ZERO CO_2

HYNN TECHNOLOGY

With the aim of maximizing customers' value, we achieve the maximization of our enterprise value.

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HYNN TECHNOLOGY

TRUSTED SOLUTIONS TESTED EFFICIENCY

Guangdong Hynn Technology Co., Ltd.

HYNN TECHNOLOGY

Top Supplier for Battery Manufacturing Solutions

HYNN TECHNOLOGY

TOP SUPPLIER FOR BATTERY POST-PROCESSING

HYNN

100,000+㎡
Office and Factory Area

350+GWh
Accumulated Delivery

2000+
Global Staff

500+
R&D Staff and Technicians

8+
Delivery to Overseas Countries

6+
Foreign Subsidiaries







HYNN is one of the top li-ion battery post-processing solution providers in global market. Committed to ongoing innovation, HYNN helps to power the profitability of clients' business by shortening time and reducing costs spent on post automation system and endeavor to gain support through reliability, quality-price ratio and professional service.

Penetrating a wide range of industries, HYNN proposes breakthrough solutions that bring strong commercial value and efficiency improvement to clients and better performance to the whole new energy industry.

COMPANY MILESTONES

To be a global tier-one equipment and solution supplier in new energy industry

2023

- Become supplier of CATL overseas base
- Self-built SSL new headquarter completed, annual capacity increased to 200GWh
- Awarded by Northvolt and BMW
- Awarded by BASQUEVOLT, technical breakthrough in Solid-state battery

- Completed Series D round funding, led by Morgan Stanley

2022

- Groundbreaking ceremony held for the new headquarters base project.

  Selected as the "China-EU Carbon Neutral Innovation Cooperation National Demonstration Project"

  Awarded by Mercedes Benz, EVE, etc

2021

- Started oversea adventures and became supplier of Panasonic and ACC
- Joint lab with South China University of Technology and rated it as a key lab in Dongguan city

2020

- Became the core supplier of CATL, REPT, GREAT POWER, etc
- Established HYNN manufacturing base in Dongguan, Guangdong
- Won the WIPO-SIPO Award for Chinese Outstanding Patented Invention & Industrial Design

2019

- Determined the Focus Strategy (Product, Technology, Customer)
- Became supplier of APPLE
- Established automatic testing production lines for domestic power battery customers
- Established HYNN research institute

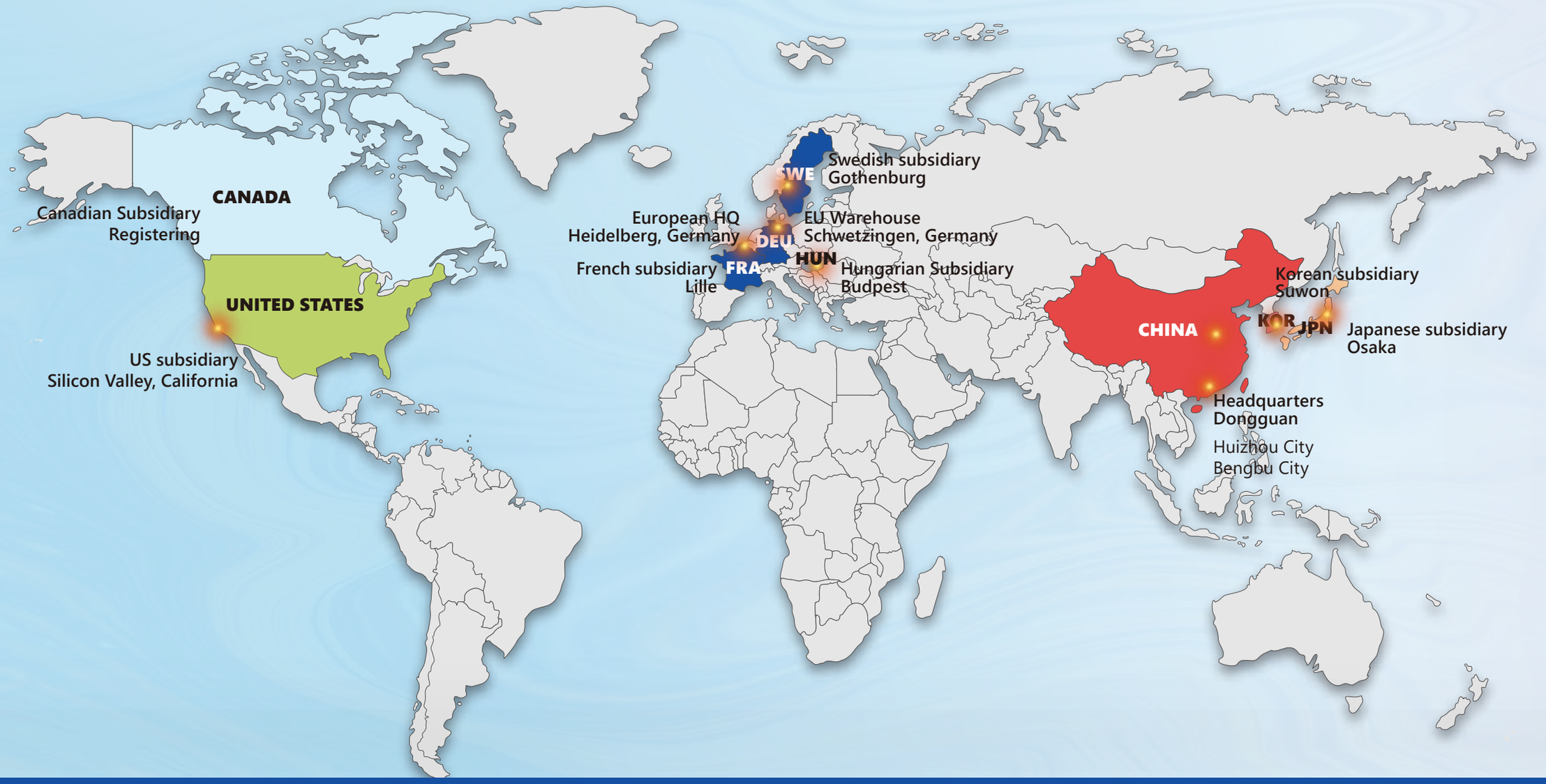
2018

- Launched high-precision notebook battery test equipment
- Launched power battery series test equipment

Establishment

GLOBAL CUSTOMERS

In addition to our plant sites throughout China, HYNN has broad international delivery footprints in France, Germany, the U.S., Japan, South Korea, etc.



1 Turnkey

- Accumulated overseas turnkey delivery experience

2 Regulation compliance

- CE/ UL compliance
- Occupational safety and health
- Tax / Environmental friendly

3 Localization

- Special type of work
- Local processing and service capabilities
- Localized suppliers

CATL · ACC · northvolt · Panasonic · Mercedes-Benz · BMW · saft · SIEMENS · BEYONDER · BASQUEVOLT · CustomCells

* Only parts of the clients. Names not listed in order.

OUR VISIONS AND MISSIONS

To be a global tier-one equipment and solution supplier in new energy industry.

Enhance the competitiveness of customers through our innovation.

Maximizing our customers value is to realize HYNN's value.

Improve manufacturing efficiency.

Make energy greener, safer and more affordable.

OUR VALUES

1 **INNOVATION**

Next generation cell
Next generation process
Next generation factory

2 **SUSTAINABLE**

High efficiency, less consumption

3 **EXPERTISE**

Through focus and efforts, pursuing greatness

HYNN

HONOR AND QUALIFICATION

ISO9001: 2015 Certified
ISO45001: 2018 Certified
ISO14001: 2015 Certified

CE Certified

Chinese National High-tech Company Certificate

10+ International PCTs, **200+** Chinese Patents

CUSTOMERS AND PARTNERS

CATL, ACC, northvolt, NOVO, Panasonic
PowerCo, Mercedes-Benz, BMW, saft, SIEMENS
EVE, REPT, GREAT POWER, SVOLT, HITHIUM
SERMATEC, LISHEN, Gotion, BASQUEVOLT, BEYONDER

* Only parts of the clients. Names not listed in order

PRODUCT AND SOLUTION SYSTEM

Develop products & solutions based on cell technologies, charging / discharging and automation core capabilities.

LiB Cell Finishing Line

Turnkey Automated Cell Finishing Solutions
for Prismatic / Cylindrical and Pouch Cell

Module & PACK Testing Solutions

EV & Energy Storage Testing System
EV & Power Battery Pack Testing System
Digital & 3C Pack Testing System

Energy System Matched Solutions

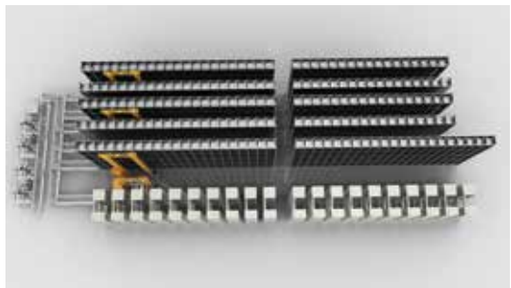
Micro-grid Energy Saving Solution
Power Battery Energy Saving Testing Solution
Solar, Storage, Charging and Testing Integrated Solution
Energy Storage System Solution

Software System

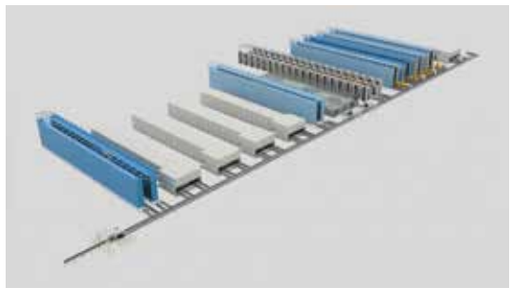
One Stop Digital platform
MES, WCS and Single Machine System
Capacity Estimation AI System
C-BTS：Cloud-Battery Testing System

TOP SUPPLIER FOR BATTERY MANUFACTURING SOLUTIONS

Post-processing line prismatic cell



Post-processing line cylindrical cell



Post-processing line pouch cell

Overview

HYNN supplies the overall solution of battery formation and grading, from 1st filling to sorting & packaging. We offer the most appropriate systematic proposal based on customer's condition, such as battery production process, equipment construction, logistics planning, production management systems and so on. We provide a variety of customized functions and offer tailored high-yield production lines.

Application Scope

The lithium battery production post processing: code scanning, tray loading, hot-pressing formation, high-temperature standing (or soaking), room temperature standing, grading (or aging), OCV/IR, DCIR, and sorting and packaging.

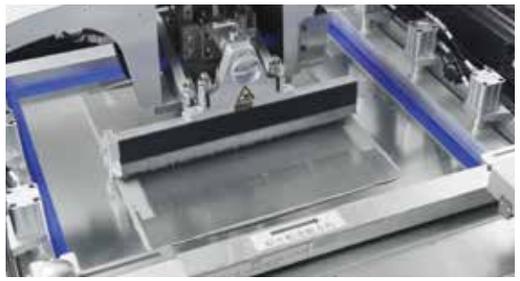
System Characteristics

With the tray as carrier, the three-dimensional racks, lane stacker cranes, exit/entrance working station, robot arms, barcode scanning systems, automatic conveyor systems, MES and WCS systems constitute a complete and closed loop of power battery production automation logistics system.

Functional Characteristics

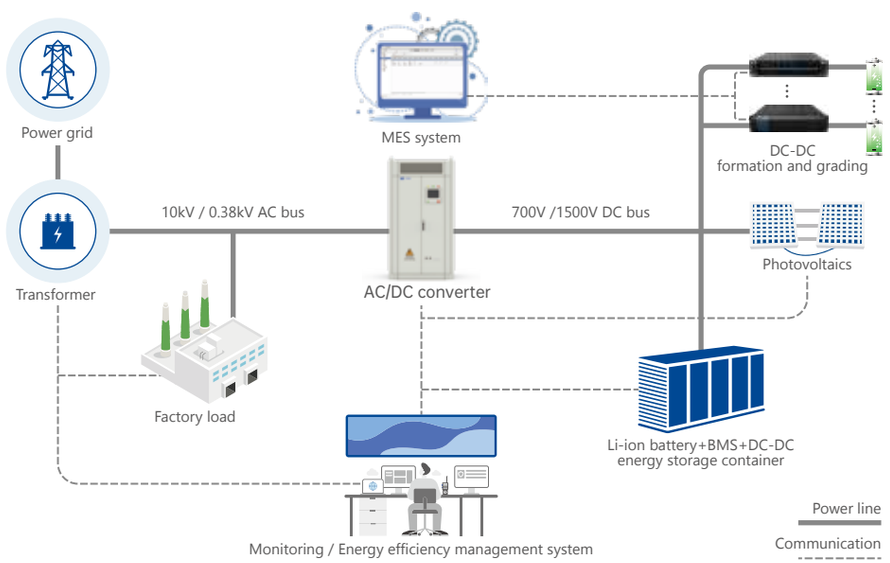
The battery formation & grading line use trays as the carrier, with cells are placed on the tray and transferred to various process stations for testing. Barcode is adopted to monitor and track product information in real-time. The system is highly integrated and automated, with significant production efficiency.

The line is integrated with equipment, automated mechanical logistics, and production and manufacturing execution management software, all process stations are connected into a large system. Through technological management, worker can achieve on-site unmanned production as long as they operate on the screen, which is suitable for large-scale and consistent production, and has the advantages of saving manpower, improving efficiency, and stabilizing production capacity.



SOLUTION HIGHLIGHTS

Energy-Storage-System (ESS) D-Bus Solution



Design Principle

AC/DC converters, energy storage containers, and DC-DC formation and grading are electrically connected through 700V DC bus coupling. The plant energy can be dispatched in real time by the EMS energy management system.

Advantages

20%

Energy Saving

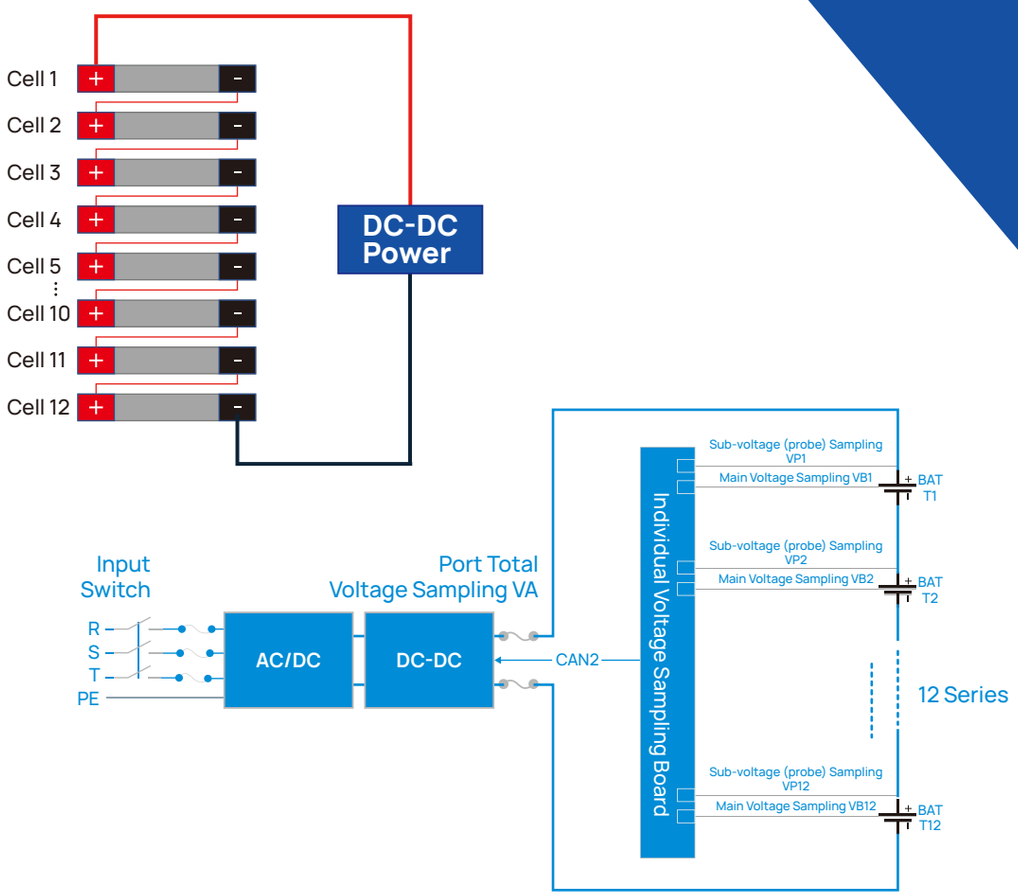
Compared with the traditional format, the DC bus voltage is high, the current is small, the cable loss is relatively reduced and the overall efficiency of the system is improved.

10%

Overall Cost

Compared with the traditional solution, AC/DC adopts high-power all-in-one machine, and the overall cost can be reduced by more than 10%.

Serial Formation Solution



* Can be customized. Presented parameters are only for reference.

Design Principle

12 cells are connected in series, and each cell is equipped with a bypass switch board (optional). When any cell in the series reaches the cut-off condition, it will be cut out in order of priority until the last cell in the same serial connection.

Advantages

30%

Energy Saving

15%

Overall Cost

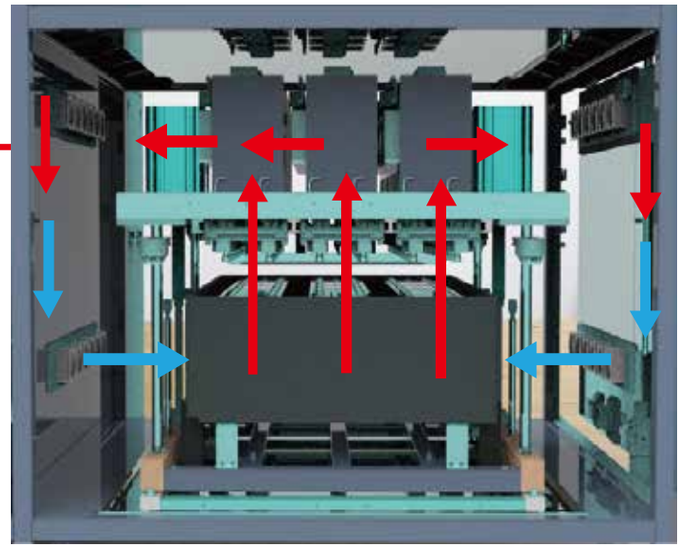
The series formation solution is mature and stable, with high efficiency, low heat generation, and evident energy saving effect.

Compared with traditional way, the energy saving efficiency is increased by 30%, and the cost can be reduced by more than 15%.

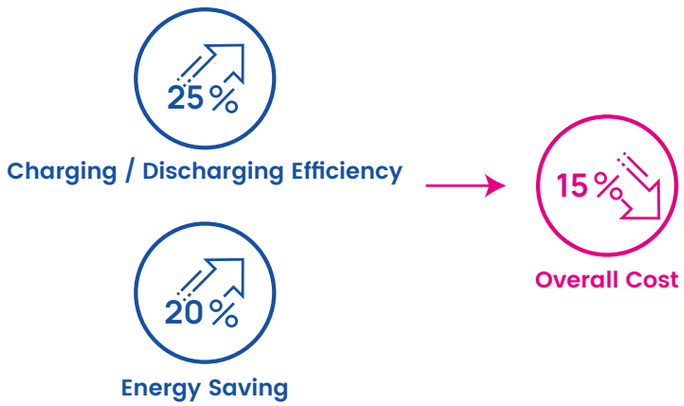
All-in-One Grading Machine

Design Principle

The power module is integrated in the chamber, and the temperature is controlled by water cooling system.



Advantages



Temperature consistency is well controlled, and the temperature uniformity can reach ±2℃. The cable is shorter, therefore, the energy loss and heat generation will be less.

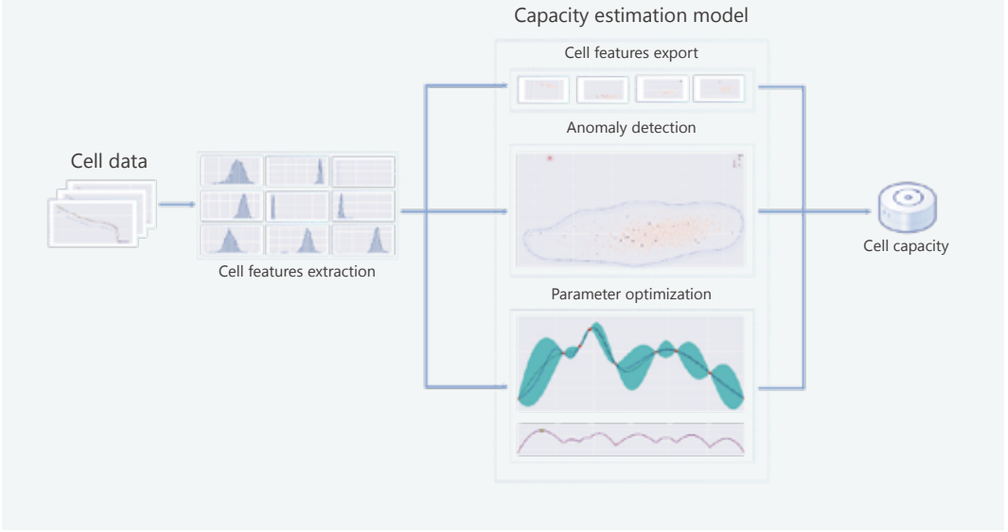
Capacity Estimation System

Chinese Patent: ZL.2017111488436

International Patent: PCT/CN2017/111651

US Patent: 15/847,959

Winner of China Patent Award



Design Principle

By adopting the charge and discharge curve of the cell capacity and based on the AI big data, the complete charge and discharge curve of the cell capacity can be estimated. The system includes cell feature data export, offline big data training modeling, online reconstruction prediction, iterative optimization model, etc.

Estimation Accuracy

Average Prediction Error Value ⩽0.2%

Maximum Prediction Error Value of Single Cell ⩽0.5%

Advantages

Capacity Process Time

Capacity Equipment Configuration

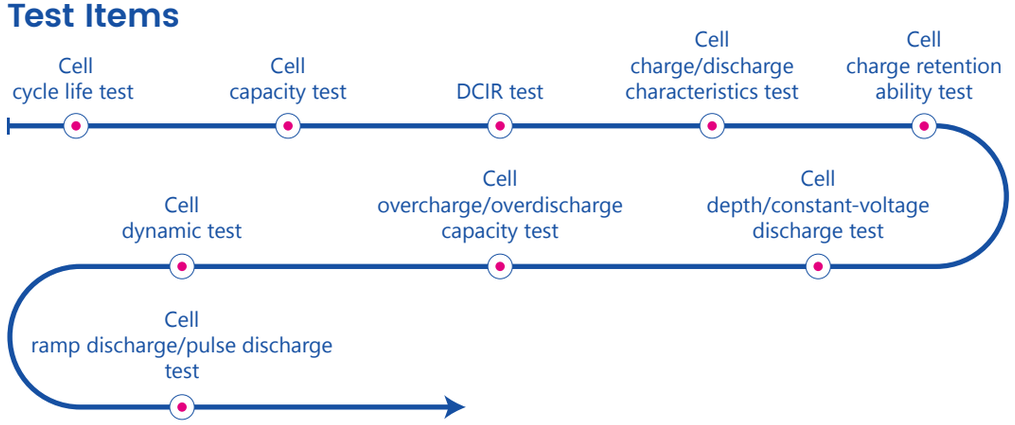
Footprint and Energy Consumption of Plant Capacity Equipment

FEATURED EQUIPMENT

5V Power Cabinet

Suitable for Prismatic/ Cylindrical/ Pouch Cell

Test Items



System Features

- Save energy effectively by feeding discharging energy back to power system, with little energy heat produced.
- Reliable, ultra-high precision testing with 0.05% accuracy and 5ms/time for sampling rate.
- Independent channel with configurable parameter and condition setting for each individual channel.
- Multi network integrated management, centralized control in one computer.
- Complete input and output, software and hardware protection, reverse connection protection, power make and break function.
- No impact current when starting the channel. The CC/CV transition is perfectly done without voltage and current surge.
- Modular design is convenient for maintenance.
- Comprehensive data covering all aspects, and data uploads to MES system in real time.

Equipment Parameters

Model		ECT0530A	ECT0560A	ECT05100A	ECT05200A	ECT05400A
Number of main channels		96CH/Cabinet	48CH/Cabinet	24CH/Cabinet	12CH/Cabinet	6CH/Cabinet
Voltage	Precision	± (0.05%FS+0.05%RD)				
	Resolution	0.1mV				
Current	Precision	± (0.05%FS+0.05%RD)				
	Resolution	0.1mA				

Negative Pressure Formation Equipment

For Prismatic Battery

—

Negative pressure formation chamber adopts a six-sided protection design. It is equipped with dual fire protection (water & gas).

System Features

Modular Design

Tray unit and subcomponents are well designed for high-speed test and large-scale production, convenient for installation, replacement and maintenance.

Dust Proof

No direct contact between metals in a mechanical unit parts to effectively prevent dust during collision.

Dual Cylinder

Adopts 2-cylinder mode to make the movement process more stable and improve the contact performance.

Tray Positioning Mechanism

Tray will be positioned two times. 1st position for mechanical unit, 2nd accurate position by diagonal locating pin.

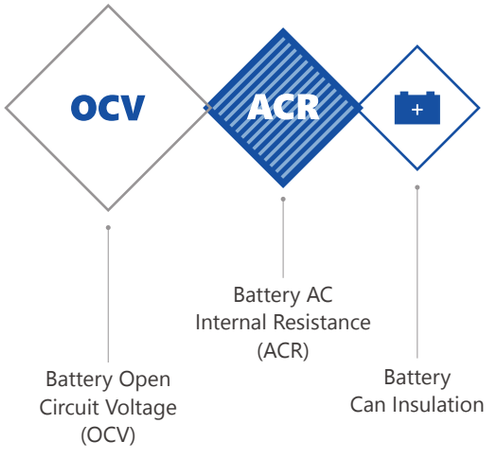
Multiple Safety Protection Device

Dual monitoring method: smoke sensor + temperature control can effectively ensure test safety.

Each layer is isolated with stainless steel plate and fire-proof rock wool.

OCV Tester

Test Items



OCV Tester

System Features

- The equipment can be made flexibly matched outside the output line or bridged inside the output line.
- Embedded design is applied to the HMI. The display height and operation platform are designed in accordance with the ergonomic requirement.
- High precision testing instrument ensures stable and reliable performance.
- OCV test device, with the independent research and development of intellectual property rights, can smoothly connect with automatic logistics system and process equipment in the previous and post procedures, which guarantees a high precision and reliable performance.

Equipment Parameters

S/N	Item	Specification
1	Voltage test range	0~6V
2	Internal resistance test range	0~300mΩ
3	Voltage test accuracy	±0.01%rdg. ±3dgt (V)
4	Internal resistance test accuracy	±0.5%rdg. ±5dgt.
5	Test instrument	Agilent 34461A (Voltage) HIOKI 3562 (Internal Resistance) can be customized
6	Applicable power supply	AC 220V 3℃ 50Hz

DCIR Tester

Test Items

Battery DC Internal Resistance

DCIR Tester

Functional Characteristics

- Estimation of DCIR is based on BSEN61960, which adopts 2nd loading current test, calculates DCIR value by voltage difference of current changing, much close to the actual resistant effect by cell continuous current, therefore power battery or high-power type battery should go over the estimation of DCIR test.
- Cabinet testing machine switch response time less than 15ms, pulse width less than 100ms, can catch the minor curve of current and voltage instantaneously, which offer more accurate and high precision testing hardware platform; software calculating method follows HPPC standard testing for development, closer to response battery characteristic features.
- Contacting probe adopts alloy metal, contacting impedance minimize more than double compared to same level beryllium cooper probe, current overflowing temperature rise less than 6℃ under 45℃ high temperature surrounding.
- Using big current for battery impacting test, adopting the method of voltage difference and ex-current difference, calculates Cell's DCIR, DCIR tester can select NG cell in advance.

Equipment Parameters

Item		Specification
Voltage	Measurement and control precision of voltage	±(0.05%FS+0.05%RD)
	Measurement range (mV)	0~5,000
Current	Test precision	±(0.05%FS+0.05%RD)
	Measurement range (mA)	0~500,000
	Test procedure	Can be customized

Formation and Grading Chamber

+ Formation and Grading Chamber

Test Items

- Formation test
- Capacity test

Functional Characteristics

Tray position adopts two times confirmation. The 1st positioning is for the guiding blocks around the tray. The 2nd one is for the accurate positioning by the diagonal positioning pin.

Each chamber would be installed with two smoke sensors. Each cell is corresponding to one temperature sensor, which monitors real-time temperature, this way will ensure efficient and safe testing.

Probe adopts probe module or coaxial probes, which consist of current probe and voltage probe, probe head is jagged, beryllium copper plating, tiny contact resistant, current temperature rise less than 10℃ to guarantee the flowing current accuracy and voltage sampling precision.

Hot Press Pressure Formation Machine

System Features

- Cell would be heated up during formation, which improve the fluidity of electrolyte, strengthen the viscosity of electrolyte, with homogeneously spread of electrolyte, SEI would be formed easily, cycle life could be extended; Cooling compression could cool down the cell temperature quickly, under this format cell would be in good performance, low bulge rate and long cycle life, etc.
- Solution adopts compression in horizontal way, clamping tools adopts server rod, pressure distributes in uniformity, pressure control deviation ⩽10kgf.
- Clamping tool for compression tray be heated by electricity, and the temperature could be flexibly adjusted, maximum temperature tolerance can reach 90℃.
- Clamping tools are compatible for tabs on each side and tabs on same side, and realize quick changeover.

Equipment Parameters

Item	Specification
Voltage measurement range	0~5V for charge, 1.5~5V for discharge, resolution ratio of 0.1mV
Current measurement range	20mA~60A, resolution ratio of 0.1mA
Current and voltage accuracy	±(0.05%FS+0.05%RD)
Pressure uniformity between laminates	≤100kgf
Pressure control accuracy	≤±20kgf
Temperature uniformity of each battery cell	≤±2℃
Communication method	Ethernet
Channel utilization	≥99.9%

Grading Chamber

For Pouch Cell

Test Items

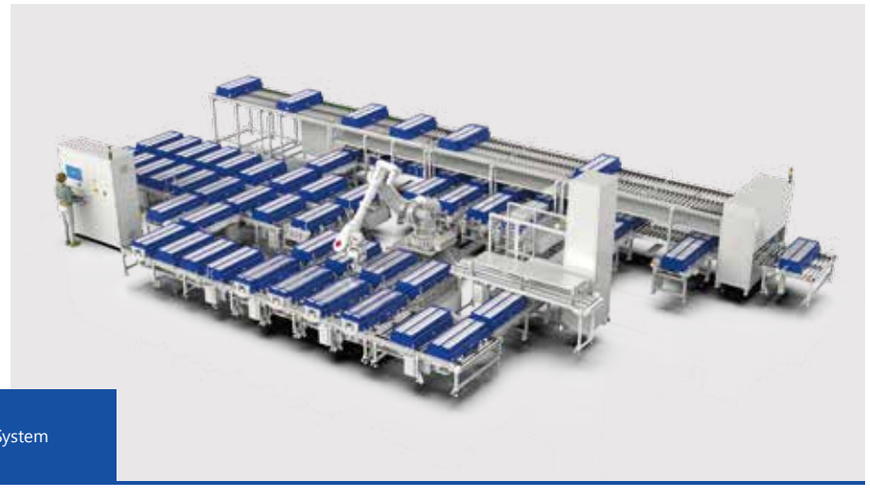
- Performance test of charge/discharge
- Cycle life test
- Self-discharge capacity test

Grading Chamber-For Pouch Cell

Functional Characteristics

- HYNN capacity test chamber can make one-off compressing contact for full tray, which enhances production efficiency. After testing, chamber automatically cut off process flow and upload test data, which connect previous and post process flows.
- Tray position method: Tray will be positioned two times. 1st position for mechanical unit surrounding guide block oriented, 2nd accurate position by diagonal locating pin.
- Action method: probe driven mechanism for cell tab pressing contact, rod adjustment can modify the pressing contact depth, after position testing and pressing contact, system would launch instruction for cell charging and discharging.

Sorting System



Sorting System

Test Items

1. Conditional classification of open circuit voltage of battery
2. Conditional classification of battery discharging capacity
3. Conditional classification of K value of battery
4. Conditional classification of battery platform capacity
5. Comprehensive classification of battery parameters
6. NG cell sort out

System Features

0.2%

Failure Rate

The failure rate is less than 0.2%, which can realize multi-gear design, and the stalls can be customized.

The scanning mechanism can automatically scan the barcode and the QR code of the single cell. If fails, it will immediately alarm and remind manual handling.

Functional Characteristics

- Available types for grading: Voltage, ACIR, DCIR, K value, Capacity, etc.
- Sorting gripper has cell clamping position testing function. Once abnormal situation occurred, machine will immediately stop operating and release alarm.
- Same kind of products would be selected for placing in another tray, automatic selection can avoid human caused errors.

Equipment Parameters

Item	Specification
Equipment power	10kW
Ranking	Can be customized
Applicable power supply	AC 380V 3∁ 50Hz
Cell input and output	The tray automatically flows in, when this process step is done, then empty tray automatically flows out
Rankings could be programmable	Based on Voltage, ACIR, DCIR, K value, Capacity, etc.

BUSINESS BACKGROUND

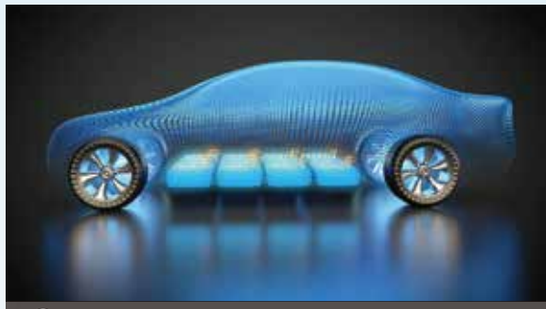
With the leading technology of high-voltage and high-power electronic conversion as the core, we provide energy management system of full power battery life cycle and supporting products for energy storage system.

01 Scenario

Solar storage charging / Swapping stations

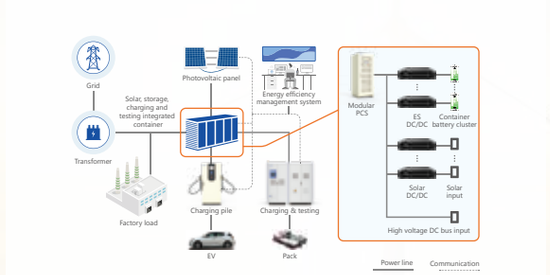
Energy storage application

Cell formation and grading production

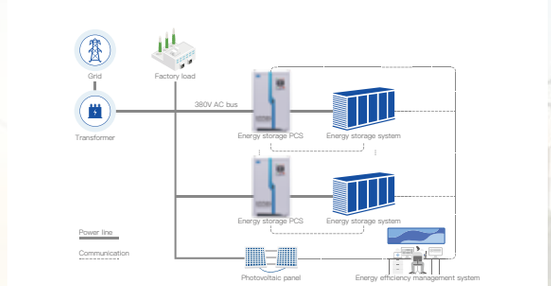


Lab / EV / Energy storage battery testing

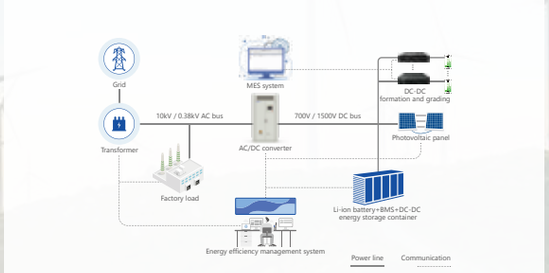
02 Solution



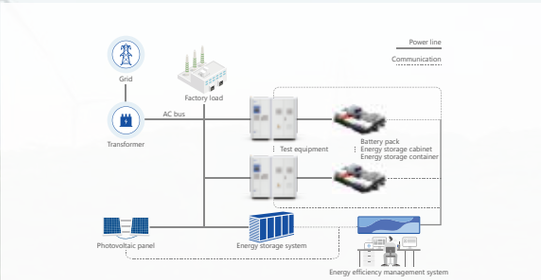
Solar, storage, charging and testing Integrated solution



Energy storage system solution



Micro-grid energy saving solution



Power battery energy saving testing solution

03 Product Platform

Module

- Modular DC/DC power (0~1500V, 50~215kW)
- Modular PCS (600~1500V, 50~215kW)
- Modular test (0~1500V, 215kW)

Equipment

- Energy storage PCS (600V~1500V, 630kW~5MW)
- Low voltage module Pack test equipment (0~200V, 10~300kW)
- Mid voltage power battery test equipment (0~1000V, 50~800kW)
- Energy storage and power battery test equipment (0~2500V, 100kW~6.3MW)
- EOL test equipment

Energy Efficiency Management System

04 Technology

High voltage & power electronic conversion technology

- Multilevel control
- High-precision sampling
- On-grid and off-gird
- 3rd Gen. semi-conductor
- System simulation
- High-efficiency soft switching

Mechanical & automation technology

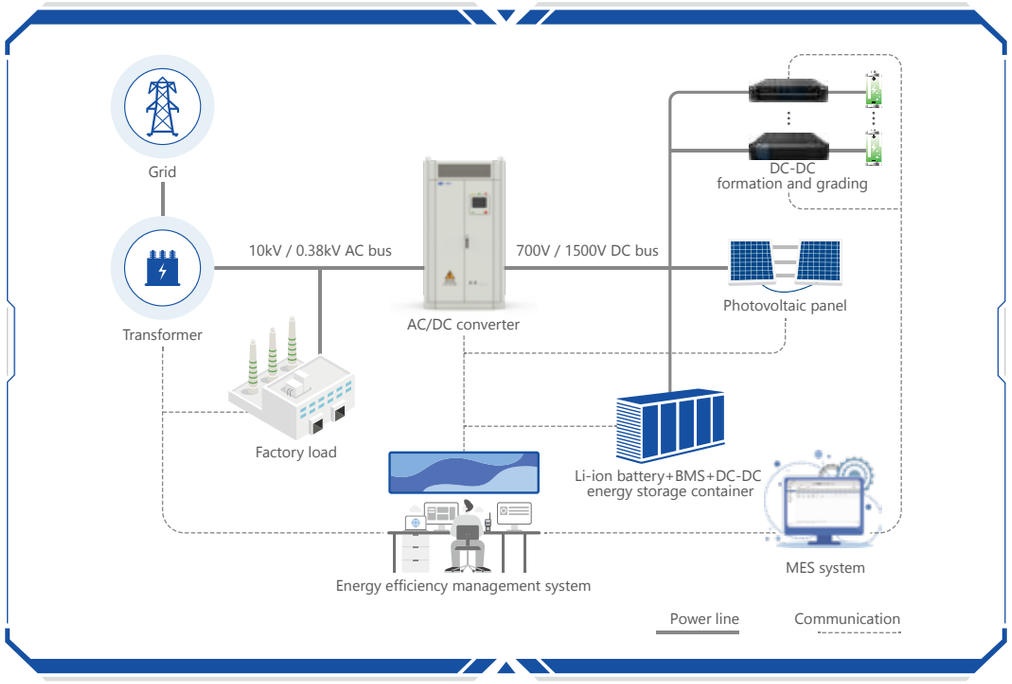
- Liquid cooling heat dissipation
- PLC application
- IP65 modular design
- Automation control

Big data storage & analytics technology

- AI application
- Big data / Cloud platform
- Test / Communication / Scheduling

SOLUTION HIGHLIGHTS

Micro-grid Energy Saving Solution



Design Principle

The system consists of energy storage PCS, photovoltaic power generation system, energy storage container, split capacity DC/DC power module, and supporting intelligent energy efficiency management system. Each power unit is electrically connected through a 700V DC bus coupling. The system energy can be controlled by the energy efficiency management system for real-time optimal energy efficiency scheduling.

Solution Advantages

20%

Energy saving effect

Compared to the traditional formation and grading scheme, the line loss is smaller, the internal energy circulation transmission level is fewer, the overall system efficiency is improved, and the energy-saving effect is improved by 20%.

100%

Efficiency Improvement

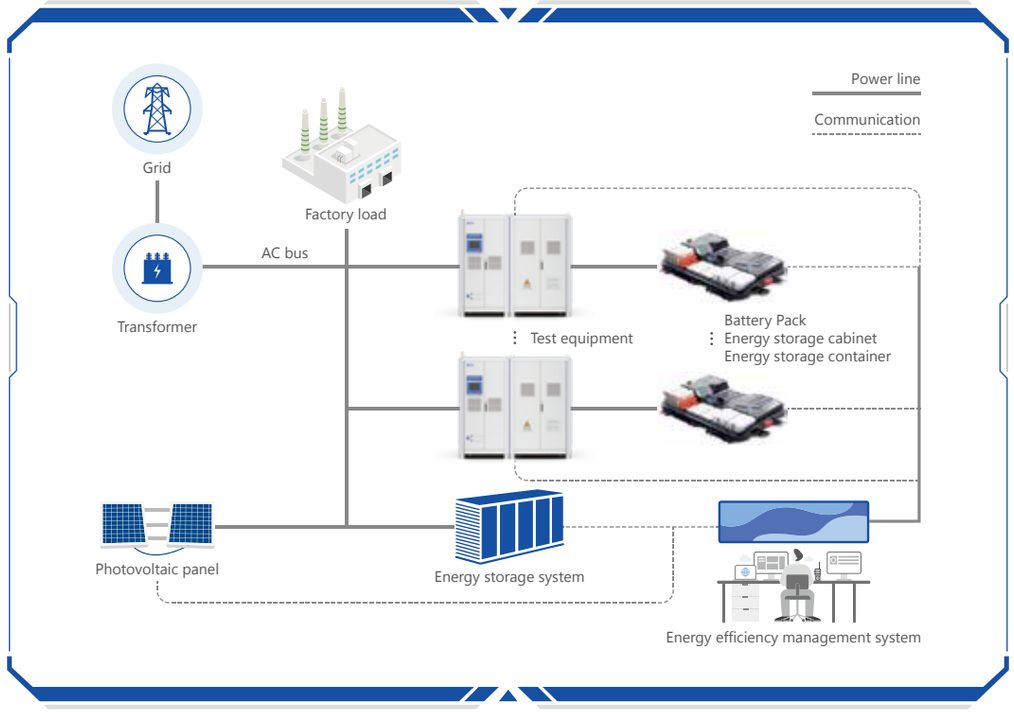
Water cooling integrated machine energy-saving series technology simplifies battery production process and improves production efficiency by over 100%.

10%

Overall Cost

Compared to the traditional formation and grading scheme, AC/DC adopts a high-power all-in-one machine, which can save 10% of the overall cost.

Power Battery Energy Saving Testing Solution



Design Principle

The system consists of power battery testing equipment, photovoltaic power generation system, energy storage container, electric vehicle pack, and supporting intelligent energy efficiency management system. The system energy can be controlled by the energy efficiency management system for real-time optimal energy efficiency scheduling.

Solution Advantages

15%

Energy-saving Improvement

The system has been intelligently scheduled by the energy efficiency management system, achieving multiple complementary functions and increasing the intelligent energy-saving effect by 15%.

50%

Efficiency Improvement

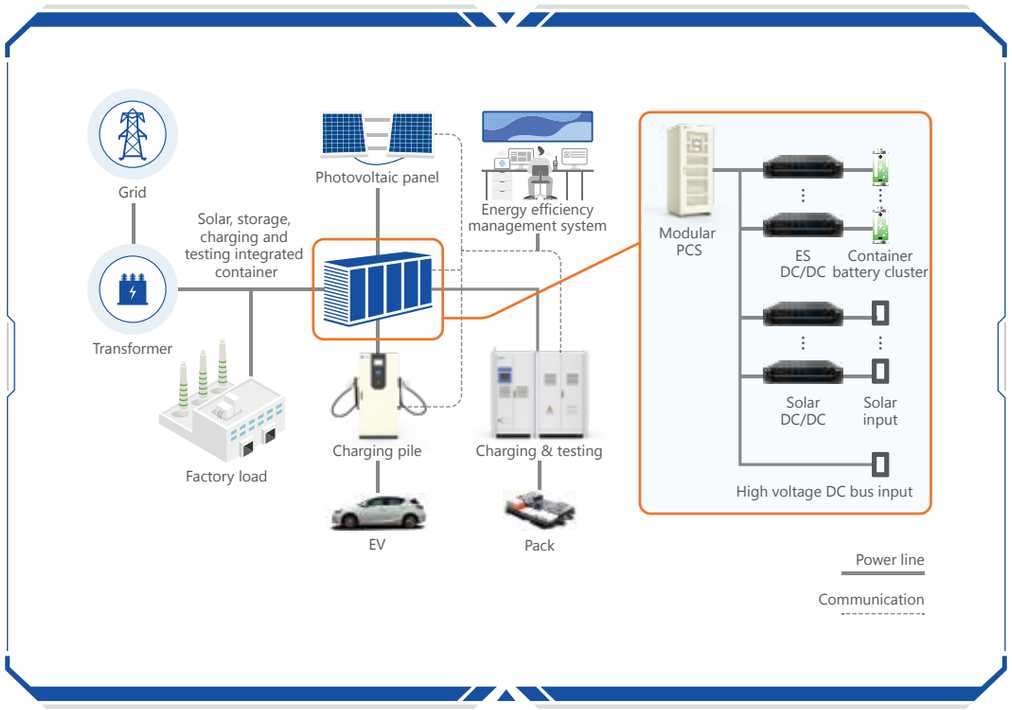
Based on partial charge and discharge data, predict the complete charge and discharge curve of the battery, shorten the testing process, and improve the testing efficiency by 50%.

20%

Safety Improvement

Multi level software and hardware fuse protection, high security protection for data recording, and 20% improvement in security performance.

Solar, Storage, Charging and Testing Integrated Solution



Design Principle

The system is composed of energy storage PCS, optical storage integrated container, charging station, detection equipment, and supporting intelligent energy efficiency management system. The system energy can be controlled by the energy efficiency management system for real-time optimal energy efficiency scheduling.

Solution Advantages

Energy-saving Improvement

Multi energy complementary, suppressing the impact of charging load changes, and improving energy efficiency by 10%.

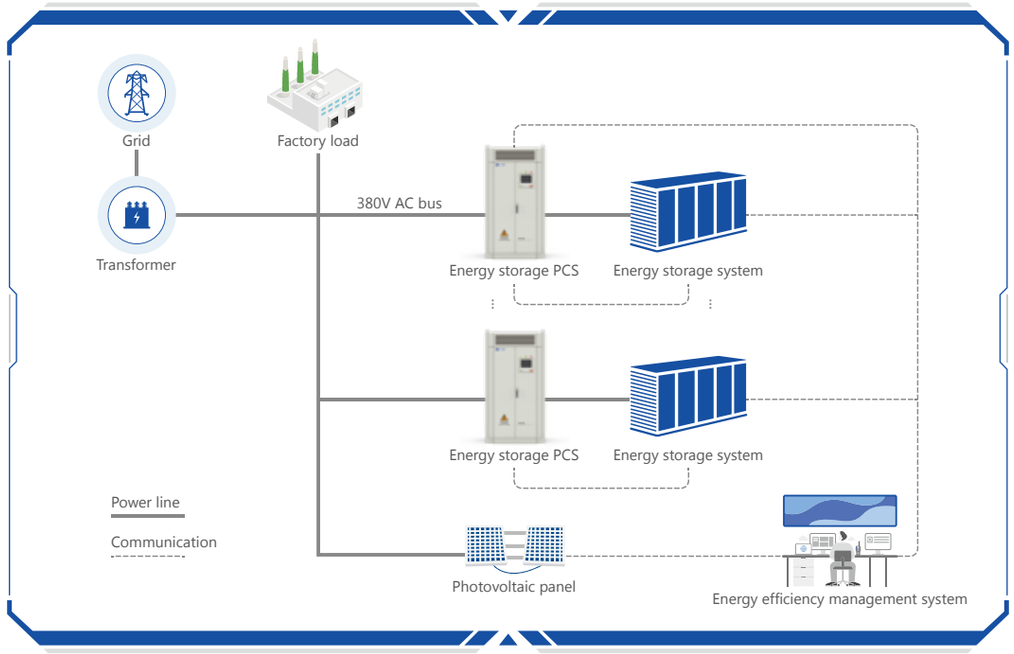
Overall Cost

Flexible configuration, high system conversion efficiency, high-voltage DC bus scheme, overall cost reduction of 10%.

Safety Improvement

Multi channel signal acquisition, real-time monitoring, abnormal fluctuation warning, system safety performance increased by 15%.

Energy Storage System Solution



Design Principle

The system consists of energy storage PCS, photovoltaic power generation system, energy storage container, and supporting intelligent energy efficiency management system. Each power unit is electrically connected through 380V AC bus coupling. The system energy can be controlled by the energy efficiency management system for real-time optimal energy efficiency scheduling.

Solution Advantages

Energy Saving

Power generation side

Centralized renewable energy grid connection generates smooth power generation output and reduces the demand for wind and solar waste.

After configuring energy storage in optical storage power stations, based on power output prediction and energy storage discharge scheduling, intermittent and fluctuating renewable energy generation output can be smoothly controlled to meet grid connection needs, thereby improving the utilization rate of renewable energy and increasing energy efficiency by 10%.

Efficiency Improvement

Grid side

The instability of electrical energy generates demand for peak shaving, system frequency regulation, and other auxiliary operations.

In the power supply system, power load fluctuations and frequency changes will cause a decline in power generation efficiency. Through high-voltage energy storage, peak shaving and valley filling of power load and fast and flexible adjustment of frequency can be achieved, ensuring power quality and safe and stable operation of the system, and improving efficiency by 5%.

Electricity Cost

User side

The peak valley arbitrage, self use backup, mobile portability and other demands of end users have led to various energy storage applications.

In the market where peak valley electricity prices are implemented, charging the energy storage system at low electricity prices and discharging the energy storage system at high electricity prices can achieve arbitrage of peak valley electricity prices and reduce electricity costs by 20%.

FEATURED EQUIPMENT

Energy Storage and Power Battery Testing System

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Energy Storage and Power Battery Testing System

Equipment Parameters

Energy flows from the grid to the battery	
AC input voltage range	380VAC±10%, 3 phase, 5 wire
Input grid frequency range	50Hz±2Hz
AC input maximum power	≤500kVA
Rated output power	450kW
Power factor	>0.99 (Rated power)
Charging maximum efficiency	94%
Input current total harmonics	≤5%
Output channels	2 channels
Output DC voltage range	50V~1650V
Control accuracy	± (0.5‰FS+0.5‰RD)
Output DC current range	Single channel output ≤200A, dual-channel parallel output≤400A
Control accuracy	± (0.5‰FS+0.5‰RD)
Current rise/fall response	≤20ms (10%~90%)
Battery reverse connection protection/soft start	Yes
Battery charging overvoltage protection	Overvoltage protection limit is adjustable for different battery packs
Energy flows from the battery to the grid	
Battery input voltage range	50V~1650V
Battery maximum input current	Single channel output ≤200A, dual-channel parallel output≤400A
Maximum output grid power	≤450kW
Power factor	>0.99 (Rated power)
Feed maximum efficiency	94%
Feed total harmonic current	≤5%
Upper computer display	
Battery voltage display resolution	1mV
Battery current display resolution	1mA
Power display resolution	0.1W
Data sampling cycle	10ms
Upper computer data recording cycle	10ms
Number of work step files	9999 work steps, 10 layers of nesting, cycle range: 1~9999
Software real-time monitor	Real-time display of data curves, working condition conversion, fault information, etc., and has powerful data query, analysis, and management functions
Communication interface	Communication：LAN / CAN2.0 / RS485
Application environment	
Protection level	IP 20
Working temperature range	0~40℃, Altitude<1000 m
Maximum relative humidity	0~90%

HYNN1500V-Series PCS

Equipment Parameters

Model	HYNN1500V-1MW	HYNN1500V-1.25MW	HYNN1500V-1.5MW
DC parameter			
Max DC input voltage	1500 Vdc		
DC input voltage range	667~1500 Vdc	800~1500 Vdc	1000~1500 Vdc
Max DC input current	1650 A	1754 A	1650 A
Precision of voltage regulation	±1%		
Precision of current regulation	±1%		
PCS topology	Single layer		
DC input channel	1		
AC (grid-connected operation)			
Rated AC output power	1000 kW	1250 kW	1500 kW
Rated AC output current	1255 A	1443 A	1255 A
Rated AC output voltage	460 Vac	550 Vac	690 Vac
AC output voltage range	391~506 Vac	489~633 Vac	586~759 Vac
Rated grid frequency	50Hz		
Grid frequency range	47~52 Hz (Adjustable)		
Output current (THD)	<3% (Rated power)		
Power factor	≥0.99 (Rated power)		
Power factor adjustable range	0.9 (Ahead)～0.9 (Behind)		
AC (islanding mode)			
Rated voltage	460 V	550 V	690 V
Voltage accuracy	±3%		
Rated output frequency	50Hz		
Output voltage THD	<3% (Linear load)		
Frequency accuracy	±1Hz		
System parameter			
Max Efficiency	99%		
Standby power consumption	<100W		
Charge/discharge switch time	<0.1s (Rated power)		
Protection level	IP 20		
Cooling	Forced cooling		
Allowable environment temperature	-30℃~+55℃		
Allowable relative humidity	≤95% (No dew)		
Allowable max altitude	6000m (Capacity should be decreased if over 3000)		
Isolation	External power frequency transformer		
HMI	Touch screen		
Communication	Ethernet / RS485 / CAN		
Size (W×L×H)	1200×2400×1400mm		
Weight	1600kg		

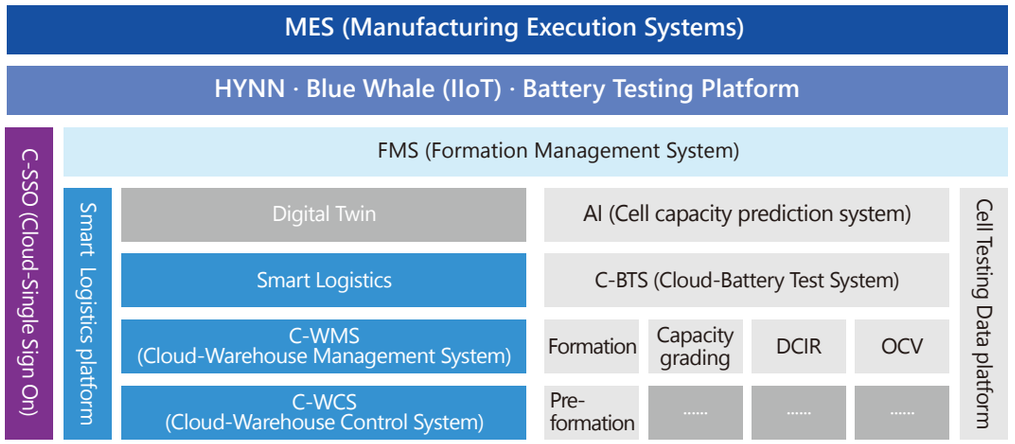
High power energy storage testing system

High power energy
storage testing system

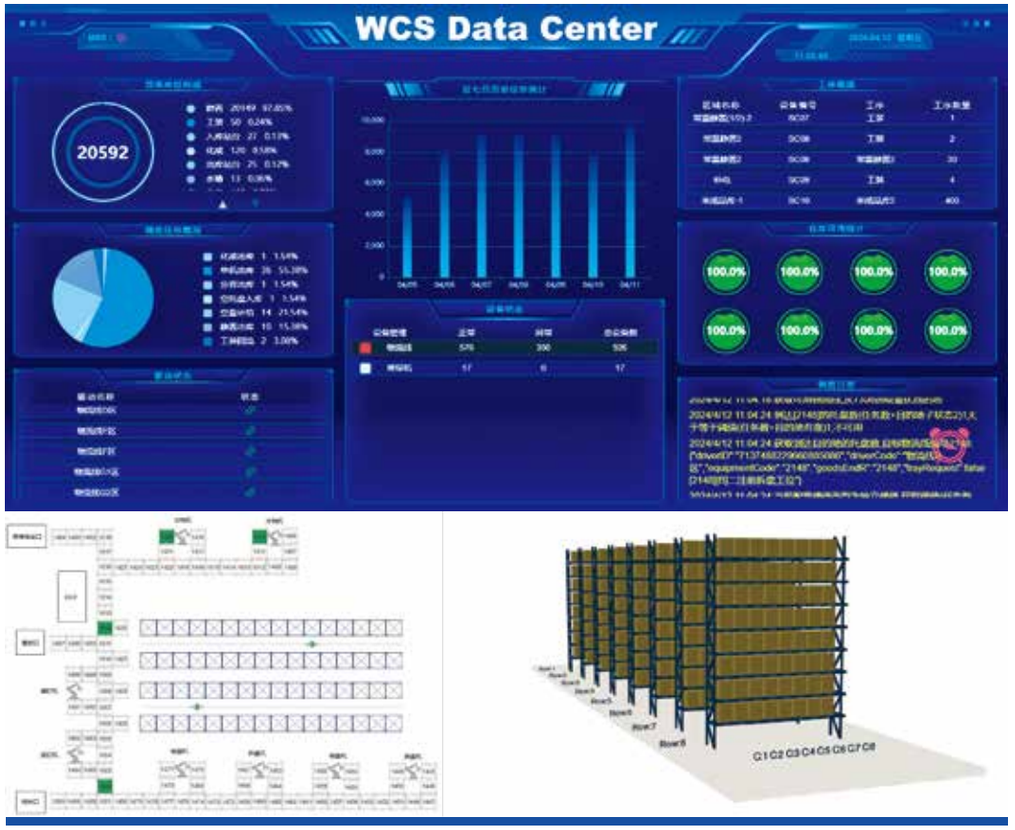
Equipment Parameters

Item	Low: 60~120V	Normal: 150~800V	High: 850~1500V
AC power input voltage	380VAC±10%, 3 phase, 5 wires, frequency 50±50Hz		
AC power input power	Max≤120kW	Max≤350kW	
	Actual power base on model		
Power factor	>0.99 (Rated power)		
Efficiency	>92% (Rated power)		
Power feedback	Current TDH<3%, feedback>92%		
Current up/down reaction time	10ms		
Charge/discharge switch time	30ms		
Output DC voltage accuracy	± (0.05%FS+0.05%RD)		
Output DC current accuracy	± (0.05%FS+0.05%RD)		
Output current range	2 channels, each±400A	2 channels, each±300A	2 channels, each±200A
	2 channels, each±800A	2 channels, each±600A	2 channels, each±400A
Main channel data collection cycle	10ms		
Upper computer data collection cycle	Min: 10ms, interval can be set by equipment		

SOFTWARE SYSTEM



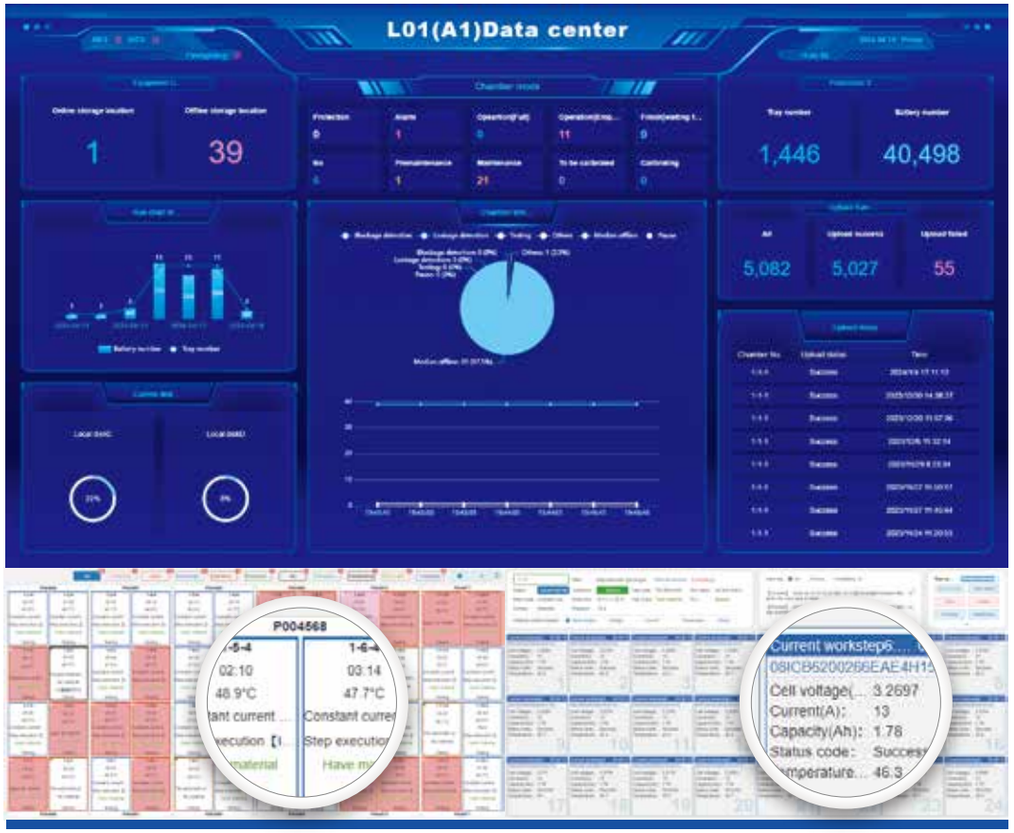
C-WCS: Cloud-Warehouse Control System



By using intelligent scheduling algorithms to achieve intelligent control and scheduling of equipment, the connection between various business modules is improved, thereby optimizing job efficiency.

Global monitoring – → **Dynamic process** – → **Rules engine** – → **Intelligent scheduling** –

C-BTS: Cloud-Battery Test System

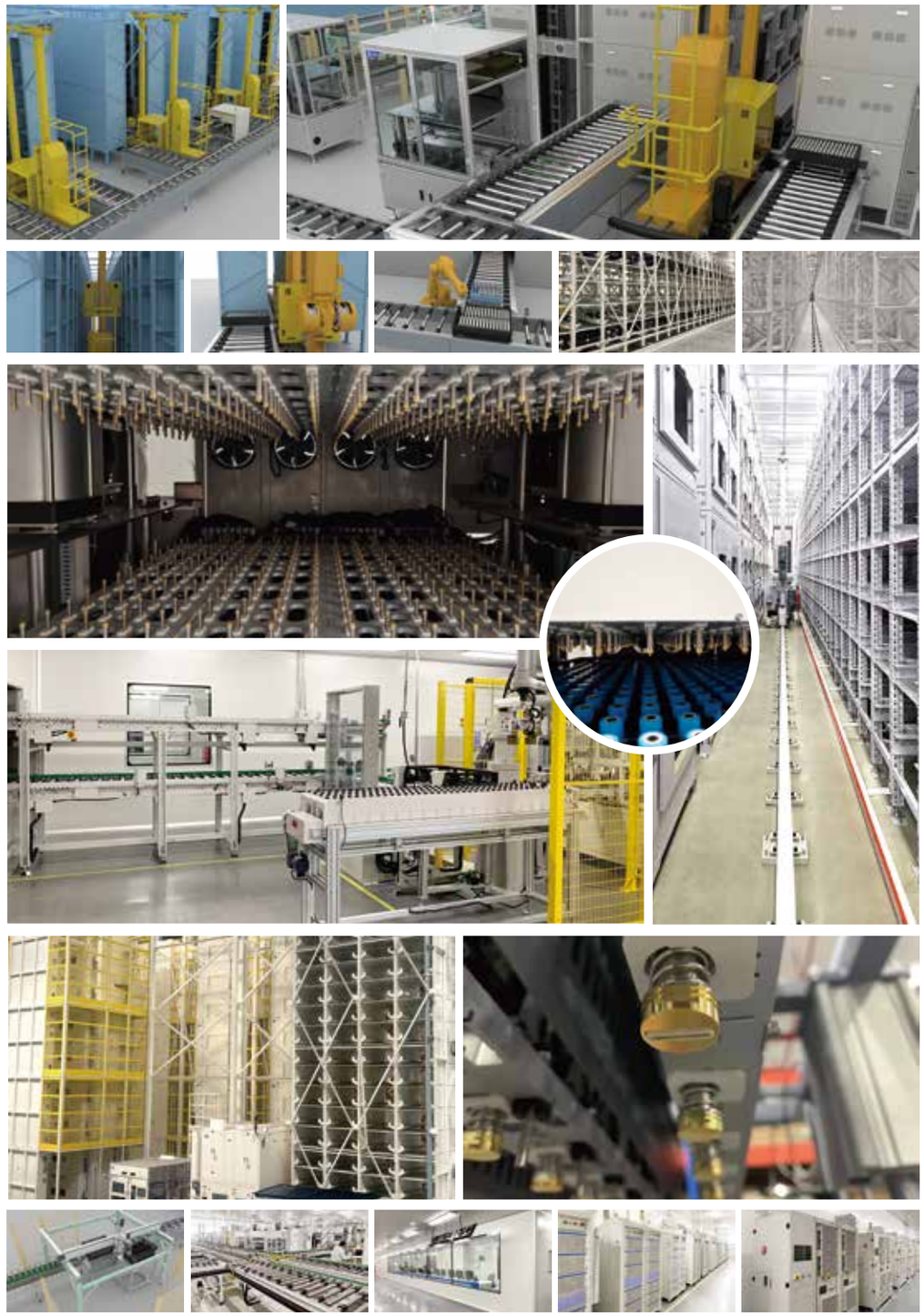


Fragmented data to Platform management

HYNN provides customers with one-stop services and comprehensive empowerment, accelerating the integration, internationalization, and digital upgrading of industry software, and creating a new benchmark in the battery intelligent testing software industry.

Integration **Internationalization** **Digitalization**

PROJECT SITE

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