

## **Technical Support – Battery Prototyping**

Through partners in Asia, Liberty Ion is happy to provide battery prototyping capabilities from 10Ah to more than 200 Ah for any chemistry, including but not limited to NCM, LFP, Li-rich, spinel with graphite or Si anodes, or even advanced chemistries such as sodium ion.

Liberty Ion is in the advanced stages of planning the establishment of our cutting-edge battery prototyping laboratory, a strategic move designed to significantly enhance our capabilities in the battery technology sector. As we progress towards the realization of this state-of-the-art facility, we are thrilled to provide our clients with an interim solution through our collaboration with a premier Asian cell manufacturing partner. This partnership allows us to offer comprehensive prototype development services, catering to the dynamic needs of the industry.

Our services encompass the development of cell prototypes with capacities ranging from 10 Ah to over 150 Ah. These prototypes are available in prismatic or blade type pouch cell form factors, offering versatility to suit a wide range of application requirements. This flexibility ensures that we can meet the specific needs of our clients, whether they are in the early stages of product development or ready to scale up their battery solutions.

The prototypes we develop serve as A-samples for battery manufacturers, providing them with tangible, high-quality examples of potential products. These A-samples are crucial for manufacturers to assess the viability, performance, and integration capabilities of the battery cells in real-world applications. By offering these prototypes, Liberty Ion plays a pivotal role in bridging the gap between conceptual battery designs and market-ready products.

Our prototype development service is not just about creating physical samples; it's about offering a comprehensive solution that includes design consultation, performance optimization, and scalability advice. We work closely with our clients throughout the development process, ensuring that each prototype meets their exact specifications and performance criteria. This collaborative approach facilitates a seamless transition from concept to production, accelerating the time-to-market for new and innovative battery technologies.

As we look forward to the completion of our in-house battery prototyping laboratory, Liberty Ion remains committed to leveraging our expertise and partnerships to support the evolving needs of the battery industry. Our goal is to empower clients with the tools, knowledge, and resources necessary to lead in the competitive landscape of battery technology.

For Liberty Ion's battery prototyping service, particularly during the interim period leveraging the

partnership with an Asian cell manufacturing partner, potential deliverables encompass a broad range of products and documentation designed to support clients from prototype development through to pre-production stages. Here's a list of potential deliverables for this service:

1. **Prototype Battery Cells:** Custom-made battery cells with capacities ranging from 10 Ah to over 150 Ah, available in prismatic or blade type pouch cell formats to suit various application requirements.
2. **Prototype Performance Reports:** Detailed analysis of the prototype battery cells, including performance metrics such as energy density, power density, cycle life, and charge/discharge rates.
3. **Design Documentation:** Comprehensive design documents outlining the specifications, materials used, and manufacturing processes for the prototype cells, facilitating understanding and replication.
4. **Testing and Validation Results:** Results from rigorous testing procedures, including safety tests (such as thermal runaway, short circuit, and overcharge tests), environmental tests, and performance under various conditions.
5. **Scale-Up Feasibility Studies:** Assessments on the scalability of the prototype design, including analysis of potential challenges and recommendations for transitioning from prototype to mass production.
6. **Material Sourcing and Cost Analysis:** An evaluation of the materials used in the prototypes, including sourcing options, supply chain considerations, and a cost analysis to inform budgeting for scale-up.
7. **Regulatory Compliance Guidance:** Information on relevant regulatory standards and guidance for ensuring that the prototype and eventual product meet industry and market-specific compliance requirements.
8. **Intellectual Property Documentation:** Documentation related to the protection of intellectual property, including patent applications or advice on trade secret strategies related to prototype development.
9. **Customer Feedback Collection Framework:** Tools and strategies for collecting and analyzing feedback from potential customers or end-users of the prototype battery cells, to guide further development and optimization.
10. **Technical Support and Consultation Records:** Detailed records of technical support

sessions and consultations provided during the prototype development process, offering insights into problem-solving and customization efforts.

11. **Prototype Modification and Optimization Plans:** Plans for iterative improvements based on testing results and customer feedback, aimed at enhancing the prototype's performance, reliability, and manufacturability.
12. **Partnership and Collaboration Opportunities Report:** Identification of potential partnerships and collaborations that could enhance the prototype development process or contribute to the scale-up and commercialization phase.
13. **Project Timeline and Milestone Documents:** Documents outlining the project's timeline, including key milestones, deliverable deadlines, and project reviews, to ensure that the prototype development stays on track.

These deliverables are integral to providing a comprehensive and transparent prototype development service, enabling clients to navigate the journey from concept to market-ready battery solutions with confidence and clarity.