

Hardheim, March 2019

UK BATTERY INDUSTRIALISATION CENTRE (UKBIC) puts faith in EIRICH mixing and preparation technology

Electromobility is only possible with advanced and capable energy storage systems. Modern hybrid and electric vehicles demand high-performance (high energy or high power) batteries such as lithium-ion batteries. Superior energy storage is also needed for a variety of other applications such as aerospace, stationary energy storage and heavy duty/off highway applications. The development of new and improved storage systems is an urgent requirement of our times. Supporting the development of energy storage systems is a goal of governments in many countries. The UK BATTERY INDUSTRIALISATION CENTRE (UKBIC) has been founded for the purpose of assisting the scale-up of manufacturing capability in the UK. UKBIC has chosen EIRICH to supply the mixing and preparation technology for its production line.

All around the world, electromobility has enjoyed high growth rates for a number of years now but as current technology is starting to reach its limit the industrialization of new technology, and associated new processes, will be vital to push the industry towards its goals of improving energy density, lowering cost and improving life.

A significant proportion of Lithium Ion manufacturing capability and supply is currently centered in Asia. European manufacturers have, up until recently, resisted building up their own cell manufacturing capabilities due to the cost, complexity and the need to build up a skills base and have traditionally purchased cells from third party tier 1 manufacturers for assembly in to battery systems.

To reduce dependence on lengthy supply chains and to bring value creation and jobs back to Europe, many European Governments have made it a priority to encourage capable, high quality and local, cell and battery systems manufacturing capacity and help create the ideal environment to grow the supply and skills base that is needed to support this ambition.

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In 2018 the UK BATTERY INDUSTRIALISATION CENTRE was founded to do this. Based in Coventry and Warwickshire, this initiative is part of the UK Government's Industrial Strategy and Faraday Battery Challenge, which is designed to help establish the UK as a global leader in the transition to a low-carbon economy. The vision of UKBIC is to enable the development of current and future generations of battery systems with activities in research & development, innovation and upscaling to industrially relevant scales along with establishing skill training and supporting a growing local supply chain. This will enable companies, both existing and new, to establish large-scale battery production supplying the manufacturing of high-performance hybrid, plug-in hybrid and electric vehicles and other applications in the UK.

In the process, the preparation of the cathode and anode slurries represents a major challenge for the mixing technology used. High levels of precision and reproducibility are needed in order to attain the required quality standards – which is why UKBIC has opted for EIRICH. The EIRICH mixing system, which is unique worldwide, makes it possible to mix the raw materials and disperse them into a slurry that is ready for application – all in a single unit. Preparation times in the EIRICH MixSolver® process can be significantly shortened in comparison to standard processes – from a matter of hours to just minutes. Systems engineering has been simplified, resulting in lower investment and operating costs.

EIRICH technology is used all around the world in many industries for mixing, granulating, coating, kneading and dispersing – all of which can be performed in the same, single machine, thereby allowing processes to be simplified while maintaining or improving product quality. In volumes ranging from 1 liter up to 3000 liters, only a single mixing or dispersing tool is required. This means that the preparation system is excellently scalable to larger applications and offers great flexibility.

In the scope of supply for the approximately 1 GWh UKBIC scale-up plant are two mixers, one for the anode and one for the cathode each of the size R12W (capacity up to 250 l). Both mixers are equipped with automatic high-pressure cleaning system and for

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the first time with double jacket cooling. The scope of supply covers complete dosing and weighing technology and process control systems.

The plant is scheduled to go into operation in the 1st quarter of 2020.

Further information:

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The EIRICH Group is a supplier of industrial mixing, granulating/pelletizing, drying and fine grinding machinery, systems and services. The Group has its main strategic base at Maschinenfabrik Gustav Eirich which is the corporate headquarters site located in Hardheim, Germany. EIRICH has core expertise in processes and techniques used for the preparation of free-flowing materials, slurry and sludge. The main applications for these processes are in the ceramics, refractory, foundry, construction materials, plaster, rechargeable battery, battery compound, fertilizer, glass and ore dressing industries. Close co-operation between our own test centers around the world and collaboration with the research and academic community enable the "hidden champion" to provide solutions for innovative, cost-efficient products and processes. The family-managed company was founded in 1863 and operates from twelve locations on five continents.