

An Overview: Hot Water Cylinder Sizing

Sizing up a hot water cylinder is not and should not be complicated, particularly for a domestic installation. There are however a few things that the installer should take into account when selecting a cylinder size.

Dimensioning Basics



The most important rule of thumb is that a cylinder should be sized to a property, not to who lives there. A single person living in a 5 bedroom, 3 bathroom property will not use much hot water, but the property should have at least a 250 litre cylinder to allow for a large family to move in at a later date. The exception to this rule, obviously, is that if a 6 person household lives in a 3 bedroom property, the cylinder should be selected larger than the house would normally require.

Domestic cylinders are typically available in 6 sizes from 120 to 300 litres. If we take the most “standard” installation, a 4 bedroom house with gas central heating and a bathroom and ensuite shower, a 180 litre would typically be suitable. A very rough rule of thumb is when you add a bedroom or a bathroom/ensuite, increase it by one size. The table below is a general guideline that could be used for most properties with gas central heating.

Gas Central Heating Table

	1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms	5 Bedrooms	6 Bedrooms
1 Bath or Shower	120	120	150	150	210	210
2 Baths or Showers		150	150	180	210	250
3 Baths or Showers			180	210	250	300
4 Baths or Showers				250	250	300
5 Baths or Showers					300	300

For the purposes of sizing a cylinder, treat a shower as equivalent to a bath. A standard bath will use about 60 litres of hot water from a cylinder and mix 30 litres of cold water to have 90 litres in the bath at bathing temperature. A mains pressure shower will deliver up to 18 litres of water per minute at showering temperature, sometimes even more. So a 5 minute shower can use the same amount of water as a bath. Some showers, particularly in new build properties, are fitted with flow restrictors or aerated showers, both of which can reduce water and energy consumption, so adjustments can be made accordingly.

Modern hot water cylinders heat up quickly and cool down very slowly. Mid-size cylinders will heat up in about half an hour, and take days to lose heat. If you heat a cylinder up on Monday morning and don't use the hot water, it will still be useably hot on Wednesday or Thursday.

Other Fuel Sources

For all other fuel sources, you should consider larger cylinders than the above table. Whilst an indirect cylinder heated by a boiler will heat up in minutes, an electrically heated unit will take hours. Whilst an indirect cylinder might have an 18kW coil, a 210 litre unit heated by a single 3kw immersion heater takes 4 hours to fully heat. The calculation is:

$$\text{Heat up time (minutes)} = \frac{\text{Litres x Temperature rise (°C)}}{\text{Power (kW) x 14.3}}$$

The principle is similar for renewable heat sources. Heat pumps operate at lower temperatures than boilers and cylinders should be uprated by one or even 2 sizes to provide the same level of comfort to a family. It is also vital to fit a specialist heat pump cylinder which will have a much bigger heating coil. Research by the Hot Water Association has confirmed that fitting a standard indirect cylinder to a heat pump will not only take longer to heat up, but will also waste energy and cause the heat pump to run inefficiently.

OSO Cylinder Guide

Use this guide to assist in choosing your OSO Cylinders. Cylinder sizing is not rocket science, but ask questions about fuel source, shower types, bath sizes and other aspects that can affect the capacity of cylinder needed.

Application	Indirect	Direct
Bedsit	SC120	SX120
1 Bedroom, Bathroom & Shower	SC120	SX120 or SX150
2 Bedroom, Bathroom & Shower	SC120 or SC150	SX150 or SX180
3 Bedroom, Bathroom & Shower	SC150 or SC180	SX180 or SX210
4 Bedroom, Bathroom & Shower	SC180 or SC210	SX210 or SX250
2-3 Bedroom, 2 Bathroom & Shower	SC180	SX180 or SX210
4-5 Bedroom, 2 Bathroom & Shower	SC210 or SC250	SX250 or SX300
6 Bedroom, 2 Bathroom & Shower	SC300	SX300

To find out more details about hot water cylinder sizing please visit: osohotwater.co.uk/dimensioning