

CHUNLAN NEW ENERGY

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EXPORTED BY:
JIANGSU CHUNLAN IMP.&EXP.CO.,LTD.

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Note: Due to continuous R&D, designs, features and specifications are subject to change without prior notice. As per specific product data, contract should be taken as final and binding.

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春兰动力电池及能量管理系统 产品手册

Chunlan power battery and energy management system product manual



春兰新能源 • 做动力电池优秀供应商
Become excellent power battery supplier



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公司简介 Introduction

江苏春兰清洁能源研究院有限公司是集研发、生产、销售于一体的专业生产高能动力蓄电池及其管理系统的高科技企业，春兰（集团）公司全资子公司、江苏省动力电池产业技术创新战略联盟理事长单位、省高新技术企业、软件企业、国家863科技成果转化基地，通过ISO9001:2008质量体系认证、TS16949认证，主营业务为动力镍氢电源系统，动力锂离子电源系统、燃料电池系统及嵌入式软件的开发、生产与销售。

Jiangsu Chunlan Clean Energy Research Institute Co.Ltd., a wholly-owned subsidiary of Chunlan Group, is a hi-tech enterprise, which specialized in R&D, production, sale of high energy power battery and its management system. It is the chairman unit of Jiangsu Province power battery industry technological innovation strategic alliances, the provincial hi-tech enterprise, the software-qualified company, national "863" scientific and technological achievements transform base. it passed the certification of ISO9001:2008 international quality management system and TS16949 system. Its main business includes R&D, production and sales of nickel metal hydride power supply systems, lithium-ion power systems, fuel cell systems and its embedded management software.

从1995年至今，已累计投资8亿多元用于高能动力电池及产业化应用技术的研发。拥有10多名学科带头人，100多名高、中级技术人员和国内第一条自动化大容量动力电池生产线。公司在关键材料、电池配方和产业化技术等方面，掌握了高能动力电池及其管理系统的核心技术，形成了自主知识产权，研发的电动汽车车用动力电源系统产品获得“国家科技进步二等奖”、“国家首批自主创新产品”和“国家重点新产品”等荣誉，并列入国家首批“自主创新标准化试点”项目。目前春兰动力电池已在节能与新能源汽车、矿用救生系统、AGV（自动引导车）、磁浮及有轨机车、电力储能电站、太阳能及风能储能系统、军用电源等领域取得了广泛的应用。

Since 1995, more than 800 million RMB had been invested to R&D of high-energy power battery and industrial application, more than 10 experts and 100 engineers and senior engineers had been attracted to build up the domestic first automated large-scale power battery production line. The core technology and independent intellectual property rights related to key materials, formula and industrialization know-how, etc. were mastered to produce the high-energy power traction battery and its management system. The new developed traction power supply system product for electric vehicle had been awarded national scientific and technological progress second Prize, the first batch of national independent innovation product and national Key New Product, the first batch of national innovation standardization pilot project product and other honors. So far, Chunlan power battery has been widely used in energy-saving and new energy vehicles, mine rescue system, AGV (Automatic Guided Vehicle), maglev levitation train and rail vehicles, energy storage power station, solar and wind energy storage systems and military power supply, etc.



生产能力和科研装备

Production capacity and Scientific equipment

经过 年的潜心研究, 依托承担的国家科技部863计划“十一五”电动汽车重大专项、“十二五”节能与新能源汽车重大项目课题研发, 掌握了镍氢电池和锂离子电池关键材料、配方、结构、热管理系统、能量管理系统、产业化技术等方面的核心技术, 形成自主知识产权, 建成了国内首条大容量动力镍氢和锂离子电池生产线, 年生产配套能力10000套新能源汽车用动力电池及其能量管理系统。

After taking part in the “863” R&D for EV project which organized by Ministry of Science and technology at “11th five-year plan” and energy-saving and new energy vehicles project at “12th five-year plan”, The key materials, formula, structure of nickel metal hydride battery and lithium-ion battery, and its thermal management systems, energy management systems and industrialization technology had been mastered, related intellectual properties and patents had been authorized. The first large-capacity nickel metal hydride battery and lithium-ion battery production line in china has the capability to offer more than 10,000 traction battery power supply and its energy management system for new energy vehicle.



春兰大容量动力电源系统生产线

Chunlan large-capacity traction power supply production line



全谱直读ICP等离子体发射光谱仪
The full spectrum of direct-reading
ICP-OES



原位分析X射线衍射仪
In situ X-ray diffraction analysis



激光粒度分析
Laser particle size analysis



动力电源总成测试分析设备
Traction power supply test and analysis equipment



动力电池系统测试、分析平台
Power battery test, analysis platform



方型镍氢电池极片自动生产线
Prismatic nickel metal hydride battery electrode
automatic production line



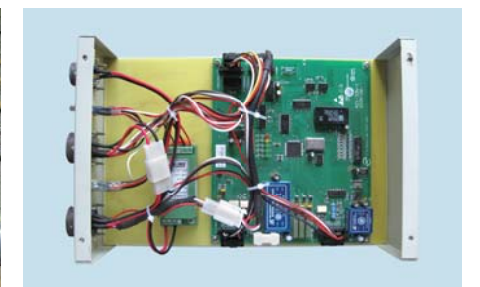
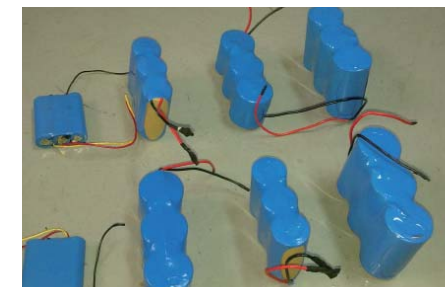
方型锂离子电池极片自动生产线
Prismatic Lithium-ion battery electrode automatic
production line

产品规格与性能

Product specification and performance

春兰动力电源系统产品具有比功率高、比能量高、耐过充过放、可快速充电、寿命长、无污染免维护、环保绿色、安全可靠等优点。

Chunlan traction power supply product has the characteristic of high specific power, high specific energy, resistance to over-charge and over-discharge, fast charge, long cycle life, maintenance-free, non-detrimental element, safe and reliable, etc.



1 动力锂离子电池规格图表

Lithium-ion battery specification

A、参数表 Parameters

功率型参数表（磷酸铁锂）
High-power Lithium-ion battery specification

Model	Rated voltage (V)	Rated Capacity (Ah)	Dimensions (mm) W * H * D	Weight (kg)	Specific Power (W/kg)	Life cycle (Times)
IFPP25	3.2	25	125 × 130 × 36	≤0.94	≥1500	≥2000
LFL1-35	3.2	35	149.6 × 130 × 36	≤1.01	≥1500	≥2000
IFPP42A	3.2	42	176 × 130 × 36	≤1.22	≥1500	≥2000

能量型参数表（磷酸铁锂）
High-Energy Lithium-ion battery specification

Model	Rated voltage (V)	Rated Capacity (Ah)	Dimensions (mm) W * H * D	Weight (kg)	Specific Energy (Wh/kg)	Life cycle (Times)
IFPE13.5	3.2	13.5	115 × 70 × 27	≤0.41	≥105	≥2000
LFL160	3.2	60	207 × 130 × 36	≤1.62	≥115	≥2000
IFPE85	3.2	85	277 × 130 × 36	≤2.23	≥120	≥2000
IFPE110	3.2	110	231 × 165 × 39	≤2.70	≥125	≥2000
IFPE130	3.2	130	261 × 165 × 39	≤3.17	≥125	≥2000

功率能量兼顾型参数表（磷酸铁锂）
High-power Lithium-ion battery specification

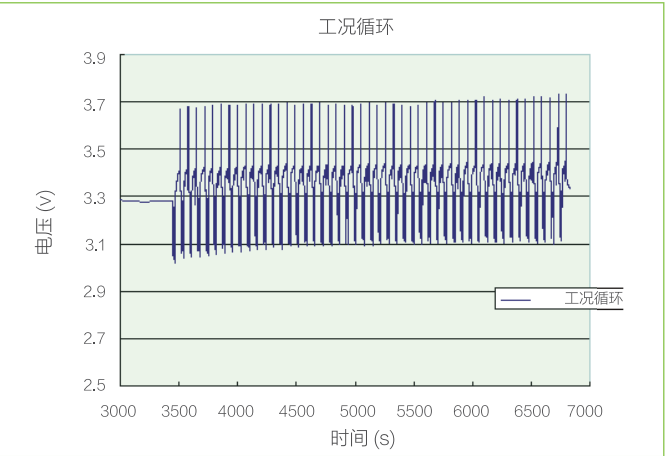
Model	Rated voltage (V)	Rated Capacity (Ah)	Dimensions (mm) W * H * D	Weight (kg)	Specific Power (W/Kg) specific Energy (Wh/Kg)	Life cycle (Times)
IFPP50	3.2	50	166 × 130 × 36	≤1.32	≥1000 ≥120	≥2000
IFPP75	3.2	75	170.3 × 165 × 39	≤1.96	≥1000 ≥120	≥2000

能量型参数表（三元锂）
High-Energy Lithium-ion battery specification

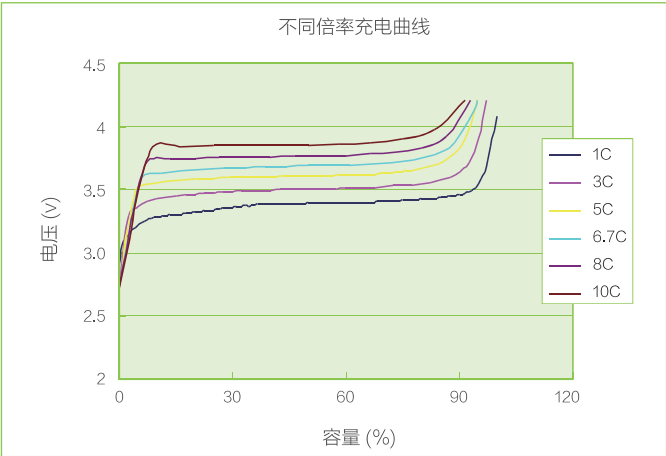
Model	Rated voltage (V)	Rated Capacity (Ah)	Dimensions (mm) W * H * D	Weight (kg)	Specific Energy (Wh/kg)	Life cycle (Times)
ITPE17	3.7	17	115 × 70 × 27	≤0.37	≥170	≥1500

B、特性曲线 Performance Curve

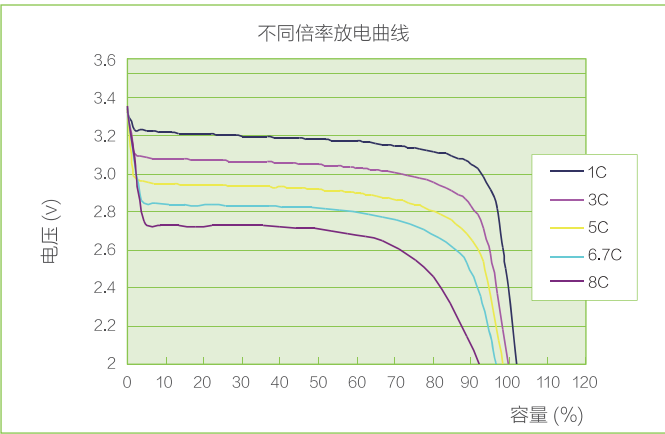
常温25℃条件下的模拟工况循环
Simulation cycle of lithium-ion battery at 25℃



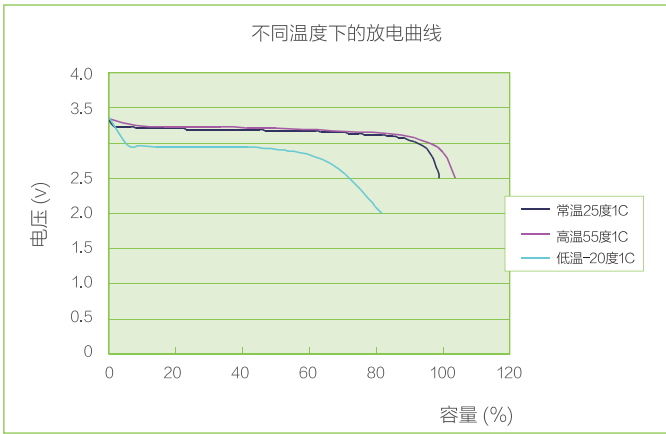
常温25℃条件下的不同倍率充电曲线
Different charge rate curve of lithium-ion battery at 25 °C



常温25℃条件下的不同倍率放电曲线
Different discharge rate curve of lithium-ion battery at 25℃



不同温度条件下的放电曲线
Discharge curve of lithium-ion battery at different temperature



2 动力镍氢电池规格图表

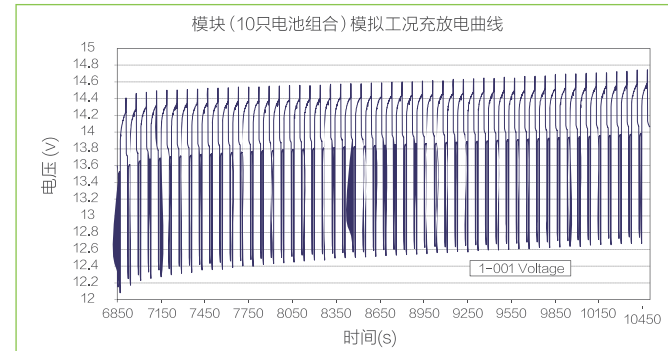
Power nickel metal hydride battery specification

A、参数表 Parameters

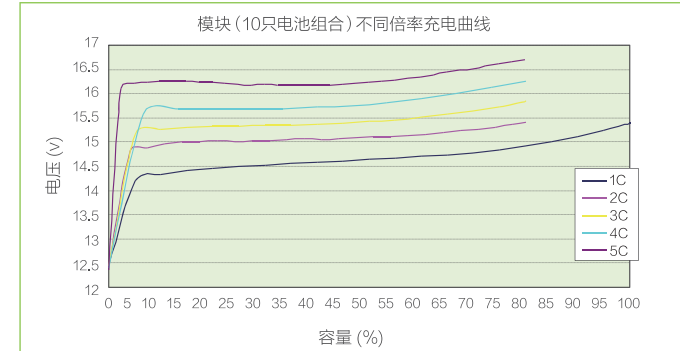
Model	Rated voltage (V)	Rated Capacity (Ah)	Dimensions (mm) W * H * D	Weight (kg)	Specific Power (W/kg)	Life cycle (Times)
QNFG40	1.2	40	157.5*82*27.5	≤1.06	≥900	≥1500
QNFG45	1.2	45	177.5*72*28.0	≤1.11	≥900	≥1500
QNFG60	1.2	60	182*100.5*29	≤1.62	≥700	≥1500
QNFG80	1.2	80	210*100.5*29	≤1.98	≥500	≥1500
QNFG110	1.2	100	243*78*48	≤2.91	≥300	≥1500

B、特性曲线 Performance Curve

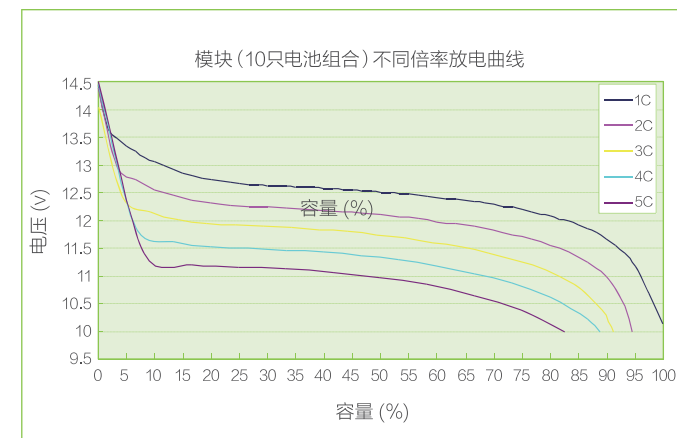
常温25°C条件下模块(10只电池组合)的模拟工况循环
Simulation cycle of Ni/MH Module (10 cells in series) at 25°C



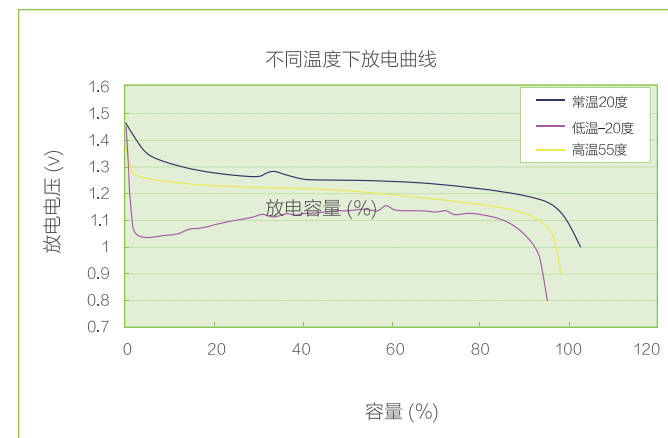
常温25°C条件下的不同倍率充电曲线
Different charge rate curve of Ni/MH Module(10 cells in series) at 25°C



常温25°C条件下的不同倍率放电曲线
Different discharge rate curve of Ni/MH Module (10 cells in series) at 25°C

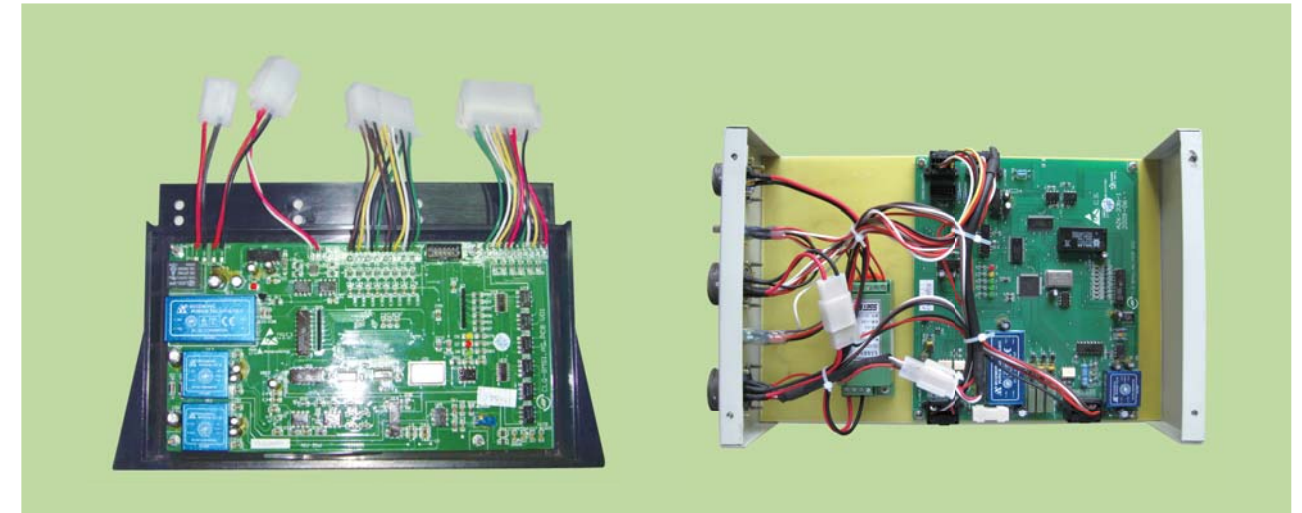


不同温度条件下的放电曲线
Discharge curve of Ni/MH battery at different temperature



3 电池管理系统

Battery Management System(BMS)



- 实时监控功能, 包括电池组及电池单体电压、电流、温度、电池组绝缘状态。进行电池组荷电状态(SOC)、电池健康度(SOH)估算;

Real-time monitoring voltage, current, temperature and insulation state of the cell and battery system. Battery state of charge(SOC) and state of health(SOH) estimation.

- 蓄电池故障诊断、报警功能;

Battery failure diagnosis and alarm.

- 自检功能;

Self-diagnosis function.

- 蓄电池组的自动温控系统(风冷、液冷、电加热);

Battery auto temperature control system(wind cooling,liquid cooling & electrical heating)

- 高压保护功能。

Over-voltage protection.

- 有源双向均衡, 电流大, 可靠性高。

Active equalization, large equalization current, and high reliability.

- 隔离设计, 抗干扰能力强。

Electrical isolation design, strong anti-interference ability.

- 通讯采用两级CAN通讯方式;

Two level CAN communication mode of BMS.

成果、荣誉、历程

Achievements, honors and history



- 2000年列入“国家技术创新项目”的20Ah高能动力镍氢电池通过国家经济贸易委员会组织的国家级技术鉴定,并于2002年列入国家级重点新产品试产计划。

In 2000, the 20Ah high-energy Ni/MH battery, which included in the "National Technical Innovation Project", had been technically authenticated by the State Economic and Trade Commission and listed in state-level key new product trial industrialization plans in 2002.

- 2006年~2010年承担国家“十一五”863计划节能与新能源汽车重大项目“混合动力车用镍氢动力电源系统及规模化应用”项目。

From 2006 to 2010, Chunlan had been undertaken the "863" energy-saving and new energy vehicles major project of nickel metal hydride battery power supply for hybrid electric vehicle and large-scale application at 11th five-year plan.

- 2011年“电力电站镍氢储能电源系统”、“磁悬浮列车用镍氢动力电源系统”、“混合动力轿车用镍氢动力电源系统”、“混合动力客车用镍氢动力电源系统”、“高功率系列镍氢动力电池”、“自动导引车用镍氢动力电源系统”六个系列产品通过中国电池工业协会组织的科技成果鉴定,专家组一致认为6个产品技术上均达到了国际先进水平。

In 2011, the six new developed products, Ni/MH battery energy storage system for electric power station, Ni/MH battery power supply system for maglev train, Ni/MH battery power supply system for hybrid electric car, Ni/MH power supply system for hybrid electric bus, series high-power Ni/MH batteries, Ni/MH battery power supply system for automatic guided vehicle, were authorized high-tech achievement products by the experts of china battery industry Association, the expert groups agreed that the technology of the 6 products had been reached the international advanced level.

- 2011年~2014年承担国家“十二五”863计划节能与新能源汽车重大项目“节能与新能源汽车用超高功率动力电池研制”、“中度和深度混合动力客车用动力电池及其管理系统研制”

From 2011 to 2014, Chunlan had been undertaken the “863” major project of “ultra-high power traction battery for energy-saving and new energy vehicle” and “traction battery and its management for moderate and deep hybrid bus” at 12th five-year plan.

- 2013年,与南车时代合作承担国家工信部新能源汽车技术创新工程项目“新能源客车技术开发”,开展高效动力电池系统开发,实现整车的储能系统匹配和产业化。

From 2013, Chunlan had been undertaken technical innovation project “technology development for New Energy Bus” funded by national industry and information technology ministry to develop high efficient traction battery system and industrialization for New Energy Bus.

- 2014年,被认定为国家火炬计划重点高新技术企业

In 2014, Chunlan was confirmed key hi-tech enterprise by state “Torch plan”

- 2014年,承担省科技“新能源汽车用新型富锂锰基高电压动力电池及其管理系统研发与应用”项目。
From 2014, Chunlan had been undertaken the provincial science and technology innovative project --- R&D and application of high voltage lithium Rich managanese lithium-ion battery and its management system for new energy vehicles

- 2014年,承担省软件专项项目“基于云技术的新能源汽车电源物联监管系统”。
In 2014, Chunlan had been undertaken the provincial software special project ---Power supply supervision system of new energy vehicle for internet of things based on Cloud technology.

- 2015年,公司承担的项目“能量功率型动力锂离子电池及管理系统产业化”被列入国家火炬计划项目
In 2015, the project "industrialization of energy-power type lithium ion battery and its management system", which undertaken by Chunlan, was listed on the “State Torch plan” Program

- 2008年11月, 春兰“动力镍氢电源系统”入选首批国家自主创新产品名单, “混合动力客车用动力电源系统”获“国家重点新产品”证书。2010年5月“混合动力轿车用DY144-8镍氢动力电源系统”获“国家重点新产品”证书。

In Nov.2008, Chunlan MH/Ni power supply system was selected as the first national independent innovation product list, traction power supply system for hybrid electric bus was certificated as national key new product. In May 2010, Chunlan DY144-8 MH/Ni traction power supply system for hybrid electric car was certificated as national key new product, too.

- 2010年1月, 春兰“混合动力城市客车节能减排关键技术”荣获“2009年度国家科技进步二等奖”, 春兰当选“江苏省动力电池产业技术创新战略联盟”秘书处和理事长单位。

In Jan. 2010, Chunlan energy-saving and emission-reduction key technology for HEV bus won the 2009 National Science and Technology Progressive second prize. Chunlan was elected the secretariat and chairman unit of Jiangsu province power battery industry Technology Innovation strategic Alliance.



- 共授权专利73项, 其中发明专利28项, 获得软件著作权9项。
Sum to 73 patents were authorized, including 28 invention patents, and other 9 software copyright.



- 2013年春兰35Ah、60Ah锂离子电池, 获得国家矿用产品安全标志中心备案证。

In Apr. 2013, Chunlan 35Ah and 60Ah lithium-ion battery had been approved the safety certificate by state mining products safety approval and certification center.



- 2015年, 公司两个产品“纯电动大客车用锂离子电池动力电源系统DYL563-340B4”、“纯电动特种车用锂离子电池动力电源系统DYL154-220B2”获省高新技术产品认定。

In 2015, Chunlan "DYL563-340B4 lithium-ion battery power supply system for pure electric bus", "DYL154-220B2 lithium-ion batteries power supply system for special pure electric vehicle" were honored the provincial high-tech products.

- 2015年, 公司发明专利“一种用于电动汽车的动力电池管理系统”获第十七届中国专利奖优秀奖。

In 2015, Chunlan patent "battery management system for electric vehicles" won the 17th China Patent excellence award.

- 2015年6月, 公司锂离子电池车间获“江苏省示范智能车间”认定

In June 2015, Chunlan lithium-ion battery workshop was identified as "Jiangsu Province intelligent demonstration workshop"

- 2015年7月, 春兰公司当选为中国电池工业协会第七届理事会常务理事单位

In July 2015, Chunlan was elected as the executive director of the 7th council of China Battery industry Association.



应用领域及效果

Applications

1 新能源汽车

New energy vehicles

北京奥运示范 2008 Beijing Olympic Demonstration

2008年8月北京奥运期间，配置春兰高能动力电源系统的一汽、东风混合动力客车参与奥运场馆线路的成功示范运营，为科技奥运、绿色奥运做出了贡献，得到国家领导人的高度赞扬。

In Aug.2008 Beijing Olympic games, the FAW and Dongfeng HEV bus equipped with Chunlan high-energy traction power supply and its BMS had been run successfully around the Olympic Park. The successful demonstration operation won great praise from public citizens to national leaders.

国家“十城千辆”电动汽车示范 Clean-energy electric vehicle demonstration in 13 cities

国内示范运营最早的火炉城市武汉、海洋城市大连、寒冷城市长春、高原城市昆明、高温高湿城市海口、江南水城苏州等城市新能源车批量使用春兰动力电池及其管理系统。

Most HEV bus running at the first 13 demonstration cities such as Wuhan(hot weather), Dalian(Ocean climate), Changchun(cold weather),Kunming (Plateau climate), Haikou (hot and humid), and Suzhou, etc.were equipped with Chunlan power battery and its BMS.

春兰动力电池及其管理系统累计装车超过10000辆，在全国70多个城市得到广泛的推广应用，单车最大运行里程超过70万公里，取得良好的节能减排效果。

More than 10000 NEV equipped with Chunlan Power battery and its management system. So far, widely used in the Seventy cities of China. One of the longest driving mileage of the NEV bus is over 700,000 km, energy-saving and emission-reduction were evidently verified.





国家新能源汽车示范城市推广应用



2 磁浮列车

Maglev train

十五、十一五、十二五期间, 作为国内唯一配套研制单位, 上海磁浮交通发展有限公司国产化高速磁浮列车和低速磁浮列车应用春兰镍氢电池, 为磁浮国产化项目作出重要贡献。

During 10th & 11th & 12th five-year plan, Chunlan Ni/MH battery and its BMS were selected by Shanghai Maglev train Transportation Development Co., Ltd. as the one and only designated traction power supply for high-speed and low-speed maglev train.



3 电力储能电站

Electric energy storage power station

2008年国内第一个100KW级储能电站产品使用春兰动力电池, 并在上海电力公司成功实现试运行, 2010年通过国家电网验收, 并在上海世博会上成功示范。

In 2008, the first 100kW energy storage power plant running at Shanghai Electricity Company was equipped with Chunlan power battery and its BMS. In 2010, it was successful debugged and merged into the national grid, and demonstration on the Shanghai World Expo.



4 矿用救生系统

Mine rescue system

2010年中煤科工集团井下逃生舱和避难舱后备电源采用春兰镍氢动力电池, 并在重庆地区推广使用, 获得全国多家矿井救生舱和避难硐研发单位选用。

In 2010, the backup power supply of underground refuge chamber and refuge cabin designed by Coal Science and Industry group was equipped with Chunlan Ni/MH batteries. So far, the rescue system had been widely used in the mining enterprises at Chongqing district. Meanwhile, Chunlan Ni/MH battery & its BMS were priority selected by other domestic mine rescue system R&D institutes.



5 AGV自动导引车、工业机器人

automatic guided vehicle(AGV), industrial robot

自2007年进口AGV车使用春兰动力电池替代进口镍氢电池、锂电池取得成功。

Since 2007, Chunlan power battery had been widely replaced the import Ni/MH and lithium-ion battery in AGV and industrial robot.



6 通信基站后备电源

back-up power supply for communication base station

春兰动力电池在电信、移动等通信基站后备电源行业中得到应用。

Chunlan power battery had been widely used in the telecommunications, mobile communications base station as back-up power supply.



7 太阳能风力发电储能系统

Solar energy and wind energy storage system

春兰动力电池在新能源发电储能系统中获得应用。

Chunlan power battery had been widely used in large-scale new energy storage system.



8 其他领域

Other application

春兰动力电池在军用等其它领域获得广泛应用。

Chunlan power battery had been widely used in military power supply and other field

