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LITHIUM BATTERIES: FLASH BATTERY BOOSTS QUALITY AND PRODUCTION FLEXIBILITY WITH A €6 MILLION INVESTMENT IN ITS NEW AUTOMATED LINE

Direct control, flexible production and fast response to customers are the cornerstones of Flash Battery's business model. Specialised in the manufacture of high-performance lithium batteries for electric vehicles and industrial applications, the company inaugurated an automated assembly line capable of handling 13 different configurations with changeover times of just a few minutes. A move that strengthens in-house technological control and ensures quality, reliability and high levels of customisation.

Sant'Ilario d'Enza, 24 April 2025 – Founded in 2012 to engineer and manufacture high-performance lithium batteries for industry, Flash Battery announced the launch of its new automated module assembly line with laser welding, confirming its role as a trailblazer in both the national and international markets.

The result of an investment of over **six million euros**, the new line is at the heart of the recent expansion of its production headquarters, which saw the addition of 2,200 m² dedicated to an automated area for assembling battery modules. It is a technologically advanced department, designed to house the entire welding and mechanical integration process in a controlled environment. With an annual capacity of **90,000 modules**, this line is not only the most advanced in Italy but also **the most productive for assembling modules with prismatic cells**.

Centralisation of production expertise

Flash Battery has chosen to develop and retain all key process expertise in-house at its headquarters: from its proprietary Battery Management System to mechanical and electrical design, right through to process validation and predictive maintenance.

With the integration of the new module assembly line the company has completed the process of consolidating its production process in house, bringing the welding and assembly activities that were previously outsourced under direct control. Except for the cells, which are purchased from leading global manufacturers, every stage is now managed and supervised directly by Flash Battery.

This integrated management approach makes it possible to offer solutions that are fully tailored to each customer's application needs, ensuring consistent quality and performance, even in complex, dynamic sectors.

"Bringing battery module assembly in-house means going directly to the source of the supply chain", commented Marco Righi, CEO and Founder of Flash Battery.

Flash Battery Srl

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“As for the cells, we source them from leading global players, selecting multiple suppliers for each type to increase the reliability of our supply chain and strengthen our bargaining power. Recent geopolitical and economic shifts have confirmed just how crucial it is to control production directly, cutting lead times and reducing supply bottlenecks”.

Automation and proprietary technology for greater reliability

The new assembly line is designed for rapid changes between configurations, handling 13 module variants with changeover times of under ten minutes. This enables Flash Battery to respond quickly and precisely to even the most specific requirements, supporting customers in building optimised electrical systems with no compromise on timing or quality. Production’s ability to adapt thus becomes a real competitive advantage. Laser welding is also a strategic technological choice, ensuring stronger mechanical and electrical joints, greater resistance to vibration and lower energy dispersion. It’s a key step towards achieving stable, reliable performance – especially in industrial applications subject to high stress.

A four-stage automated production process

The line is divided into four key stages:

1. Automated loading and inspection of cells using optical scanning and precision sensors
2. Module formation with robotic stacking and positioning of components into a containment structure for subsequent welding
3. Laser welding of frames and busbars, which connect the cells together to ensure efficient, long-lasting electrical connections
4. Final conformity testing, including for safety, insulation and mechanical strength Only modules that pass these tests are labelled and cleared for use in Flash Battery’s battery pack assembly lines.

A new production standard for a future that makes no compromise — “With this new line, we’re taking a decisive step towards a more autonomous, effective and reliable production model”, concluded Marco Righi. “Integrating production capabilities enables us to respond promptly to customer needs and deliver tailor-made solutions at the highest levels of quality and performance. It’s a crucial competitive edge, especially in a constantly evolving market.



Thanks to this production autonomy – and the upcoming launch of European gigafactories for LFP cells (*lithium iron phosphate is a stable, safe and cobalt-free lithium technology*) – we'll soon be able to offer our customers a fully European supply chain”.

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Flash Battery is a key player in the design and manufacture of customised lithium batteries for industrial machines and vehicles. Active since 2012, it produces high-performance systems for manufacturers with medium production volumes and specific application needs.

The entire production process is managed in-house at its Reggio Emilia headquarters, from its proprietary patented BMS to assembly and quality control. To date Flash Battery has produced over 25,000 lithium batteries, developed more than 700 customised models and installed over 500 MWh in 54 countries worldwide.

All batteries are monitored on a daily basis by Flash Battery's proprietary cloud-based remote monitoring system – the Flash Data Center – which uses artificial intelligence and machine learning to analyse the data collected from every Flash Battery lithium battery operating all over the world.

The main feature of the Flash Data Center is its automatic daily monitoring of operating data from connected batteries, 24/7, that allows potential issues to be identified and nipped in the bud thanks to predictive maintenance and Over-the-Air updates. Flash Battery is a technology partner for electrification, offering flexible, reliable and integrated solutions.