIONS "Buyer" means the person who accord of the Goods or whose order for the tation of the Co any for the sa use order for the Goods is accepted by the Company

of the Goods or whole order for the Goods is accepted by the Company "Company" must storm Limide. "Company" must storm Limide. The Company must be company and the Storm any second terms and conditions agreed in writing by the Company and the Buye "Contract" means the contract for the purchase and aside of the Goods "Goods" means the goods which the Company is to supply and which the Buye agrees to buy in accordinace with these conditions:

"Price" means the price for the Goods including transport and insurance (if an 1.2 Any reference in these Conditions to any provision of a statute shall construed as a reference to that provision as amended re-enacted or extended

the relevant time 1.3 The headings in these Conditions are for convenience only and shall not affect

2.8 SASI SOF SALE 2.1 The Company shall sell and the Buyer shall purchase the Goods in acco 2.1.1 the Company's guotation (if provided by the Company and accepted by the

Buyer), or 2.1.2 (if the Company does not submit a guotation and following a request o

1.1.2 (If the Company does not submit a quotation and tolknowng a request or upmonted order from the Buyer for Goods in accordance with the Company's offer which shall govern the Contract to the exclusion of any other terms, subject to which shall govern the Contract to the exclusion of any other terms, subject to excepted to these Conditions (including any special terms, actioned to 2.2 Any variation to these Conditions (including any special terms and conditions greed between the parties) shall be parties) shall be parties (including any special terms and conditions and the parties) shall be parties) shall be parties) and be parties and be parties) and be parties) shall be parties) shall be parties) and be partie 2.2 Any

Company 23 Any advice or recommendation given by the Company or its employees or agents to the super or its employees or agents as to the storage againction or use adviced agenetic the the Bueyer on mixed and accordingly the Company shall not be liable for any such advice or recommendation which is not so confirmed 2.4 Any typographical deviced or other or or omision in any sale. Iterature substant processing and advice or other document or information and other the company shall be layed to concrision with advice any such advices of the Company shall be layed to concrision without any labeling on the out of the Scompany.

guotation jack many sissed by the Company shall be subject to converse part of the Company 2.5 All specifications, drawings, particulars of weight and dimensis performance data contained in any of the Company's iterature are appr ----draw modify any specifi

any reserves the right to improve and/or modify any specification nensions without notice.

2.6 In E-Company reserves the right to improve and/or modify any specifications, designs and dimensions without notize.
2.7 For the avoidance of doubt nothing in these Conditions or any Contract shall confer on any third party any benefit nor the right to enforce any term of these Conditions or any Contract whether pursuant to the Contracts (Rights of Third).

3. THE PRICE AND PAYMENT

3.1.1 the Company's quoted price which shall only be valid for 30 days from its date after which time the Price may be altered by the Company and shall be subject to

after which there the Picce may be altered by the Company and shall be subject to the transport registering of the Picce State State

3.3 the rise and any other sum payable by the Buyer to the Company (is exhaps of any appelicative adder Tax, which the Buyer and its early and the Adder the Adder Tax and the Buyer and the Adder Tax and the Adder to any special terms agreed in writing between the Buyer and the any time after delivery of the Goods, for any stabiliteries of the Förs of the Goods on wat any time after delivery of the Goods, for any stabiliteries of the Goods on the adder the Adder of the Goods, and the Adder of the Goods on the Adder of the Goods, in which event the Company has notified the Buyer that the Good of the Goods, in which event the Company has notified the Buyer that the Goods are steady for collection of the fit came has the Company has notified delivery. of the Goods

of the Goods. 35 Save as otherwise agreed in writing, payment of the Price and VAT shall be due within the agreed period from the date of the invoice without deduction or set off. Time for payment that be of the essent on the due date then without prejudice 3.8 if the Buyer fails to make any payment on the due date then without prejudice to any other inplication or remedy available to the Company the Company shall be

to dry Uniter right to introduce yumane on the company the magnetized in emitted in: a mitted in the emitted of the second any further deleviers to the tagent 3.6.2 appropriate any payment made by the Buyer to such of the Goods (or the Goods supplied under any other contract between the Buyer and the company the company may think fit (notwithstanding any purported appropriation by the Buoast and

super) and 3.6.3 charge the Buyer interest (both before and after any judgement) on amount unpaid at the rate of 8% per cent per annum above Barclays Bank base rate from time to time until payment in fulls made (a part of a month b treated as a full month for the purpose of calculating interest) 4. THE GOODS

tity and description of the Goods shall be as set out in the

4. THE GOODS 4.11 The equatity and description of the Goods shall be as set out in the Containty equation or in the Company's tile (as the case may be); and Company's equation or in the Company's tile (as the case may be); and Company's equation or where there is no equation's in the Company's leader and mortules for the Goods in outside. The company's leader and mortules for the Goods in outside. The company's leader and mortules for the Goods in the Company's leader and the requirements (including bar without limitation the use to which the Goods will be and any applicable specifications usualized by the Company and the Company any necessary information reliating to the Goods within a sufficient time to evalue the Company in particular space and for giving the Euger Company any necessary information reliating to the Goods within a sufficient time to evalue the Company in particular space and the size may concide by the Company in an accountance with a semi-code by the Company in the semi-and material in the semi-accepted by the Company in commention with the base material and by the Company in a commentance of the base material to the the Company in a dimension of the Law end with the base material to the the Company in the control and protein case of the Base end to the Company in a dimension of the the Company in the apart and Law is changed and expense incurved by the Company in ful again and Law is changed and expense incurved by the Company in forming and any work in integet CH the Goods on dimension as a neural to any and materials used diamages changes and expense incurved by the Company in forming and any work in intege

carrying out any work in respect of the Goods or otherwise as a result of

4.5 All designs, sketches, or similar articles supplied by or submitted in co by the Company shall remain the property of the Company and may not be disclosed by nor used by nor copied or otherwise reproduced by the Buyer without the prior written consent of the Company.

5. DELVERY OF GOODS 5.1 Ubits oftenvice agreed in writing the Company shall deliver the Goods to such delivery address as specified by the Buyer to the Company at such time as the 52. The fluor shall be responsible for offloading the Goods at the delivery address and shall advice the Company of any Good or internal laws, playway or units relating to parking or loading of vehicles at the delivery address. 53. The Buyer shall be responsible for soming that access to the delivery address is wholl by a road with a surface capable of withstanding the weight and size of a vehice Carrying the Goods.

a venice configure Goods. 54 Any dates quoted for delivery of the Goods are approximate only and the Company shall not be lable for any delay in delivery of the Goods howscever caused Time for delivery shall not be of the essence unless previously agreed by the Company in writing The Goods may be delivered by the Company in advance of

the Delivery Date upon giving reasonable notice to the Buyer 5.5 Where the Goods are to be delivered in instalments each delivery shall constitute a separate contract and failume by the Company to deliver any one or more of the instalments in accordance with these Conditions or any claim by the the contract as a separate shall not entitle the Bayer to take 5.6 if the Buyer fails for any reason whatsoever to take delivery of the Goods or fails to give the Company dequate delivery instructions at the time tasked for delivery reason of the Company fault then without products to any other right or remedy available to the Company the Company theory may. 5.6.1 store the Goods until actual delivery and Carge the Bayer for the reasonable costs (including instruction of at the time Goods to the Company's premises, 5.6.2, at the Goods at the best prior reading obtainable and failer delivery 5.6.2, at the Goods at the best prior reading character and failer delivery of the Consolities of the Source and selling expenses account to the Bayer for the reasonable costs at the Goods at the Delay prior failer account for the Delay for the company the Company 5.6.2, at the Goods at the Delay prior the Company for the Costs of the Company failer of the Costs of the Company's premises, 5.6.2, at the Goods at the Delay prior the Company for the costs of the Cost of the Costs of the Cost of the Costs of the C

3.0.2 set the useds at the best price ready obtainable and differ deducting all reasonable storage and selling expenses account to the Buyer for the excess over the Price or charge the Buyer for any shortfall below the Price 3.6 most may not be terturned to the Company energy the prior variation permission of the short of the price of the

6. RISK AND RETENTION OF TITLE

6. Risk AND PETENTION OF TITLE 6.1 goods signified by the Company shall be at the Buyer's risk immediately upon delivery to the Buyer or into catody on the Buyer's balant or to the Buyer's Dater. The Company of the Buyer or into catody on the Buyer's balant or to the Buyer's Dater. The Company into the Buyer of the Buyer is the Buyer and the Buyer and Buyer until property in the goods signified transmitter to the effective form the time of allevier of the goods of the subject of this contract. 6.2.1 the goods of the subject of this contract. 6.2.2 all other goods subject to any other contract between the Buyer and the Company which, at the time of payment of the full price of the goods sid 5.3 until property in the goods subject here and the balance of the Buyer and Subject is the Buyer and Buyer and the full price of the goods sid 5.3 until property in the goods subject here and the Buyer and the Company which, at the Buyer and the Company buyer and the Company the the days and buyer and the Subject hereader Buyers to the Buyer of the Subject of the Subject of Buyer Buyer

the Company which, at the time of payment of the full price as use guoss award Go and the poperty in the goods supplied hereinder passes to the Buyer in accordince with paragraph (3) above. Go 31 the Buyer hall hold the goods in a flackury capacity for us and shall store accordince with paragraph (3) above. Go 31 the Buyer hall hold the goods in a flackury capacity for us and shall store the store of the store store and the store of the Buyer in construction of the store store and the store of the store company shall be the store of the store store of any of the following events, namely : 6.4.2.1 if the Buyer, not being a company, commits any act of bankrupticy, makes a proposal to his or a Bankrupticy Coder to be presented. 6.4.2 aft the Buyer, not being a company commits any act of bankrupticy, makes a proposal to his or a Bankrupticy Coder to be presented. 6.4.2 aft functions and the redeforts for the payment in 6.4.2 after a bank and the store store proposal to his or a Bankrupticy Coder to be presented. 6.4.2 after banks and the store propersent banks and the store propersent banks and the store propersent banks and the store the payment of the store and propersent banks and the store propersent banks and the propersent banks and the

winding up or to apply for an administration order. 6.5 the Buyer hereby grants to the Company an irrevocable license to enter at any time any vehicle or premises owned or occupied by the Buyer or in the possession of the Buyer for the purposes of repossessing and recovering any such goods the property in which has remained in the Company under paragraph (2) above. The Company shall not be responsible for and the Buyer will indemnify the Company against liability in respect of damage caused to any vehicle or premises in such repossession and removal being damaged which it was not reasonably practicable

To anout 66 notwithstanding panagraph (4) hereof and subject to panagraph (5) hereof, the Bijner shall be permitted to sell be goods to third parties in the normal coarse of biotensis. In this negative the Bijner shall can be charged as the biotensis of the second second second second second second second 6.6.1 shall be held in true for us a manner which enables such proceeds to be dentified as such, and : 6.6.2 shall not be made with other monies nor paid into an overdrawn bank 6.6.2 shall not be made with other monies nor paid into an overdrawn bank 6.6.2 shall not be made with other monies nor paid into an overdrawn bank 6.6.2 shall not be made with other monies nor paid in ban overdrawn bank 6.6.2 shall not be made with other monies nor paid in ban overdrawn bank 6.6.2 shall not be made with other monies nor paid in bank overdrawn bank 6.6.2 shall not be made with other monies nor paid in bank overdrawn bank 6.6.2 shall not be made with other monies nor paid in the averdrawn bank 6.6.2 shall not be made with other monies of paids with the Bayer can obtain over 6.6.2 shall not be made with other monies of apply with with shall be 6.6.2 shall not be made with other monies of paids with the Bayer can obtain over 6.6.2 shall not be made with other monies of apply with with shall be 6.6.2 shall not be made with other monies of apply with with shall be 6.6.2 shall not be made with other monies of apply with with the Bayer can obtain over 1.6.2 shall not be made with other monies of apply with the Bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the bayer can obtain over 1.6.2 shall not be made with the b

allo account use same appearance of the Buyer shall sell any of the goods pursuant to clause (5). 6.7 in the event that the Buyer shall sell any of the goods pursuant to clause (5). thered, the Buyer shall forthwith inform the Company in writing of such sale and of the identity and address of the third party to whom the goods have been sold. 6.8 it, before property in the goods parses to the Buyer under sparagian(13) above the goods are or become affinded to any link of rolliding owned by the Buyer It is accounted to a truth Affanton shall not have the effect of parsion e goods are or become anised to any leng or building towate or yine sloper inc. or goods are or become anised to any leng or building towate or yine sloper inc. goods of the sloper under paragraph (3) hereof, the goods are or become africed any land or building (whether or nor owned by the Buyer), the Buyer Stall-31. ensure that the goods are capable of being removed without material injury such land or building.

6.9.1 the Buver shall forthwith inform the Company in writing of the fact and

6.9.1 the Buyer shall occurrent another the Company in Winning or the fact and circumstances of such loss, theft, damage or destruction.
 6.9.2 the Buyer shall assign to the Company the benefit of any insurance claim in

WARRANTIES AND LIABILITY -FOR PRODUCTS INSTALLED IN THE UK ONLY

J wakakanitis AkaD Usalanity +-OH PRODUCTS InstAtLED in the UK ONUT 11 subject to the following provision, the Company wains that the todos will their delivery to the Buyer, unless a period of different duration is specified in the roduct installation instructions in respect of that product and/or its specific warranty terms, or specified components thereof. 2.2 The warranty in classe 7.1 is given by the Company subject to the following and the state of the specific components thereof.

12. The warrang in Lease Ar to generate yet a second of any defect in the Goods arising from any information drawing design or specification supplied by the Buyer. 72.2 the Company shall be used non-balling in respect of any defect arising from any information drawing design or specification supplied by the Buyer. 72.2 the Company shall be used non-balling in respect of any defect arising from fair warran data willful dramage negligence abnormal working conditions failure to follow the Company's instructions (whether or all or in writing) missue or alteration or repair of the Goods without the Company's approval alteration or repair of the Goods without the Company's approval goods. Any such costs incurred shall be claimed by the Buyer or the Buyer's the instrumer's instrume early.

Goods. Any such costs incurred shall be claimed by the buyer or the buyer or use surgers a customer's insurance party. 7.2.4 the above warranty does not extend to parts materials equipment not manufactured by the Company in respect of which the Buyer shall only be entitled to the benefit of any such warranty or guarantee as is given by the manufacturer by the

to the benefit or any such remains a summary and the second secon

implied by Section 12 of The Sale of Goods Act 1979 shall not be limited 7.5 Subject as expressly provided in these Conditions all other warranties or or terms whether implied by statute or common law or otherwise ar

2 subject as depress/problem in these Cardination is other wantaline constants, 2 subject as depress/problem in the company reason other than any cause beyond the Company fails to deliver the Goods for any reason other than any cause beyond the Company reasonable control of the Bayer Shall then the Company shall only be liable to the Bayer of and the Company liability shall be timeled to similar goods to registrate the one of the Company liability shall be timeled to similar goods to registrate theore on the Company liability of all be timeled to similar goods to registrate theore and belowed over the Nice of the Goods. 7.7 The Bayer Shall examine all Goods delivered forthwith following delivery. Any dam by the Bayer which is based on any defect in the quality or condition of the conficient by the Bayer which is based on any defect in the quality or condition of the conficient by the Bayer deliver deliver of the Company voltable ingection) within a reasonable time after discovery of the defect or failure if delivery is not relaxed and the Bayer shall be bound to gay the Price as if the Cooks had been delivered in accordance with the Company voltable ingection) with a reasonable time after discovery of the defect or failure which is solight that it would be unreasonable of the Bayer to inger them. 7.97 grint by the Bayer and to remove such Goods on any part hereors of the cloops that would be unreasonable of the Bayer to inger them. 7.97 grint by the Bayer and to remove such Goods on any part hereor for theoring out strictly in accordance with the coording by the Company subging statistical to paragraphic strictly in accordance with a restorable dispection of any data by the Bayer and to remove such Goods on any part hereors for testing and be deted to require the Goods (or the part in question) free of drange or at the Company is accordance with the Company values configured to the company sub-defect of the quality or confision of the Goods (or the part in question) free drange or at the company is accordan

7.10 Where failed Goods are returned to the Company and subsequently found to have no fault found or failed due to reason(s) outside these terms and conditions, the Company reserves the right to claim any subsequent costs entailed, from the

yer. 11 Without prejudice to the provisions of clauses 7.5, 76, 77, 73 and 7.10 the threfse laability of the Buyer under or in connection with the Contract dual not be contract dual not the contract of the contract dual not the contract by ensuing of the theory of the dense to be in breach the contract by ensuing and any dual in performing or any failure to perform any any clause beyond the Company's insocrable control Without limiting the any cause beyond the Company's insocrable control Without limiting the soundate control.

reasonable control: 7.12.1 act of god, explosion, flood, tempest, or inclement weather, fire or accident, 7.12 ava or threat of war, sabotage, insurrection, civil disturbance or requisitors, 7.12 acts, restrictions, regulations, by-lowas, prohibitions or messures of any kind on the part of any Governmental, Parliamentary or Local Authority, 7.2.4 impost or exports, regulations or embargos, 7.2.4 impost or exports, regulations or embargos,

7.124 imports or exports; regulations or embargos; 7.125 strikes, locitous or other industrial action or trade disputes (whether employees of the Company or of a third party); 7.126 difficulties in obtaining raw materials, labour, fuel, parts or machinery; 7.127 power faulue, failure of tele-communications lines, failure or breakdown of plant, machinery or vehicles; 7.128 theft or maticox damage;

7.12.9 defaults for any reason whatsoever of suppliers or sub-contractors of the

Company; 7.12.10 incompleteness or inaccuracy of any technical information which it is the responsibility of the Buyer to prov 8. INSOLVENCY OF THE BUYER

8. NSOUREVC OF THE BUTLE 8.1 This clause applies if: 8.1.1 the layer makes any composition or voluntary arrangement with its creditors being an individu of frem) becomes barbruget or being a company becomes or goes into liquidation (otherwose than for the purposes of amalgamation or reconstruction) or a monotarium comes not force in respect of the Buyer (within the meaning of the insolvency Act 1986); or 8.12 an encombrance takes possission or a receiver or manager or administrative receiver or administrator is appointed of any of the property or axess of the buyer.

or 8.1.3 the Buyer ceases or threatens to cease to carry on business or 8.1.3 the Company reasonably apprehends that any of the events mentioned above is about to occur in relation to the Buyer and notifies the Buyer accordingly 8.2 if this clause applies then without prejudice to any other right or remedy within the Company the Company the buse settled to choose and concerning the settled to the settled to choose and concerning the settled to choose and concerning the settled to the settled to choose and concerning the settled to choose and concerning the settled to the settled to choose and concerning the settled to choose and the settled to choose and concerning the settled to choose and 2.1 in this Cabbe appress them without preputate to any other right or remeay wallable to the Company shall be entitled to stop any Goods in transit, cancel the Contract or suspend any further deliveries under the Contract without any liability to the Buyer and if the Goods have been delivered but not paid for the Price shall become immediately due and payable notwithstanding any

contrary evious agreement or arrangement to the HEALTH AND SAFETY INFORMATION

HEATH AND SAFETY INFORMATION Beyrer agrees and undertakes with the Company to ensure that the provisions all instruction manuals including health and safely instructions and any other manuals or indocument relating to the use of the Goods provided by the manyany with the Goods are fully implemented so as to ensure so far as is another provide the the Goods will be and without not the health at all device the source of the source of the source of the source of the device of the source of the device of the source of

10 GENERAL

11. INFORMATION

ract is personal to the Buyer which may not assign or dispose of any 10.1 The Contract's personal to the Buyer Wrich may not assign or dispose of any of its rights or obligations or or therwise delegate any of its obligations under the Contract without the written consent of the Company.
10.2 The Company shall be entitled to assign its rights and obligations under the Contract and to sub-contract or otherwise delegate any of its obligations under the

10.3 Any notice required or permitted to be given by either party to the other under

IJ a Any notice required or permitted to be given by either party to the other indee there. Conditions able in working including a faculture addressed to that other may at the relevant time have been notified pursuant to this provision to the party giving the notice and shall be deemed to have been received by the party to whom it was addressed, if sent by facsime upon its transmission if during a normal barness dury and otherwise on the not business dury and if sent by post, 72 hours bacines day and otherwise on the next busines day run is were top tool, ... e nours top top tool top top the Company of any thereach of the Contract by the Bayer allow the Done top the Company of any table preach of the Contract by the Bayer allow the considered as a waver of any subsequent breach of the same or any other provision 10.5 If any provision of these Conditions is hald by a Court or other of the other provisions of these Conditions and the remander of the provision in question shall not a deficied thereby 10.6 The Contract and these Conditions dual the remander of the provision is question shall not be affected thereby

10.8 The Buyer shall indemnify the Company for all costs and damages, including atorneys' fees, suffered by the Company as a result of the Buyers actual or threatened breach of these terms and conditions.

and safe use of the Goods and the Buyer shall at all times obey and comply wit the Company's instructions or other information relating to the use of the Goods uct warranty terms are available on requ

ation as to the pro

npany will provide the Buyer on request with inform

THE FUTURE OF HEATING IT'S ALL IN THE DETAILS...



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