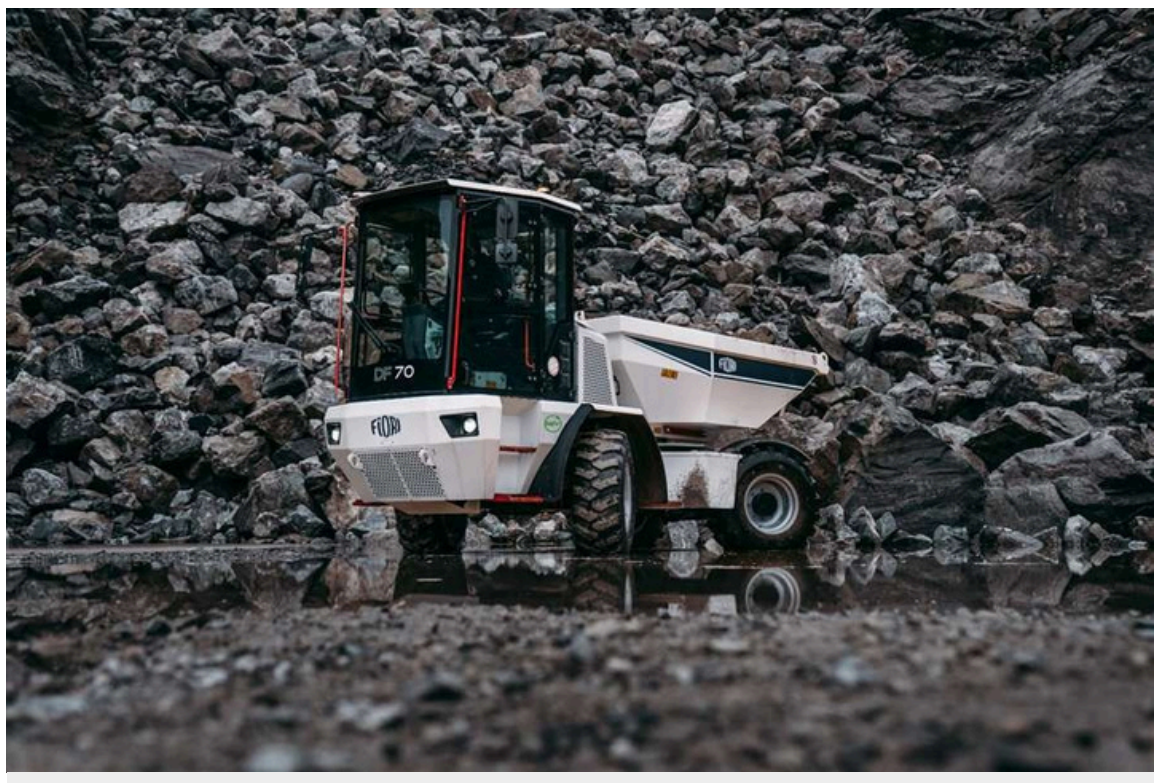
Fiori and Flash Battery target real-world electric dumper use with modular battery

Andy Brown
Head of Content, Construction and Engagement

25 June 2026
4 min read

Italian compact equipment manufacturer Fiori has worked with Flash Battery to develop a modular battery platform for its electric and hybrid dumpers, as it looks to address some of the practical barriers to zero-emission equipment on construction sites.



Italian compact equipment manufacturer Fiori has developed a modular battery platform for its electric and hybrid dumpers. Image: Fiori

The company has worked with Italian battery manufacturer Flash Battery on electric versions of its site dumpers, including battery-electric models and machines with a diesel range extender.

The aim, according to Fiori, is not simply to prove that electric dumpers can be built, but to make them usable in the daily working conditions contractors face on site.

The project was designed to create a modular and scalable battery architecture that could be adapted to different machine sizes and power requirements without redesigning the system each time. Based on two voltage levels, 51.2V and 102.4V, the platform allows up to four battery units to be connected in parallel and can support both full electric and hybrid machines with onboard generators.

The system was also designed for off-grid construction sites, using high-power balancing to ensure cell equalisation and accurate state-of-charge estimation during charging. The result is a custom lithium battery solution based on LFP chemistry, with scalable energy capacity from 11kWh to 94kWh.

A platform built around choice

The manufacturer has developed diesel hydrostatic, full electric and range-extender versions around the same dumper platform. That approach is intended to give customers different power options while retaining the same basic machine layout and operating concept.

Fiori said the modular battery architecture allows the system to be scaled depending on the machine and application. The battery system can be configured around 51V or 102V architecture, depending on the energy requirement of the model.

Flash Battery said the battery platform was developed to provide, “the basis for the smooth and safe functioning of the dumpers we developed”.

Flash Battery's role centred on adapting the battery system to the duty cycles and packaging requirements of compact site dumpers, rather than treating electrification as a simple component swap. The company said the work involved developing a scalable platform that could support different voltage levels and machine configurations, while giving Fiori the flexibility to offer both fully electric and range-extender models.

One of the key questions around electric construction equipment is whether it can complete a working day without interrupting productivity. Fiori said its full electric machines are designed to operate for at least eight hours in average site conditions.

The company also argued that dumpers are often not used continuously across a full working day. In many applications, it said, machines are used for three to four hours a day, depending on site logistics and the type of work being carried out.

Fiori pointed to a DX 30 BEV working in Lucerne, Switzerland, where the machine only needed charging once a week. The company said this demonstrated that, in the right application, electric dumpers could be used without creating significant disruption to daily operations.

"Productivity is therefore not compromised compared to an equivalent diesel machine," the company said.

Charging, confidence and site realities

Fiori has worked with Italian battery manufacturer Flash Battery on electric versions of its site dumpers, Image: Fiori

Charging has also been a focus of the development work. Rather than requiring a dedicated external charging station, the machines are fitted with an onboard charger, allowing them to be connected directly to the grid.

That is intended to simplify site logistics and reduce one of the concerns often associated with electric equipment: the need for additional charging infrastructure.

Fiori said the range-extender version also gives customers a transition option where full electric use is not yet practical. This can be useful on remote sites, or in applications where electrical connections are limited or uncertain.

The company said fully electric dumpers are likely to be most attractive in urban, indoor and enclosed environments, as well as projects where emissions and noise restrictions are becoming more important.

However, Fiori acknowledged that barriers remain. "At present, the main barriers are costs, scepticism among industry professionals, and the availability of electrical connections on off-road jobsites," it said.

The company said customer confidence remains an important issue, particularly in a sector where contractors are autious about equipment that could affect productivity.

Seeing the machine in action is the most effective way to convince customers of its performance," Fiori added.

For now, Fiori's strategy appears to be based on flexibility. Rather than expecting every customer or every site to move immediately to full electric operation, it is offering different levels of electrification around a common platform.

That may be where electric dumpers find their place first: not as a single replacement for diesel in every application, but as a practical option where usage patterns, charging access and site conditions make the business case work.

Fiori Flash Battery electric dumper use modular battery platform electric dumpers DX 30 BEV Lucerne Switzerland