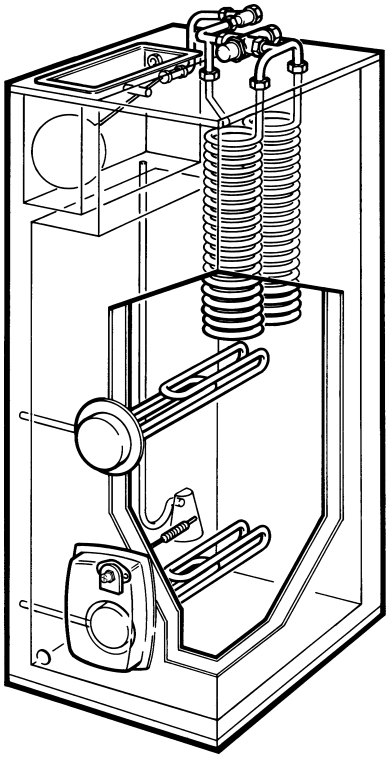
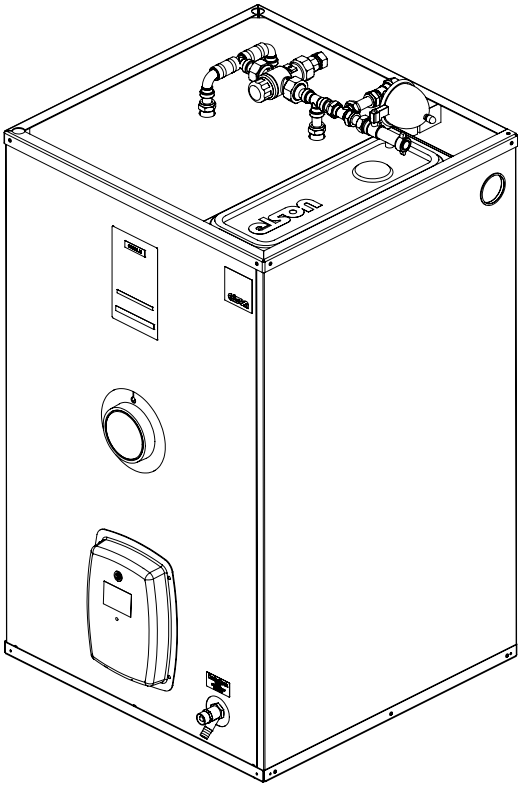
www.elsonhotwater.co.uk

Elson Coral E

Open Vented Thermal Store providing mains pressure hot water heated by electricity

AUTO AND MANUAL FILL UNITS





Installation, Servicing and User's Instructions

Read these instructions thoroughly before installing the unit.
Leave these instructions with the user.

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1. INTRODUCTION

The Elson Coral E is an open vented, hot water only, natural convection, thermal store. The thermal store is an appliance that generates hot water for use at the taps within the home.

An under work surface (Coral E 100 UWS) version of the 100 litre model is available, and is suitable for installation under a working surface with a minimum clearance of 850 mm.

A washing machine frame (Coral E 150 or 210 WMF) version is available of the150 and 210 litre models, the units are supplied in a white steel finish and supplied in two packages (a special Coral E and the frame).

The unit is supplied in two pieces (a special Coral E and the frame).

Incoming mains cold water passes through a high efficiency heat exchanger coil where it is heated by the thermal store and is distributed to all hot water outlets via the thermostatic blending valve. The hot water and mains cold water are mixed in the blending valve to achieve the desired temperature. The temperature can be adjusted by the installer, as required, using the blending valve (see section 5.2). The blending valve is fail safe in the event of a mains water supply failure.

The unit is designed to provide maximum performance and efficiency with the thermal store being heated overnight (via the bottom immersion heater) using the low price 'off-peak' tariff. The top immersion heater **(used for daytime 'Boost', ie short periods only)** is fitted directly underneath the coils allowing for fast recovery during peak electricity periods. **This 'Boost' heater is user controlled and designed to be operated via a run-back timer type control that automatically cuts off after 1 hour.**

Both immersion heaters are factory set for maximum performance (top at 75°C and bottom at 85°C). A User accessible manual reset safety thermostat is connected to the bottom (over-night) heater switching it off in the unlikely event of an overheat situation.

Heat loss from the thermal store is minimised by the use of a 50 mm thick HCFC free polyurethane injected foam insulation.

The standard Coral E is available in white metal finish and is delivered in a single package of the following sizes:-
(100 litre model - 960 x 520 x 650 mm, weighing 40 kg),
(100 UWS model - 845 x 610 x 650 mm, weighing 40 kg),
(150 litre model - 1400 x 525 x 650 mm, weighing 60 kg),
(210 litre model - 1400 x 610 x 650 mm, weighing 66 kg).
Other sizes available on request.

The Coral E variant is also available with extra coil for integration with a solar thermal system.

As the Coral E thermal store is open vented, some of the water held in the store will be lost over time due to evaporation. **Therefore the thermal store must be topped up either manually or automatically - refer to section 6.**

For Aftersales Customer Support contact 01603 420100

Typical Coral E WMF installation

2. IMPORTANT NOTES

1. The control thermostats on both immersion heaters are factory set for maximum performance (top at 75°C and bottom at 85°C). The bottom thermostat may be reduced - recommended to 80°C slightly but not below 75°C.

2. The top ('Boost') immersion heater must be controlled via a run-back timer that cuts off after 1 hour, and not a simple isolating switch. This run-back timer has two purposes, firstly to prevent uneconomical use of full price electricity and secondly it acts as a form of protection against long periods of boiling in the unlikely event of thermostat failure.
Note: If a run-back timer is not fitted and the unit is damaged due to boiling, the damage will not be covered by the product guarantee.

3. For optimum performance we recommend a dedicated 22 mm mains cold water supply to the unit and a 15 mm hot water outlet. If the mains cold water supply pressure is less than 1 bar we recommend a 22 mm hot water outlet.

4. The level of the water in the feed and expansion tank **must be topped up to the water line mark** - it is not factory set.

5. An isolating valve must be fitted in the mains cold water supply to the unit.

6. We recommend that a Y type line strainer is fitted in the mains cold water supply to the unit.

7. We recommend that a scale reducer is fitted on the mains cold water supply prior to the unit. This is especially important in hard water areas (in-line scale reducers may reduce flow rates).

8. If a non-return valve is fitted in the mains cold water supply to the unit, provision must be made to accommodate the increased water volume during the normal heat-up cycle, e.g. a mini expansion vessel with a capacity of not less than 160 ml (i.e. Zilmet Z160).

9. The hot water blending valve is factory set to approximately 50°C. For adjustment refer to section 5.2.

10. For installation and servicing requirements, the portion of the work surface above the UWS model must be removable. The unit may be positioned in a cupboard space beneath the work surface and a door fitted, if required - allow 100 mm on the depth to accommodate the immersion heater covers and plumbing connections.

3. TECHNICAL DATA

Coral E model	Capacity litres	Tank width mm	Tank depth mm	Tank height mm	Total height with frame mm	Heat loss to BS 3198 W/litre (kW/24hrs)
100 UWS	100	571	571	750	-	0.44 (1.18)
100	100	495	571	865	-	0.44 (1.18)
150	150	495	571	1285	-	0.33 (1.28)
210	210	584	571	1285	-	0.27 (1.48)
300	300	700	600	1285	-	
* 150 EBF/SS	150	600	600	880	1960	0.33 (1.28)
* 210 EBF/SS	210	650	650	940	2020	0.27 (1.48)
* 150 WMF	150	730	560	820	1735	0.33 (1.28)
* 210 WMF	210	730	571	1000	1915	0.27 (1.48)

Connections

Hot water	15 mm comp.
Mains cold water	22 mm comp.
Overflow	22 mm comp.
Immersion heater	2¼" BSP (2 off)
Drain boss	½" BSP

Electricity supply:

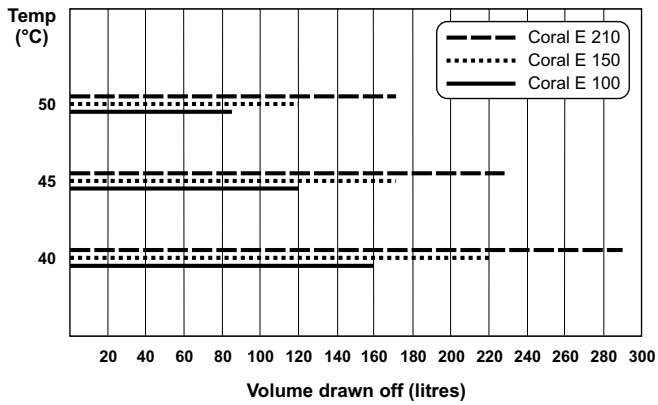
230/240 V ~ 50 Hz
(each heater fused at 13 A)

* Frame size (mm) of WMF models is 730 wide, 660 deep and 915 high.
Frame size (mm) of 150 EBF/SS model is 600 wide, 600 deep and 1080 high.
Frame size (mm) of 210 EBF/SS model is 650 wide, 650 deep and 1080 high. All frame weights are approximately 14 kg.

Heat loss exceeds the requirements of BS 3198.

Notes:
i. Allow a minimum of 100 mm on the depth to accommodate the immersion heater covers and plumbing connections.
ii. All models are supplied fitted with two 3 kW Maxistore immersion heaters. The 100 and 150 models can be supplied with only one immersion heater (bottom) fitted with the other boss plugged, if specified when ordered.
iii. Dimensions shown are for the hardboard cased versions, the white metal cased units are slightly smaller.
iv. All compression fittings are suitable to accept copper tubing to EN 1057.

3.1 Hot water performance



Figures obtained using the store fully heated to 85°C, with a mains cold water supply temperature of 10°C and the following constant draw off rates:-
Coral E 210 - 18 litres/min.
Coral E 150 - 18 litres/min.
Coral E 100 - 12 litres/min.

Graph giving an indication of the minimum hot water performance available

3.2.Clearances
A minimum 10 mm is required at each side (additional access for the wiring is required at the right hand side, see Fig. 2).
225 mm is required above the unit for ball valve replacement (auto-fill units only).

Adequate height is required to view the water level in the feed and expansion tank and top up the thermal store.

Allow a minimum of 100 mm on the depth to accommodate the immersion heater covers and plumbing connections.
Adequate clearance must be allowed for water connections. Refer to section 4.1 for further details.

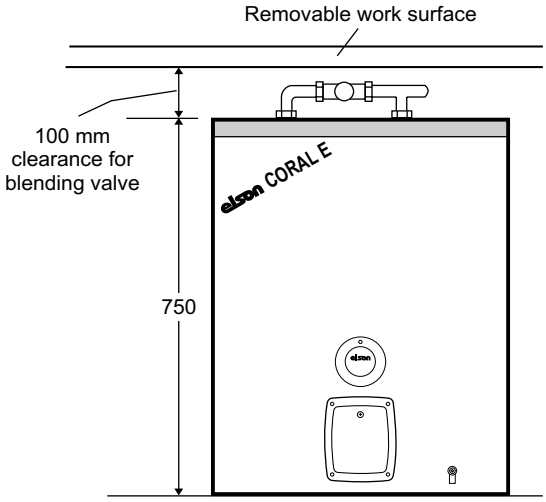


Fig. 1 - Coral E 100 UWS

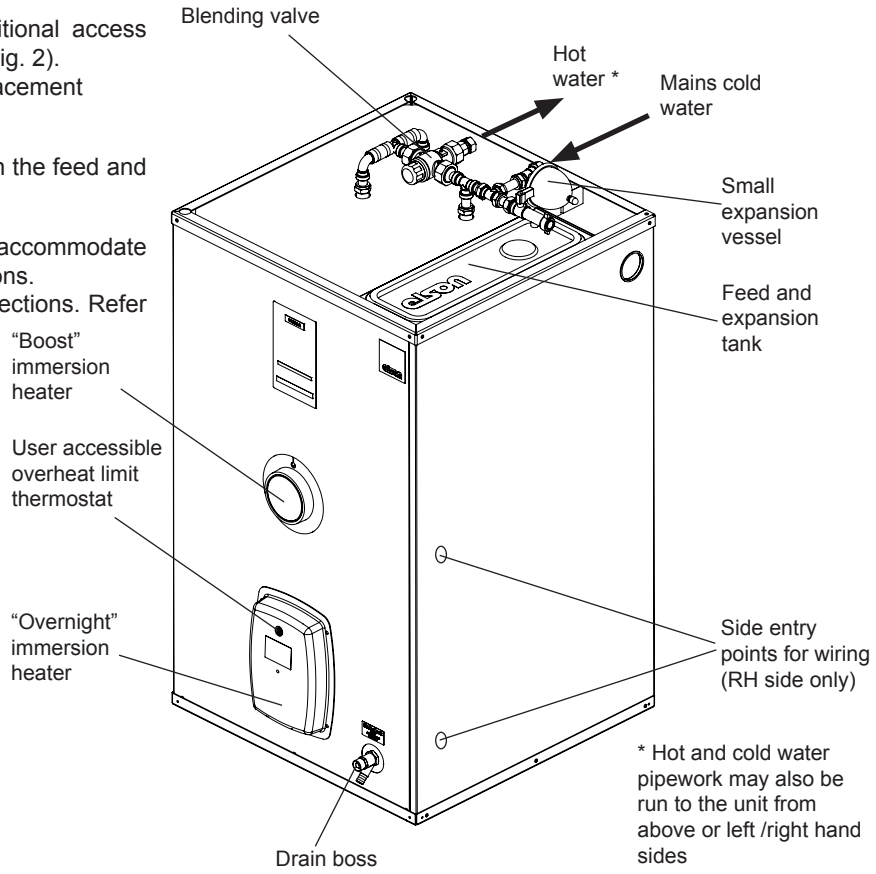


Fig. 2 Coral E Manual Fill Thermal Store Detailed

4. INSTALLATION

4.1.Position the unit and make the water connections
Refer to Fig. 2 for the recommended route of the pipework to the unit.

1. You will find a lid in the feed and expansion tank.

2. Place the unit in position. Ensure that the face of the unit with the immersion heaters is to the front.

3. Connect the mains cold water supply to the unit. See Fig. 2. Ensure that an isolating valve and a Y type line strainer are fitted just before the unit. In hard water areas it is recommended that a scale reducer is fitted in the mains cold water supply to the unit.

4. Connect the domestic hot water draw-off pipework to the blending valve.

5. Fit a drain cock to the ½" BSP boss on the front of the unit.

Notes:
i. For optimum performance we recommend a dedicated 22 mm mains cold water supply to the unit and a 15mm hot water outlet. If the mains cold water supply pressure is less than 1 bar we recommend a 22 mm hot water outlet.

ii. The mains cold water supply should be flushed before connecting it to the unit.

iii. Adequate clearance must be allowed for the pipe runs to the unit. From an appearance point of view and for reduced heat loss from pipework we recommend that the pipework is run up the rear of the unit if possible.

4.2. Electrical connection
Refer to wiring diagrams in section 8.

All electrical wiring must be carried out by a qualified electrician, and must be in accordance with BS 7671 - Regulations for Electrical Installations, IEE Wiring Regulations and any local regulations which apply.

The mains supply required is 230/240 V ~ 50 Hz (each heater fused at 13 A).

Ensure the electricity supply has been isolated.

The immersion heaters must be connected using a minimum of 180C heat resistant silicon Sheathed flexible cord 2.5mm².

A double pole isolating switch with a contact separation of at least 3 mm in each pole must be incorporated in each supply.

The heaters must be controlled by two independent, protected and switched circuits. The bottom heater should be switched to operate during the off-peak period(s) of the tariff only via a suitable controller. The circuit to the upper heater must include a run-back timer (one or two hours, preferably one hour) and not a simple isolating switch. This timer has two purposes, firstly to prevent uneconomical use of full price electricity and secondly it acts as a form of protection against long periods of boiling in the unlikely event of thermostat failure.

IMPORTANT: THE TOP "BOOST" IMMERSION HEATER MUST ONLY BE OPERATED USING THE RUN-BACK BOOST BUTTON.

THE PROGRAMMABLE TIME CLOCK FEATURE IS DEACTIVATED IN THE FACTORY. DO NOT REACTIVATE THIS FEATURE.

Failure to fit a suitable timer will invalidate the guarantee.

1. Remove the plastic covers from the immersion heaters - Four screws on the bottom heater, top heater cover ¼ turn anticlockwise.

2. Remove the plastic cover from the top immersion heater - one nut.

3. Connect the immersion heaters to the controllers using the correct cable as described above. Route the cables through the RH side entry points as shown in Fig. 2.

4. Replace the wiring covers, ensuring all wiring is secured using the cable clamps provided.

Important Notes:

i. The unit must be earthed.

ii. Do not switch on the electricity supply before the unit has been filled with water.

4.3. Fill the system

1. Having completed the system pipework, turn on the mains water supply and fill the thermal store with water via the internal feed and expansion tank.

2. Vent the hot water pipework by opening a hot tap.

3. Check the immersion heaters and all connections for water soundness, rectifying where necessary.

4. Check the water level in the feed and expansion tank is to the marked water line detailed in Fig 3. Fit the plastic lid on the tank.

5. For product longevity we recommend that the system is protected with the use of a suitable corrosion inhibitor such as Fernox F1 or MB-1.

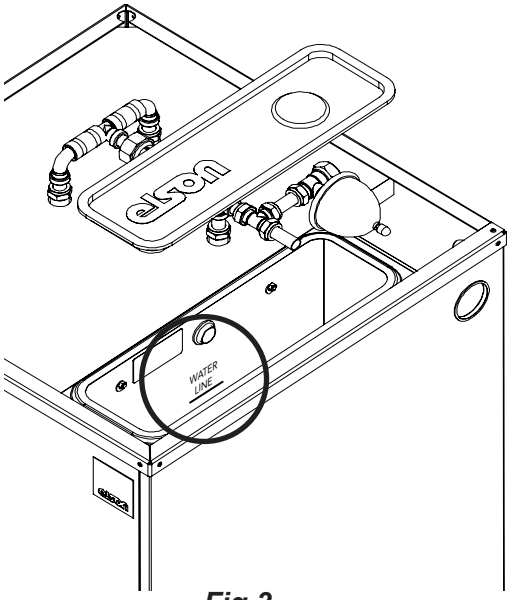


Fig 3

5. COMMISSIONING

5.1 Appliance commissioning

1. Check that the electric circuits are tested in accordance with the IEE wiring regulations and that the system is operating satisfactorily in terms of the proper functioning of all the components and their controls.

2. The unit should be fully heated to ensure the thermostats of both the immersion heaters are operating correctly.

3. Check that the control thermostat setting is correct for maximum performance (top at 75°C and bottom at 85°C). The bottom thermostat may have been reduced slightly (not below 75°C) where it is known that hot water demand will not be high.

4. Replace the covers.

5.2 Blending valve

The blending valve is factory set to approximately 50°C.
The blending valve has an output temperature range from 35° to 55°C.
If it is necessary to adjust the temperature proceed as follows:-

1. Locate the nearest outlet being supplied by the valve.

2. Open the outlet to allow a flow rate of at least 4 litres/min.

3. Allow the water to run for at least one minute to ensure the mixed water temperature has settled.

4. Using a thermometer, check the mixed water temperature.

Has the desired temperature been achieved?

Yes - go to paragraph 7

No - go to paragraph 5

5. Adjust the valve as shown in Fig 4 (using the adjusting key supplied) until the desired mixed outlet temperature is achieved. Refer to HSG274 for guidance on hot water temperatures.

6. Repeat paragraphs 1 - 4.

7. Replace the valve cap and close the outlet.

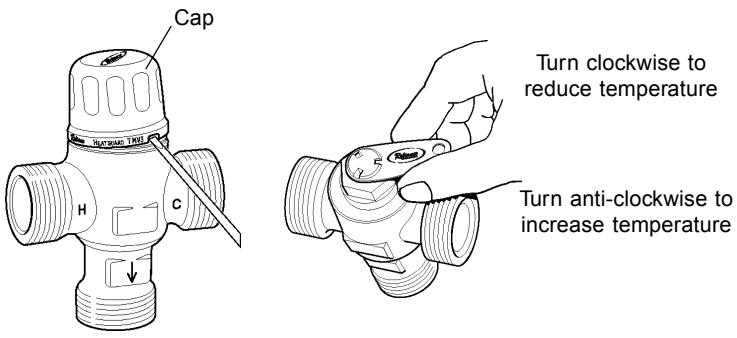


Fig 4

A record of the commissioning settings should be made for comparison with future maintenance checks.

5.3 Hand over the system

1. The system can now be handed over to the User, who should be given this instruction booklet.

2. Clear verbal instructions should be given to the User on how to operate the unit and specific controls, with particular reference to the User's instructions given in section 10. A demonstration of how to top up manual fill units should be part of the hand over process.

3. Complete the installation details on the back page of this booklet.

6. SERVICING

If the unit is installed in a hard water area and is suffering from scaling problems, contact Aftersales Customer Support on 01603 420100 for information on descaling.

Like all appliances, the Elson Coral E thermal store should be checked and maintained regularly to ensure it remains in optimum and safe working condition.

Ensure the water level is checked at least every 2 months as an amount of water in the thermal store is lost through evaporation during normal use. The water level should be on or just above the "WATER LINE" which is embossed into the side of the feed tank at the top of the unit, (see picture below). This can be seen inside the feed tank by removing the black plastic cover on top of the unit.

6.1 Top Up Period

There are a number of factors that will affect the rate at which the water in the thermal store will evaporate.

These factors include the size and shape of the store, the temperature that the store runs at, how hard the store works during its life and if the black lid has been correctly fitted. As such different stores will require topping up at different intervals, so we recommend as a precaution that the water level in the store is checked at least every 2 months.

6.2 Methods of topping up the Store.

If the thermal store is a manual-fill type, there will be a braided hose on the top of the unit with an isolation valve similar to the arrangement detailed below in Fig 5.

Alternatively you can top up your thermal store with water using a suitable receptacle such as a jug or bottle as detailed in Fig 6.

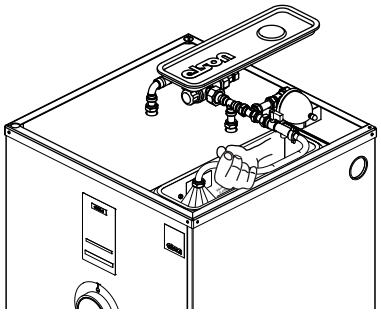


Fig. 5 Top-up using braided hose

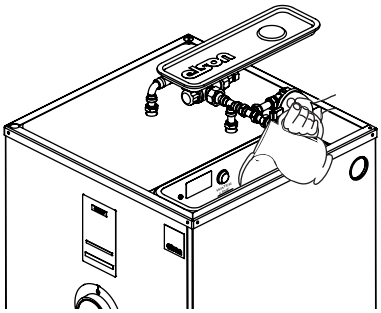


Fig. 6 Top up using Receptacle

6.2 Topping up procedure.

To top up your thermal store, simply remove the black plastic cover at the top of the thermal store to reveal the feed and expansion tank. Locate the "Water Line" which is an embossed mark on the side of the feed and expansion tank and which can be found below the internal vent pipe or alternatively measure 140mm down from the top of the tank as shown in Fig 7.

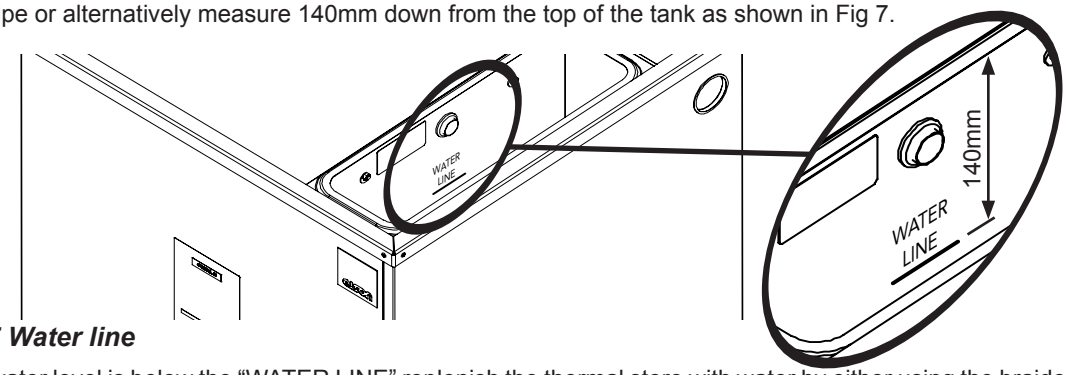


Fig. 7 Water line

If the water level is below the "WATER LINE" replenish the thermal store with water by either using the braided hose or a receptacle. Allow the water level to stabilise for a few minutes and re top up as necessary.

A video showing how to top up your store can be found at: www.elsonhotwater.co.uk

6.3 Regular Maintenance - Electrical and Thermal Store Checks

The Coral E Thermal Store is a class 1 category appliance.

Class 1 equipment, relies on its metallic parts being effectively earthed, thereby making it essential for earth connections to be in good condition.

Therefore it is important that the unit and its electrics including all connections should be checked annually by an engineer. A formal visual inspection should be carried out every six months and a combined inspection and test should be done every year. These tests should check the following:

1) Check voltage. 2) Check resistance of element and that they are both operational, 3) Check insulation resistance to earth, 4) Check polarity, 5) Check terminations, ensure screws are tight, 6) Check condition of cables for distortion and discolouration. 7) Check specification 8) Check current drawn.	9) Check the gas charge in the small expansion vessel. 10) Check the hot water temperature setting on the TMV at the kitchen sink. 11) Check the water level in the feed and expansion tank and top up as necessary. 12) Check the correct amount of inhibitor is present. 13) Any damaged or faulty components and wiring must be replaced. 14) Remove stat phials and check pockets for leaks. 15) Check that the correct ball float is fitted on auto-fill units. 16) Check the condition of the unit.

Recommendations for operation and maintenance and this manual can be downloaded at: www.elsonhotwater.co.uk

7. SPARE PARTS LIST

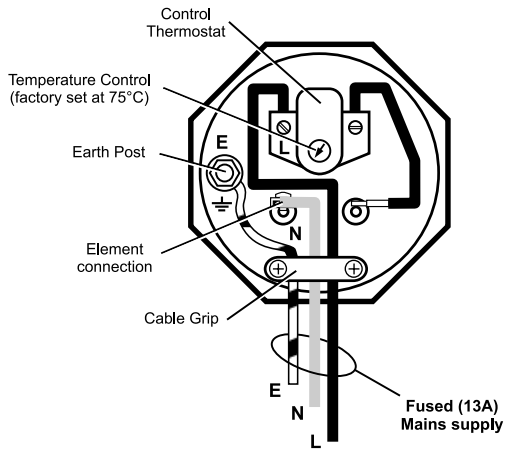
The following specialist spare parts for the Coral E are readily available from Elsy & Gibbons Limited:-

Item	Part Number
Limit thermostat	10010002
Control thermostat	EP051016
Standard immersion heater - complete (2 off)	90100001
Blending valve - complete	EP100071

When replacing an immersion heater, it is advisable to replace both at the same time. The heater seals on its flat face so do not try to seal the heater in the boss using a sealant. Always soak the fibre washer in water to soften first.

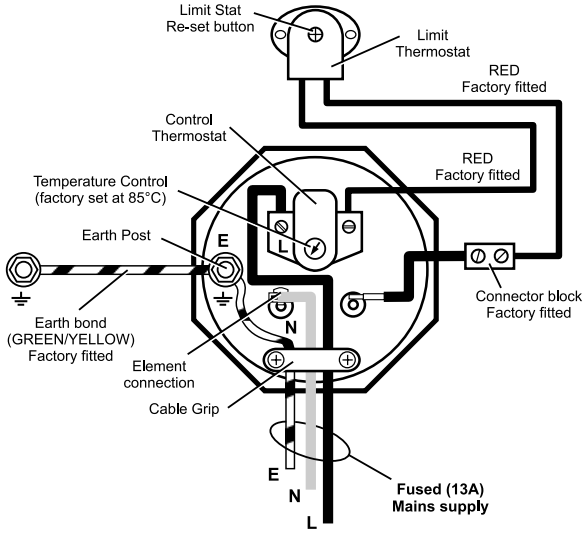
8. WIRING DIAGRAMS

8.1 Upper immersion heater (early models)

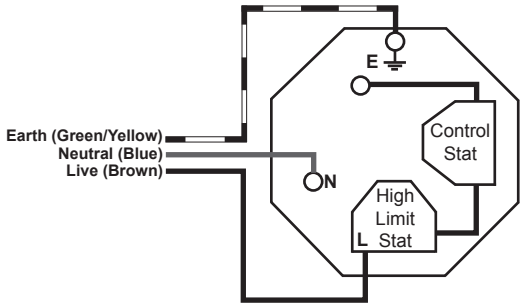


Note: The mains supply to the upper heater must be via a suitable controller (ie a run-back timer) which will not allow the heater to be left on continuously. See Important Note 2 on page 3.

8.2 Upper and or Lower immersion heater



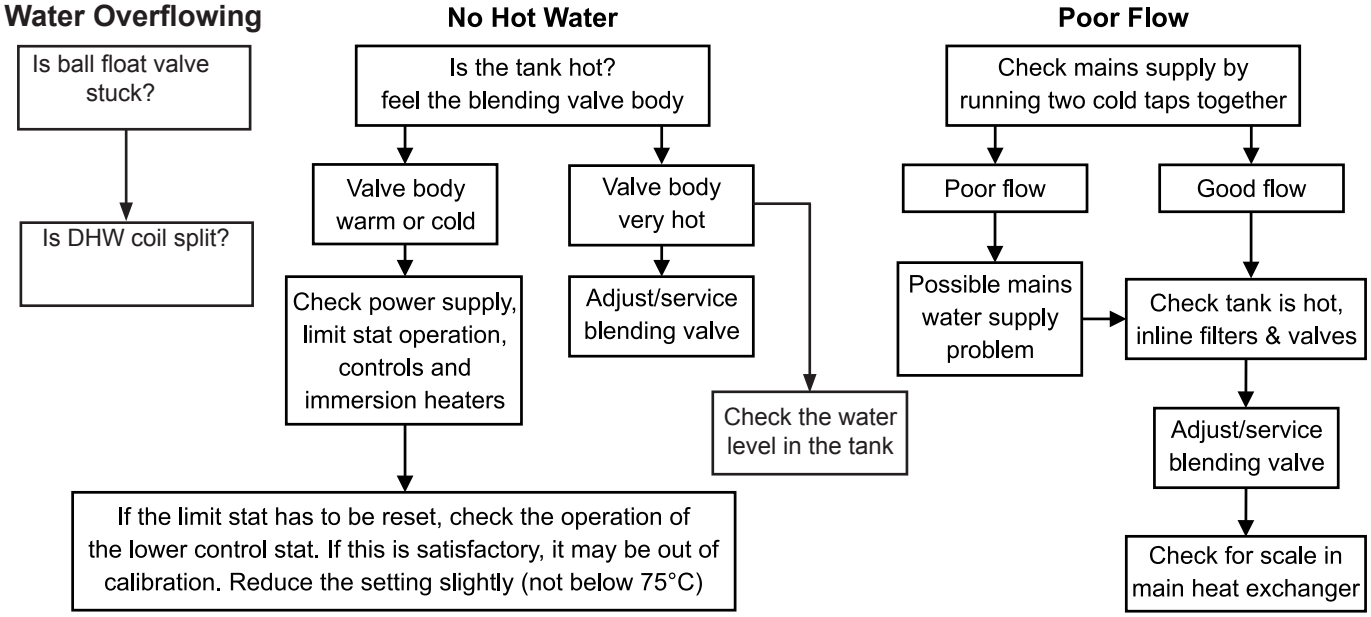
8.3 Replacement immersion heater with integral high limit cut out



DANGER: Under no circumstances should the high temperature limit stat be bypassed.

If the lower element is replaced, the Earth bond MUST be wired between the white metal case and the earth post on the element plate.

9. FAULT FINDING



If there is any signs of a leak from the limit stat pocket, contact a competent engineer. DO NOT IGNORE as this could lead to failure of the thermostatic safety controls of the unit.

10. ELSON CORAL E USER'S INSTRUCTIONS

1. Your hot water system is designed to provide mains pressure hot water to all outlets.

2. The temperature of the hot water supplied to your taps is factory set to 50°C as regulated by the blending valve on the top of the unit.

3. The Coral E is designed to make the most of low price off-peak electricity, you should contact your electricity supplier, asking for details of your particular supply and advice for economical use.

4. For the most economical use of the Coral E you should restrict your main use of hot water (baths etc.) to such a time that the water in the unit will be re-heated during the off-peak period.

5. IMPORTANT: The 'Boost' immersion heater fitted to the Coral E operates on full price electricity, it should always be used sparingly. **A boost (upper element) should only be run using a run-back timer limiting its operation to 1 hour at a time.**

6. IMPORTANT: If a timer such as the Horstmann Electronic 7 has been fitted to control your immersion heaters:
The Coral E Thermal Store is not suitable for the Timed Boost Programme function. If this feature is activated on the Horstmann E7 timer, a small dash will be present on the right hand side of the Horstmann Electronic 7's display next to the text "TIMED BOOST" as shown below:

Deactivate the timed boost function by pressing the select button until the dash disappears.
Ensure that the "BOOST PROGRAMME" ON and OFF times are both identical ie 12:00 AM. To do this scroll the dash on the left hand side of the display down to BOOST PROGRAMME by pressing the SET button. Use the MINUS and PLUS buttons to adjust the times and the RESET button to accept until the dash is next to the "RUN" setting on the left hand side.
A video showing how to set up your timer can be seen here: www.elsonhotwater.co.uk

7. The Coral E Thermal store will loose water from the tank due to evaporation during normal operation. It is therefore important that the user ensures the unit is kept to the correct level. This will mean checking the water level every 2 months and if the unit is a manual fill topping up using the braided hose. See section 6.
IMPORTANT: DO NOT ALLOW THE UNIT TO RUN DRY.
A video showing how to top up your store can be found at: www.elsonhotwater.co.uk

8. The Coral E is fitted with a safety overheat limit thermostat, see Fig. 2, which will automatically switch off the 'Overnight' immersion heater in the case of a control thermostat malfunction causing overheating. If you find the tank is cold in the morning, check that the tank as been topped up (see 6.2) and top up as necessary before you press the reset button (use the end of a pen or pencil) on the limit thermostat to reset it and the tank should be reheated overnight as normal. If you require hot water sooner, use the 'Boost' immersion heater to heat the water (see note 5 above). If the limit thermostat trips again, contact your Installer or a heating engineer.
IMPORTANT: This is likely to be a warning there is something wrong with your thermal store. Do not ignore this fault.

9. When running a bath, you can increase the temperature and volume of water by reducing the flow rate at the tap, i.e. do not open it fully.

10. When cleaning the Coral E do not use abrasive cleaners on the white metal casing.

11. As a precaution if you intend to leave your property for an extended period of time, such as going on holiday or moving home etc. then it is recommended that both the water and electrical supplies to the thermal store MUST be both isolated (turned off) and water levels checked prior to switching the unit back on, on your return. Depending on the duration away, the time switch should have retained its settings, otherwise reset the time switch. If you require hot water immediately, use the Boost button on the Horstmann Electronic 7 time switch, but not until you have checked the water level in the feed tank.

IMPORTANT: To avoid damage and/or operational faults, do not dry / hang clothes or other items off the unit or the pipework and cables to the unit.

TO BE COMPLETED BY THE INSTALLER

1. Product serial No. .....
2. Installation date .....
3. Name of Installer .....

Address .....

.....

.....

Telephone No. .....

4. Type of controller fitted .....
5. Details of supply tariff .....
6. Is a scale reducer fitted? Yes/No Details .....
7. Is a Y type line strainer fitted? Yes/No Details .....

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