

Domestic Hot Water Use

The following table is extracted from the "Industry Hot Water Manual". This publication is regarded as an Industry authority in respect to hot water use and availability. Australian Standards and other publications such as the Bosch, Rinnai & Rheem Hot Water manuals, contain identical data. For all electric storage water heaters with an element rating of 4.8 KW, Recovery by the operation of the top element provides over 100 Litres per hour with a 40 C rise (in other words to come from inlet 15 °C to hot at 55 °C), or 80 Litres per hour with a 50 C rise. Units built with smaller elements such as 3.6 kW have slightly lesser recovery but are exactly equivalent in the stored Off-Peak heated water available each day. The table, combined with some timing of use as described below, will determine your hot water usage. Temperatures in the column **Normal temp** are achieved by using the cold tap with the hot. Of course this means that even more water is available as the hot is extended by cold addition.

HOT WATER REQUIREMENTS

* REMEMBER THAT THE LITRES PER MINUTE IS APPROXIMATELY HALF HOT AND HALF COLD.

Location/appliance	Normal temp ° C	Quantity range Litres	Notes *
Bathroom / wash basin	40	2 - 3 at a time	Higher for long pipe runs.
Bathroom / bathtub	40	45 - 145 at a time	145 L is a very large bath
Bathroom / Spa Bath	40	200 - 300 initial fill	Major draw off appliance
Bathroom / Shower	40	25 - 70 typical 60	15 L/min x 4 min = 60
Kitchen / sink	50	4 - 5 at a time	Minimum wait & waste
Kitchen / dishwasher	50	25 - 35 over an hour	Most efficient on low level
Laundry / sink	40 - 50	10 - 20 initial fill	Tend to be rarely used
Laundry / wash mach	50	55 - 65 manual	Most efficient on low level & use warm setting.
Laundry / wash mach	50	55 - 85 automatic	

The way to check hot water usage for example in the shower, is to set the outlet to the comfortable showering temperature (which will always be between 38 °C and 43 °C), hold a 5 Litre bucket under the shower rose and start timing.

The time to fill 5 Litres will enable calculation of the flow rate which will probably be around 12 - 15 Litres per minute. So a 4 minute shower uses 50 - 60 Litres of 40 °C water. If a home has previously relied on a 400 Litre water heater, it may be that the shower heads are not of the more efficient AAA or AA rated types, and that the shower heads are using over 20 litres per minute. Shower head design is a major factor in hot water use. Showering time becomes very significant where shower heads are not efficient.

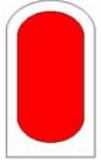
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For new homes, Australian Standard AS 3500 – The National Plumbing Code, now requires the installation of a temperature limiting valve (tempering valve) at the hot water outlet to control delivery to 50 °C. This ensures safe delivery into the home below a temperature that can cause scalding. Everlast™ strongly recommend the installation of tempering valves, even for water heater replacements in existing homes. This technology also extends the available hot water by mixing and by minimizing the temperature of draw off hot water in long pipe runs.

Everlast™ Water Heater Size	Quantity of Stored Hot Water at 70 °C	Quantity of water at 50 °C via a Tempering Valve
315 Litres	327 Litres	513 Litres
250 Litres	264 Litres	415 Litres
160 Litres	170 Litres	265 Litres

Some progressive measurement around the home, and ensuring that the washing machines and dishwashers are set on the most efficient warm cycle, not on the hot cycle, will indicate your hot water usage pattern. Typically, after 3 or 4 showers, a full laundry wash, meal preparation and clean up for daily meals, and minor uses of vanities a Series 2000 Model 315 water heater, will still retain one third of a tank of hot water. At 40 °C over **700 Litres** of water is available from the Model 315. **Always** ensure that your appliances are efficient, particularly if your previous water heater was low pressure (gravity flow).

When replacing your water heater, it is very advisable to make this a bit of an "Audit" exercise over a couple of weeks. You will identify potential savings in hot water which are savings in water use in addition to energy. If you extend this activity outside of the hot water regime into general appliance use, heating and ventilation, lighting vigilance, and non essential energy use, it is likely you that you will make savings on your energy bills in addition to the opportunity to achieve most efficient use of your new water heater. Don't forget that any incandescent bulb with regular, long use periods such as background lighting should be changed to a CFL (compact fluorescent lamp) with one fifth energy use. If you are considering low voltage quartz halogen spotlights, think again. They have high energy use plus transformer resistive losses and high bulb replacement costs.

You can discuss any findings with Everlast at any time on 9708 5115, or 1300 135 510. Everlast Hydro Systems are here to assist you in achieving the best performance from the most efficient, long life stainless steel electric storage water heater.

Best regards,

Geoff C Grace

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Technical Manager

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