

JM

Powering sustainability

Energy storage solutions for a greener future



Johnson Matthey
Inspiring science, enhancing life

Automation

Manufacturing capabilities

We can provide manual, semi-automated and fully automated manufacturing solutions. Our expertise with high-volume production, along with our flexible approach, enables us to design cost-effective assembly lines.

Automated mass production process – Providing answers to complex challenges

- Transport and traceability based on WPC with RFID
- Welding
- Cell testing and assembly into cellholders
- Screwing (horizontal/vertical)
- Pressing (horizontal/vertical)
- Soldering



In-Line Testing

- **Pre-test.** Testing of individual cells' voltage using three algorithms (min/max, median, average value) plus optional ACIR testing. This process ensures the best possible match of individual cells within the battery.
- **Mid-test.** Testing of battery modules at an intermediate stage of the process.
- **EOL test.** Last stage of the battery assembly process involving parameter verification. Carried out using an adaptor designed to check the user's socket and confirm the correct operation of the battery.
- **Hardware** including Keysight, National Instrument, HIOKI.
- **Traceability** – Data logging into database system.
- **ESD protection**

Benefits

The benefits of working with Johnson Matthey Battery Systems include:



All required skills and production facilities under one roof, in our plant in Poland



Dedicated R&D team including electronic engineers and cell testing programme



Most components sourced from within Europe



Production process focused on consistently providing high quality output



Short-run to volume production processes



Flexibility to quickly scale production and meet demands for increased volume

Quality & Safety

We carry out full risk assessments of all high-voltage products, managing them jointly with customers. What's more, we cooperate with customers who are leaders in their industries and therefore require products of the highest quality. This demand has ensured our processes are focussed on delivering consistently high-quality components.

Many factors guarantee the highest quality manufacturing, including effective supplier selection, strict compliance with legal requirements, our measuring laboratory for verifying incoming components, production line validation, PFMEA, in-line testing, and periodical tests.

Safety is our number one priority. All batteries are designed and tested according to the latest market requirements. Our product engineering department analyses all requirements of countries to which our products are regularly sold, including

national regulations, EU directives, UN 38.3 requirements, IEC, UL, and other relevant standards. Both mechanical and electrical battery safety are assured by dedicated mechanical design and electronic engineering teams from our R&D department.

Mechanical – Robust external housing is used, plus all internal structural elements are optimized for low cost and mass production, but are still solid enough to ensure the battery will be resistant to vibrations and other environmental hazards.

Electrical – Safety is provided via a properly designed BMS, which we can develop in-house, plus other elements, including main fuse, SCP, smart CAN communication, and other dedicated solutions.

Laboratory & Validation

We provide thorough testing services to the highest possible standards. Our in-house testing laboratory is modern and well-equipped, allowing us to carry out periodic quality assurance testing for complex products.

We can provide a full range of battery system testing options, including UN 38.3 transport tests, IEC 62133, periodic tests, mechanical tests, and cell tests. We also have partnerships with external certification bodies to ensure required compliance with regulations or standards.



Cell Selection

Using Expertise to Ensure the Best Fit

We can ascertain the required chemistry to ensure the best cells are chosen for any specific application. We first analyse the requirements of our customer. To make recommendations, we then conduct internal tests to verify compliance with catalogue data and security. For unusual applications, we are currently introducing new tests to verify the suitability of a cell for that specific application.

Our cell testing programme encompasses in-house testing (including lifecycle tests), as well as testing carried out with external laboratories and universities.

We test main brands and alternative, cost-effective cells to verify their performance for specific applications, ensuring we can provide the best tailored offer to our customers.

We can also provide propagation tests to check the safety of all cells and verify design features that can minimise the risk of fire. We work on all main cell chemistries, including NMC/NCA, as well as the latest LFP cells, which are very often the best choice for storage applications, thanks to their safety features and high lifecycle.



Energizing the evolution of batteries

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JMBS_01235_1.0_ENG