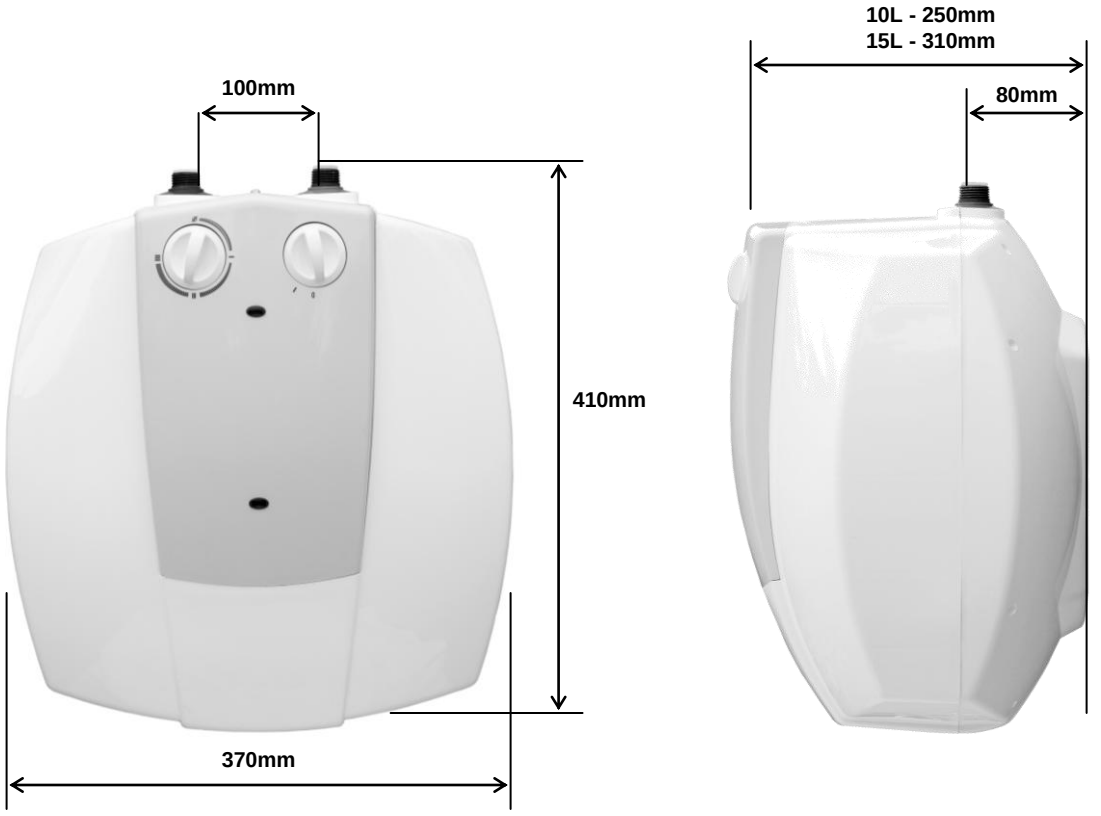
CROWN WATER HEATERS
CPU10 - CPU15
CPOS10 - CPOS15

COMPACT PLUS
10 and 15 Litre Unvented
Under and Over Sink Water Heater

DIMENSIONS



Model	CPU10/CPOS10	CPU15/CPOS15
Nominal Capacity – Litres	10	15
Height / Width / Depth - mm	410 x 370 x 250	410 x 370 x 310
Power - kW	2	2
Voltage – v	240	240
Heat Up Time Δt = 50ºC - mins	17	26
Maximum Operating Pressure - Bar	6	6
Insulation – mm	19	19
Switch On / Off	Yes	Yes
Adjustable Thermostat	Yes	Yes
Magnesium Anode	Yes	Yes
Safety Valve	½" x 6 Bar	½" x 6 Bar
Net Weight – kg	6.50	8.50
Pipe Connections – BSP	½"	½"

INSTALLATION

General

The Crown undersink water heater is manufactured to a very high quality and provides a glass-lined steel water cylinder for long lasting and hygienic supply of hot water direct to one or more water outlets.

The water may be stored at a high temperature (>68˚C) to avoid bacterial build up and mixed down using either the optional mixer valve or a mixer tap, to provide higher volumes of lower temperature/hand-hot water.

Contents

Crown Compact Rapid Flow Water Heater
Use and Installation Guide
6Bar Expansion Relief Valve
Wall Mounting Hooks
Insulating Pipework Adapters and Washers
Foot Pads (Under Sink Only)

Important Information

Please read these instructions prior to installing your water heater

Do not operate the unit if you suspect that it is frozen

If water is seen discharging from the safety valve, the unit should be switched off from the mains electricity supply immediately and contact Crown Water Heaters Ltd on 01902 310678

The water stored within the unit may be set to high temperatures. For handwash purposes the thermostat may be fixed to a mid-range temperature or supplied via a mixer valve.

WARNING – THIS APPLIANCE MUST BE EARTHED

This appliance is supplied with a pre-wired electric cable. If the supply cable becomes damaged, it must be replaced by a qualified electrician.

The water heater MUST be fitted with the expansion relief valve supplied. The safety valve must not be plugged, removed or replaced with any other device.

Only genuine Crown accessories should be used with the water heater. The Crown guarantee will be invalidated and the installation may fail to operate correctly or could be dangerous should other components be used.

The unit is not fitted with a drain plug. To empty the water from the unit, the unit should be disconnected from the mains water and electricity supplies and removed from its location. See the Maintenance section for safe removal of the unit.

The unit is designed to be fitted directly to the cold mains water supply.

Technical Specifications

Cylinder	Glass-Lined Mild Steel	
Capacity	10 or 15 Litres	
Electrical Rating	230/240V 50Hz Single Phase	
Power	2kw	
Weight	Full	Empty
10 Litre	16.5kg	6.5kg
15 Litre	23.5kg	8.5kg
Maximum Rated Pressure	6 Bar	
Minimum Supply Pressure	0.8 Bar at low supply pressures the performance of the unit will be reduced.	

Configurations

Mains Water Pressure greater than 4bar
Both the expansion and pressure reducing kits (purchased separately) must be installed

In some cases mains water pressure is not constant and can increase at times of low demand, i.e. night time and weekends

Mains Water Pressure less than 4bar
Installation options as per table below

	Non-return valve or similar function in mains water supply	No non-return valve or similar function in mains water supply
Cold water take-off beyond minimum distances (see installation requirements)	Expansion kit required	No additional kits required
Cold water take-off within minimum distances (see installation requirements)	Expansion kit required	Expansion kit required

Installation Requirements

Standard unit as supplies – allows expansion back into the mains under the following conditions:

Static mains water supply pressure must be continuously at 4bar or lower
The nearest cold water take-off must be at least:

- 2.8m from the 10 litre unit
- 4.2m from the 15 litre unit

There should be no non-return function or device in the mains water supply e.g. water meter or stop cock

Where these parameters cannot be satisfied the following kits should be installed

a) Expansion Kit 'A' (Purchased Separately)
2L Expansion Vessel
Non Return Valve

b) Pressure Reducing Kit 'B' (Purchased Separately)
Pressure Reducing Valve with Gauge

For all installations where the static mains water supply exceeds 4bar.

Note: the use of a pressure reducing valve will require the installation of an expansion kit above.

Location

The unit is designed to be mounted near to the point of use. Where the unit is to provide water to a bathroom area, the unit should be mounted so as to conform to the wiring regulations for bathroom areas.

The unit should be wall mounted vertically with the inlet and outlet pipes at the top of the unit. Care should be taken to mount the unit so that water cannot be splashed or dripped onto the unit.

If the undersink water heater is to be 'floor standing', fit the two adhesive rubber pads provided to the bottom front edge 100mm apart.

Sufficient space should be allowed around the unit to provide access for servicing and maintenance.

The mounting surface should be sufficiently strong to carry the weight of the unit when full of water – see technical specification. The unit may stand on the floor of the undersink cabinet to assist with the weight handling, but the unit should also be fixed to the wall.

The unit must not be installed in a location where it is likely to encounter excessively low temperatures that may cause the unit to freeze.

The undersink water heater is to be fitted with a tundish and discharge pipe. The discharge pipe must be installed in a continuous downward slope and should terminate in a safe place with the end left open to the atmosphere. The unit should be sited to allow for suitable routing and termination of the discharge pipe.

Sufficient room should be allowed for the mounting of any additional expansion or pressure reducing kit that may be required,

The cold water inlet of the unit is marked with a blue collar and should be connected to the mains water supply, the hot water outlet is marked with a red collar.

Plumbing

The unit should be plumbed into position prior to connecting to the electrical supply. The unit is designed for connection to the cold mains water supply.

Install a service valve in the mains water supply to allow the unit to be isolated from the mains water supply in case of servicing or fault.

It is recommended that the water heater is fitted with a check valve and expansion vessel (Crown Expansion Kit 'A'). However, expansion may be accommodated directly in the cold water supply pipe work. See Configurations.
Do not use plumber's compound as this could prevent correct operation of the safety valves and will invalidate the warranty.

Having located the site in which the unit is to be mounted, mark the position of the holes through the mounting bracket. Ensuring there are no pipes, cables or other services within the wall to be drilled.

MAINS WATER SUPPLY

Pressure Reducing Valve

If a pressure reducing valve is required, a Crown Kit 'B' should be fitted to the mains water supply pipe, making sure that the directions indicator on the side of the valve points in the direction of the water flow. If installing a pressure reducing valve, the Crown Expansion Kit 'A' must also be installed.

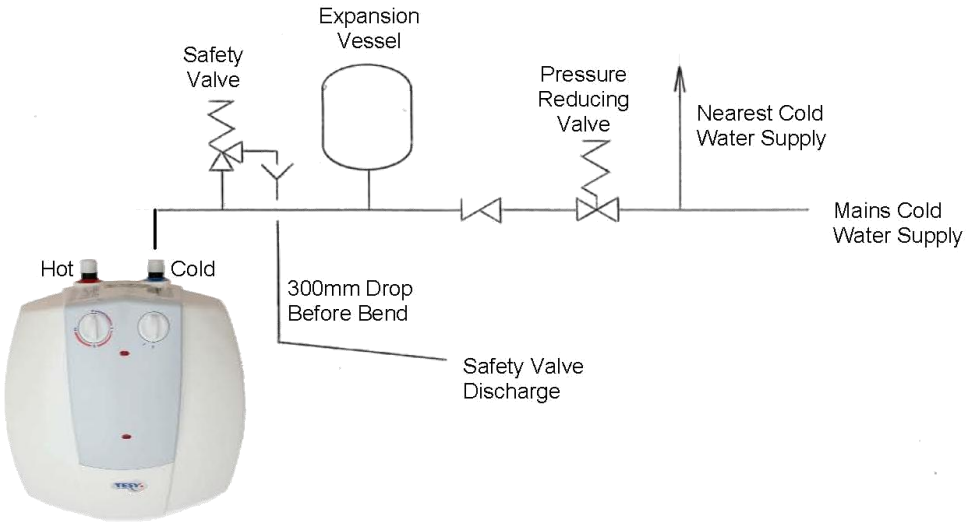
Expansion Vessel

Where an expansion vessel is required, this must be fitted using a T-piece in the cold water supply on the water heater side of the check valve. See Connection diagram.

The expansion vessel should be charged to 3.5Bar when cold. This should be checked prior to installation using a pressure gauge and topped-up using a foot or hand pump.

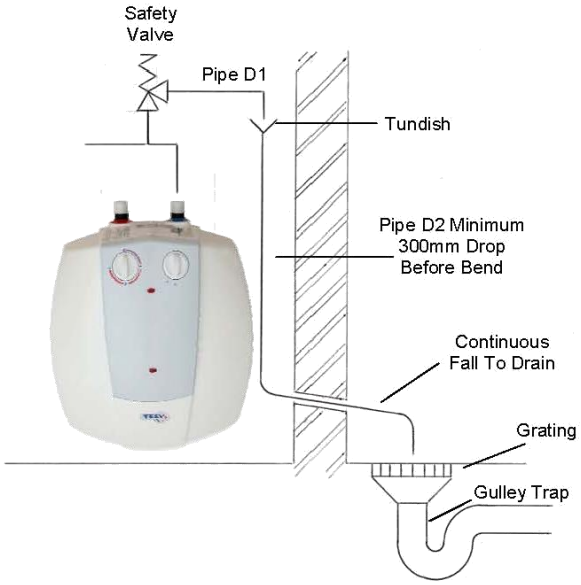
Expansion Relief Valve

It is a statutory requirement that an expansion relief valve is fitted to the cold water supply just before the cold water inlet via a T-compression joint and that outlet of this valve be taken to the 15mm discharge pipe.



Hot Water Outlet
The hot water outlet (marked red) should be routed directly to an ordinary tap at the point(s) of use. Note there is no requirement for a special vented tap for use with this unit.

Mixer Valve
Where the temperature of the water at the tap is required to be controlled to a specific temperature, a mixer valve may be incorporated in the hot water outlet pipework to provide a regulated water temperature at the tap. The valve should be connected between the cold water supply and the hot water outlet following the instructions supplied with the valve.



Discharge Pipework
Note: Water discharged from the safety valve outlet may be very near boiling point and exit at a high flow rate.

The unit comes with an expansion relief valve. A tundish must be mounted vertically and be in a visible location beside the water heater – see connection diagram. Run a length of 15mm copper pipe form the outlet of the temperature and pressure relief valve to the location of the tundish so that the pipe runs vertically downward beside the water heating unit. The outlet of the expansion relief valve should then be T'd into this pipe. Connect the tundish to this vertical pipe (D1) and run a vertical drop of 300mm of 22mm copper pipe, or larger (See D2 in table) form the exit of the tundish. Continue the length of D2 discharge pipe using minimal bends and a continuous fall to discharge water to a safe and visible position.

The resistance to flow of the discharge pipe should be less than 9 metres of straight pipe. To work out the minimum diameter of discharge pipe to be used:

From table 1 calculate the resistance to flow created by the number of bends required in the discharge pipe from tundish to end of the pipe.

For example:

4 x 22mm elbows = 4 x 0.8m = 3.2m

From table 1, the maximum length of straight 22mm pipe is 9.0m.
Subtracting the resistance of the elbow:

9.0m - 3.2m = 5.8m, hence the maximum total length of 22mm copper pipe with 4 elbows will be 5.8m.

Where a longer run is required, a larger diameter discharge pipe D2 and tundish will be required. In these cases the above calculation should be repeated for 28mm and 35mm pipe to check that the maximum pipe length is not exceeded in a similar manner.

Table 1: Sizing of copper discharge pipe D2 for common temperature relief valve outlet sizes

Valve Outlet Size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from Tundish	Maximum resistance allowed, expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by elbow or bend
G1/2 (Supplied)	15mm	22mm 28mm 35mm	Up to 9m Up to 18m Up to 27m	0.8m 1.0m 1.4m

Discharge Pipework Connection

It is required that the end of the discharge pipe be no more than 100mm above ground level of the pipe discharged into a gully with the pipe end being below a fixed grating. High level discharge may be done by discharging into a metal hopper and down-pipe of at least one size larger that the discharge pipe.

Connect the cold mains water supply to the blue pipe of the water heaters using a standard 15mm compression fitting (not supplied).

Thermostat Setting

The thermostat can be set to provide temperatures between 18°C and 68°C. Setting at high temperatures prevents bacterial growth in the stored water and allows the water to be mixed down to lower temperatures using a mixer valve.

Electrical Supply

The unit must be supplied via a double pole isolating switch with a contact separation of at least 3mm in both poles. The supply should be fused with a 13 amp fuse.

Run the wire from the isolating switch to the connector within the unit. The connections should be made as follows:-

i) Connect the **Green and Yellow** wire to the **Earth** terminal marked with the symbol 

ii) Connect the **Blue** wire to the terminal marked with ` **N** ` **Neutral**

iii) Connect the **Brown** wire to the terminal marked with ` **L** ` **Live**

Warning! DO NOT switch on the electricity supply until the commissioning procedure below has been completed! The unit must be full of water BEFORE attempting to switch on the electricity supply.

Resetting The Unit

If the unit is switched on but is supplying cold water, check the power supply to the unit and check if the neon light is on. If the neon light is not on turn the temperature regulator to increase the temperature. If nothing happens and the neon light is still not on, it may be that the unit has 'tripped' and may need resetting. This should be done by a competent person.

1) Switch off the electrical supply
2) Unscrew the cross head screw retaining the access cover and remove it.
3) Check for any water in the unit and for any loose electrical connections
4) Press the reset button
5) Replace the access cover and reinstall the unit
6) Check for leaks around the pipe connections and then restore the electrical supply
7) The neon light should then light
8) If the unit continues to trip isolate the unit and contact Crown Water Heaters technical support

NB The neon light only lights up when the unit is calling for heat. When the unit has reached temperature the light will go out.

On no account should the unit be removed without first contacting Crown Water Heaters on Tel: 01902 310678

Commissioning

Before switching on the cold supply, visually inspect the installation to check that it complies with the requirements for expansion, pressure reduction and that the discharge pipe is unobstructed and will discharge water to a safe visible place. Visually check the wiring and test that there is a good earth connection to the unit.

If the installation is correct, open the hot tap and the services valve to allow water to fill the cylinder and run freely through the tap. Allow the water to run to flush out any dirt from the pipework.

Close the hot tap and check the unit and pipework for leaks.

Twist the top of the expansion relief valve and ensure water is discharged into the tundish.

Turn the thermostat fully anti-clockwise to its minimum setting.
Switch on the electrical supply and ensure that the upper and lower LED's light up.

After a short while, when the temperature set at the thermostat has been reached, the lower LED should extinguish. Increasing the temperature setting by turning the temperature dial clockwise should cause the LED to re-light until the new temperature has been reached.

Maintenance and Servicing

It is recommended that the unit be serviced regularly to ensure that all safety devices are functioning properly and that the expansion vessel is charged to the correct level. Servicing should be carried out by an authorised Crown engineer.

Servicing should as a minimum include, the manual operation of all safety valves, check and recharge of the expansion vessel and operation of the thermostat. All joints should be checked for leaks and the discharge pipe checked by expelling water from the safety valves for a period to check that water freely flows to a safe and visible place.

The charge in the expansion vessel should be checked: this may be done by isolating the electrical supply and mains water supply. Open the hot tap to depressurize the system. Using a pressure gauge check the pressure at the valve on the expansion vessel. This should read 3Bar. If the pressure is lower than this, pump up the pressure to 3.5Bar using a suitable foot or hand pump.

In hard water areas scale may form within the cylinder reducing the product's efficiency. It is advisable to occasionally switch off and disconnect the unit from the supplies and remove the unit from its installed position. The flanged heating element may then be removed to allow access to the vessel for removal of limescale

Removal of Element Plate

After disconnecting the unit from the mains water and electricity supplies, remove the top cover using a screwdriver. If required, the electric cable may be removed from the terminal block to aid removal of the immersion heater. Remove the electrical connections to the element.

The element plate is removed by undoing the six retaining screws and lifting flanged element from the cylinder.

When refitting the element plate it is advisable to replace the gasket.

Checking and Replacing the Anode

The anode can be checked and replaced if necessary by disconnecting the unit from the mains water and electricity supplies, remove the top cover using a screwdriver. If required, the electric cable may be removed from the terminal block to aid removal of the immersion heater. Remove the electrical connections to the element.
The element plate is removed by undoing the six retaining screws and lifting the plate and element from the cylinder.

The anode can then be unscrewed and replaced with a new anode obtainable from Crown Water Heaters Ltd on 01902 310678.

Optional Accessories

Expansion Kit 'A'	2 Litre Expansion Vessel Check Valve
Pressure Reducing Kit 'B'	3.5Bar Pressure Reducing Valve with Gauge
Vessel Mounting System kit 'GA'	2 Litre Expansion Vessel Check Valve Vessel Mounting Bracket

Troubleshooting

By Service Engineer

Problem	Possible Causes	Action
No hot water	No electricity supply	Check power LED is lit up
	Thermostat turned down	Turn the thermostat up and check heat-up LED lights up
	Thermal cut-out operated	Check electrical components and replace thermostat
	Blocked strainer on pressure reducing valve	Break connection on inlet side and clear debris from gauze strainer
Warm water dripping into tundish during warm-up	Expansion vessel has lost charge	Recharge expansion vessel to 3Bar
	Expansion down mains water supply not effective	Fit expansion kit
Warm water dripping into tundish when system cold	Pressure reducing valve not fitted or faulty	Fit pressure reducing kit or replace faulty unit
	Expansion relief valve faulty	Replace expansion relief valve
High volume hot water discharge into tundish (from temperature and pressure valve)	Both thermostat and thermal cut-out failed	Replace thermostat and thermal cut-out devices

USER INSTRUCTIONS

Operation

The Crown undersink water heater is a highly insulated product that is designed to be left switched on for extensive periods, providing hot water when required.

The thermostat will vary the water temperature stored between 5˚C and 68˚C. For hand washing purposes the thermostat should be set to mid-range position to avoid scalding.

If a mixer valve is installed in the hot water outlet the thermostat should be set at maximum setting. The use of high temperatures (>63˚C) reduce bacterial build-ups in stored valves.
When the mains electricity to the unit is switched on the upper LED will illuminate. When the thermostat switches the element on, the heat-up lower LED illuminates to show that the water is being heated.

Importance Notice

If water is seen discharging from any part of the system, switch off the electricity supply and the water supply and contact the Crown Customer Services team:-

Tel: 01902 310678.
Fax: 01902 425707
Email: service@crownwaterheaters.co.uk

Warranty

This warranty does not affect your statutory rights as a consumer. This Crown water heater is made from the highest quality materials and should provide numerous years of trouble-free operation. Crown guarantee all components for two years, provided the unit is installed and maintained in accordance with these instructions; only safety controls and valves supplied by Crown are used; the unit is regularly serviced as detailed within this manual and any fault that should occur is reported and rectified at the earliest time by Crown service agents. The guarantee does not cover damage due to effects of limescale build-up. The unit must be connected to a mains cold water supply as provided by the local water authority. The warranty does not cover the unit when connected to other water sources.

CROWN WATER HEATERS
SERVICES POLICY/GUARANTEE

In the event of you needing to contact the Crown Customer Service Department the following procedures should be followed:

1. Before contacting the Crown Customer Services Department you should ensure that you have the model number, power rating, serial number and date of purchase.
2. The Crown Customer Services Department will be able to inform you whether the fault can be rectified by the provision of a replacement part or replacement unit on a supply only basis.

CUSTOMER SERVICES TEL 01902 310678

GUARANTEE

Crown Water Heaters Ltd guarantee the unit for a period of two years, from the date of purchase, against mechanical and electrical defects arising from materials or manufacturing defects, providing the product has been installed by a competent person in accordance with the fitting instructions.

Crown Water Heaters Ltd undertake to repair or replace, at their discretion, without charge provided the product has been properly maintained, installed and operated in accordance with the operating instructions. Any component found to be defective during this period, as a result of misuse or damage, or the effects of scaling, will not be covered by this guarantee.

This product must not be modified, repaired or taken apart except by a person authorized by Crown Water Heaters Ltd.

The Guarantee is only valid within the United Kingdom and does not cover product used commercially.

This Guarantee does not affect your statutory rights.

Crown Water Heaters Ltd
Sunbeam Studios, Sunbeam Street, Wolverhampton WV2 4PF
Tel: 01902 310678 Fax: 01902 425707