CM BATTERIES
BOOST YOUR ENERGY

Customized Battery Pack

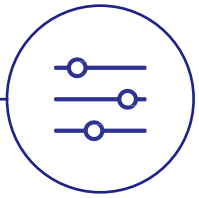
Development

From Concept to Mass Production

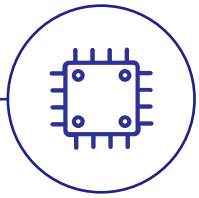
4 PHASES OF PRODUCTION

Custom Battery Pack Development

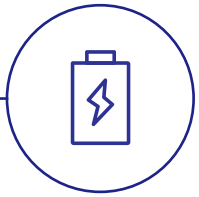
At CM Batteries, our team realizes that the development of custom battery packs is a complex and specialized process. Over the years, we have driven every stage from concept to mass production. The besjourney for custom battery pack development will save you cost and time and make your sales a success.



Completed Concept Battery Pack Development



Battery Pack Specialty Process Design



Battery Pack Design As Your Tailored Specification

Battery Pack Design Manufacturing Certification

PHASE I

Completed Concept Battery Pack Development

In the early stages, some customers are confused about how to get a custom battery. Our engineering and consultant team works closely with you to clarify your needs and create a scope of development questionnaire. The development of a custom battery pack takes more time. The first step is to determine the basic parameters and your specific needs. Once you confirm the concept battery pack development, the estimate will issue a quotation, basic technical information and development time. This stage will take 2-10 working days to confirm the development concept and achieve a solution estimate.

Marine Equipment Batteries

A marine equipment company from the US wants to develop a new waterproof lithium battery pack. The tailored battery pack is required with waterproof, corrosion-resistant, and Bluetooth. First, we conduct surveys of our customers from the application environment, sample testing, technical request, and their target market and customers.CMB has offered a unique waterproof enclosure design with a mature waterproof sealing silicone process. The battery pack request is a nominal voltage is 25.6V and the nominal capacity is 105Ah with waterproof IP68,self-heating, and Bluetooth. The battery pack solution is made of 3.2V 32700 6Ah LiFePO4 cells with a high discharge rate and integrated with heating pads. The BMS is integrated with Bluetooth. From initial concept to design approval, the entire process took approximately 10 days. Offering free design fees reduced the development costs. But when some components belong to subcontractors and have to be customized, the development fees will be charged once you start the sample production stage.

Agricultural Robot Battery

A team of engineers from a major agricultural equipment manufacturer wanted to design a new agricultural robot battery. It also requires all certifications, with a particular UL certification. Additionally, they wanted a BMS communication protocol with sleep mode and cell balance. The concept stage took 25 days to clarify the needs and go to the next step sample order confirmation.

The timeline of the agricultural robot battery development from concept to mass production.

Stage	Delivery Time
Concept	2~20 working days according to the project complexity.
Sample Order	10~35 working days according to the project's complexity.
Samples Shipping Time	4-7 working days.
Certificate Approval	25~45 working days, UL certification verify takes the longest time.
Shell Tools	35~40 working days.
BMS Example	5~35 working days, smart BMS function should verify and learn for a while.
Mass Production	25 to 30 working days

PHASE II

Battery Pack Specialty Process Design

When your equipment is required a unique battery pack, you should work with a battery pack manufacturer that specializes in battery pack projects. Investing in specific equipment and battery technology will complete these processes in a cost-effective manner. Here are some examples of specialized processes that may affect the timeline.

Potting The Waterproof Battery Pack with Different Materials

IP rating has the different potting process requests. Clarify your equipment operation environment. The main components are included:

- Waterproof ring
- Plastic housing
- Waterproof epoxy potting
- Waterproof valve

The potting craft and materials have an impact on the waterproof IP rating. One professional engineering team will help your devices successfully gain the market with waterproof battery packs.

Precision Battery Pack Assembly

When the battery pack has a compact dimension, the precise assembly will solve this issue. The core factors are included:

- Skilled workers
- Degree of automation with advanced equipments
- One professional engineering team
- Strict quality control management system
- Jig and fixture as a production tool

The precise battery pack assembly assures reliability. At CM Batteries, we are devoted to manufacturing li-ion battery packs with precise assembly processes for various of industrial applications.

Self-Heating Solutions

Some equipment should be operated in extremely low-temperature environments. When the li-ion battery packs work in that environment, the performance significantly drops. With over 10 years of experience in battery pack design and manufacturing, we adopt the thin silicone rubber heaters and ultra-thin Kapton heaters to make the battery packs self-heating. we can design precise solutions for each application to enhance performance in cold environments. But the heat power is from the charger not from the battery.

Pviding Specialized Connectors or Harness Service

When the battery pack is small, precision assembly can solve this problem. The key factors include:

- Specialized Connectors

The customers are assembled with custom connector solutions for their battery packs to support discharge and charge current, even matching the connector from their devices.

- Harnesses

The complex cables are used for charging, discharging, and monitoring safety. By designing and installing various of harnesses, we can ensure the reliability and well fit to their devices.

Immersion Cooling Technology for Thermal Temperature

CM Batteries are focusing on to solve the thermal temperature issues to boost the reliablity of the battery pack.When the battery pack discharge with high current in the sealing space,the temperature will increasing which bring fire or damage risk.

How to grap the discharge current and peak discharge current is very important for the reliablity.The key parameters should be provided and included:

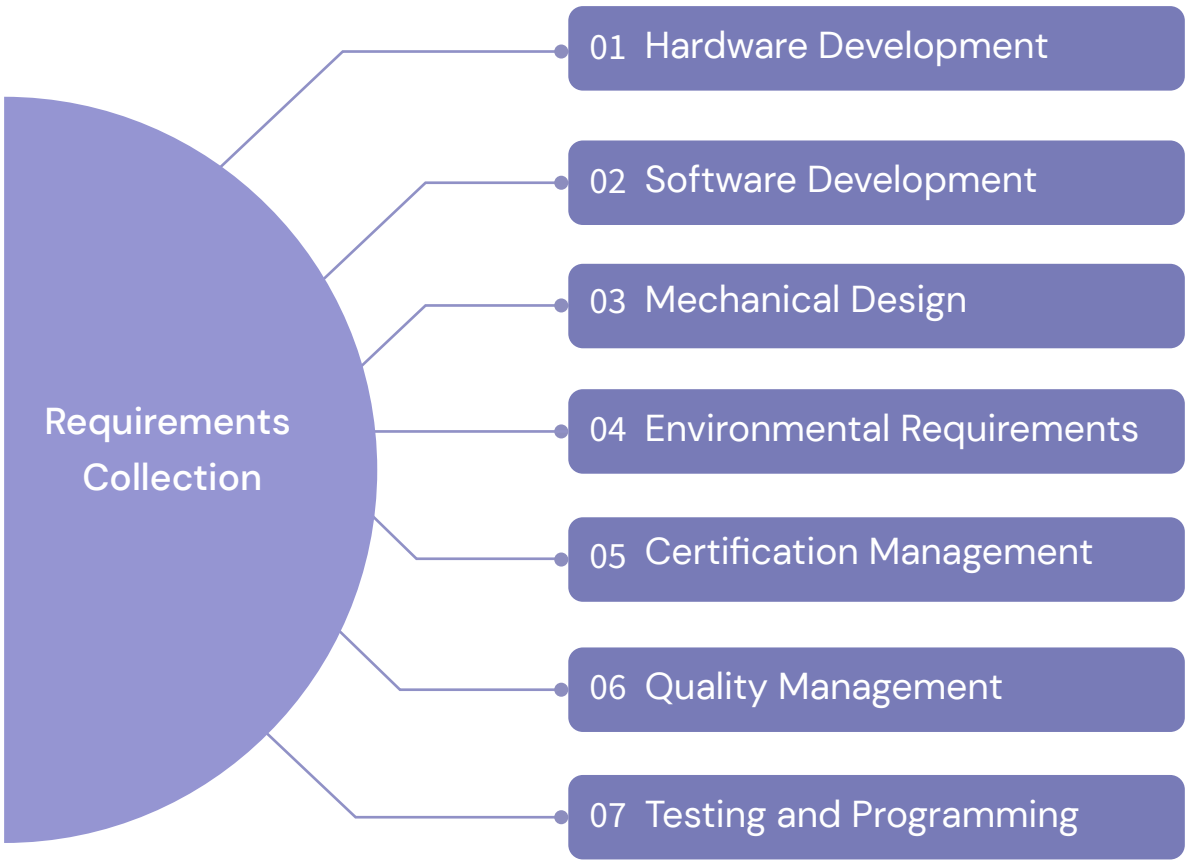
- Capacitive load current from your device system
- The work time for peak discharge current

Once our engineering team gets both of the parameters, we'll design the battery pack with immersion cooling technology and pre-charge function in the BMS.

PHASE III

Battery Pack Design As Your Tailored Specification

At this stage, customers are clear on the concept of their electrical and mechanical requirements, including preliminary designs or prior battery development experience. These stages accelerate the development process and reduce costs.



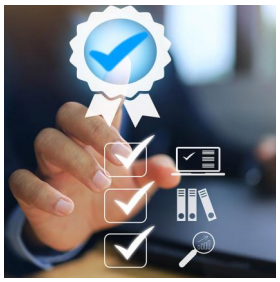
PHASE IV

Battery Pack Design/Assist Your Battery Pack Certifications Verification

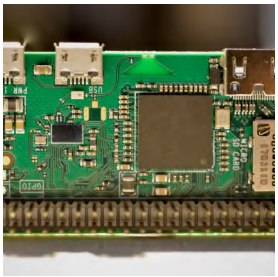
During this phase, the customer already has a clear concept of their electrical and mechanical requirements, including preliminary designs or previous battery develop ment experience. These phases can speed up the development process and reduce costs.

Slightly Customization

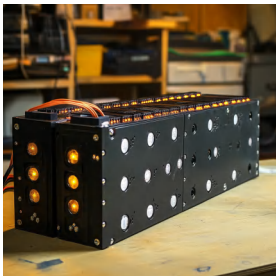
Integrates with standard battery management system (BMS) components



Upgrading existing battery pack solutions free



Designed and certified to IEC,UL or UN 38.3 standards



What You do

1. Answering questionnaire with detailed parameters (such as voltage, capacity, application, connector, discharge current and peak discharge current, dimension, etc.)
2. Preferred battery chemistry (LiFePO4 or NCM)
3. Enclosure Specifications (if you need to design an enclosure)

- 2D appearance diagram (minimum)
- 3D Drawing (preferred)
- Includes enclosure materials, draft angle, texture, and connector positio n)

Our Value-Added Services

- Certification Management:

1. Submission process handling
2. Sample preparation and submission
3. Annual renewal management
4. Adaptation to evolving regulatory requirements

- Compliance Assurance:

1. Labeling, packaging, and shipping method verification
2. DOT regulation adherence
3. Management of special requirements

This advanced-stage approach leverages the customer's preparatory work, allowing our team to focus on refinement, certification, and production optimization. Our expertise ensures a smooth progression from concept to certified, market-ready battery packs, while maintaining compliance with all relevant regulations and standards.

About CM Batteries

At CM Batteries, we specialize in turning your battery pack concepts into r eality. With years of experience and a team of expert engineers, we've helped countless clients develop customized battery solutions that meet t heir unique needs. From concept to certification, we're here to guide you e very step of the way.

Custom battery pack development is a critical step in bringing your produ ct to market. With the right knowledge and partner, you can ensure your pr oject is successful, compliant, and ready for mass production.

Ready to Get Started?

If you're ready to take the next step in your custom battery pack develop- ment, contact us today. Our team is here to answer your questions, provid e a detailed quotation, and help you bring your vision to life.

Start Your Design Project

Request a Quote

Contact Us

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