

## Comparing Lithium & AGM

	AGM	LITHIUM
<b>Cycles to 80% DOD (depth of discharge)</b>	~500 OR 1.5 Years	3000+ OR 8 Years
	<i>If completing a cycle every day</i>	
<b>Usable Capacity</b>	50%	100%
<b>Nominal Voltage</b>	Lower	Higher
<b>Charging Capacity</b>	Slower	Faster
<b>Weight (100AH)</b>	~29Kg	~13.5Kg
<b>Footprint/usable AH</b>	Larger	Smaller
<b>Cost of Initial Outlay</b>	Lower	Higher

## Swapping your System

The main aspect to consider when swapping your system from AGM to lithium are **charging profiles** (including DC, solar and AC/mains chargers). If you attempt to charge a lithium battery on an AGM charging profile, you will only charge that battery to ~60%. Ensure you check your charging devices for **lithium compatibility** to ensure you get the most out of your new battery system!

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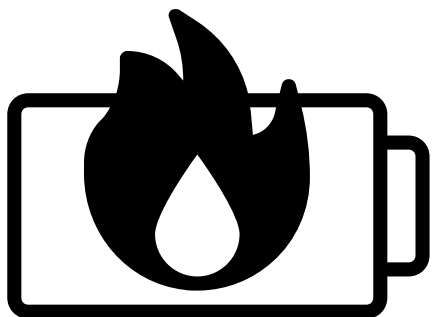
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# LITHIUM BATTERIES IN CARAVANS GUIDE



## Are Lithium Batteries Safe?



Most people would have seen in the media lithium battery fires involving caravans, ebikes or scooters with descriptive text claiming how “**dangerous**” and “**combustible**” lithium batteries are.

Lithium batteries commonly found in ebikes and escooters are of a different lithium chemistry to the ones found in caravans. These batteries are **lithium ion** based whereas the batteries found in caravans on the Australian market are **lithium iron phosphate (LiFePO4)**. A much more stable lithium chemistry.

The reality is most caravan fires are not caused by the battery itself but by **incorrect wiring installation** or a **faulty charging device**.

## Buying the Right Lithium Battery

The main aspect to pay attention to when shopping for a lithium battery is the battery’s **Battery Management System (BMS)**. The BMS is the brains of the battery and controls its operation. Looking at a few key features, you can differentiate between a good BMS and a lemon.

100AH Lithium Battery	 Good BMS	 Bad BMS
Max Charge	50A	30A
Max Discharge	100A	50A
Series/Parallel Connection	4	0 <i>Note: Some brands do not state this.</i>
Operating Temperature	<i>Shown as charging/discharging temp range.</i>	-10C to 55C
Charging Temp Range	-5C to 45C	N/A
Discharging Temp Range	-20C to 55C	N/A

## Electrical Installation Laws in RVs & Caravans

### When do I need to comply with these laws?

- If your vehicle or electrical system was manufactured after 20 Nov 2023
- If your electrical system has been modified that is not a ‘like for like’ replacement after 20 Nov 2023
- If your vehicle has the ability to be plugged into mains or AC shore power

### Minimum Requirements for Lithium Batteries

- The battery must be IEC62619 certified
- The BMS must continuously monitor the voltage, current and temperature of the battery

### Minimum Requirements for Installations

- The battery bank must be installed externally to the habitable space
- Battery box must be fully sealed and air tight with ventilation to the atmosphere

For a more comprehensive guide on the Electrical Installation Standards in Transportable Structures and Vehicles please refer to AS/NZS 3001.1:2002 and AS/NZS 3001.2:2002.