Transforming battery production with laser welding

iVT EXPO
INDUSTRIAL VEHICLE TECHNOLOGY
JUNE 11 & 12, 2025
KÖLN MESSE GERMANY
Stand 6080

FLASH BATTERY HAS INTRODUCED A NEW AUTOMATED MODULE ASSEMBLY LINE WITH LASER WELDING TECHNOLOGY

Flash Battery, a benchmark of excellence in lithium battery solutions for industrial machines and vehicles, strengthens its expertise with the launch of an automated line for lithium module assembly featuring laser welding technology. The strategic investment, worth over 6 million euros, further cements the company's position among Europe's foremost innovators in industrial electrification.

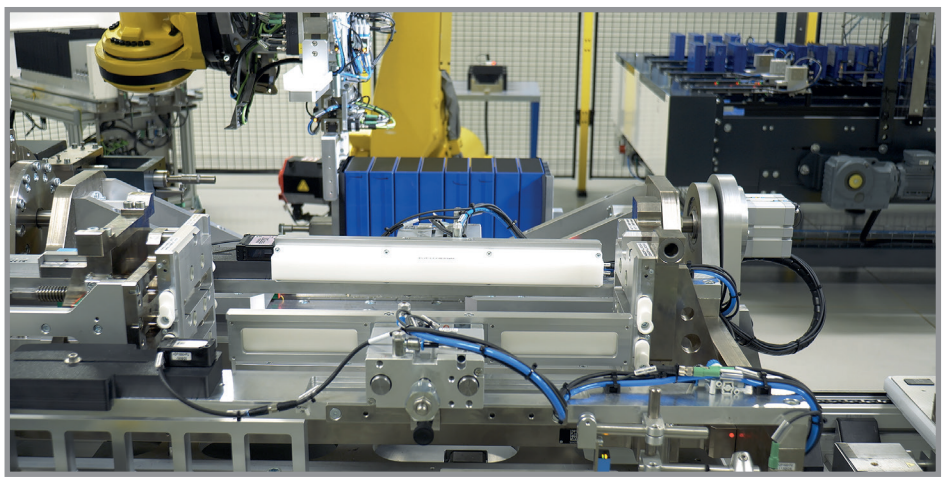
Automated assembly excellence

The line sits in a dedicated grey room at the company's Reggio Emilia headquarters, part of a recent 2,200 m^2 expansion. Designed to produce up to 90,000 modules per year, it stands as Italy's most advanced assembly system for prismatic cell-based modules. Beyond increasing production capacity, the new automated module assembly line marks a major step forward in quality. By bringing key competencies in-house, it ensures the highest production standards.

In-house expertise

Since its founding in 2012, Flash Battery has focused on centralising expertise, keeping most production phases in-house. This includes mechanical and electronic design, as well as its patented battery management system (BMS), process validation and predictive maintenance. The implementation of this automated module assembly line represents another milestone in that approach. By internalising expertise previously reliant on external suppliers, Flash Battery strengthens its internal capabilities, fostering critical skills while significantly enhancing supply chain resilience.

Next-generation lithium cells are becoming more compact and advanced. As a result, laser welding is now essential for ensuring high reliability. Flash Battery's new automated module assembly line maximises this potential, seamlessly managing each stage in-house. Optical cell inspection, robotic stacking, and high-precision welding of the frame and bus-bar work together in a fully automated process, with thorough verification tests as the final step. This integrated management enables the Italian industrial lithium battery producer to maintain full control over quality, lead times and configurations. The automated assembly line currently supports 13 distinct module configurations, offering the flexibility needed to quickly adapt to evolving market demands.



ABOVE: **Flash Battery automated lithium modules assembly line with laser welding technology: cells stacking phase**

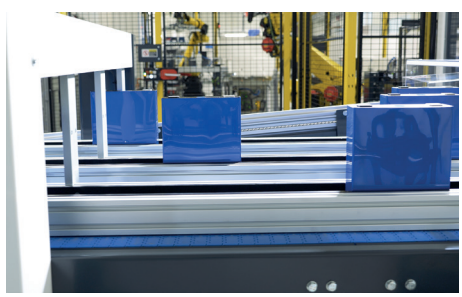
BOTTOM RIGHT: **Flash Battery automated lithium modules assembly line with laser welding technology: cells loading phase**

Industrial durability focus

This advanced, reliable and scalable production process ensures that lithium modules meet the durability and safety requirements of industrial electrification. Laser welding plays a pivotal role in this evolution, providing unmatched structural integrity for vehicles operating in the most demanding environments. By delivering stable, long-lasting joints, it guarantees precise cell fastening within the module and significantly enhances resistance to mechanical stresses and vibrations—critical for industrial applications. Laser welding also minimises contact resistance between the cell and bus bar. This means better management of heat from current flow and optimised overall system efficiency.

The substantial investment highlights Flash Battery's strong commitment to delivering tailored lithium electrification solutions according to the highest quality standards and designed for long-term performance. Each module is brought to life through an automated process inspired by advanced and forward-thinking techniques that prioritise transforming technology into real, tangible value. Despite innovation, the approach remains deeply human-centric.

This vision will take centre stage at iVT Expo 2025, the premier event for industrial and off-highway vehicles, set for 11–12 June in Cologne, Germany. Flash Battery will welcome visitors at Booth 6080, showcasing its variety of tailored lithium battery solutions for the industrial sector and sharing its advanced, conscious and future-ready approach to electrification. **iVT**



FREE READER ENQUIRY SERVICE
To learn more about this advertiser, visit
www.magupdate.co.uk/pivt