



# Freedomwon support

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From the smallest component through to building a Freedom Won ("FW") containerised solution &#8211; with each step of the way, safety is paramount.

FW, an original equipment manufacturer, is compliant with industry best practices in terms of how to build and manage Battery Energy Storage Systems (BESS) with a safe environment and methodology.

In addition to these best practice guidelines, FW adheres to the ISO guidelines as set out in; ISO 9001: 2015, which is defined as the international standard that specifies requirements for a quality management system, ISO 14001: 2015, which specifies requirements for an effective environmental management system, and ISO 45001: 2018, which is the international standard for occupational health and safety.

We keep our employees safe as they design and assemble energy storage systems for home, business, commercial and industrial use - in turn contributing to a robust and safe renewable energy sector.

Every piece of the FW BESS is meticulously built with safety at the forefront of the design. Some of the components with advanced safety features are the LiFePO<sub>4</sub> cells, BMS, copper busbars, wiring harnesses, circuit breakers, fuses, and the battery casing. FW also carefully selected and designed the packaging in which the batteries are transported.

The company's principal range, the Freedom Won LiTE range, includes advanced safety features and has been leading the market with high-quality manufacturing, and industry-leading performance.

According to BCG Research, Lithium Iron Phosphate (LiFePO<sub>4</sub>) consistently performs better than most other chemistries in terms of safety and battery lifespan. In 2009, FW was one of the earliest companies to develop the use case for LiFePO<sub>4</sub> chemistry in the stationary storage sector.

FW experimented with LiFePO<sub>4</sub> from the outset after carefully considering multiple aspects of the technology, specifically relating to the company's stringent safety standards. The company found a cell technology partner in China &#8211; the country holds about 90% of the world's LiFePO<sub>4</sub> manufacturing capabilities.

FW has ensured that all our technology and design comply with the IEC 62619:2022 standard, which specifies design safety requirements and tests for the safe operation of secondary (rechargeable) lithium cells and batteries used in industrial applications, including stationary applications. "These cells get put through extensive testing to ensure that they can handle being dropped, crushed, pierced with a sharp object or



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short-circuited without catching fire," says Antony English, the company's co-founder.

"We looked into all other chemistries that were available at the time (2009) and by far lithium iron phosphate was (is) the safest, because it doesn't spontaneously ignite if the cells get too hot; and right up front we only considered developing our products with this technology," says English.

Our lithium batteries should never be dropped, as this could cause internal damage. However, during research and development, samples of FW batteries are drop tested according to applicable specifications, including being dropped at different angles. All FW batteries that were put through the drop test have continued to function normally.

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