

Pioneers of e-mobility

WHEN AN ELECTRIC VEHICLE MANUFACTURER NEEDED LITHIUM BATTERIES FOR ITS NEW RANGE, IT HAD ONLY ONE COMPANY IN MIND



▶ The quiet and clean operation of electric vehicles allows for less maintenance and, therefore, lower incurred costs. Added to this is the priorities of an electric vehicle manufacturer is to ensure the same performance – or even higher – over its diesel or petrol equivalent.

Alkè is a pioneer in this area, with over 25 years of experience and thousands of electric highway vehicles used for transport, logistics and other multipurpose or specialty operations. Today, Italy's electric mobility pioneer is a key international-level player in the field of electric vehicles and its products are positioned in the high-end market for quality and performance.

The R&D team at Alkè has an innovative approach and are committed to researching into the latest generation technologies applied to off-highway vehicles. This combination has led it to develop the ATX range of electric vehicles, which incorporate technical solutions derived from years of experience and on-field tests and are type-approved for on-road use at the European level (category N1).

Collaboration

The idea from the beginning was to go from conventional acid-lead battery-powered vehicles to lithium battery-powered vehicles. Alkè was aware that the transition to lithium batteries was going to be more complex because there were many things to consider, especially the BMS system (Battery Management System). As a result the company reached out to Flash Battery.

"The first thing that struck us was their



ABOVE: **Battery 51.2V – 420 Ah 21.5kWh solutions are custom-designed by Flash Battery for top-of-the-range industrial electric vehicles**

availability," says Luigi Salvan, system integration manager at Alkè. "We arranged the first meeting shortly after and were met with very knowledgeable professionals; it wasn't long before we got into a deep technical discussion. Application case studies and issues Flash Battery had already faced with other manufacturers – for example, applications where the batteries operated in high/low temperature and high work cycle situations – reflected their proven track record."

User-friendly solution

At the first meeting, Flash Battery had already analysed a number of cases, offering an array of solutions that enabled Alkè to immediately get to work on our totally custom-made battery pack. The software that manages the battery pack is very user-friendly - a must-have feature for Alkè - and covered all the bases they required."

"By introducing the lithium battery, we increased the vehicle's overall range by 80% - reaching a range of 200 km - while reducing the vehicle's empty weight by more than 15%," says Luca Salvan, R&D and production manager

with Alkè. "This translates into greater overall efficiency, lower charging time, and optimised overall performance throughout the day. In other words, the vehicle performs the same regardless of whether the traction battery is fully charged or almost drained.

Highly customised, off-road design

Flash Battery tackles any lithium battery customisation project by first analysing the customer's requirements so that the solution meets the vehicle's space and size, and provides the voltage and capacity needed for the specific work required.

In this collaborative endeavour, the project managers of Flash Battery and Alkè outlined the custom mechanical design for off-road use as well as the highly customised mechanical design for maximum vibration resistance. Because of their use in adverse climatic conditions, the electric vehicles required a heating system that would enable the battery to operate safely in the -25°C to +45°C temperature range.

Today, Alkè vehicles are all electrically powered and the top-of-the-range ATX 340 model is equipped with 10 kWh or 20 kWh lithium batteries in the various versions E/ED/EH/EDH. **ivT**

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