

# All in the mix

CIFA AND FLASH BATTERY HAVE BUILT THE WORLD'S FIRST EVER PLUG-IN HYBRID CONCRETE MIXER PUMP WITH A 288V LITHIUM-ION BATTERY, WINNING A RED DOT AWARD IN THE PROCESS

▶ When you mention bespoke products, the first thing that comes to mind is customisation. Your mind starts to imagine a one-off project made-to-measure, based on your needs and your requirements.

A new industrial project begins with a feasibility study. If lithium batteries are involved, it is vitally important to analyse what the customer needs for this specific application – operating cycles, field of application, voltage and capacity. “Creating a customised lithium battery pack means you have to really understand the customer’s requirements and then design ad hoc solutions for the needs of that specific use”, says Marco Righi, CEO and founder of Flash Battery.

## World-first product

Working towards achieving sustainability is one of the guiding principles in product development. CIFA - market leader and pioneer in the construction industry – and Flash Battery, the best-selling lithium battery in Italy for the industrial sector, have worked side by side to design the Magnum MK28E, the world’s first hybrid concrete mixer pump.

The idea was to combine the three main functions of concrete mixers in a single vehicle – mixing, transport and distribution – with the addition of two further innovations: carbon fibre and lithium batteries. Carbon fibre makes the structure of the articulated boom more efficient and lighter; the Flash Battery lithium batteries (36 kWh) cut down noise pollution so you can now work in town centres, there are no emissions and the plug-in system means the battery can be charged anywhere.

## Power and design

The project was developed by examining how much power was needed to guarantee a complete operating cycle: loading, mixing, stabilisation, opening of the articulated boom

and pumping. This led to the definition and dimensioning of the main elements in the hybrid core of the product, the Flash Battery lithium battery. Subsequently, fitting these elements onto the vehicle led to guidelines for the design of the chassis and the main structural elements. At the same time, the design involved the electronic control system and the style.

Plug-in hybrid technology means the batteries can be charged with the mains supply using the CCS Combo (standard European charging connector used in the automotive field) or by a generator powered by the truck’s diesel engine. The machine is also fitted with a KERS (Kinetic Energy Recovery System) so that energy during deceleration of the vehicle is recovered, enabling optimum management in all working conditions.

## Collaboration is key

“Flash Battery supported CIFA from the start, working together on the very first Energya project resulting in the production of the world’s first hybrid concrete mixer (the Energya E9) in 2011,” says Emanuele Zorzi, technical product manager at CIFA. “The range was subsequently expanded with the CSSE shotcrete vehicle. Thanks to the know-how acquired in the mixing and pumping processes handled using hybrid technologies, we were able to make use of numerous skills and know-how gained in all these years of working on the Energya MK28E hybrid concrete mixer.”

## Award recognition

The Magnum MK28E is a one-of-a-kind engineering product that recently gained recognition by landing a famous Red Dot Design Award for design. After starting out as a single product, the entire Energya range is reaping the benefit of this major acknowledgement at international level. **ivT**

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**2011**  
the year Flash Battery and CIFA developed the world's first hybrid concrete mixer

TOP RIGHT: Energya MK28E, the plug-in hybrid concrete mixer pump  
RIGHT: detail of the CCS Combo  
LEFT: three Flash Battery packs for industrial machines

**“CREATING A CUSTOMISED LITHIUM BATTERY PACK MEANS YOU HAVE TO REALLY UNDERSTAND THE CUSTOMER’S REQUIREMENTS.”**

Marco Righi, CEO and founder of Flash Battery

