

An almost painless introduction to the domestic boiler

Before we start

I'm going to assume you don't know anything about boilers. At all. Because I didn't, and I got a bit peeved when I couldn't find anything to explain the basics to me.

The basics

Pretty much every house in Britain has a boiler. It's what powers our central heating, and heats the water for our taps and showers.

A boiler usually looks something like this:



And these days it doesn't actually boil water. It heats it to about 60°, and then that water is sent around the house to either radiators or taps. The heat usually comes from burning gas.

This sounds straight forward. But alas, it doesn't end there.

The three main types of boiler

- * **Conventional** – This is your classic boiler system (also known as regular or open vent boilers). They don't tend to install this type anymore because they involve lots of separate gubbins, and can take up quite a lot of room.
- * **System** – This is a sort of in-between boiler (it sometimes gets called a sealed or closed vent system. You'll see why later). It doesn't need as many extra bits as the conventional boiler, but still takes up more room than option number three.

- * **Combi** – Boiler-speak for a ‘combination’ boiler. It’s called this because it sorts out your heating and hot water all in one box. You don’t need anything else.

Now let’s get nitty and gritty.

Conventional boilers

Right, so the good-old conventional boiler needs its space.

Apart from the boxy boiler bit, this system also involves a cold water tank, a hot water cylinder, and a feeding and expansion tank. That’s a lot of jargon in one go. Let me explain.

The **cold water tank** goes up in the loft and stores water from the mains ready to be heated by the boiler. It’s up there so that gravity can push hot water out through the taps when you turn them on, and cold water can head down to replace it (being heated up en-route).

The **hot water cylinder** is a big ole round thing which sits in your airing cupboard looking after all the water that the boiler has already heated. It’s usually wrapped up to keep everything extra toasty.

So that leaves the **feeding and expansion tank**. It’s not a very catchy name. This part is for the central heating and goes in the attic – like the cold water tank, but smaller. It’s there to top up the radiators with water, but also as a sort of overflow. Water expands when it’s heated (by about 7%, if you’re interested) so this tank has some empty space waiting to be filled up when the need arises.

If all goes according to plan, this older boiler system works pretty well, and lots of houses still use it (though you won’t see it being installed from scratch anymore). The only real drawback is that once you’ve run a bath or two, you might have to wait for the boiler to fill that hot water cylinder again. So a bit of planning is sometimes needed for busy homes.

System boilers

So there are only two parts to this one (pew). You need your boiler (obviously) and you need a hot water cylinder. These work in the same way as the regular system, but instead of using the gravity from that attic tank, hot water is pushed through the taps using pressure from the mains supply. This is all fine and dandy as long as you don’t live in an area where it just trickles through. Luckily, that’s pretty rare these days.

System boilers are sometimes called ‘sealed’ or ‘closed vent’ systems. This is to do with the expansion I was talking about earlier. Instead of having an overflow space, a ‘sealed’ system will have an **expansion vessel** (a bit like a balloon) inside its cylinder, which gets bigger or smaller depending on how much space the water needs to take up.

People go for system boilers because they don't need to have an attic. But like the conventional, you still have to plan ahead if you don't want to run out of hot water mid-shampoo.

Combi boilers

These are the next big thing. People are getting them installed all over the place, especially in flats and small houses. Why? Because you only need to make room for the boiler. And that's it.

The combi boiler heats water straight from the mains, sending it off to the taps and radiators as and when you need it. So you never run out. This is good for saving energy because it only heats what you want to use.

You might have picked up that there's no gravity involved in this system either. Again, it just uses the mains pressure. This can cause trouble if, say, three people want hot water at the same time. They might only get a dribble.

Combi boilers seem to be the simplest way to heat your house, but that's mainly because all the complicated stuff is hidden inside. They can still be a real pain to fix when they go wrong.

Get to know your boiler

If you're like me, you'll finish reading this and then rush home to have a good look at your own boiler. Who knew heating water could be so darn exciting? We're so used to feeling warm these days that lots of us don't really think about how it all works. Until it stops working.

It's good to know I'll feel a bit more mentally equipped next time the plumber comes round anyway.