



CANRD: Creating Avenues for New Research Development





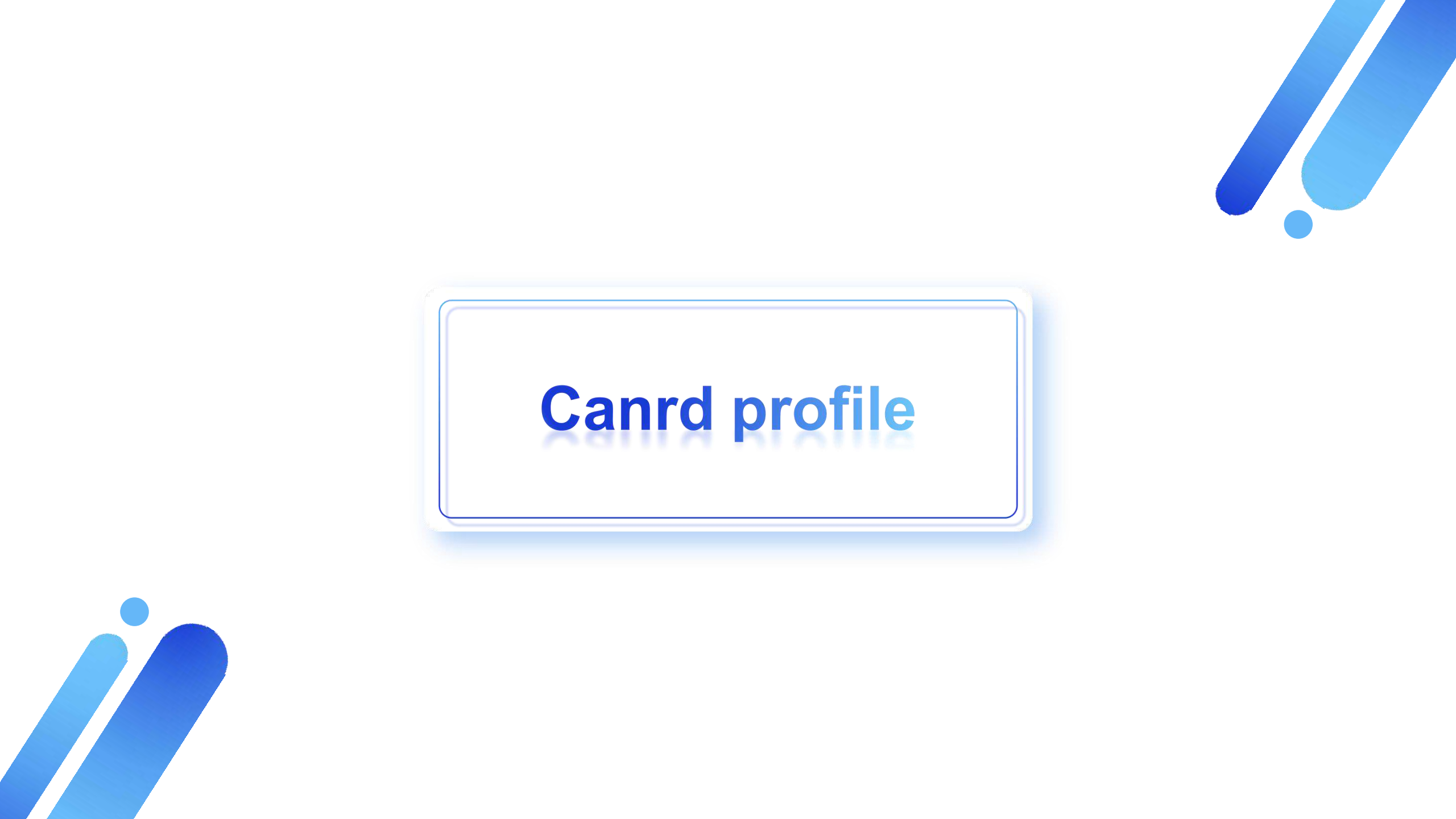
Introduction content

01.Canrd profile

02.Business introduction

- ◆ Experimental Equipment Division
- ◆ Pilot verification Division
- ◆ Experimental Materials Division

03.Partial customers&attachments



Canrd profile



- ✓ **One-stop provider** in new energy research: Lab equipment / Pilot verification / Lab materials
- ✓ Core: **Lab equipment**; Tech engine: **Pilot verification**; Market base: **Lab materials**
- ✓ Founded in 2015; **National High-Tech Enterprise** in 2017; 10M RMB capital
- ✓ 140+ patent applications, **110+ invention patents granted**; **ISO9001** & **CNAS** certified
- ✓ 10,000m² facility, 140+ staff; Core team from **CATL, ATL, Sinopec, Alibaba**

2015



Company founded
(Materials Division)

2017



National High-Tech Enterprise

2019



Equipment R&D

2020



Pilot platform

2021



Mass production

2022



One-stop service
(equipment + facility)

2024



CNAS



Company Layout



- ◆ Dongguan Dalang Headquarters
- ◆ Materials Division



- ◆ Dongguan Houjie Base
- ◆ Equipment and pilot platform



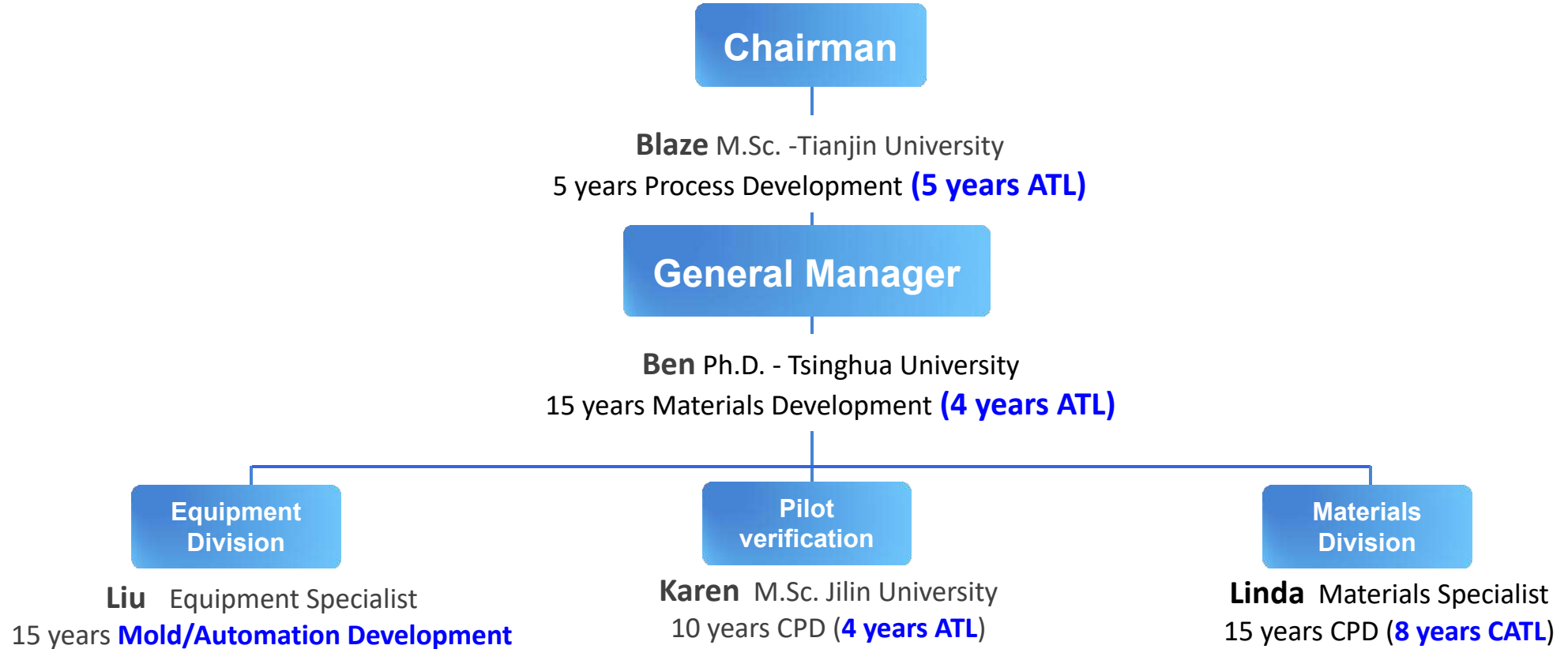
- ◆ Meizhou, Guangdong Base (Joint Construction)
- ◆ Large Pouch Cells and Prismatic Aluminum Case Cells



- ◆ Frankfurt, Germany
- ◆ Overseas Cooperation Base



Organization chart

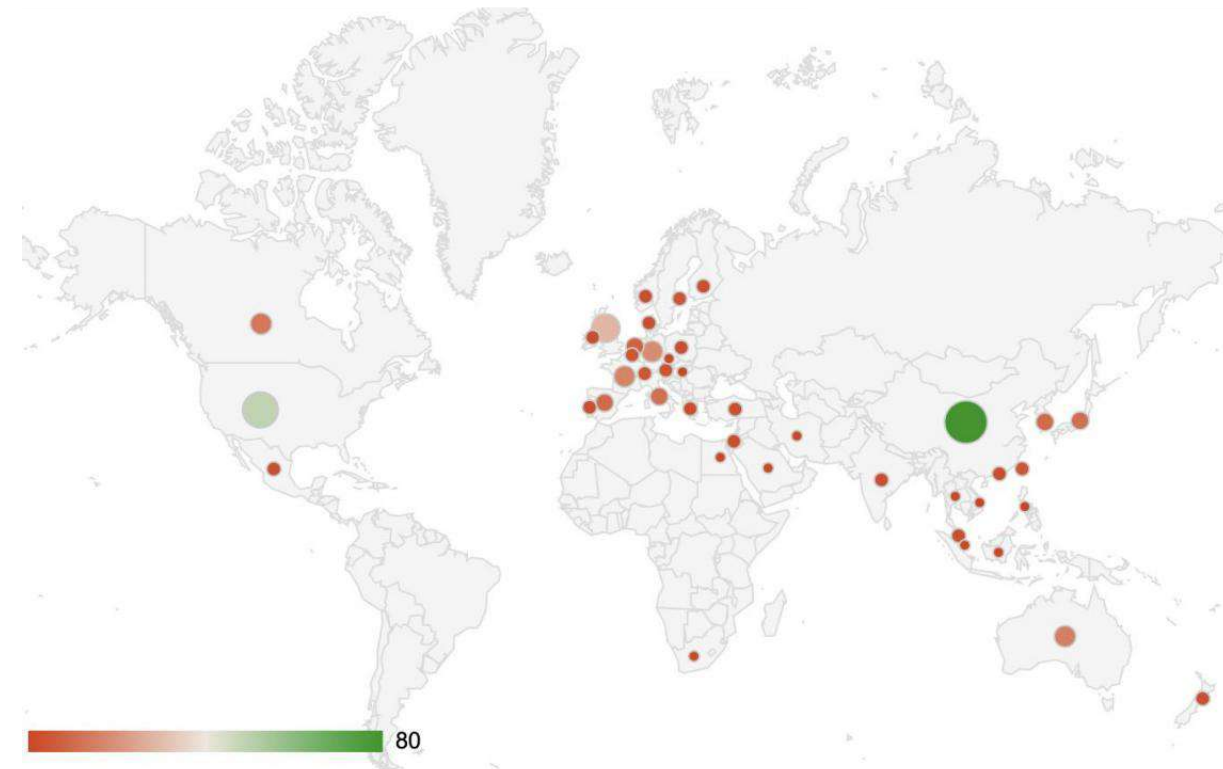


- Our company has a total of **140+employees, including 2 senior engineers, 2 PhDs, 12 Masters, and 45 Bachelors;**
- Company members have rich work experience: there are a total of **13 senior managers, including 10 from CATL/ATL ;**
- Strong expertise, synergy, execution, and teamwork

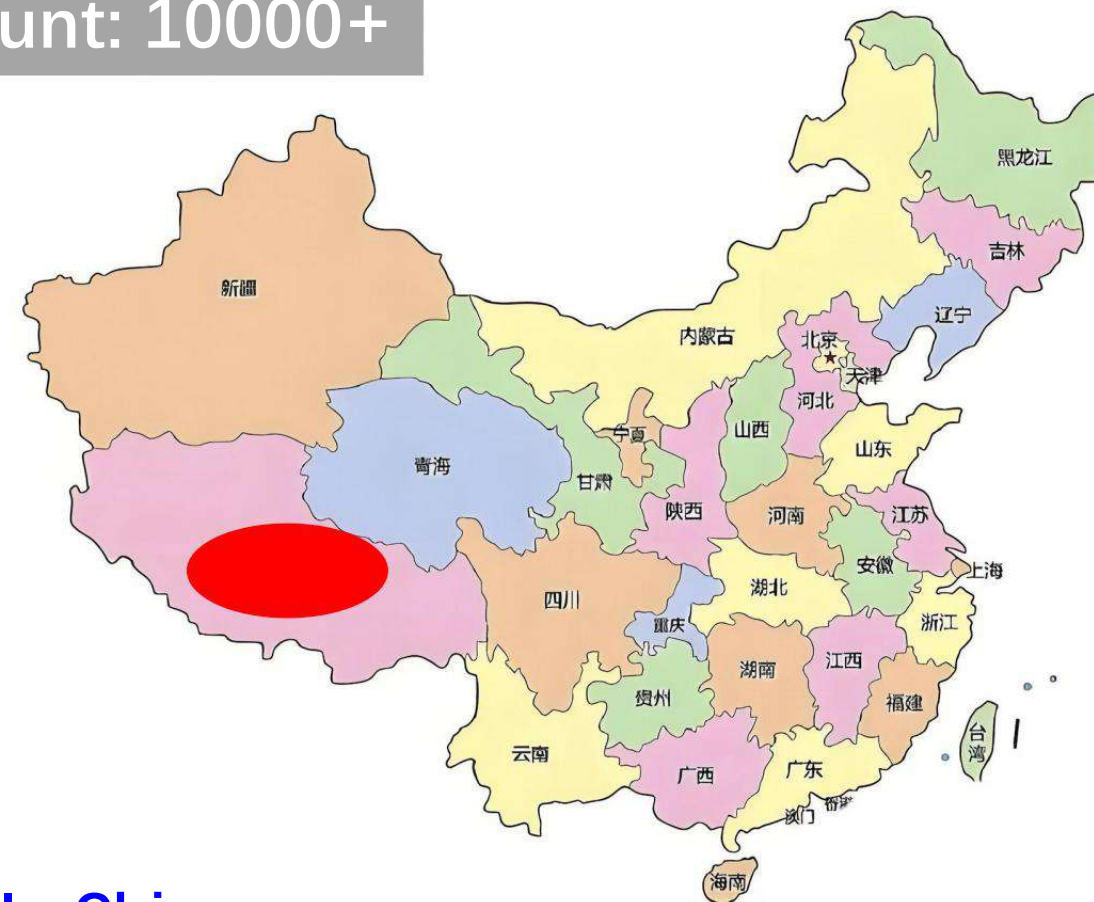


Client Groups

◆ Customer Count: 10000+



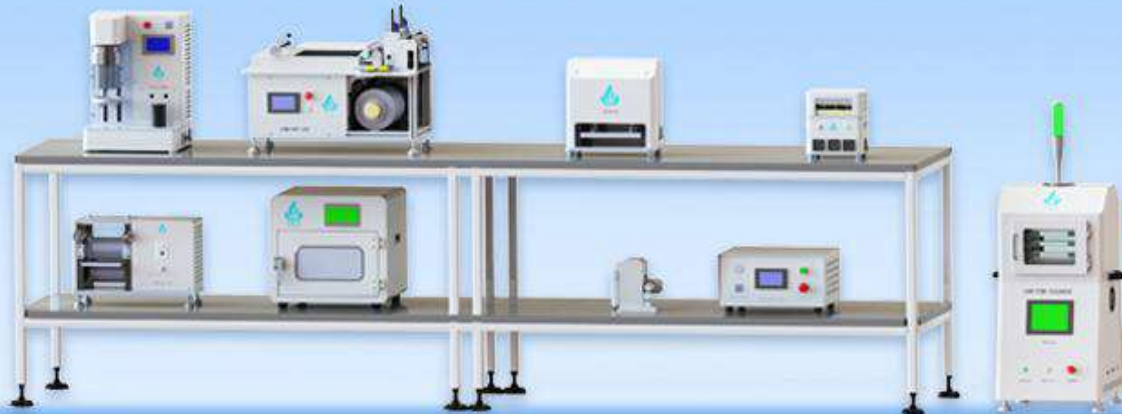
Presence in 40+ countries
300+ customers
Battery R&D focused in China & USA



In China:
Coverage across 33 provinces
8,000+ domestic universities
3,000+ domestic companies

*Creating Avenues for
New Research
Development !*

Height 1.5 meters



The pouch cell test
line covers an area of
4 square meters

Equipment sales as the core business



Customized electrode



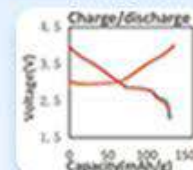
Customized
pouch cell



Customized
cylindrical battery



Material
evaluation



Test service

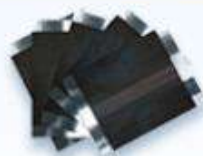


Customized PACK

Pilot verification as the technical engine



Packaging material



Current collector



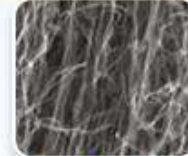
Electrolyte



Binder



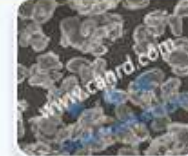
Separator



Conductive
agent



Cathode material



Anode material

Material selection as the market foundation



Business Introduction

Canrd Business Segment

Pilot Test Verification Division

- ◆ Material physical and chemical testing
- ◆ Material evaluation/R&D outsourcing
- ◆ Customization of electrode/dry cell/finished cell
- ◆ Cycling Testiing/safety performance testing
- ◆ Pack application/new system development
- ◆ FA/RA analysis



Experimental Equipment Division

- ◆ Coin cell test line
- ◆ Single layer stacking line
- ◆ Pouch cell/cylindrical line
- ◆ Li Metal/Solid-State Line
- ◆ Lab layout, design, and decoration
- ◆ Customization of fixtures



Experimental Materials Division

- ◆ Energy materials
- ◆ General consumables
- ◆ Low dimensional materials
- ◆ Solid state battery
- ◆ Fuel cell
- ◆ Chemical Reagents



- **Pilot Test Verification Department:** 200mAh~30Ah,winding/stacking,dry cells/finished cells/electrodes, etc;
And signed strategic cooperation testing and analysis agreements with ATL, Tsinghua and other units;
- **Experimental equipment:** Our company has built our **own high-precision machining center** with strong design and manufacturing capabilities;
- **Experimental materials:** **Providing a wide range of professional/general experimental materials, including most of the battery R&D materials;**



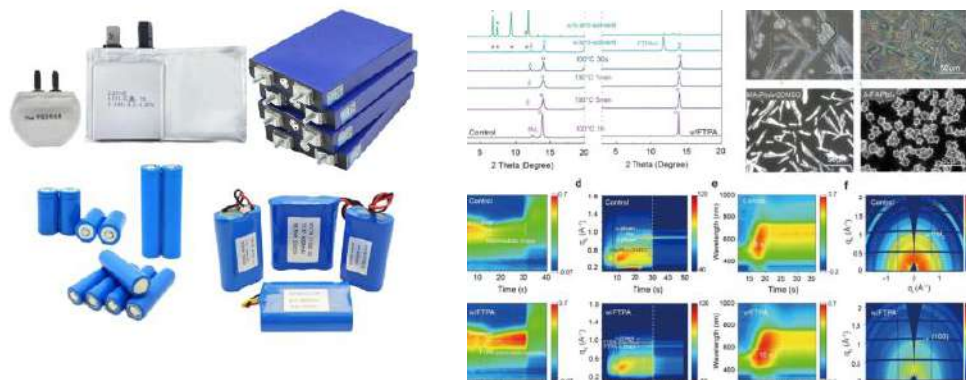
Business introduction

Pilot verification





Full-Chain Pilot Support: Materials to Cells



「CNAS 资质」



(1) Comprehensive Structures — Full Range

Supports coin, pouch, cylindrical & prismatic cells.

(2) Fast Evaluation — Quick Response

Production cycle 1–4 weeks, rapid scheduling & testing.

(3) Professional Design — Premium Quality

Core team 15+ years experience, ISO9001 production, CNAS-certified, process monitored individually.

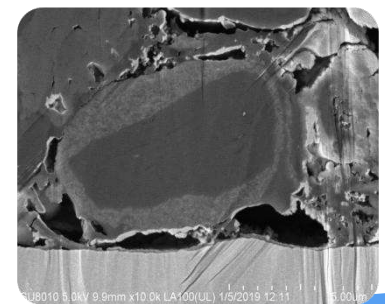
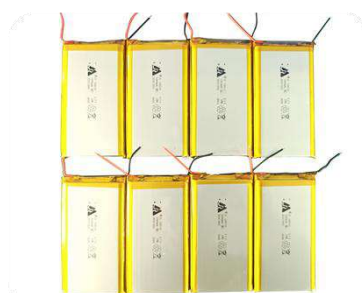
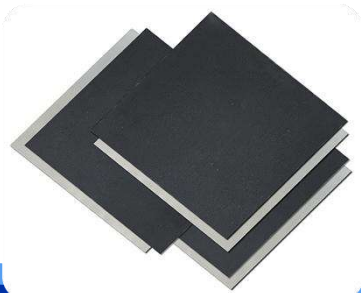
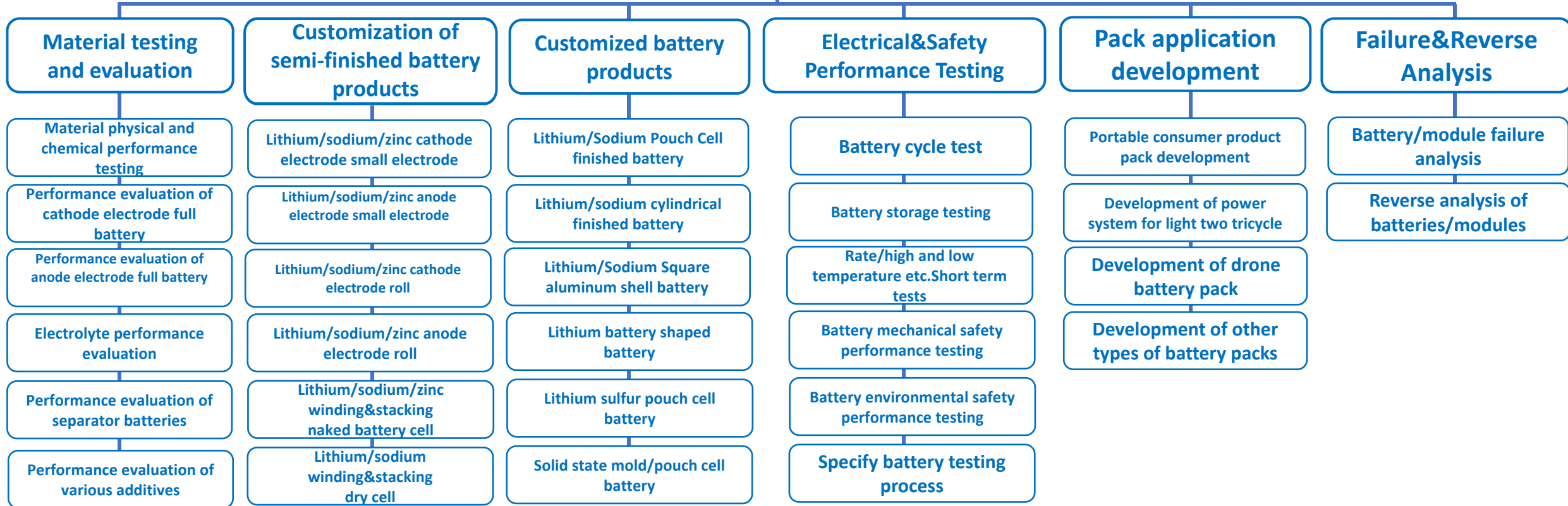
(4) Full Tracking — Worry-free

Project engineers follow the whole process, provide timely feedback, and handle issues quickly.

(5) Advanced Expertise — Deep Innovation

Rich experience in solid-state, Li-metal, high-Ni, high-Si, Na-ion batteries; tailored guidance on slurry, coating, and process parameters.

Pilot verification





Pilot verification Division -Coin cell preparation line



- ◆ We have an independent trial production line for coin cells, covering all related equipment such as mixing, coating, calendaring, slitting, coin cell assembly, and testing.



Pilot verification Division - Pouch/Cylindrical Cell Preparation Line



- Equip with independent pouch cell and cylindrical R&D trial production lines, which can meet different structural requirements such as winding and stacking;
- Configure mixing tanks with three different volumes of 5L, 10L, and 30L to facilitate research and sampling needs for different feeding quantities.



Pilot Verification Division — Prismatic Aluminum Case Cell Line



- ◆ Independent Prismatic Al Case R&D Line
- ◆ Upstream process with **-30°C** dew point control, suitable for Li-ion and Na-ion moisture-sensitive systems.
- ◆ Equipped with **30L, 100L, 350L** mixing tanks for flexible batch sizes and R&D testing.



Pilot verification Division - Dry Room



Number	Process	Dew point
1	Mixing,coating	-30°C
2	Calendaring	-40°C
3	Injection	-50°C
4	Lithium metal production	-50°C
5	Li/Na metal production (glove box)	<0.1PPM

- ◆ The drying room with **low dew point control** throughout the process can meet the research and development needs of different customers and systems (such as **high nickel, sodium batteries, and lithium metal batteries**).
- ◆ **Cleanliness control** is carried out in the drying room (**dust-free workshop**) to ensure that product quality meets requirements.



Pilot verification Division - PACK Center



2000W laser welding machine



5000 Ampere Resistance
Welding Machine



CNC



5V60A charging and
discharging cabinet



5V3A cylindrical formation
cabinet



Oscilloscope, electronic load



Viscosity test



Film resistance



Film adhesion



CCD test



Moisture



Weight test

- Comprehensive detection methods facilitate comprehensive monitoring of the manufacturing process, ensuring that product quality meets requirements.



Pilot verification Division - Testing and Analysis 2

Cycle/rate testing channel



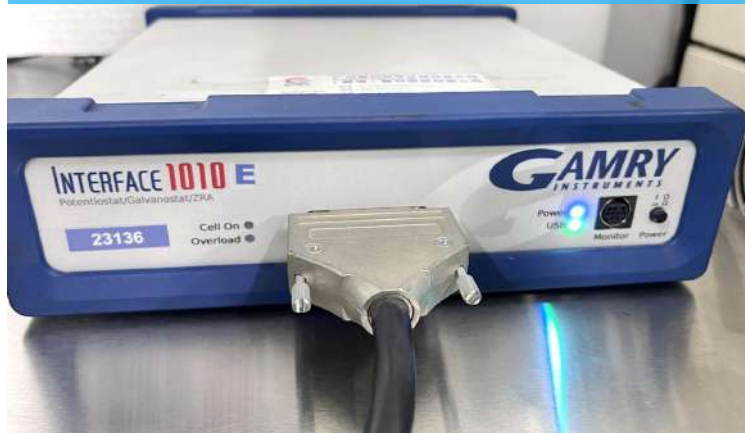
High and low temperature box



high-temperature oven



Electrochemical workstation



- ◆ We have an independent battery testing center that can meet room temperature/high temperature cycling, rate testing, high and low temperature testing, high temperature storage testing, EIS/CV testing, etc. (some equipment is currently being purchased).



Pilot verification Division - Testing and Analysis 3

BET



Simultaneous thermal analysis



GC-MS



XRD



In situ infrared



Scanning electron microscope



- ◆ We have comprehensive physical and chemical performance testing methods and are equipped with professional testing and analysis personnel.



Business Introduction - Electrode/Electrode Roll



Number	Electrode main material	10*10cm Customization scope of small electrode	Customized range of electrode rolls
1	NCM	5-25mg/cm ²	8-25mg/cm ²
2	LFP	4-25mg/cm ²	8-25mg/cm ²
3	LCO	6-25mg/cm ²	9-25mg/cm ²
4	LTO	6-18mg/cm ²	6-15mg/cm ²
5	LMO	5-25mg/cm ²	8-20mg/cm ²
6	LMFP	4-25mg/cm ²	8-25mg/cm ²
7	Graphite	4-12mg/cm ²	5-11mg/cm ²
8	Silicon carbon	4-12mg/cm ²	5-11mg/cm ²
9	Sodium nickel iron manganese oxide	5-20mg/cm ²	8-18mg/cm ²
10	Hard carbon (sodium electricity)	4-15mg/cm ²	6-15mg/cm ²
11	NVP electrode	4-9mg/cm ² , Negotiable customization	/
12	Prussian blue	4-8mg/cm ² , Negotiable customization	/
13	Lithium sulfur electrode	4-7mg/cm ² , Negotiable customization	/
14	Supercapacitor electrode	4-8mg/cm ² , Negotiable customization	/
15	Electrolytic manganese dioxide (steel foil substrate, zinc electric)	5-25mg/cm ² , Negotiable customization	5-25mg/cm ² , Negotiable customization
16	Vanadium pentoxide (steel foil substrate, zinc electric)	5-25mg/cm ² , Negotiable customization	5-25mg/cm ² , Negotiable customization
17	Zinc anode electrode (copper foil substrate, zinc electrode)	5-30mg/cm ² , Negotiable customization	5-30mg/cm ² , Negotiable customization

◆ Can negotiate and customize other surface density electrodes according to customer requirements



Business Introduction - Dry cells



- ◆ Customizable new system batteries such as high nickel, lithium metal, solid-state, and sodium batteries
- ◆ Can meet the customization of battery cells with a capacity of 200mAh~30Ah (with or without electrolyte injection)
- ◆ Can customize new models by opening molds according to customer requirements

Number	Model	Size (thickness * width * length)/mm	Capacity/Ah	Structure	Customizable types	Set Num (ea)
1	402528	4.0*25*28	0.2	Winding	Dry cells&finished products	50
2	425868	4.2*58*68	1~3	Winding/Stacking	Dry cells&finished products	30
3	6060100	6.0*60*100	3~5	Winding/Stacking	Dry cells&finished products	20
4	60100134	6.0*100*134	5~30	Stacking	Dry cells&finished products	20
5	608099	6.0*80*99	3~10	Stacking	Dry cells&finished products	20
6	18650	Cylindrical 18*65	1~3	Winding	Dry cells&finished products	30
7	21700	Cylindrical 21*70	3~5	Winding	Dry cells&finished products	20

Note: The winding is a single tab winding

Prismatic Al Case Cell Overview



- ◆ Supports new Na-ion systems: NFM, NFPP, Prussian Blue, as well as Li-ion systems: LFP, NCM.
- ◆ Cell capacity customization: 6Ah–314Ah (with or without electrolyte filling).
- ◆ New model customization: molds can be developed per customer requirements.

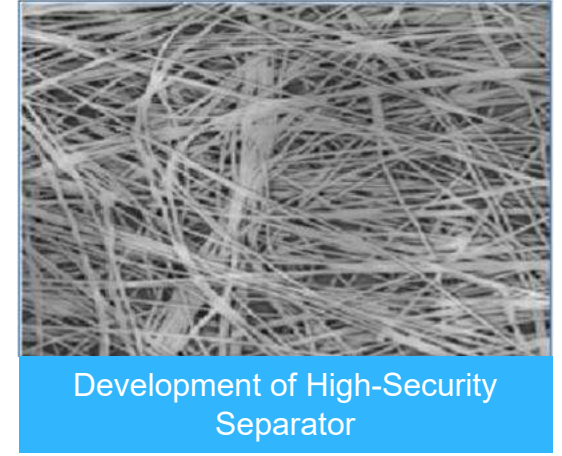
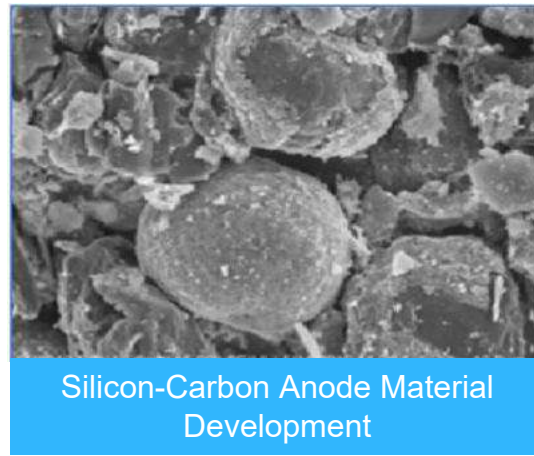
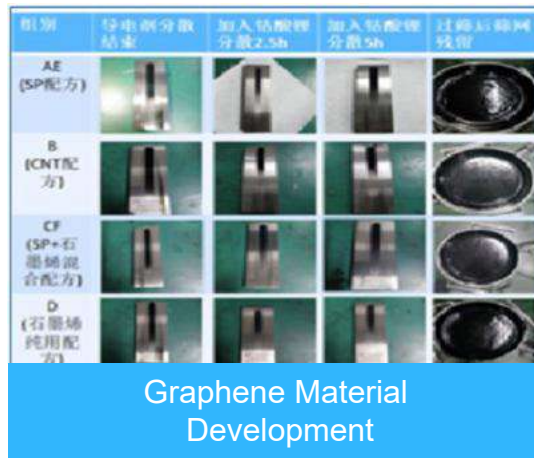
No.	Size (T×W×H) mm	Na-ion Capacity (Ah)	Li-ion Capacity (Ah)	Structure	Customiza ble Type	MOQ (ea)
1	15*65*139	6~8	12~16	Stack	Dry Cell & Finished	20
2	54*173*207	100~110	200~220	Stack	Dry Cell & Finished	20
3	71*173*207	160~190	314(LFP)	Stack	Dry Cell & Finished	20



Business Introduction - Material Evaluation

- Material evaluation (basically covering the main materials)

Cathode	Anode	Electrolyte	Separator	Conductive carbon
LCO/NCM/LFP	Graphite/Silicon-Carbon/LTO	Conventional/5V/Lithium Metal	PE/PP/Non-woven fabric	SP/CNT/Graphene
Lithium-rich / High-voltage Nickel Manganese / Sodium-ion	Hard Carbon / Lithium Metal	Semi-solid / Solid-state Electrolyte	Ceramic / PVDF Membrane	Few-walled / Single-walled CNT



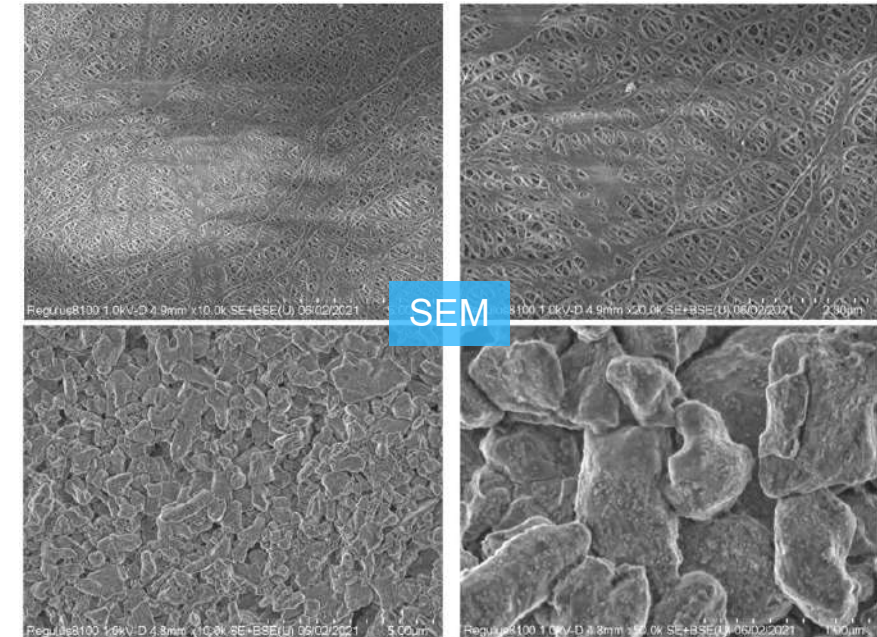
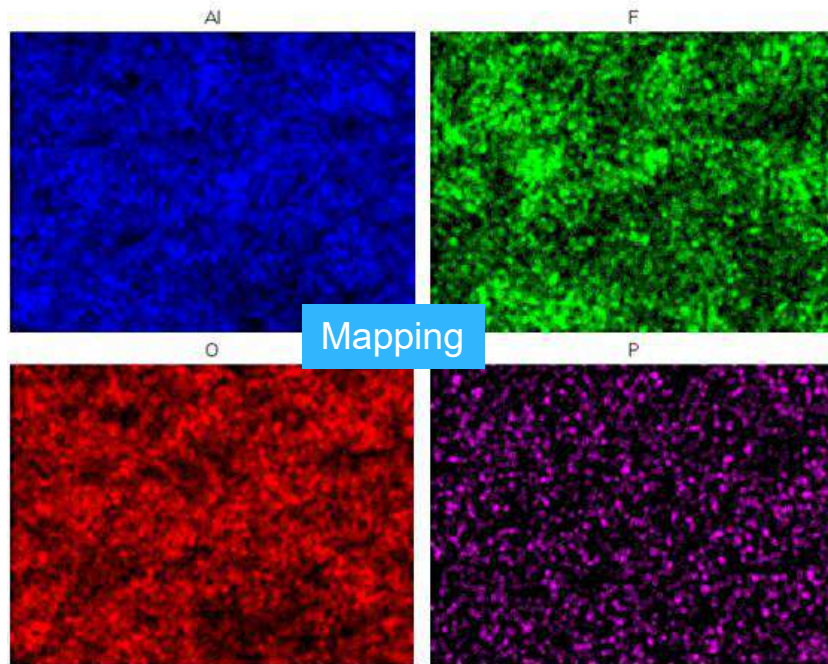
- System development

- - **High temperature:** mine safety helmet
- - **Low temperature:** outdoor extreme cold application
- - **Fast charging** system development: fast charging power bank
- - **Water system** battery development: new system development



Business Introduction - Reverse and Failure Analysis

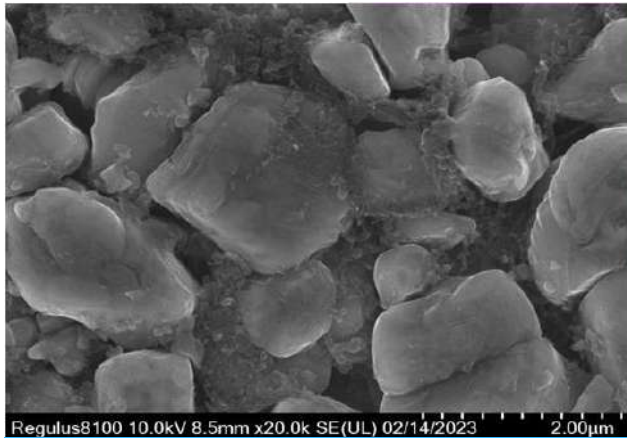
- **Reverse analysis:** assist customers to analyze the polymer / organic components in mainstream power batteries



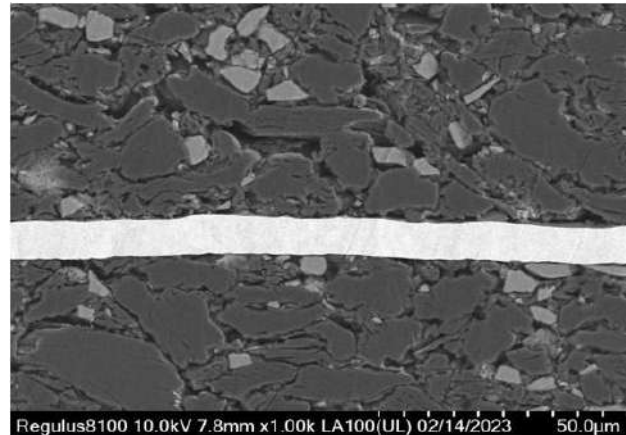
- **Experiment scheme:** first conduct nondestructive testing (size / capacity / internal resistance / EIS / ratio / high and low temperature, etc.), and finally conduct disassembly analysis
- **Implement reverse analysis:** gram capacity / SEM / ED S/Mapping / CP / TG / GC-MS / ICP and other means
- **Write the reverse analysis report:** give the customer research and development direction according to the market situation



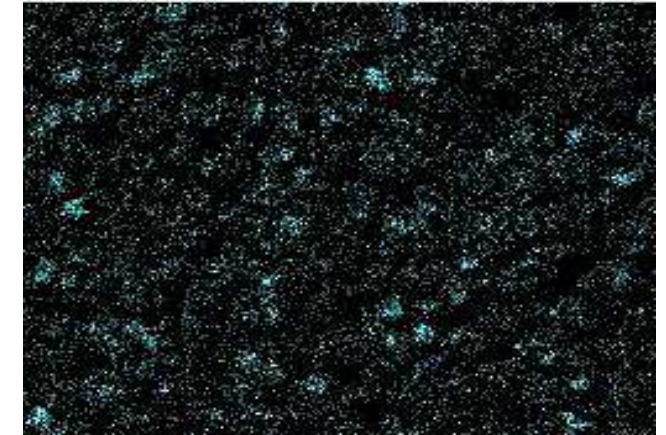
Business Introduction — Reverse and Failure Analysis



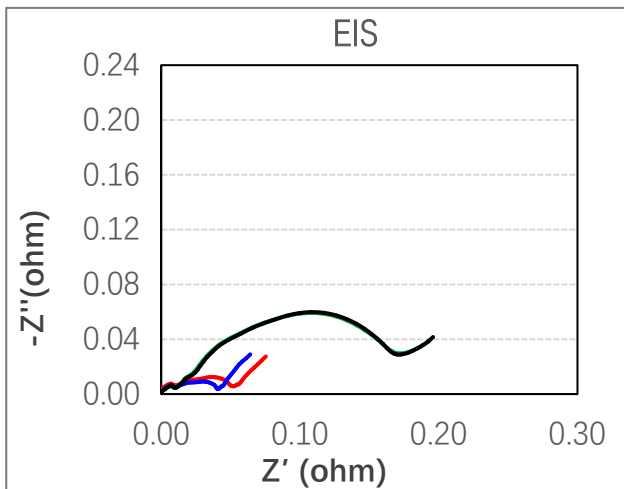
SEM



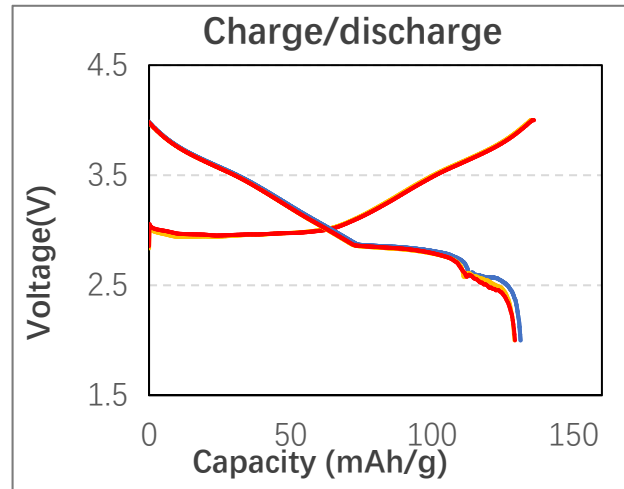
Cross section



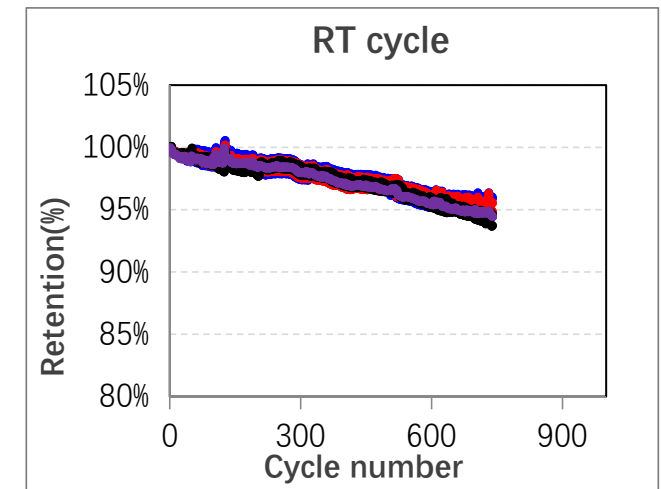
Mapping



Electrochemical
Impedance



First Cycle Charge and
Discharge



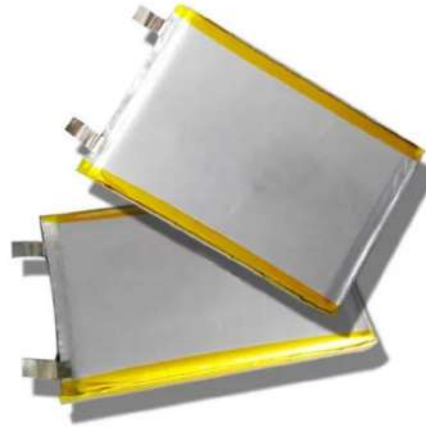
Cycling Test



Pilot verification Division - Case Study 1



Composite current collector



Customized pouch cells



portable power b a n k

A composite current collector development project at a certain university

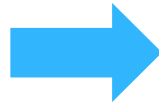
- ◆ Customer supplied **composite fluid foil** material is used to prepare 5560100 pouch cells, which are then packaged as bidirectional fast charging **mobile power supplies** to achieve market-oriented application in scientific research projects;
- ◆ Based on project requirements, the research achievements of the project can be transformed into market application results, such as **mobile power banks, smart flashlights, low-speed vehicles, small energy storage and other applications.**



Pilot verification Division - Case Study 2



Layered NCM sodium cathode electrode material
(Provided by the customer)



26700 battery cells



48V national standard car
battery PACK

Sodium ion battery development and application project

- ◆ Customer supplied **layered NCM sodium ion battery cathode material**, prepared 26700 battery cells, and customized as a 48V new national standard **electric bicycle PACK** to achieve market-oriented application of scientific research projects;
- ◆ Based on project requirements, transform project research achievements into market application results, such as **mobile power banks, smart flashlights, low-speed vehicles, small energy storage, and other applications.**



节省成本 缩短周期

(1) Cost savings and shortened cycles

Outsourcing or assisting in development, saving you research costs, shortening the R&D cycle, and making it easier for you to obtain better and more satisfactory project results;



技术响应 试验反馈

(2) Technical response&experimental feedback

Professional technicians provide customized services for special needs, with quick technical response and timely tracking and feedback of test results;



配备资源 产品系列

(3) Resource allocation&product series

Well-equipped scientific research personnel, there are numerous battery talents in various fields, rich product series and complete shelves and warehouses;



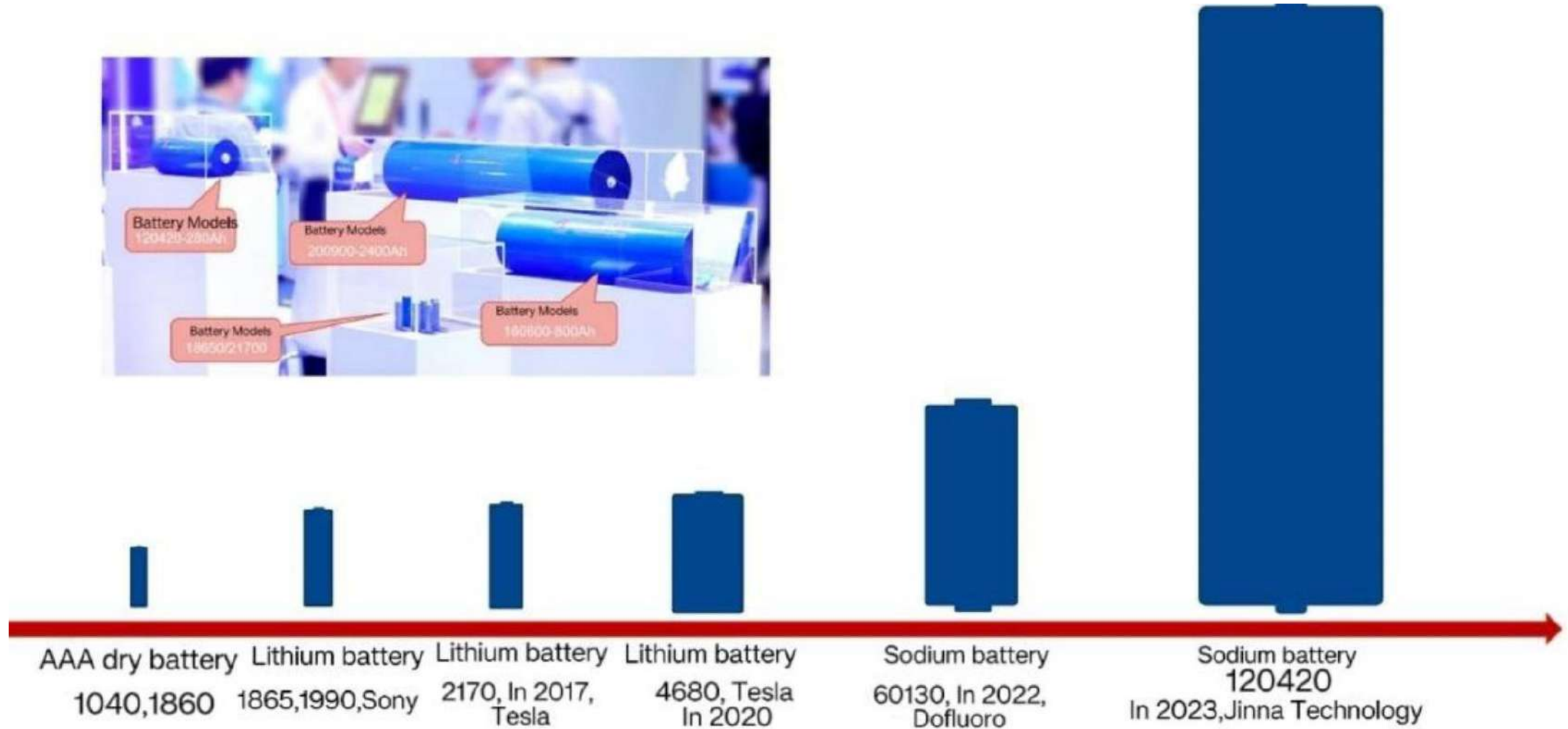
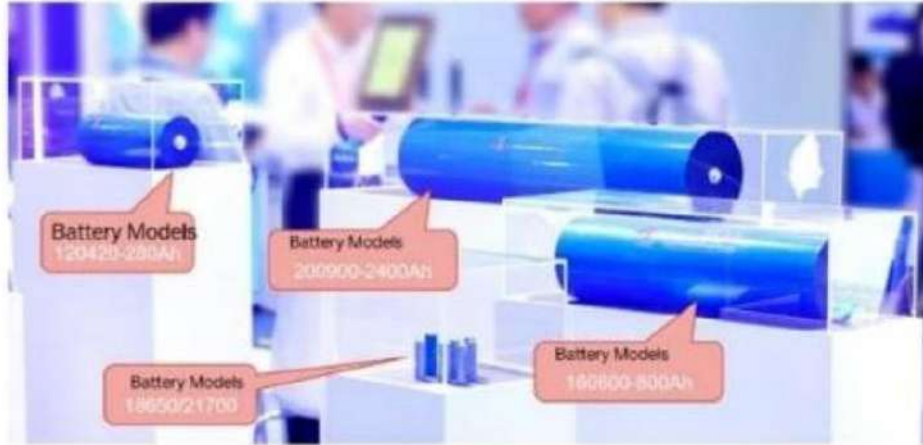
研发能力 前沿开发

(4) R&D capability&cutting-edge development

Our team has extensive research and development experience in cutting-edge fields such as solid-state batteries, lithium metal batteries, high nickel, high silicon batteries, and sodium ion batteries;



Pilot Verification Division – Case Study 3



- ◆ Supporting Customers Across the Full R&D Process: Material Evaluation → System Development → Cell Sample Production



Business introduction

Equipment Division





Equipment Product Series

Cell Preparation Series



Temperature Chamber Series



Tooling & Fixtures Series

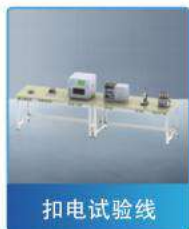


◆ Three key product lines supporting battery R&D

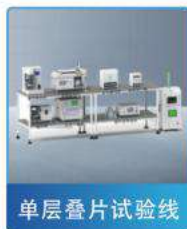


Turnkey Battery Lab Line (Equipment + Facility Setup + Training)

我们提供的不只是设备，
而是温暖贴心的全流程服务！



扣电试验线



单层叠片试验线



手套箱叠片线

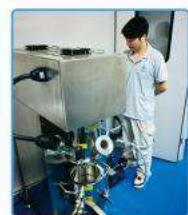


软包 / 圆柱试验线

方案设计及整线布局



现场勘察及整线装修



设备调试及人员培训



效果展示

(1) One-stop Service — Comprehensive Support

Equipment supply + lab engineering setup, with ~1 month free operator training.

(2) Fast R&D — Rapid Iteration

Quick custom development, in-house production lines for fast testing and upgrades.

(3) Strong Capability — Premium Quality

High-precision machining & assembly workshops, developed under ISO 9001 system.

(4) Professional After-sales — Time-saving

Experienced team in equipment maintenance and battery manufacturing, fast problem-solving.

(5) Advanced Expertise — Deep Innovation

Extensive experience in solid-state, Li-metal, high-Ni, high-Si, and Na-ion batteries, with tailored guidance on slurry, coating, and process parameters.



Equipment—Hardware

Precision grinder



Milling machine



CNC high-speed precision carving machine



Numerical control machine





Equipment Hardware Conditions - Assembly Workshop

Equipment assembly workshop

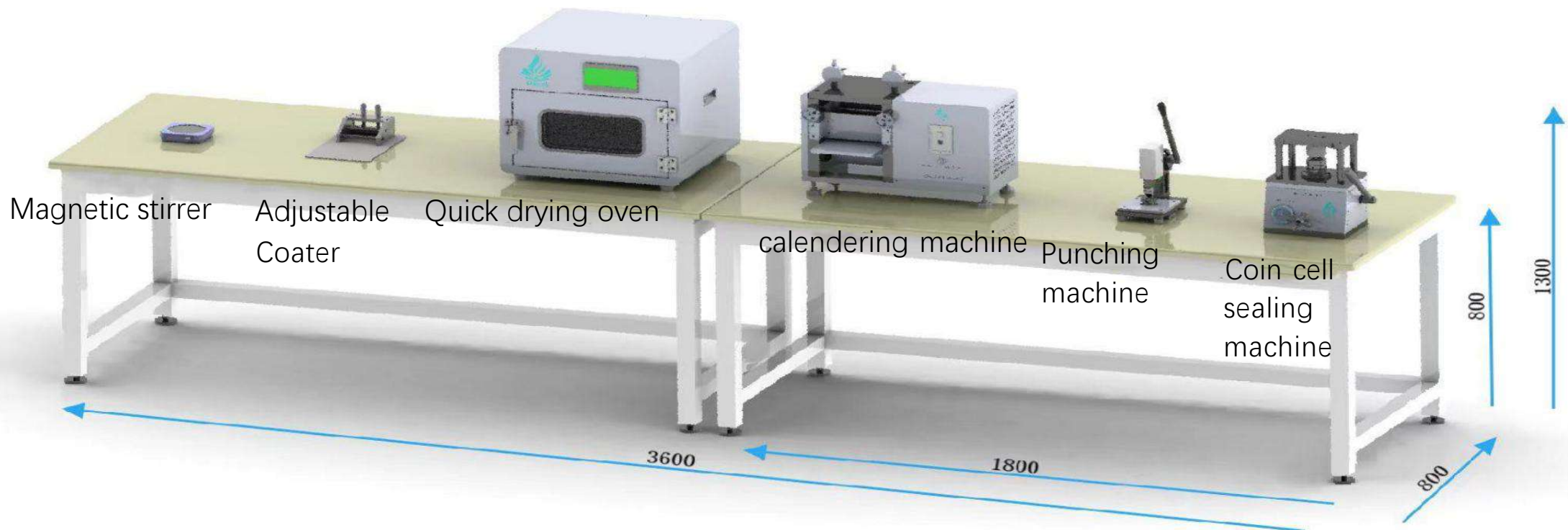


Equipment awaiting shipment





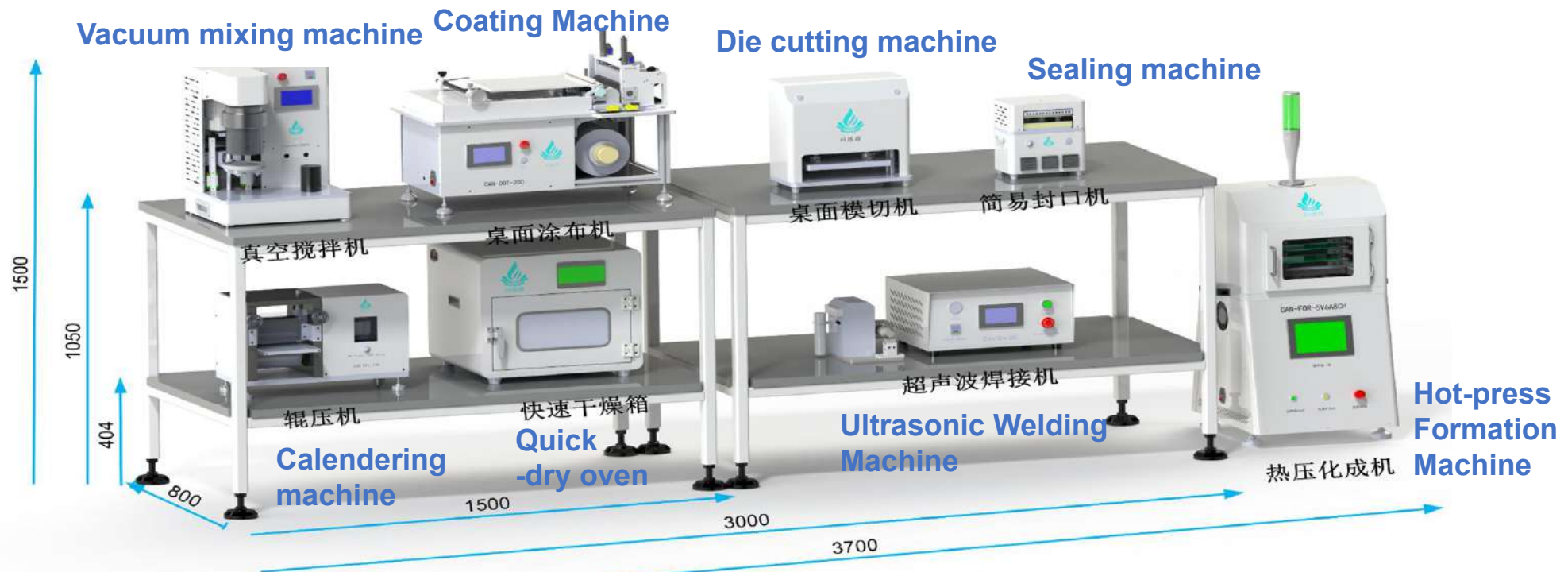
Product Display - Coin Cell Equipment Line



Process	Feature	Description
Mixing	Fast distributed	Disperse in 3-5 minutes, with a minimum of 7mL (defoamer)
Coating	Uniform weight	The flatness of the scraping plate is high $\pm 5\mu\text{m}$ (glass $\pm 50\mu\text{m}$), reducing the risk of picking up pieces
Baking	Rapid drying	Anode pressure baking, cathode electrode for 6 minutes, anode electrode for 3 minutes
Calendering	Flattening of tablets	Small circular runout and uniform thickness of the electrode
Punching	Complete disc	High precision mold processing, no material dropping from the electrode
Package	Easy compatibility	Compatible with 2016, 2025, and 2032



Product Display - Single layer Stacked Battery Equipment Line



Process	Feature	Description
Mixing	Fast dispersion	High-speed dual planetary, vacuum mixing , water circulation temp. control , ≤1L
Coating	Uniform weight	Desktop coating, high uniformity, area density ±2%
Drying	Fast drying	Negative pressure, cathode 6 min, anode 3 min
Calendering	Flat & uniform	Low run-out, thickness uniformity (±5μm)
Cutting	Simple & easy	Easy operation, glove box applicable
Welding	Compact & handy	Lightweight, glove box applicable
Sealing	Easy & reliable	Lightweight, glove box applicable
Formation	Fast & efficient	Pressurized heating activation, <90 min , good interface, stable cycling



Product Display - Single layer Stacked Battery Equipment Line

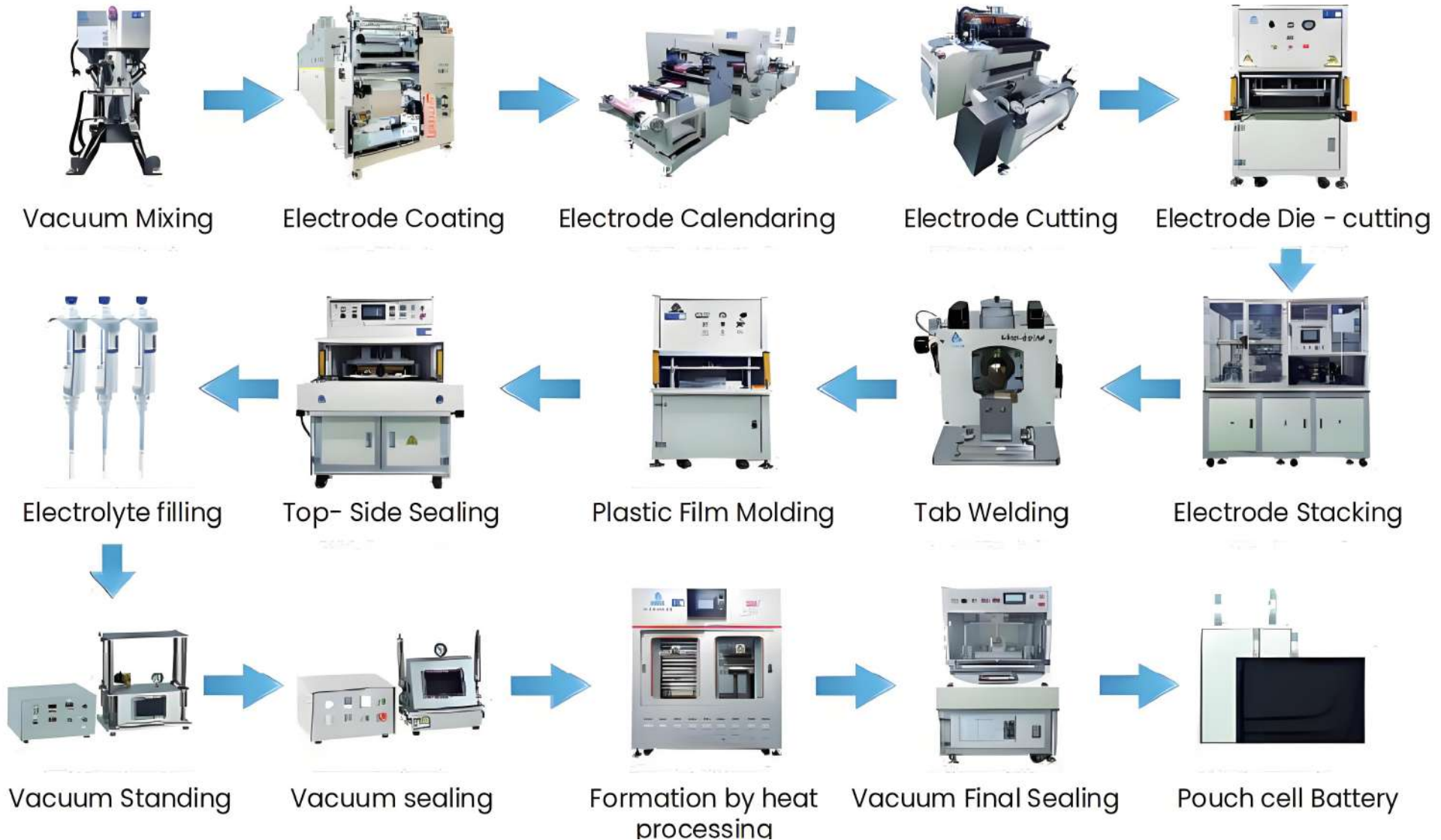


- ◆ Can meet the production of lithium metal batteries and solid-state batteries in glove boxes



Product Display - Pouch Cell Equipment Line

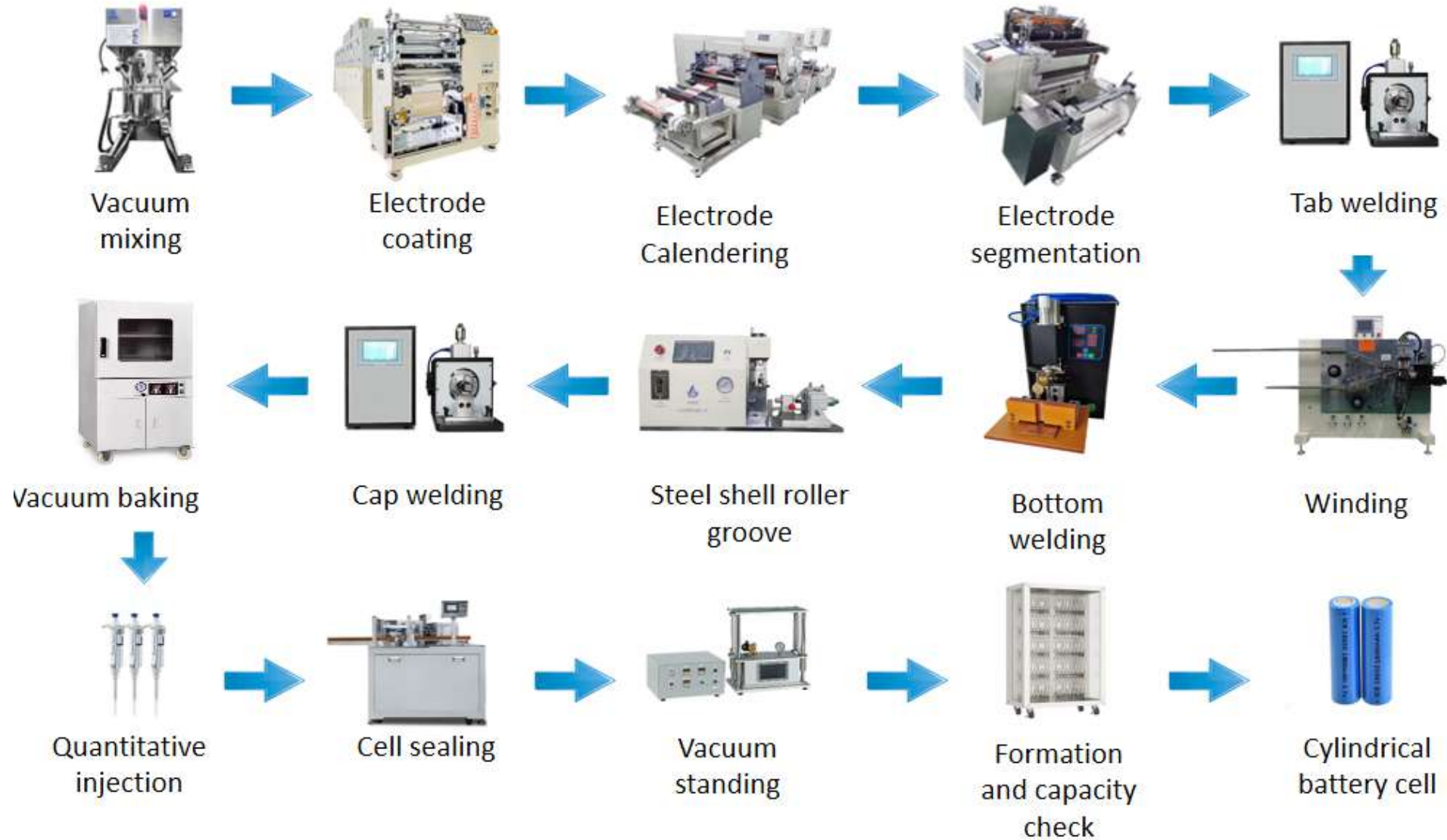
◆ The production of 1-20Ah pouch cell winding/stacking batteries





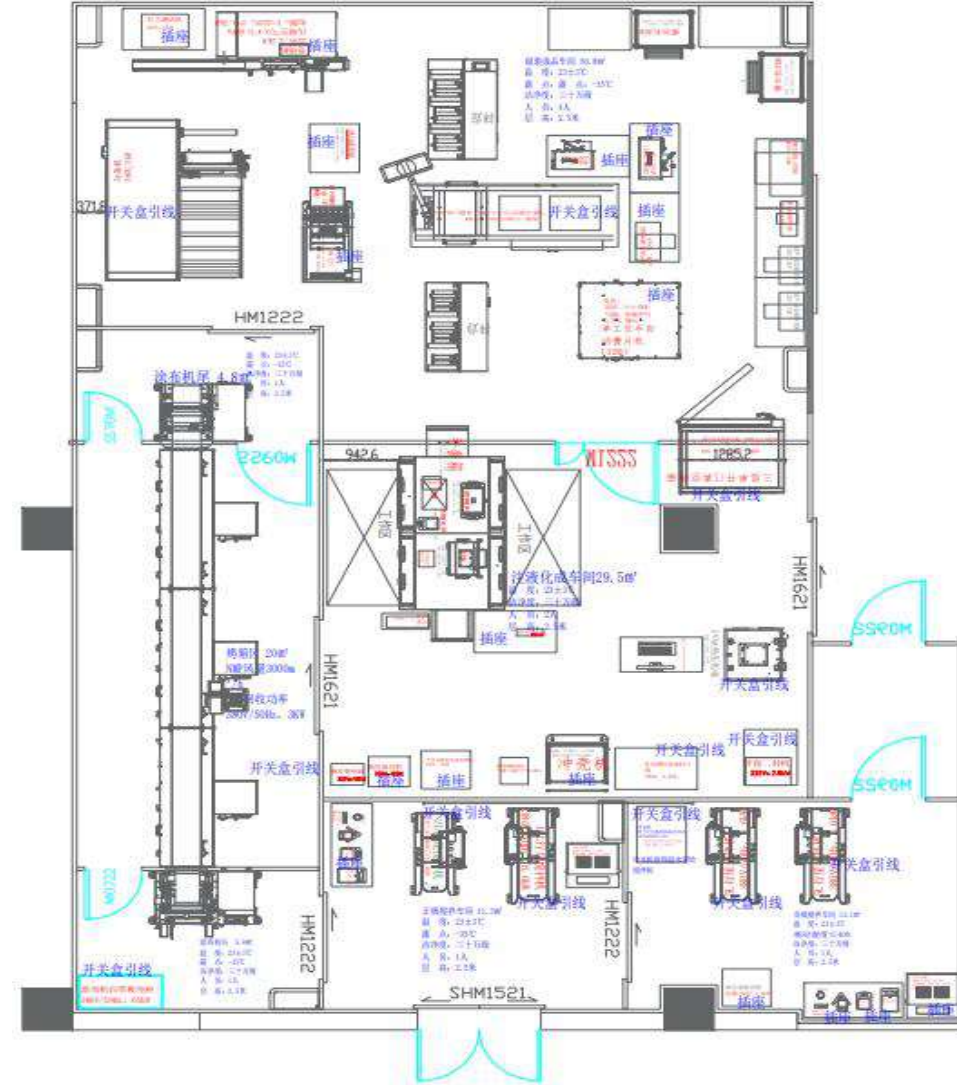
Process Flow - Cylindrical Battery Line

◆ The production of 1-5Ah small cylindrical batteries





Battery Pilot Line Showcase – Case 1



Pouch Cell R&D Line for a Materials Company (150 m²)



Battery Pilot Line Showcase – Case 2

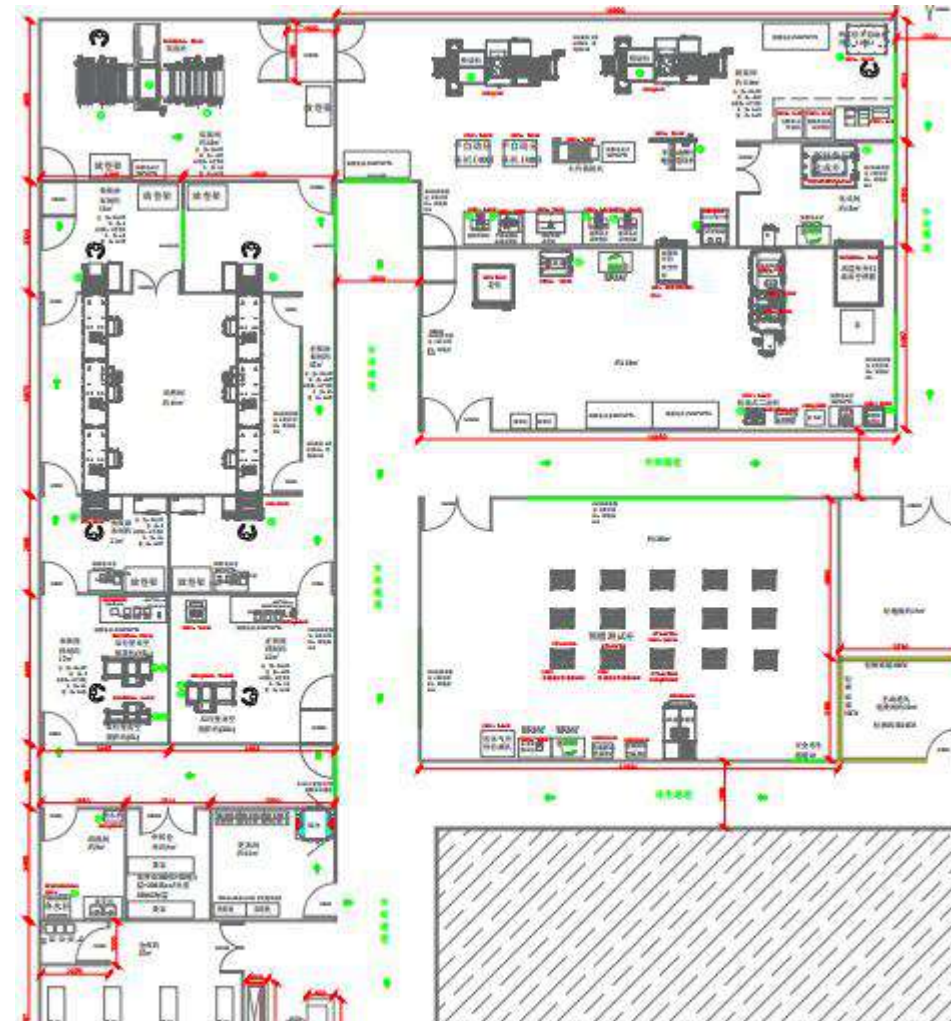


Pouch Cell Pilot Line for a Cathode Materials Company (800 m²)





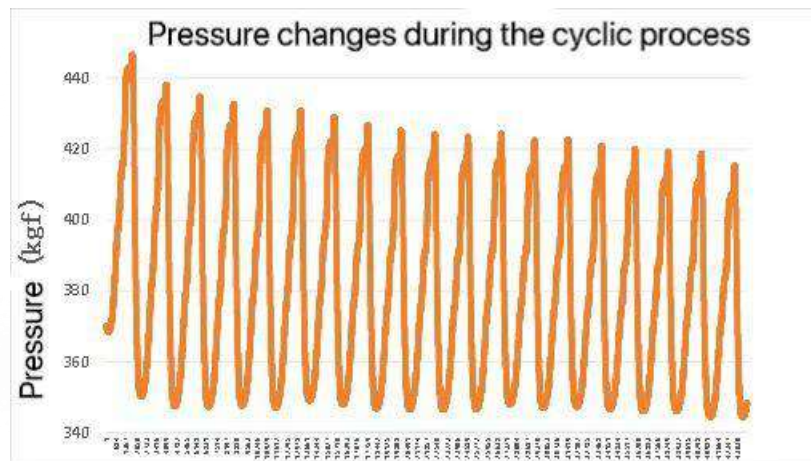
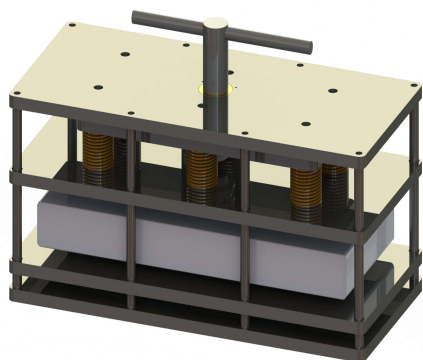
Battery Pilot Line Showcase – Case 3



Pouch, Cylindrical & Prismatic Cell Pilot Line for a Cathode Materials Company (1000 m²)

Customization of fixtures

- Follow up on customer needs, customize and develop various fixtures and tools



Pressure fixture for real-time monitoring and recording of expansion force changes during the testing process of pouch cells:

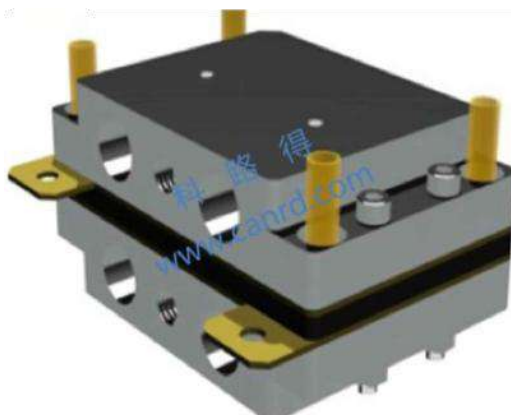
- ◆ Extreme pressure: 1960N; Accuracy: 0.05%;
- ◆ Working temperature: -20°C ~ 70°C, Real time monitoring of pressure.



Pouch cell battery pressure fixture



Fuel cell testing fixture



Coin cell testing fixture





Solid state mold



With Pressure Sensor
Guaranteed Support
Cost-Effective



Economy Model - Basic (1A)



Standard Model - Basic (2A)



Balancing Model - Voltage
Stabilized (3B)



Economy Model - Upgraded
with Locking Ring (1B)



Standard Model - Upgraded
(2B)



Pressure-Monitoring Model -
Basic (4A)



Economy Model - Transparent
(1C)



Standard Model - Improved
(2C)



Pressure-Monitoring Model -
Balanced (4B)



Economy Model - Three-
Electrode (1D)



Balancing Model - Basic (3A)



Pressure-Monitoring Model -
Voltage Stabilized (4C)



Business introduction

Materials Division





Experimental Materials Division



Headquarters in Da lang



Dalang Headquarters Warehouse

◆ The experimental materials mainly include:

- ◆ -- **The world's most comprehensive and professional energy materials:** lithium batteries, sodium batteries, lithium sulfur, supercapacitors, water-based batteries, etc;
- ◆ --General consumables: glass, plastic, paper film, hardware, PTFE, sintering, grinding, packaging consumables, safety protection, office supplies, fixtures and equipment, etc;
- ◆ -- Other experimental consumables: low dimensional materials, fuel cells, chemical reagents, etc;
- ◆ **Over 10000+ customers**, including universities, research institutions, and enterprises; High market share of individual products (**with over 50% of the domestic market share for coin cell case accessories**).
- ◆ **High customer satisfaction**, providing systematic technical support and professional after-sales service.
- ◆ Regular free public course training, regular sending of technical tweets, establishment of technical exchange platforms such as QQ and WeChat groups, and **continuous provision of technical services**.



Product classification and one-stop service

Experimental materials

Energy materials

General consumables

Low-dimensional materials

Solid state battery

Fuel cell

Chemical Reagents

Cathode

Electrolyte/salt
/organic
reagent

Glass

Plastic
category

One-dimensional
carbon material

Solid electrolyte

Catalyst

Inorganic
chemistry

Anode

Solid
electrolyte

Hardware
category

Paper film
category

Two dimensional
carbon materials

Solid state electrolyte
coating ceramic
separator

Proton exchange
separator

Organic chemistry

Separator

Coin cell
accessories

Sintering
category

Tetrafluoroet
hylene class

Three dimensional
carbon materials

Cathode/Anode

Carbon paper/carbon
cloth current collector

Analytical
chemistry

Conductive
agent

Current
collector

Security
protection
category

Grinding
class

Inorganic
nanomaterials

Raw material

DuPont solution/gas
diffusion layer

Material chemistry

Binder

Pouch
cell/cylindrical
battery accessories

Office
supplies

Packaging
consumables
category

Organic
nanomaterials

Additives/Conductors

Experimental
equipment

Biochemistry

Other energy
materials

Analyze electrode
materials

Other
consumables

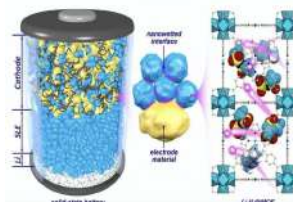
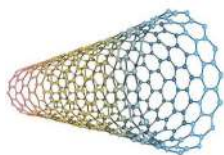
Fixtures and
equipment

Metallic
nanomaterial

Foil and other
materials

Application project
development

Standard substances
and others



全

新

好

稳

产品丰富 系列完善

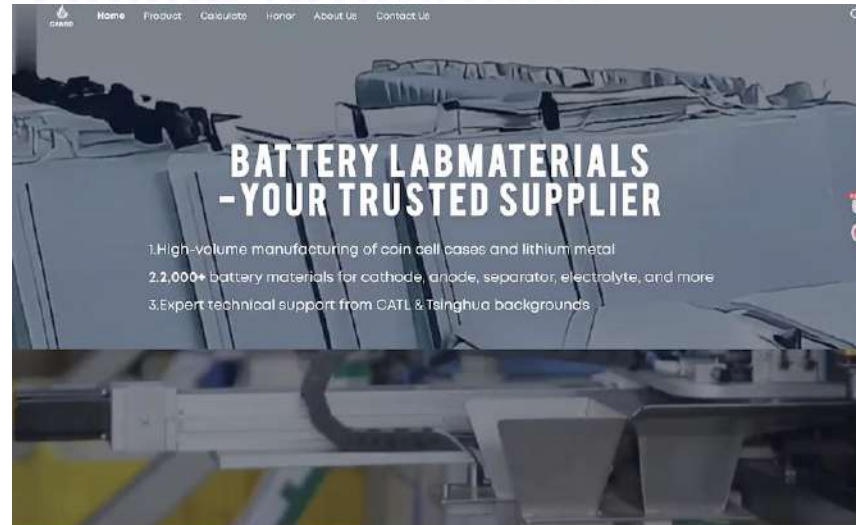
定期上新 新鲜不断

专业售后 放心使用

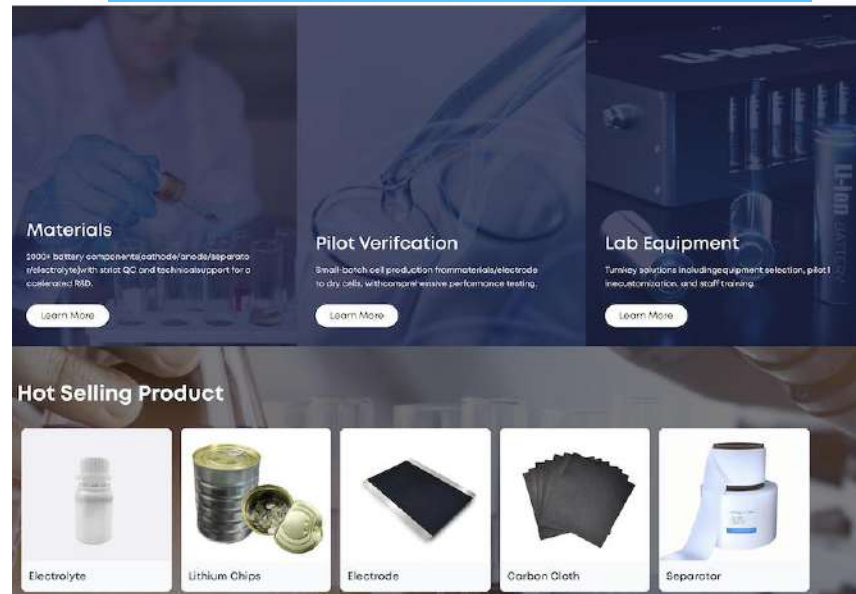
批量供应 品质稳定



Online promotion



Web: www.canrd.com



Food Service Equipment & Supplies • Concession & Vending Equipment • Vending Machines & Parts • Replacement Parts • Coin & Money Exchangers





**Partial
customers&attachments**



CONTACT DETAILS

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THANK YOU !