

# ELECTRIC HOT WATER & HEATING TECHNICAL DATA



Mains Pressure Hot Water & Heating Packages  
for Apartments and Houses



# Electric Hot Water & Heating packages for Apartments and Houses

## Why choose Electric?

The dash for Gas over the past 20 years has made Combi Boilers the first choice for most installations in the UK, where gas is available. However with gas supplies from the North Sea declining and an increasing reliance on supplies from overseas, future energy needs will have to be met from a far wider range of sources.

Increased availability of "Green Electricity" from wind and wave farms, and the likely resurgence of Nuclear Power, will offer designers and specifiers a realistic alternative to traditional gas fired solutions. Fully controllable electric heating and hot water solutions offering high efficiency and high performance are available from Elson today, delivering clean and affordable hot water and heating throughout the home.

Electric water heating units are simple and easy to install, and provide the ideal solution for new apartments or conversions, with no unsightly flues, plumbing, and gas pipework across thresholds.

With over 80 years of experience, Elson has developed an extensive product range including the Coral E. This range provides mains pressure hot water from an open vented thermal store and is available as an individual water heater or in a range of package options. Elson offer technical advice and support, commissioning on site and a national network of field service engineers.

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# Efficient Electric Hot Water & Heating Solutions

## HOT WATER

### Elson Coral E

The Elson Coral E electrically heated thermal storage unit provides economical mains pressure hot water and is suitable for all low cost tariffs including Economy 7 and Economy 10. Hot water systems must be properly insulated to avoid energy wastage and with 50mm thick HCFC Free Polyurethane insulation the Elson Coral E helps achieve the highest possible **SAP** ratings in the property.



- Provides mains pressure hot water to all outlets within the home
- Open vented unit - It is not an unvented cylinder and therefore installation does not involve the complex involvement of building control regulations and the product requires no annual maintenance.
- Easy to install, with only 3 plumbing connections
- High efficiency, high performance, low heat loss (150ltr unit heat loss = 1.28 kw/24hrs).
- Designed for electrically heated homes and apartments. Particularly suitable for low-cost electrical tariffs.
- Unit takes up less space in any property due to its rectangular shape. Flexible manufacture allows units to be sized to suit the cupboard space available.
- Safe, thermostatically controlled hot water temperature - eliminating the possibility of scalding.
- Manual fill option eliminates the need for an overflow

## HEATING

### Elson Electric Boiler

When combined with an Electric flow boiler the Elson Coral E provides domestic hot water and central heating for the whole house via radiators or underfloor heating. Historically, electric heating products had been perceived as being costly to operate, however, with improved building insulation, modern control methods and economical electric system tariffs, the running costs are now more affordable than ever.



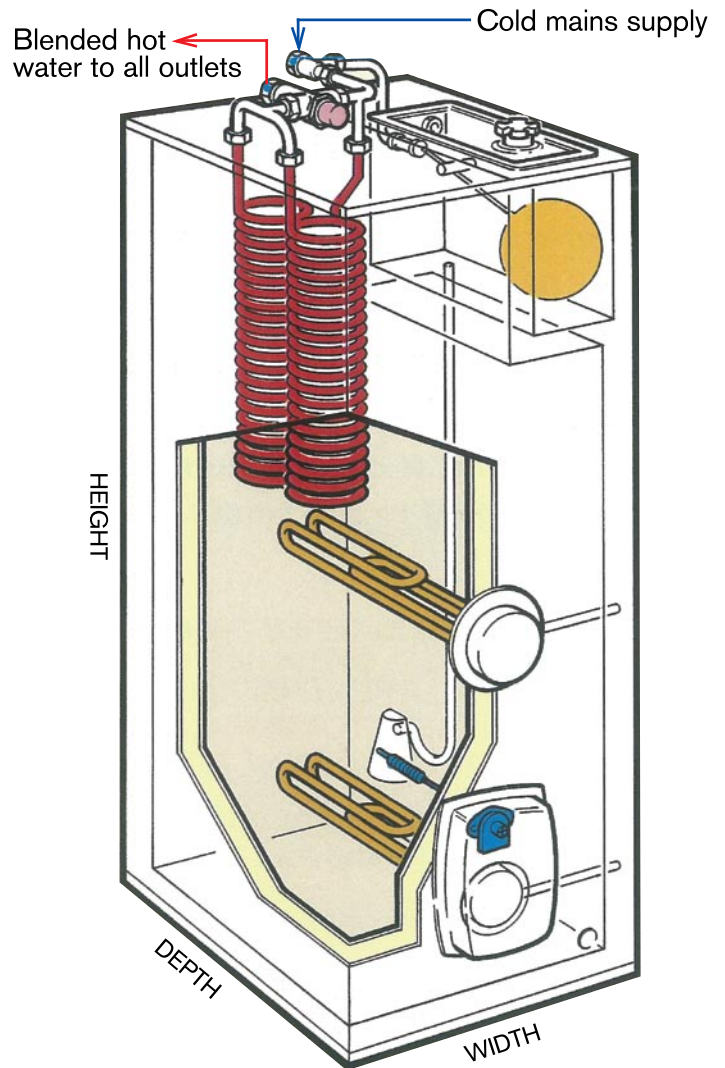
- 100% Efficient Heating System
- 24 hour controllability – heating on demand
- Ideal replacement for LPG, oil, solid fuel or night storage
- No need for annual safety inspection as required under gas systems
- No external flue required – no toxic gases – no plumbing and no unsightly flue terminals
- Unique modulating facility ensures minimum running costs are achieved because the boiler is electronically controlled
- Available in 6, 7.5, 9 and 12kW outputs to cover the heating requirements of a wide range of properties
- Suitable for underfloor and radiator systems
- Open vented and sealed system primary options
- Programmable thermostatic boiler control

To achieve maximum **SAP** rating please use manufacturer's heat loss figures shown on page 5 and not the thickness of insulation.

RENEWABLES • SOLAR • GROUND SOURCE HEAT PUMP • CHP  
• WEATHER COMPENSATION • MBUS • ZERO ODP • FUTURE PROOF  
SEDBUK A • NOx5 BOILER PACKAGES • 100% ENERGY EFFICIENT ELECTRIC BOILER PACKAGES • TOTAL CONTROL  
ENERGY EFFICIENT • COMPACT • SPACE SAVING DESIGNS • COST EFFECTIVE • TAILOR MADE SOLUTIONS  
OFF PEAK LOW COST ELECTRIC HEATING & HOT WATER • INTEGRATED GAS BOILER & HOT WATER PACKAGES  
CENTRAL BOILER • DISTRICT HEATING • ELECTRIC WET CENTRAL HEATING • SEALED & OPEN VENTED • BOOSTED HOT & COLD STORAGE

# Coral E

## Principle of Operation



The standard Elson Coral E is a floor standing mains pressure open vented primary hot water store with 100, 150 or 210 litre options, (larger capacities available on request) insulated with 50mm thick HCFC free polyurethane foam and supplied in a durable white steel case. The foam insulation used by Elson meets Eco Homes standards with a global warming potential of less than 5 and zero ODP. This unit can help achieve the highest possible SAP ratings using manufacturers heat loss figures and not the thickness of insulation.

The unit provides thermostatically controlled mains pressure hot water at high flow rates. This allows installation to be in almost any position in the home making it ideal as a stand-alone solution for cylinder replacement, refurbishment schemes and new build energy saving projects.

The Elson Coral E is an open-vented thermal store. Water stored in a well-insulated copper tank is heated to a high temperature by electric immersion heaters. When hot water is called for, mains cold water is allowed through coils that sit in the upper part of the unit. As it passes through, the mains cold water is heated instantaneously by the hot water that surrounds the coils. It then emerges from the other side of the coils at high temperature to be mixed with mains cold water at the thermostatic blending valve that sits on top of the unit. The valve has a temperature range of 33-55 degrees centigrade and is supplied factory set at 50°C. This temperature can be adjusted by the user or the installer. The ball valve header tank allows the unit to fill when it is being commissioned and accommodates expansion of heated water.

### Manual Fill

A manual fill option is available which does not require an overflow.

### Heating the thermal store

Two electric immersion heaters are fitted inside the unit for most economical use and for maximum performance. The lower immersion heater should utilise some form of cheap-rate electricity tariff (Economy 7 being one of the more popular), while the upper heater is there to be used as a daytime boost as and when required. With 50mm foam insulation to minimise heat loss, these immersion

heaters keep the thermal store at an operating temperature high enough to ensure hot water is available throughout the day. A runback timer should be fitted to the upper 'boost' immersion heater, firstly to prevent uneconomical use of full price electricity and secondly to act as a form of protection against boiling in the unlikely event of thermostat failure.

The type of cheap-rate electricity tariff and the means by which it is controlled varies from area to area and from property to property. Please consult your electricity supplier and installer for this information.

### Hot water performance

The amount of hot water available depends upon several variables, chief amongst these being the temperature of the incoming mains cold water, the operating temperature of the thermal store and the temperature at which the blending valve is set. A graph giving an indication of hot water performance is published opposite on page 5. From this, the conclusion can be drawn that the temperature at which the blending valve is set has a direct impact on the amount of available hot water.

# Coral E

## Standard Model Option



Washing Machine Frame Package

Coral E Under Worktop Surface



Floor Standing Model

### KIWA approved product - certificate number A040834

Model	Capacity Litres	Width mm	Depth <sup>†</sup> mm	Height mm	Heat Loss to BS3198 W/Litre (kw/24hrs)	Property Type
Coral 100 UWS	100	571	571	750	0.44 (1.18)	1/2 bed with shower
Coral 100	100	495	571	865	0.44 (1.18)	1/2 bed with shower
Coral 150	150	495	571	1285	0.33 (1.28)	2/3 bed with bathroom & shower
Coral 210	210	584	571	1285	0.27 (1.48)	3/4 bed with bathroom & shower
Coral 150 WMF	150	730	560	1735	0.33 (1.28)	2/3 bed with bathroom & shower
Coral 210 WMF	210	730	571	1915	0.27 (1.48)	3/4 bed with bathroom & shower

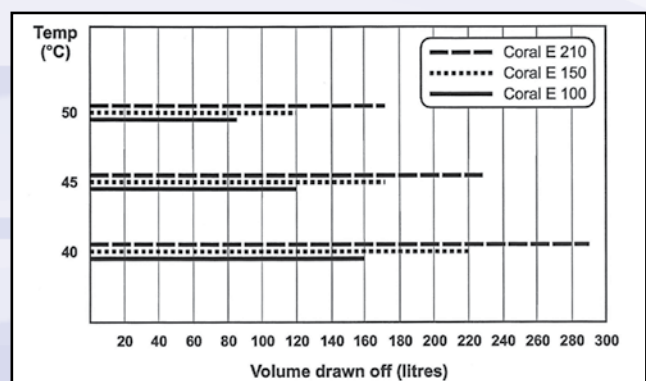
† Allow a minimum of 100 mm on the depth to accommodate the immersion heater cover and plumbing connections.

### Technical Data

Hot water supply	15mm comp
Immersion heater boss	2 1/4" BSP
Mains cold water supply	22mm comp
Drain boss	1/2" BSP
Overflow	22mm comp
Electric supply	230/240v 50Hz
Outlet temperature	50°C
Flow rate*	upto 30 ltrs/min

\* 100 Litre models only - flow rate limited to 12 litre/min

### Hot water performance



Figures obtained using the store fully heated to 85°C, with a mains cold water supply temperature of 10°C.

# Coral E

## Electric Boiler Package

### Elson Coral E with electric boiler

The Coral E provides mains pressure hot water heated by integral immersion heaters. The radiator circuit or under-floor heating system is heated independently by the electric boiler.

Elson now offer the Coral E Plumbing Package with the facility to accommodate various electric wet boilers. This provides an efficient, fully controllable solution, which is a major step forward to the traditional system.

The package comprises an Elson Coral E Thermal Storage Unit, which provides mains pressure hot water. This unit is mounted onto a separate white, enamel coated, steel frame, which contains the mounting brackets for an Electric Boiler and a pre-plumbed manifold assembly.

Electric boiler packages can be supplied open vented, for example when low level primary pipework is used and sealed system when the pipework runs at high level.

Electric hot water and heating can be used on all electric tariffs. However, the table below illustrates availability of economy 10 for additional savings.



**Sealed System**

- Improved SAP rating
- Hotwater capacity  
100-300 litre
- Open Vented - Sealed System Option
- 100% Efficiency
- 100% Controllable
- Boiler rating 6-12kw



**Open Vented**

### PRACTICAL GUIDELINES

Electric hot water and heating can be easily affordable when certain guidelines are followed:

- Water heating tariff to be timed at cheap rate
- When heating is required the thermostat should be set to the 'comfort' temperature which is 21 degrees. Higher temperatures can incur higher costs.
- Always heat the house from cold in the 'off peak' period where practical.
- Don't let rooms get too hot and adjust the heating controls if they do.
- Heating and hot water pipes should be lagged to prevent heat escaping.
- Always use major appliances, eg washing machine, tumble dryer and dish washers in the 'off peak' period, as all electricity used in this period will be charged at the 'off peak rate'.

### E10 Quarterly EDF Domestic Economy 10 Prices - April 2007

Regional Electricity Supplier	Off Peak Periods			PPU Price Including VAT		
	Period 1	Period 2	Period 3	First 225 units/qtr	Peak units	Off-peak units
Eastern	00.00-05.00	13.00-16.00	20.00-22.00	15.12	9.58	5.13
East Midlands	00.00-05.00	13.00-16.00	20.00-22.00	19.79	9.73	4.97
London	00.00-05.00	13.00-16.00	20.00-22.00	17.97	10.93	4.71
Manweb	04.30-07.30	13.00-16.00	20.30-00.30	20.34	11.38	5.02
Midlands	00.00-05.00	13.00-16.00	20.00-22.00	17.68	10.00	4.10
Norweb	00.00-05.00	13.00-16.00	20.00-22.00	15.88	10.27	3.98
Seeboard	00.00-05.00	13.00-16.00	20.00-22.00	17.39	10.79	4.84
Southern	00.00-05.00	13.00-16.00	20.00-22.00	18.36	10.84	3.99
South Wales	00.00-05.00	13.00-16.00	20.00-22.00	20.59	12.20	4.43
South Western	00.00-05.00	13.00-16.00	20.00-22.00	18.33	13.92	4.58
Yorkshire	00.00-05.00	13.00-16.00	20.00-22.00	19.24	9.52	4.02
Scottish Power	04.30-07.30	13.00-16.00	20.30-00.30	22.37	11.42	5.33
Scottish Hydro	04.30-07.30	13.30-16.30	20.30-00.30	22.71	9.72	6.06

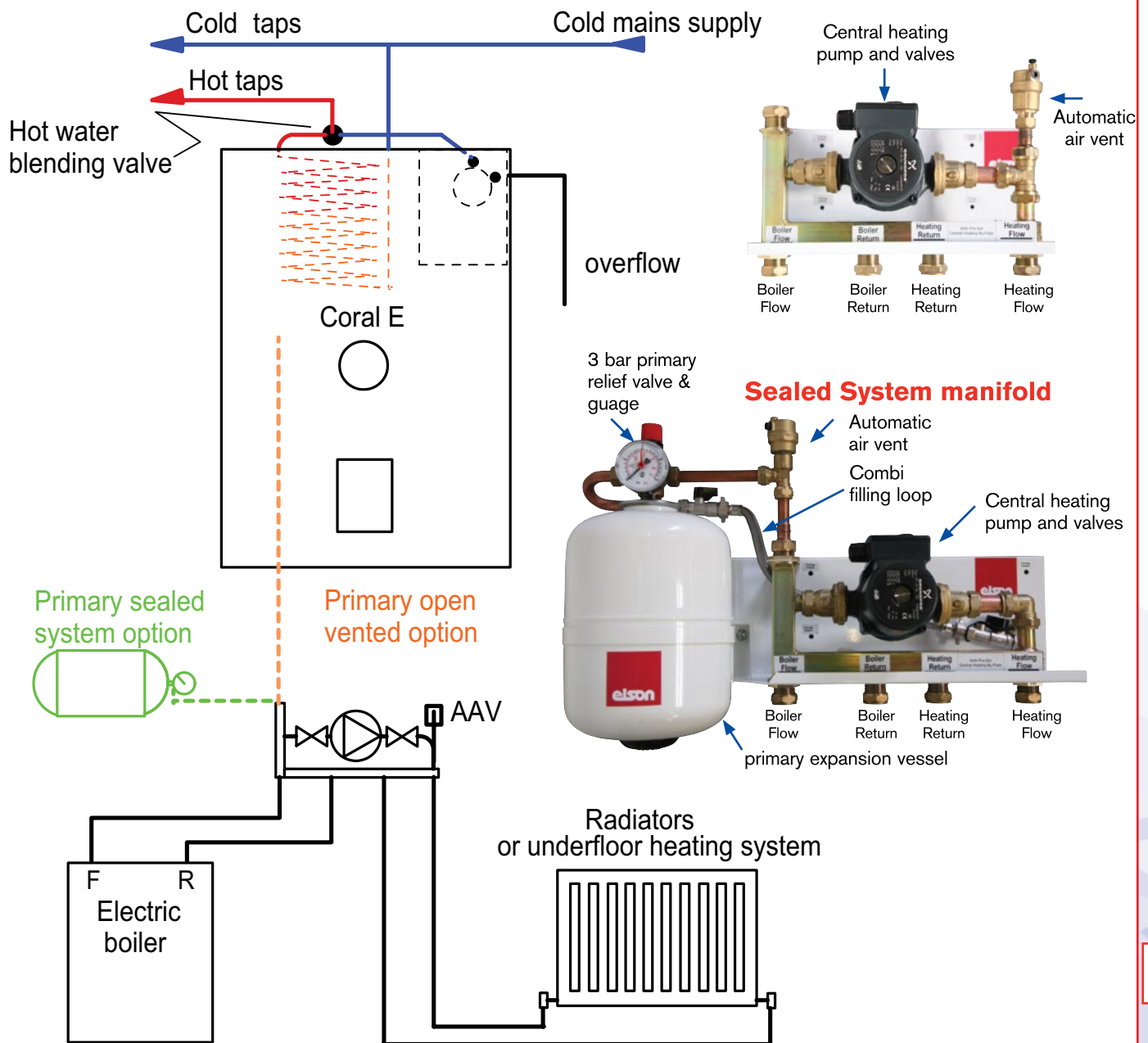
The above figures are for illustration purposes only and are correct at the time of going to press. Please check with your local supplier.



### Package Primary Options

The Coral E thermal store is open vented and is heated by an independent low cost tariff supply. The electric boiler can be open vented or sealed primary to provide heating directly via the pump and manifold arrangement. In the open vented arrangement the Coral E also provides the boiler feed and expansion. In the sealed primary arrangement the primary circuit is pre-charged and allows maximum flexibility for primary pipework.

### Coral E Electric Boiler Schematic



### Electric Boiler Technical Specifications

Boiler range	6kw	7.5kw	9kw	12kw
	open/sealed	open/sealed	open/sealed	open/sealed
Pipe entry from boilers	Top Entry	Top Entry	Top Entry	Top Entry
central heating flow & return pipes	22mm	22mm	22mm	22mm
Min water pressure	1 bar	1 bar	1 bar	1 bar
Max water pressure	3.0 bar	3.0 bar	3.0 bar	3.0 bar
Expansion vessel	8 lt	8 lt	8 lt	8 lt
Max/Min static head	30m/0.5m	30m/0.5m	30m/0.5m	30m/0.5m
Dry weight	15kg	15kg	15kg	15kg
Electric supply	240V, 1ph, 50Hz	240V, 1ph, 50Hz	240V, 1ph, 50Hz	240V, 1ph, 50Hz
Load/current	30 amp	35 amp	40 amp	50 amp
Protection	32 amp	40 amp	45 amp	63 amp
Heating output	20,478 Btu	25,598 Btu	30,717 Btu	40,956 Btu
Flow rates (min) lts/minute	8 lt	12 lt	12 lt	12 lt
Max flow rate lts/minute	15 lt	15 lt	15 lt	15 lt
potentiometer temp setting (factory set)	65°C	65°C	65°C	65°C
Min temp setting	40°C	40°C	40°C	40°C
Overheat protection (factory set)	80°C	80°C	80°C	80°C
Recommended pump settings	Set to max	Set to max	Set to max	Set to max
Recommended pump	Grundfos 15/50	Grundfos 15/50	Grundfos 15/50	Grundfos 15/50

#### Boiler Controls **Product: CM900**

##### Good with Money

The CM900 is a programmable thermostat that allows you to set comfort temperature when you are at home and save energy when you're away. It automatically balances the boiler firing with the demand, so you're only using the energy you need when you need it. That means you should expect to see a big difference on your heating bill.

##### Bright and dynamic

The unique dynamic text display on the CM900 means it couldn't be more straightforward for you to operate. The plain English text makes programming hassle free and the large display lights up whenever you need it.

##### As smart as it looks

The slim and unobtrusive design of the CM900 will fit nicely into any living space – and its just as smart on the inside. The control software will find the right temperature whether you're at home or away, so you can have a comfortable temperature when you're in and save energy when you're out.

##### Puts you in control

The CM900 keeps to exactly the temperature you need, whatever time of night and day. It's easy to follow interface and simple 'OK' confirmation button ensures you're always in the driving seat. In short, you don't have to spend hours figuring out how it works – it will simply tell you what's going on.

##### Caring and considerate

While you're enjoying the economical comfort provided by the CM900, you'll also be doing your bit to cut down the emission of harmful exhaust gases. So it's good news for the environment, as well as for your home.

##### Takes care of itself

Once it's up and running, the CM900 will quietly get on with its job, while you get on with your life. It even knows when to change the clocks backwards or forwards. Best of all, it comes from Honeywell, one of the most reliable names in the business.

##### Takes care of you

The CM900 has an in-built 'optimum start' facility, which helps to reduce the number of times the boiler is fired. For example, in spring, as the weather warms up outside, it will keep the heating system off for as long as possible in the morning. But, unlike delayed start methods, it will still keep you cosy in the middle of winter.





### Water Heater Control

#### Immersion Heater Control for all low price tariffs

The Horstmann Electronic 7 Coral E hot water immersion heater controller is instantly compatible with tariffs that keep to Greenwich Mean Time and those that vary with British Summer Time. It allows up to three secure off-peak heating periods every 24 hours, to make the maximum use of electricity when prices are cheaper.

Suitable for use with Single, dual or twin element immersion heaters.

Programmable or one hour manual boost.

Precise and flexible programming.

One touch winter/summer time button.

The Electronic 7 is interchangeable with previous Economy 7 controllers using the standard size wall box and plug in connectors. A two year battery reserve provides more than the total number of hours of power interruption the typical home will have in 200 years.

#### Product Specifications

Contact Rating:	13Amps 230V a.c. suitable for immersion heaters up to 3kW
Contact Type:	Micro-disconnection on control Disconnection to immersion heater(s) on double-pole rocker switch
Supply:	230V 50Hz
Dirt Protection:	Normal situations
Moisture Protection:	Ordinary
Enclosure Protection:	IP30
Shock Protection:	Class 1

Live Parts:	Enclosed
Operating Temperature Range:	0°C to 35°C
Battery Reserve:	Approximately 2 years total power disconnection
Programme Settings:	Off Peak Up to 3 on/off time periods
Boost:	Programmable automatic boost and one hour manual boost
Dimensions:	170mm (w) x115mm (h) x 60mm (d) (excluding rocker switch)
Display:	am/pm indication, winter/summer indication
BEAB Approved	



### Powersaver Boost

#### Run Back Timer

This run back timer is a simple to use time switch for the water heating boost control, allowing independent boosting of the top immersion heater.

This Electronic Boost controller with a single button operation, offering three user-selectable boost periods of ½ hour, 1 hour or 2 hours. An indicator light on the product shows the remaining time.

One of the main benefits of the Powersaver Boost product is its standard size. This is common to all models, which fit directly onto a single gang patress box. This allows installation or upgrading from one model to another, quick and simple.

The Powersaver saves on fuel expenditure and energy wastage by automatically switching off when the user may forget.

#### Product Specifications

Contact Rating:	16A Resistive 240V a.c.
Supply:	230V 50/60 Hz a.c.
Fixing:	Single Patress – Surface & Flush Mounting
Resolution of Programs:	N/A
Power Consumption:	10VA Maximum
Live Parts Protection:	This unit is totally protected by the enclosure
Dirt and Moisture Protection:	IP00
Shock Protection:	Class 1 (this unit must be connected to earth)
Case Material:	Polycarbonate
Type of Action:	Type 1B

Temperature Rating:	T35
Operation Temperature:	0°C to 35°C
Memory Reserve:	none
Display:	none
Program Settings:	none
Boost Settings:	User selectable – ½, 1 or 2 hours
Control Pollution Category:	Normal



### Thermostatic Blending Valve Technical Data

The market leading TMV2 thermostatic mixing valve

#### Product Features and Benefits

Rapid fail safe on either hot or cold supply failure.  
Provides stable mixed water temperature.  
Tamperproof setting adjustment.  
Designed to be set with dynamic pressure imbalances of up to 10:1 (cold over hot).  
Simple to service.  
Meets all requirements of BSEN 1111 and BSEN 1287.  
Fully approved to BuildCert to the TMV2 Scheme for basin, shower, bidet and high pressure bath fill.

#### Description

Thermostatic mixing valves conforming to BSEN 1111 and BSEN 1287, for general purpose applications. Fitted with lockable temperature control which can be re-set.

#### Materials

Body:	Cast gunmetal
Internal components:	DZR brass
Seals:	EPDM
Spring:	Stainless Steel
Piston:	Polysulfone polymer
Fittings:	DZR brass

#### Standards

Conforms to BSEN 1111 and BSEN 1287.

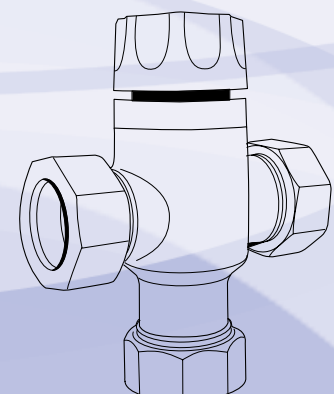
#### Approvals

WRAS Approval No. 0002080  
BuildCert approval number BC/066/10/03

#### Specifications

Factory set temperature:	50°C
Temperature setting range:	35 - 60°C
Temperature, hot supply:	60 - 85°C
Temperature, cold supply:	5 - 25°C
Minimum temperature differential:	15°C min.

Temperature stability (nominal):	2°C
Static pressure:	14 bar max.
Operating pressure:	0.2 to 6.0 bar
Max. pressure loss ratio:	10:1 (either supply)
(Note: Optimum performance achieved with equal pressure)	



# Examples of Tailor Made Solutions and Storage Options



Coral E designed for installation above WC for London Borough Westminster



Corner unit designed for Redrow Homes

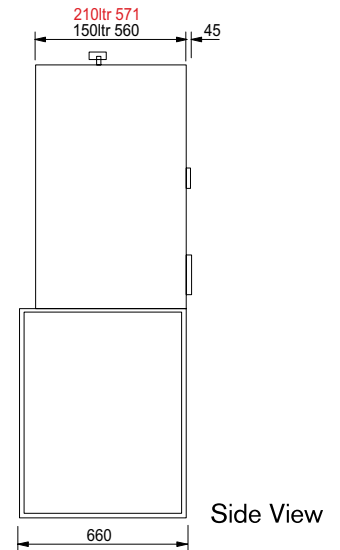
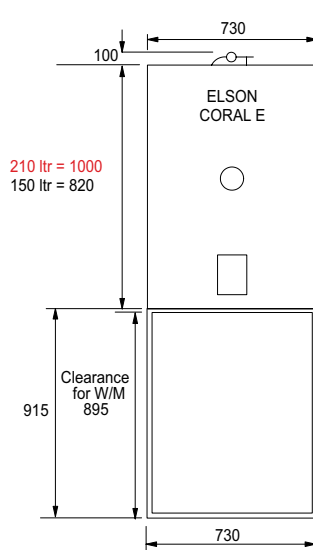


Storage complete with recycling facility

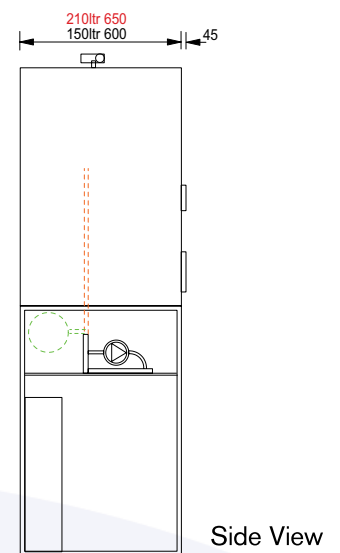
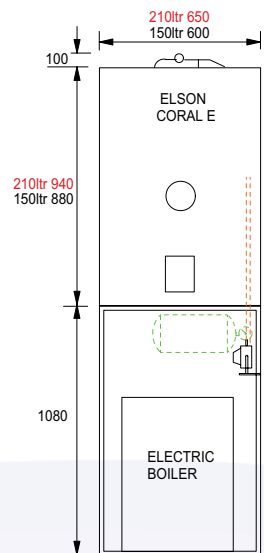


Front shelving for additional storage

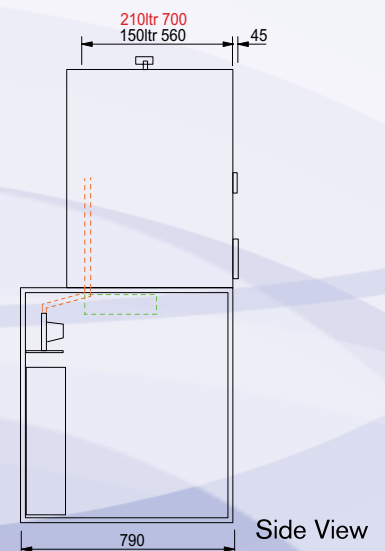
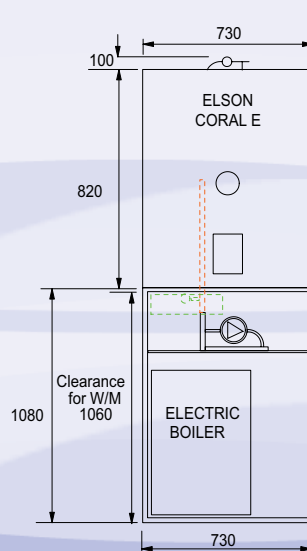
## Coral E Washing Machine Package



## Open Circuit or Sealed System Primary System



## Coral E Electric Boiler Washing Machine Package



# ELECTRIC HOT WATER & HEATING TECHNICAL DATA

**elson**  
hot water

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for Apartments and Houses



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