

Battery industrialisation: A step-by-step guide

WHILST THE MOVE TO OFF-HIGHWAY VEHICLE ELECTRIFICATION CAN BE DIFFICULT, FINDING A TRUSTED SUPPLIER WITH A TESTED INDUSTRIAL APPROACH CAN HELP OEMS NAVIGATE THE PROCESS

▶ If you are thinking about converting your fleets of industrial vehicles to electric, then it is important that you understand that the decision to electrify does not simply involve powering and motorising the vehicle. There is much more to it than that. Electrification brings with it new opportunities involving professional skills and objectives that stretch beyond traditional boundaries. Flexible use, greater autonomy, high performance and lower emissions are just some of the advantages you can have when you choose to power your vehicles with lithium batteries.

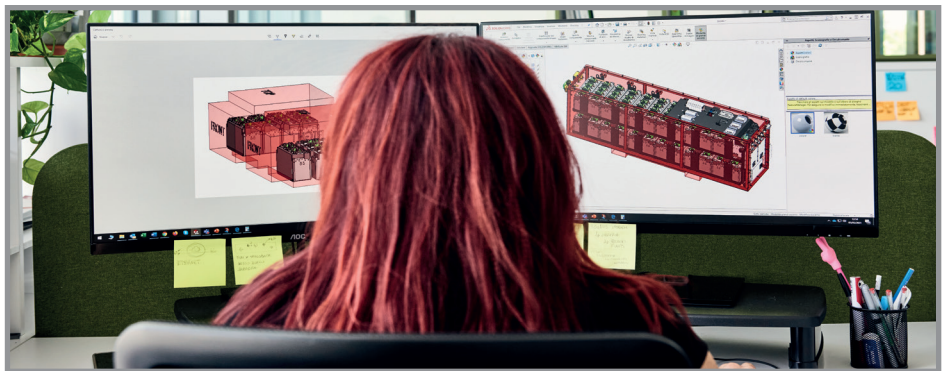
However, to get the most out of these possibilities, it is essential to trust a supplier that follows a tested industrial approach and can guide you in designing the right battery for your needs. Flash Battery, an Italian manufacturer of lithium batteries for industrial machines and vehicles, has come up with a list of all the steps to follow to carry out an industrial electrification project.

Listening is the first step

Here at Flash Battery, everything starts with discussions. It is important to establish the specifications of the application and the operating environment together with the customer. This includes analysing consumption, operating cycles, downtime that could be used for fast charging, as well as the environmental conditions where the vehicle will operate. But there's more! The conditions of the electricity infrastructure and accessibility to the national grid are also essential information to handle the project properly.

Customised consultancy

Whilst 50% of the manufacturers who work with Flash Battery are big OEMs with an established and organised R&D department, the other 50% are SMEs that have to outsource skills and require assistance when choosing motor or inverter suppliers. "Our role is increasingly not just to provide an outstanding battery, but also to liaise between the vehicle manufacturer with specific electrification requirements and powertrain system integrators, which can help them carry out a comprehensive project," explains founder and CEO, Marco Righi.

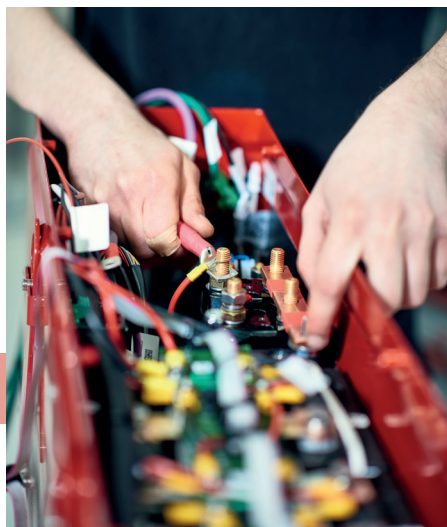


ABOVE: The customisation department mechanically configures the battery, choosing the right electrical components

BELOW: Flash Battery's customised lithium battery

An industrial approach

Once the requirements have been identified, you then scale the battery size, establishing its capacity and technical specifications. Before a formal commitment is made, the specialist role of the sales engineer comes into play. They must make sure that the project designed is technically excellent and will work smoothly through the production, testing and commissioning phases. The project technical folder is therefore created and handled by the customisation department which includes the mechanical configuration of the battery and choosing the right electrical components. The customer then receives a complete technical dossier with 2D



and 3D drawings, as well as circuit diagrams. Once approved by the customer, the prototype production process officially starts, and the supply chain is set in motion to procure any customised components. In no time at all, the battery pack is now ready for testing.

The final test

The real test is the final test bench which simulates how the battery operates to check that all the parameters are met, and that the battery communicates correctly with the vehicle and charger. Another crucial phase starts when the battery is shipped, i.e. physical installation. "We support the customer by following any tests and by analysing field operations to ensure that the battery also suitably meets the most challenging scenarios, so it is all ready for serial production," adds Righi.

Continuous training

Once the project is finished, Flash Battery provides technical training to the customer, their sales network and foreign dealers. These agents should present the market with innovative machinery and, to do this, they should understand the benefits of lithium electrification. From the prototype to serial production, Flash Battery's added value is that it is always by the manufacturer's side so the batteries are perfectly integrated, while optimising performance and autonomy and reducing the maintenance costs of the entire machine. **ivT**



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