

Electric Water Heating Selection Guide

This guide takes you through a range of typical situations from small scale to large, and proposes a water heating solution for each case. Firstly consider a few basic questions to confirm what you are trying to achieve:

- How much hot water do I need, where, and how often?
- How much space is available for the heater, and where do I want to locate it?

1. Occasional hand washing at a single sink

If you just need enough hot water for occasional hand washing at a single sink, an **instant water heater** is a good place to start. These are small electrically powered units that heat water “instantly” as it flows through the product. Instant water heaters have the advantages of being compact, cheap to buy and easy to install above a sink, but they can only serve one sink and they can normally only heat water relatively slowly.

The temperature of the outlet water depends on the water flow rate – the faster the flow rate the less the temperature rise and vice versa. This means that you might have to accept quite a slow flow rate when the incoming water is very cold – winter for example. An instant water heater will however never run out of hot water, and will not use energy when it is not being used.

2. Dish washing at a single sink

If your typical application is dish washing at a single sink, you will need larger quantities of hot water at a time than an instant water heater can easily supply. In this case a storage water heater is best. These pre-heat a quantity of water in a tank for later draw-off. **Over-sink storage water heaters** are the most economical and easiest to install. These are supplied complete with a valve and a spout. However you are usually limited to locating them above a sink and you can also only serve one sink at a time.

3. Dish washing at several sinks

If you want to serve multiple sinks, or locate the heater under a sink you will need a **mains pressure storage water heater** (sometimes called an unvented water heater). These heaters let you install the heater more or less anywhere but because the tank is pressurised you will need to fit a safety valve (included with the heater), and possibly other accessories too.

If there is a cold water draw off nearby or a water meter then you will need an expansion vessel and check valve to prevent hot water expanding back up the cold water pipe. If the incoming water pressure is unusually high (above 4.2 bar) then you will need a pressure reducing valve and expansion vessel to reduce the pressure of the water going into the water heater to an acceptable level (this is usually the problem if the pressure relief valve keeps operating) .

Overall we believe under sink heaters offer a much better solution than either instant or over sink water heaters and they are our best selling water heating product. However installation is more complex and they are more expensive.

4. Hot water for 4 or more sinks or for a shower or a bath

The best solution is a **large mains pressure unit**. This can be located flexibly, and gives high pressure for showers without needing a pump or a header tank in the loft. A small flat would require a unit of a least 90 Litres capacity, and a 3-4 bedroom house at least 150L.

Capacities of approximately 100L or more can usually be heated by a central heating boiler as well as electrically. Use of a central heating boiler is termed "indirect" in contrast to electric heating which is termed "direct". Indirect heating is recommended, as running costs will be lower.

Mains pressure units do need various safety valves to be fitted. Everything required is included with the heater, but plumbing experience is very valuable for installation. Traditional low pressure copper cylinders are an option too – these do not offer good water pressure, but are cheap and simple to fit.

5. Hot water for 4 or more sinks, or for a shower or both – low pressure heater required

if for any reason mains pressure heaters are not suitable, **combination units** are an option. These have an integral cold header tank, and do not need any special valves. All that is required is to connect to the water supply and to power. They are thus ideal when speed and simplicity of installation is the key, but they provide poor pressure for showers and have to be wall mounted as high as possible.

6. Boiling water for drinks

Water for drinks needs to be heated to nearly 100 degrees, and special products are designed for this purpose. Your choice comes down to traditional manual catering urns, and automatic fill wall mounted units.

Traditional manual units (catering urns) are cheap, but have to be re-filled by hand and boiling water is unavailable as they re-heat.

Automatic units are connected directly to the water mains and very convenient and perform very well but they are significantly more expensive.

Further Advice

Remember that if you find this guide hard to follow, or just want to confirm your understanding - you can contact us at Hyco on 01977 517 555.