

# Best lithium leisure batteries

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Looking for an ultra-reliable leisure battery to keep you fully charged up when away from home? The best leisure batteries will keep you powered up while you're out and about in your caravan or motor boat, but what features should you look out for? Our buying guide tells you everything you need to know about choosing a leisure battery whatever your intended use, before we plug into our selection of the best leisure batteries you can buy.

Leisure batteries are an essential part of the caravanning or boating experience as they provide all the electrical power to keep the lights on, charge our ever-increasing number of digital devices and, in the case of more modern caravan owners, use exterior electronics such as motor movers to position vans and boats without a vehicle.

With such dependency on your leisure battery, why take a chance with the first cheap option you come across when there's every chance it could suddenly leave you cut off from communication and, quite literally, in the dark?

To save you from falling into that potentially powerless position, we've rounded up the very best of the current batch of leisure batteries, each a powerhouse of performance that will let you keep the lights on from dusk till dawn.

Looks aside, absolutely not. For a start they differ in the tech that they use. There are absorbed glass mat (AGM) batteries, flooded lead acid batteries, sealed lead acid batteries, gel batteries, lithium LiFePO4 batteries and lead crystal batteries. Each works differently; some are cheaper than others, some require more maintenance and some are more hard-wearing, but which type of leisure battery you require depends on both your budget and what kind of demands you're going to place on it.

Developed for use by the military in the 1980s, AGMs are lead-acid batteries that are extremely resistant to vibration, making them ideal for use on the go. Using an electrolyte-containing ultra-thin fibreglass mat sandwiched between lead plates steeped in sulphuric acid, AGMs are maintenance-free and completely sealed to eliminate any chance of spillage. AGM leisure batteries can also be discharged below 50% without fear of causing damage, but they are more expensive than flooded and sealed lead acid batteries.

The Flooded Lead Acid option is where batteries all began, but they're still very much in use today. Consisting of lead plates suspended in free-flowing sulphuric acid and electrolyte (distilled water), they're cheap, cost-effective and long-lasting owing to the fact that you can top up the water when running low.

These are in essence the same as flooded lead acid batteries, except you can't open them to top up the electrolytes. How is this a good thing? Well, there's considerably less chance of spilling sulphuric acid over

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yourself, which is a definite plus. Both flooded and sealed batteries run the risk of permanent damage if discharged below 50%.

Keeping things leak- and fuss-free, gel batteries are of a similar makeup to AGM batteries, but instead of using a fibreglass mat, the electrolyte is a thick gel. Other than that, they're the same, with the same leak-free advantages. In addition, gel leisure batteries can be discharged down to 80% without resulting in damage. However, they're rare in the UK.

The same battery you'll find in electric cars, lithium LiFePO<sub>4</sub> leisure batteries are better than lead acid in pretty much every way: they can provide almost double the energy at half the weight, they have a much longer working life and feature electronic controllers to stop them discharging to the point of damage. However, they also cost quite a lot more as a consequence.

A bit like the AGM leisure battery design, but with a completely different makeup, lead crystal (LC) leisure batteries use a micro-porous super-absorbent mat (SAM), high-purity lead calcium selenium plates and a safe SiO<sub>2</sub> electrolyte solution. LC batteries can be discharged completely and also recharged from flat without any damage and can offer three times the lifespan of lead acid batteries. Naturally, this all comes at a price.

Apart from the different designs, there are also three different classes; A, B and C, as determined by the National Caravan Council. Class A is a powerful option for going off-grid and powering just about everything without an electric hook-up; Class B is for pitches with electric hook-up and more for lights and, say, motor movers; and Class C is for keeping your lights on with an electric hook-up.

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