

# TOURING SAFELY INVICTA LITHIUM BATTERY

BM PRO  
**INVICTA**  
A BETTER BATTERY



Many of us hear the word **LITHIUM** and assume that, like a lead acid battery, they're all the same. But the term **lithium**, or **lithium ion**, refers to a family of batteries which all have different chemistries and characteristics.

Unlike lead acid batteries there is no free liquid in LiFePO<sub>4</sub> batteries. During discharge, the ions move from the negative electrode (anode) to the positive electrode (cathode), and back again while recharging, leaving all other materials the same, whereas a lead acid battery undertakes chemical reactions which alter components during recharge.

The Invicta Lithium Iron Phosphate, or LiFePO<sub>4</sub>, batteries are the safest type of lithium battery available for RVs due to the high thermal runaway point. Other types

of lithium batteries, such as Lithium NCA and Lithium NMC have a lower thermal runaway point and are therefore unable to sustain significantly high temperatures, causing them to self-ignite if put under pressure during overcharge and discharge.

In addition to the high thermal runaway point, Invicta LiFePO<sub>4</sub> batteries are encased in a BMS which protects the functionality of the battery, and gives an extra sense of safety for the RV enthusiast. The BMS measures current to voltage, and protects cells against over-voltage and over-discharge, stopping the voltage from charge, and switching into protection mode across all terminals within the lithium battery.

Invicta's range of batteries are built using highest quality pastes and powder materials to make up the internals, guaranteeing safety and cycle life. The Invicta range can be charged up to 2000 cycles at 100 percent recharge and includes a safety certification from an

independent assessor. Overseas testing of other types of lithium batteries begins and ends at cell level, whereas here at BMPRO, we test the Invicta LiFePO4 at cell and battery level and our results show that after 1900 full discharges, the BMPRO Invicta battery remains at greater than 85% capacity. It is also the only known ongoing cyclic testing performed on lithium batteries specifically for the RV industry within Australia.

All Lithium 12V deep cycle style batteries are made up from a range internal separate battery cells made up to the appropriate voltage. These 'cells' are all certified to IEC XXXXX international standards however the BMPRO Invicta batteries are additionally certified including the internal electronics ('BMS') making them even more appealing from a safety aspect it has been fully tested as a 'complete system'.

The BMPRO Invicta LiFePO4 battery is the safest battery for your touring requirements. You can sleep soundly, knowing that you and your family can wake recharged ready for the next leg of your adventure.



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