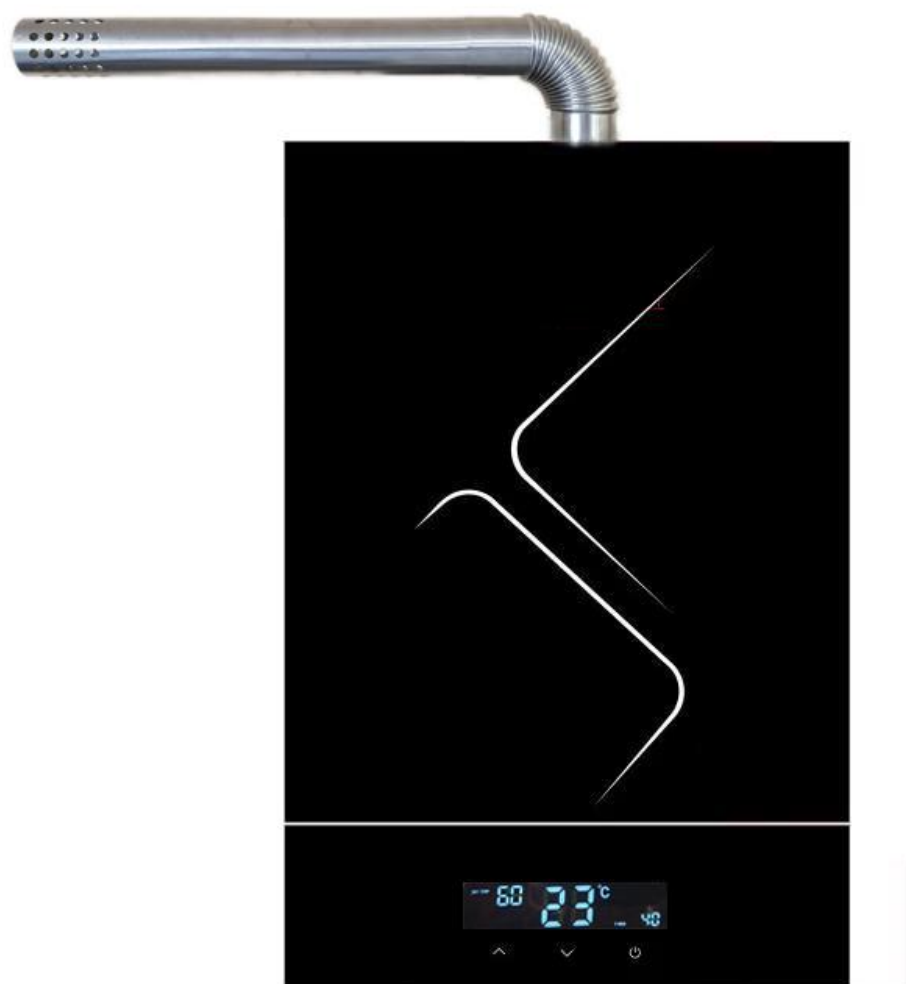


Installation, Service and user

# INSTRUCTIONS FOR THE ZERO MODEL:

## 18L FORCED EXHAUST CONSTANT TEMP (FECT) GAS WATER HEATER



**Please read these instructions carefully before installation and use and retain them for future reference.**

## 1. Introduction

Thank you for purchasing your new Zero Appliances instantaneous water heater. Please read the following instructions carefully. Please note that this appliance must be installed by a registered LP gas installer as indicated below. The manufacturer and or its agents and distributors will not be held responsible for injuries or damages caused by faulty, incorrect installation or use of the appliance. The LPGSA permit number for this appliance is 1008-37/1-RSA-17-A

## 2. Technical data

<b>Model Number</b>	
<b>Gas Type</b>	<b>LPG</b>
<b>Operating Pressure (gas)</b>	<b>2.8 kPa</b>
<b>Max. Gas Consumption</b>	<b>2.8 kg/h</b>
<b>Jet Size</b>	<b>1.35 mm</b>
<b>Water Heater Classification Type</b>	<b>Type B</b>
<b>Operating Water Pressure</b>	<b>0.015Mpa – 0.8Mpa</b>
<b>Rated Hot Water Capacity</b>	<b>18 litres/min</b>

### Important information for the user

Read these instructions carefully before using the appliance and retain them for future reference. **This appliance may only be installed by registered gas installer.** All registered installers are issued with a card carrying their registration number. It will also indicate the type of gas for which they are licenced to install appliances. Be aware that some installers may only be licenced for LPG or for natural gas whilst others may be licenced for both gas types. Ask to be shown the card before allowing the installation to commence and make a note of the installer's registration number. Upon completion of the installation, the installer is required to explain the operating details of the appliance together with the safety instructions. You will be asked to sign acceptance of the installation and be provided with a compliance certificate. You should only sign for acceptance of the installation when the installation is completed to your satisfaction.

### Important information for the installer

This appliance may only be installed by a gas installer registered by SAQCC-Gas. For LPG appliances the installation must be carried out according to the requirements of SANS 10087-1 and for natural gas appliances the installation must be carried out according to the requirements of SANS 827. In addition, be aware that there may be fire department regulations and or local bylaws applicable to the area. If in doubt check with the relevant

authority before undertaking the installation. Upon completion of the installation you are required to fully explain and demonstrate to the user the operational details and safety practices applicable to the appliance and the installation. Read the instructions carefully before commencing with the installation. Pay particular attention to the provision of adequate ventilation as this appliance is designed for indoor use with a secondary flue fitted. Failure to adhere to these requirements may impair the performance efficiency of the appliance and may endanger the lives of the occupants of the area in which it is used. See the warnings on page 3 of this booklet. For detailed installation instructions refer to section 8 of this manual.

### **3. Safety Information**

- For LPG models the gas supply will require at least one 48 kg LPG cylinder for efficient performance.
- Keep young children away from the appliance when in use.
- In the event of a burn back, where the flame burns back to the jets, immediately turn off the gas supply at the control valve on the front panel. After ensuring the flames are extinguished, re-light the appliance in the normal manner. Should the appliance again burn back, close the control valve and call a service technician to examine the appliance. Do not use the appliance again until the service technician has declared it is safe to do so.
- Do not use this appliance if it is leaking gas (see notes below on how to check for a gas leak).
- If there is an apparent gas leak, (smell of gas) close the control valve on the appliance. Make sure that there no naked flames within 5 meters of the appliance and check for leaks as described below.
- Never check for leaks with a naked flame as this is extremely dangerous.
- To check for a gas leak, use a brush dipped in a soapy water solution (e.g. water with dishwashing liquid added) and apply the solution to all joints in the system. If there is a leak, turn off the gas supply at the isolation valve which the installer will provide as part of the installation. Call a service technician to examine the appliance and do not use the appliance until the service technician has declared it s safe to do so. Should you suspect a leak at the cylinder connections (outside the house) apply the soapy water solution to the visible joints such as where the regulator fits into the cylinder or where the regulator fits into the flexible hose, or the joints on the manifold if fitted. If there is a leak a bubble or bubbles will form. If you are unable to stop the leak at this point, turn off the cylinder valve or valves and call a service technician to correct the fault. As with leaks inside the premises do not use the appliance until the service technician has declared that it is safe to do so.
- Ensure that the appliance is used away from flammable materials. Ensure that the surrounding area is clear of flammable materials for a minimum of 1 metre all round the appliance.
- This appliance is fitted with an oxygen Depletion Sensor (atmospheric sensing device) for your safety. Do not interfere with, remove or modify this device.
- Do not remove the model rating plate that is attached to your appliance. This contains important information in addition to the serial number of the unit which the manufacturer will require should you need to make a service call. Do not modify this appliance as to do so may make it unsafe.
- In the event that there is an unexpected shutdown of the appliance and you are sure that the gas cylinder is not empty, call a service technician to examine the appliance for any

faults. Do not use the appliance again until the technician has declared it is safe to do so and had demonstrated the safe working of the appliance.

#### **4. Lighting and using of the appliance**

- This appliance is fitted with a mains powered auto ignition device. Ensure the plug is connected and the wall switch is on.
- Check that the gas is turned on at the cylinder valve. Open the water valve (See Fig 6) and check that the water flowing from the outlet pipe or nozzle. This will automatically ignite the burners.
- Changing the position of the water flow valve knob will reduce or increase the water flow and the water temperature. The slower the water runs the hotter it will be. Conversely the faster the water runs the colder the water temperature will be.
- To increase the water flow, turn the knob in an anticlockwise direction and clockwise to reduce the flow.
- Once you have set the water flow to the required level it is possible to increase and decrease the gas flow being supplied to the burners and will increase or reduce the water temperature for any given water flow setting.
- If the water heater is supplied with a winter/summer control setting, to obtain maximum heat output turn the knobs to the winter setting. To reduce the maximum heat output and therefor save gas, turn the knob to the summer setting.
- When in use or immediately after use do not touch the water heater, apart from the burner or water control knobs. Be aware that the area around the observation window becomes extremely hot.

#### **5. Switching the appliance off**

- To shut down the appliance, simply turn the water control down to the off position (see Fig 6). This will automatically shut down the gas supply to the burner and the flames will go out. Always check that the burner flames have extinguished after turning off the water supply. Shut off the gas supply and the mains electrical supply when the water heater is not in use.

#### **6. Ventilation Requirements**

- It is important to ensure that there is adequate ventilation in the room in which the appliance is installed. Be aware that when in use, this appliance requires a constant supply of fresh air for combustion. Insufficient fresh air will cause the appliance to malfunction. It may shut down in the event that there is not sufficient fresh air in the room. From a safety perspective a lack of fresh air may result in injury or death of occupants of the room.
- In the event that the appliance does not shut down, immediately open one or more doors and windows and then turn off the gas supply to the appliance. Wait 10 minutes before restarting the appliance.
- Also check that there are no blockages (e.g. birds nests) in the flue.

#### **7. Care & Maintenance**

- There are no user service points on this appliance.
- It is recommended that the appliance be serviced by a qualified technician on an annual basis.

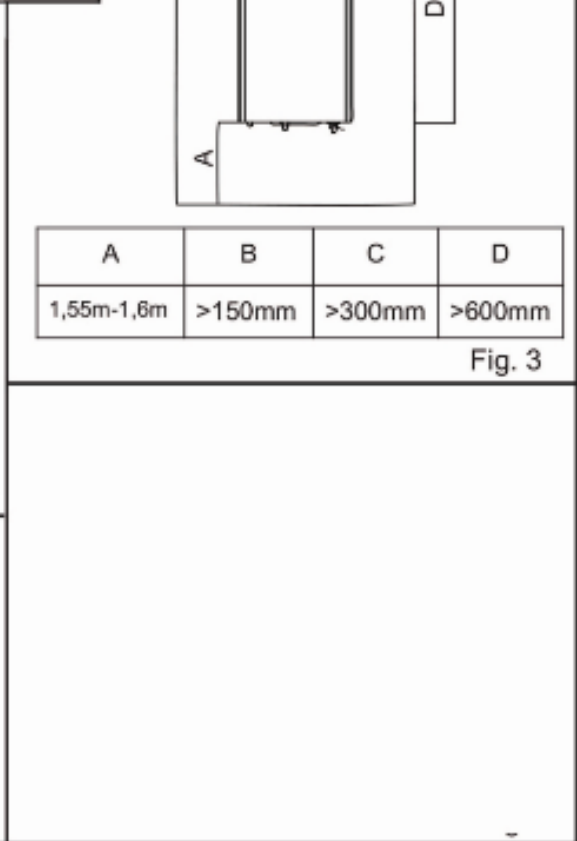
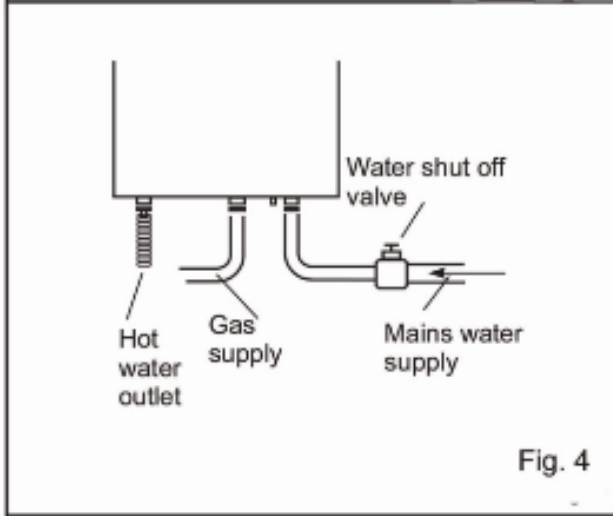
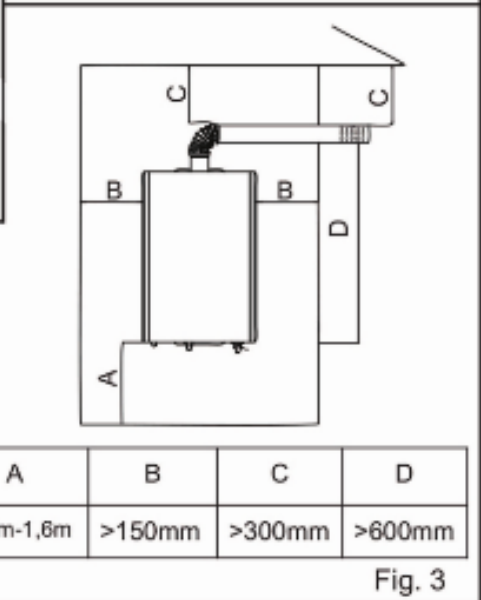
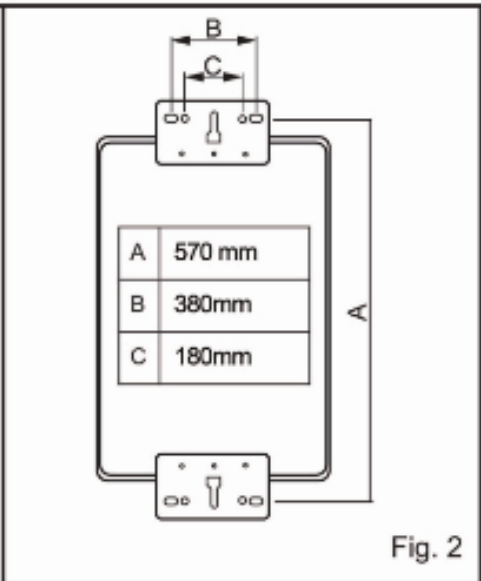
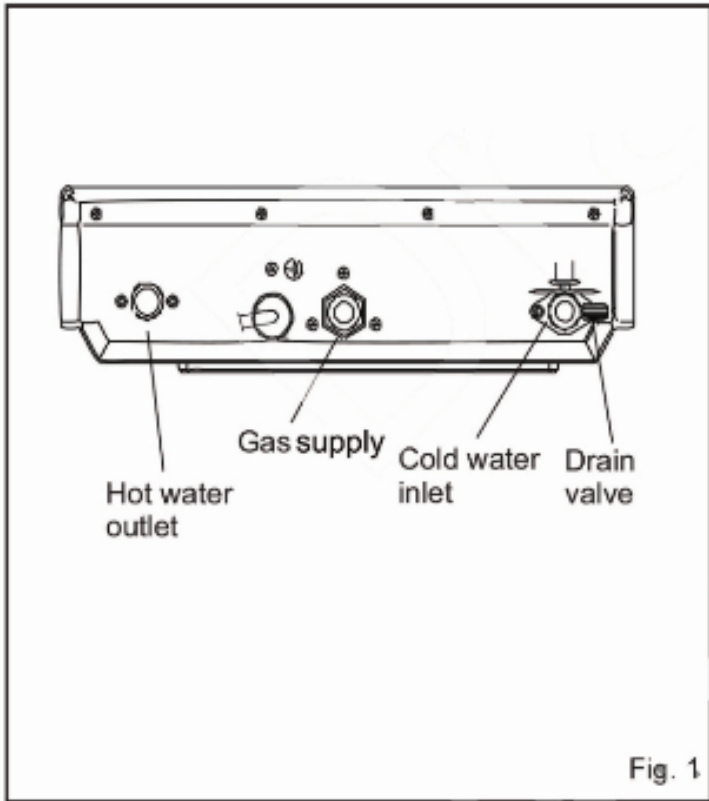
- Before undertaking any cleaning or maintenance, make sure that it is not hot and that the isolation valve is turned off.
- Regularly check that there is no surface deterioration of any pipe work or flexible hoses. Replace if in any doubt.
- Clean the water filter annually or more frequent in areas where the water supply contains any free sediment.

## **8. Installation instructions**

- This appliance is designed as a type B appliance and may be installed indoors or outdoors.
- A suitable LPG regulator that complies with the requirements of SANS1237 must be installed outside. Ensure that the flow capacity of the installed regulator is sufficient to drive the appliance.
- Mount the appliance against a non-flammable wall. See Fig.2 for drilling positions of mounting holes.
- Position the appliance so that the height of the observation window is at eye level (approximately 1.55 to 1.65 Meters above ground level).
- Mark out the wall to ensure correct mounting height before drilling the mounting holes.
- See Fig.4 and 1 for water and gas connection details. See Fig.7 for internal items list.
- This appliance may only be installed in a room if the room complies with the appropriate ventilation requirements (refer to SANS10087-1 and SANS827, as applicable).
- This appliance must be connected to a flue exhaust to the outside. See Fig.3

## **9. Initial start up**

1. Ensure unit is unplugged and all electric power to the appliance is off.
2. Locate the manual gas valve to the heater. Open the manual gas valve for 15-30 seconds.
3. Carefully check for any sign or smell of gas. If gas is detected, wait for 5 minutes for it to clear. STOP and go no further until gas leak point is detected. If no gas is detected, open the manual gas valve for 5 minutes and again check area for signs of gas. At any sign of gas, STOP and go no further. Follow the safety precautions.
4. If no gas is detected open the water supply valve to the unit. Inspect for any leaks.
5. Visually inspect air intake inlet and exhaust piping to ensure they are not obstructed.
6. Press the "ON/OFF" button to turn the unit on.
7. Adjust the temperature set point.
8. This appliance is equipped with an ignition device that will automatically light the burner. Do not try to light the burner by hand.
9. Open a hot water tap to a flow above the minimum flow point (3l/min).
10. The burner control system will fire the ignitor, the burner will light and hot water will be produced. If the burner doesn't light, follow the shut down instructions. Wait 5 minutes and repeat the start up procedure.
11. If again the burner doesn't ignite, begin troubleshooting per "Troubleshooting" section of this manual. Also see the table of diagnostic error codes. Call for professional help if any doubt.



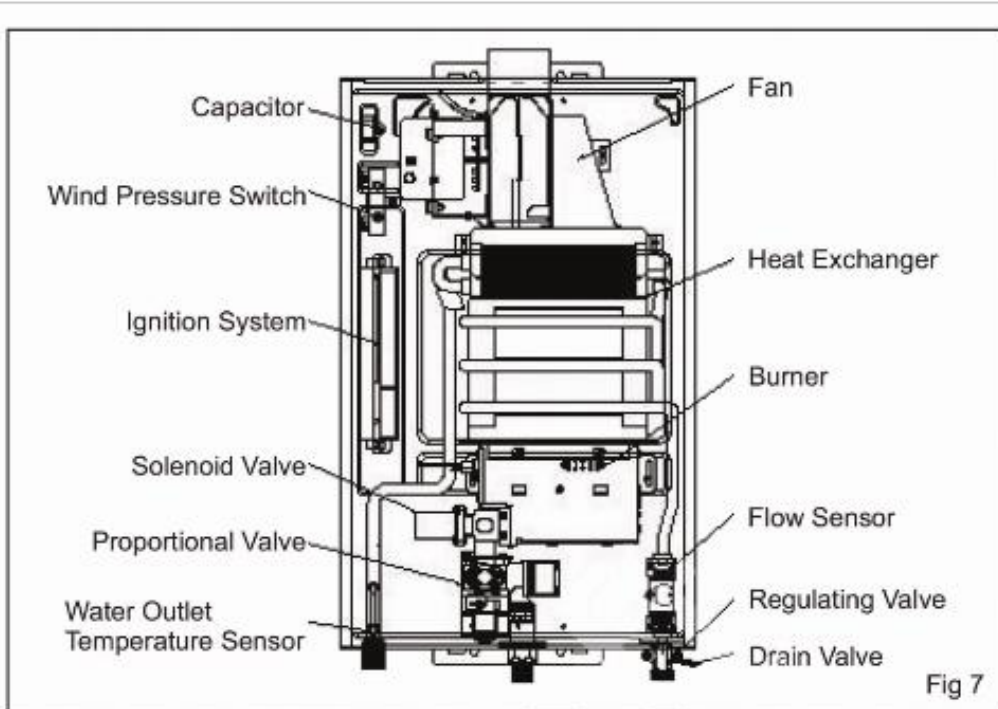


Fig 7

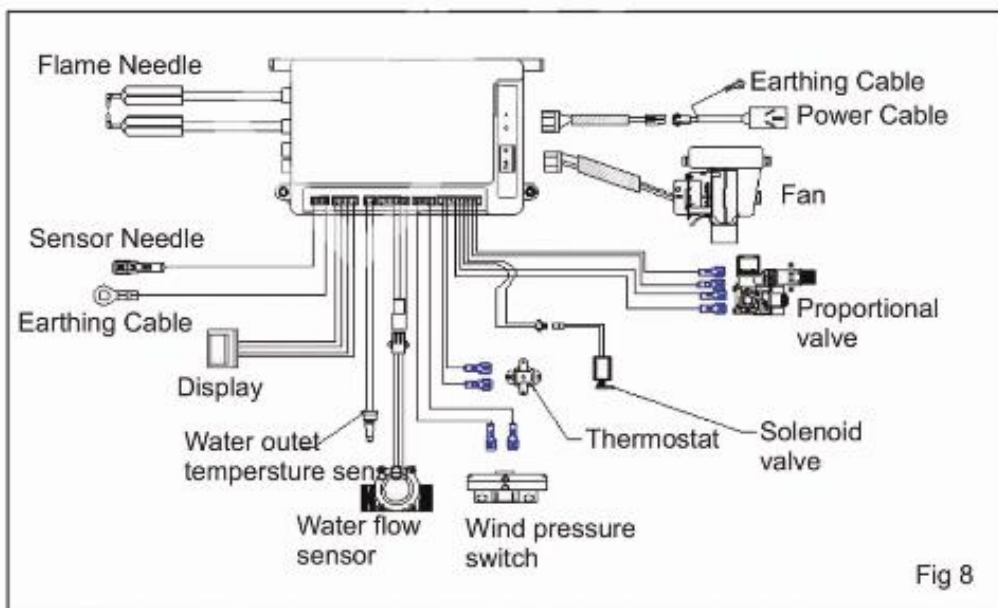


Fig 8

## 10. Troubleshooting

For operating difficulties with your unit, please consult the following table for guidance. If you need further assistance please contact service and support. Please have product information ready when you call including serial number, date of purchase and error code if shown on the control panel. Note: Please check water heater for an error code and respond to recommendations found in “error codes” section of this manual.

<b>Trouble</b>	<b>Possible Cause</b>	<b>Remedy</b>
There is no hot water when the hot water tap is opened	<ul style="list-style-type: none"> <li>• No gas -cylinder is empty</li> <li>• Cylinder valve is closed</li> <li>• Water valve is closed</li> <li>• Power outage</li> <li>• Water flow is too low</li> <li>• Freezing temperatures</li> <li>• The distance from the water heater to the outlet is too long</li> </ul>	<ul style="list-style-type: none"> <li>• Refill the cylinder</li> <li>• Open the cylinder valve</li> <li>• Open the water valve</li> <li>• The unit requires mains power to operate</li> <li>• Unit requires at least 3 L/min to operate</li> <li>• Thaw unit or water pipes before trying to operate</li> <li>• Allow sufficient time for the hot water to travel from the water heater to the outlet.</li> </ul>
Hot water is not the right temperature (too hot or too cold)	<ul style="list-style-type: none"> <li>• Temperature set point was reset due to power outage</li> <li>• Flow is beyond the capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Power outage restores default settings and custom set points must be re-entered</li> <li>• If incoming water to the unit is very warm and the flow is just above minimum requirements, the heat generated by the burner whilst operating at minimum capacity can make the water hotter than desired. Increase the hot water flow so that the burner system can control the temperature</li> </ul>
Hot water flow produced is lower than expected	<ul style="list-style-type: none"> <li>• Water source is restricted</li> <li>• Heat exchanger in unit is scaled</li> <li>• Incoming water temperature is colder than expected</li> </ul>	<ul style="list-style-type: none"> <li>• Check and fully open water inlet valve(s)</li> <li>• Check and clean inlet water filter. Clean heat exchanger by following maintenance procedure</li> <li>• Colder than normal incoming supply water will reduce the amount of hot water that can be produced. Although the amount of heat output from the unit is still at full capacity, you must reduce the water flow</li> </ul>
Vent system trouble	<ul style="list-style-type: none"> <li>• Vent system is restricted in some manner</li> </ul>	<ul style="list-style-type: none"> <li>• Check air intake and exhaust ducts to ensure they are not damaged, corroded, blocked etc.</li> </ul>



“smoke” observed coming from exhaust system during cold temperatures	<ul style="list-style-type: none"> <li>Water vapour produced during combustion is condensed in the exhaust as the hot gas is cooled by the outside air</li> </ul>	<ul style="list-style-type: none"> <li>None. Normal operation</li> </ul>
Water leaking from safety valve outlet	<ul style="list-style-type: none"> <li>Water system is operating above design pressure</li> <li>Safety valve is damaged</li> </ul>	<ul style="list-style-type: none"> <li>Contact support for system review</li> <li>Replace safety valve. Contact support as required</li> </ul>
Blower fan noise can be heard for some time after operation stops	<ul style="list-style-type: none"> <li>The blower is designed to run for 30 seconds after burner shuts off</li> </ul>	<ul style="list-style-type: none"> <li>None. Normal operation</li> </ul>
Unresolved problems	<ul style="list-style-type: none"> <li>Other assistance required</li> </ul>	<ul style="list-style-type: none"> <li>Contact an authorized service professional</li> </ul>

## 11. Diagnostic codes

Whenever a failure occurs, an alert sounds and a diagnostic code is displayed to indicate the failure mode at the time of occurrence.

The following table includes a list of diagnostic codes that can be displayed as well as recommended remedies to address the problem.

Error Code	Indication	Causes	Remedy
E0	Sensor error	<ul style="list-style-type: none"> <li>Temperature sensor or water flow sensor not connected with electric to the controller properly</li> <li>Temperature sensor or water flow sensor error</li> </ul>	<ul style="list-style-type: none"> <li>Connect temperature sensor and water sensor properly</li> <li>Replace temperature or water sensor</li> </ul>
E1	Ignition failure	<ul style="list-style-type: none"> <li>No/empty fuel source</li> <li>Gas pressure is too low</li> <li>The electric controller is not properly connected with proportional valve</li> </ul>	<ul style="list-style-type: none"> <li>Fuel gas valve needs to be open. Refill source tanks (If applicable)</li> <li>Adjust the gas pressure to the applied range</li> <li>The red wire on the controller is the positive pole “+”, the black wire is the negative pole “-”</li> </ul>
E2	Flame detection error	<ul style="list-style-type: none"> <li>The detection circuitry for ignition and flame detection has come loose or failed to connect</li> <li>Ignition sequence was unsuccessful</li> </ul>	<ul style="list-style-type: none"> <li>Connect the relevant circuit properly and eliminate the bad connection. Replace any failed circuit elements</li> <li>Check the fuel gas supply (especially when first installed as air pockets might exist in the gas line. Retry the</li> </ul>

		<ul style="list-style-type: none"> <li>An accidental flameout occurred</li> <li>The ignition and flame detection circuitry malfunctioned or broke down. Ignitor is not activating</li> </ul>	<ul style="list-style-type: none"> <li>ignition process several times)</li> <li>Check if the fuel gas pressure is too high or too low</li> <li>Replace or repair igniter flame detection system</li> </ul>
E3	High temperature automatic shutdown	<ul style="list-style-type: none"> <li>Temperature above 75°C was detected. The controller has automatically closed the electromagnet valve and unit shut down</li> </ul>	<ul style="list-style-type: none"> <li>Restart the heater</li> </ul>
E4	Exhaust system/wind pressure switch error	<ul style="list-style-type: none"> <li>Exhaust duct is jammed</li> <li>Wiring harness or wiring connections somewhere in the air pressure switch connection has come loose</li> <li>The wind pressure switch is damaged</li> </ul>	<ul style="list-style-type: none"> <li>Replace and or clean the exhaust ducts</li> <li>Plug the “plug-in” element in place or replace the bad element</li> <li>Replace the wind pressure switch</li> </ul>
E5	Solenoid valve error	<ul style="list-style-type: none"> <li>The wiring is loose or a bad connection occurred</li> <li>The solenoid valve is faulty</li> <li>Controller has failed</li> </ul>	<ul style="list-style-type: none"> <li>Mount plug-in wiring properly and replace bad elements</li> <li>Replace the solenoid valve</li> <li>Repair or replace the controller</li> </ul>
E6	Proportional valve error	<ul style="list-style-type: none"> <li>Flame still burning after shut-off, solenoid valve still in state of supplying gas</li> </ul>	<ul style="list-style-type: none"> <li>Replace proportional valve</li> </ul>
E7	Blower system problem occurred	<ul style="list-style-type: none"> <li>The blower jammed or stopped operating because of a foreign object</li> <li>The blower fan suffered a mechanical breakdown</li> <li>The fan power control module has broken down</li> <li>Wiring harness or wiring connection somewhere in the fan assembly has come loose</li> </ul>	<ul style="list-style-type: none"> <li>Check to see if the fan turns freely. Remove any foreign objects jamming the fan</li> <li>Replace the blower fan</li> <li>Replace the control module</li> <li>Reconnect as required</li> </ul>
E9	Anti-dry burning device error	<ul style="list-style-type: none"> <li>Anti-dry burning device</li> </ul>	<ul style="list-style-type: none"> <li>Replace anti-dry burning device</li> </ul>
EE	Accidental power-off	<ul style="list-style-type: none"> <li>Power accidentally shut-off during use</li> </ul>	<ul style="list-style-type: none"> <li>Shut-off and restart the heater</li> </ul>
EN	Time restart the heater	<ul style="list-style-type: none"> <li>The timer finished</li> </ul>	<ul style="list-style-type: none"> <li>Restart the heater</li> </ul>