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Authority Distributor

LITHIUM ION (LFP) TRACTION BATTERY

Company profile

The BSL focus on to be the best lithium solution provider. We are committed to helping you find the most efficient and cost-effective battery choice for your application.

Parent company: Wisdom Industrial Power Co.,Ltd, start since 2012 and founder Mr Eric Yi owns 18 experiences in battery field
Production base : More than 6000m²
R&D team: More than 15 staffs, CTO is more than 15 years experiences in motive Li-ion battery field
Marketing and after services team: More than 30 staffs.
Production capacity: 20.8MWh per year
Certifications: ISO9001, ISO14001, CE, UL, UN38.3
Product Standard: IEC61690, IEC62133 •ISO 12405-1:2011 ISO 12405-2:2012 ISO 12405-3:2014
Patents : More than 17 till Sep 2021.
Export: More than 60 countries and regions
Distributor: more than 30 authorised distributors till end of 2021 distributed on 6 continents

Brand story

Best
Lithium
BSLBATT®
Solution
Battery

The BSL focus on to be the best lithium solution provider. We are committed to helping you find the most efficient and cost-effective battery choice for your application.

Striving to grow into a global lithium batteries leader acknowledged and respected at home and abroad, BSLBATT® has for many years been in working hard on designing, developing and manufacturing high-technology lithium batteries for lithium industry and specialized applications.

From breakthrough lithium materials chemistry to innovations in battery systems management and complete system design, BSLBATT® provides game-changing energy storage solutions that deliver a new combination of high power, excellent safety, and long life.

Our vertically integrated, state-of-the-art global manufacturing facilities produce high-quality lithium cells, modules, and battery packs systems to meet evolving customer requirements for innovative technology.

Battery history

Luigi Galvani
Italian physician and physicist

Italian physician and physicist who investigated the nature and effects of what he conceived to be electricity in animal tissue. His discoveries led to the invention of the voltaic pile, a kind of battery that makes possible a constant source of current electricity.

Alessandro Volta
Italian scientist

Italian physicist whose inventionof the electric battery provided the first source of continuous current.

Georges Leclanché
French engineer

French engineer who in about 1866 invented the battery that bears his name. In slightly modified form, the Leclanché battery, now called a dry cell, is produced in great quantities and is widely used in devices such as flashlights and portable radios.

Gaston Planté
French physicist

French physicist who produced the first electric storage battery, or accumulator, in 1859; in improved form, his invention is widely used in automobiles.

Thomas Edison
American inventor

Edison obtained a US and European patent for his nickel-iron battery in 1901 and founded the Edison Storage Battery Company and by 1904 it had 450 people working there.

The Nobel Prize in Chemistry 2019

John B. Goodenough

M. Stanley Whittingham

Akira Yoshino

The Nobel Prize in Chemistry 2019 was awarded jointly to John B. Goodenough, M. Stanley Whittingham and Akira Yoshino "for the development of lithium-ion batteries."

Since the mid-20th century, advances in construction technology and the availability of new materials have given rise to smaller yet more powerful batteries suitable for use in a wide array of portable equipment and industrial equipment.

Young team and Activities

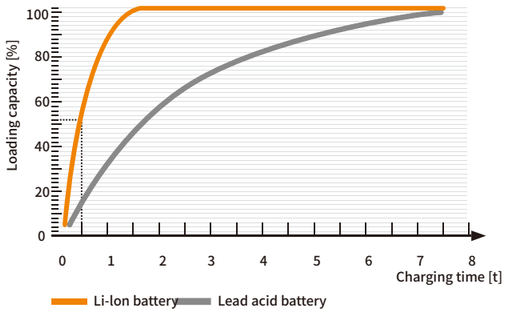
Lithium battery feature

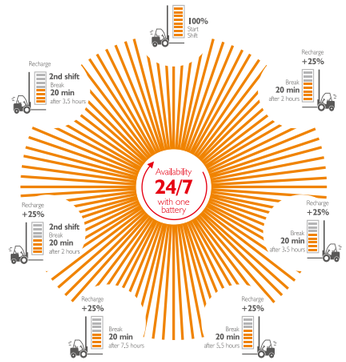
Efficiency

Fast charging
- ◆Shorter charging times
- ◆ “Lunch & Charge” possible
- ◆Economic use of each break
- ◆Use of latest charger technology

Opportunity charging
- ◆Constant truck uptime
- ◆Multi-shift availability
- ◆No place-specific charging
- ◆No charging room needed

COMPARING BATTERY CHARGING TIMES





Maintenance-free

No battery change necessary for most 2-shift applications
- ◆No second battery necessary
- ◆Higher truck availability
- ◆Cost & time savings
- ◆No need for battery change and charging room

Emission-free battery
- ◆No evolving battery gases (hydrogen) and acid
- ◆No need of extraction unit
- ◆Does not contain toxic substances like Cd, Pb or Hg

No battery-maintenance needed
- ◆No water-refilling, battery cleanup etc.
- ◆No battery control necessary
- ◆No need of electrolyte circulation

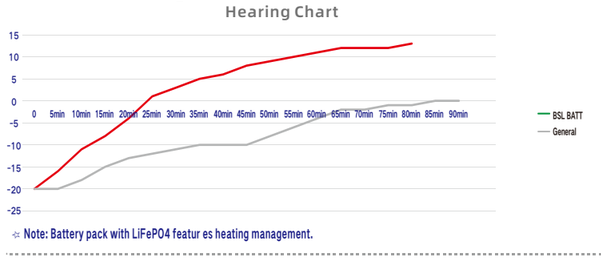
Long life and safety

Longer battery life-time
- ◆80% DOD, > 3500 full charging cycles with at least 80 % residual capacity
- ◆Afterwards: Several thousand full charging cycles still possible
- ◆Combined with higher battery efficiency an altogether higher usable battery capacity

Safe battery technology
- ◆Self-monitoring via autonomous battery management system
- ◆Safety functions on cell-,moduleand battery level
- ◆Safe control of the truck in any battery status
- ◆Integrated shock sensor

Higher efficiency compared to lead acid
- ◆Up to 30 % higher electrical efficiency
- ◆Less energy losses
- ◆Less heat development inside battery
- ◆Full usability down to 5 % State of Charge (SoC)

Perfect performance in cold area



※ Note: Battery pack with LiFePO4 featur es heating management.

Battery Pack Heating Management

BSLBATT battery pack with heating management during the discharge process, the temperature rises from -20℃ to 0℃ only takes 25-30 minutes.

General battery pack during the discharge process, the temperature rises from - 20℃ to 0℃ will take 85-90 minutes.

Service

24/7 CUSTOMER SERVICE

24/7 Service

Service Purpose:
Leading the way with attentive service.

Service Concept:
Results orientation and quick service.

Lithium-ion Battery Recycling Solution

In the future, battery components will not be sourced solely from mining; They will have to come from recycling and from applications utilising industrial side streams.

BSLBATT has been committed to working with top lithium cell manufacture to improve the secondary use technology. In doing so, we help to protect our environment.

Insurance

The BSL BATT product is insured by PICC, which offer global service to our customer.

The people's insurance company of china limited, known as PICC group or just PICC, is a chinese listed insurer.

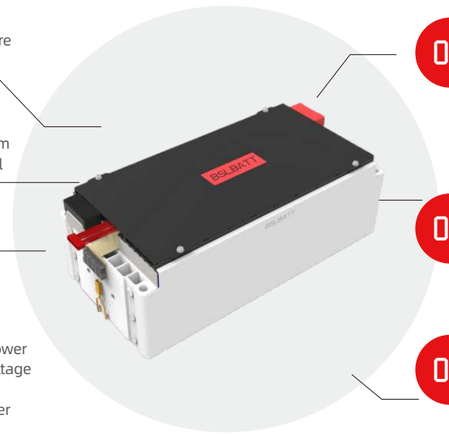
PICC 中国人民保险公司 The People's Insurance Company of China

Model design advantage

01 ◆Adopting automotive-grade modular design ideas, series products are highly versatile;

02 ◆The main frame of the structure adopts aluminum extrusion and sheet metal riveting to enhance the mechanical strength and have higher vibration resistance;

03 ◆Use 3000W welding power aluminum bar, low-voltage wiring harness adopts ultrasonic welding/laser welding; higher flow capacity and reliability;

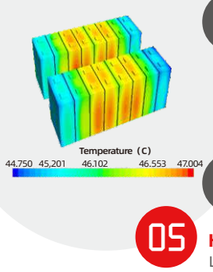


04 ◆Compatible with the modular design of the wiring harness (FPCB flexible cable and AWG wiring harness), the modular plug is foolproof and simplifies the assembly process, which improves production efficiency;

05 ◆The module bracket design reserves the cell expansion gap; it is more conducive to cell life and heat dissipation requirements;

06 ◆Automotive-grade insulation design, adding the module cover/power insulation platform, the insulation level is higher; it is beneficial for the module to be used in high-voltage scenarios

Pack design advantage



01 **Key process**
Cell grading, coating, module combining, side panels welding, laser welding, module EOL testing, PACK assembling & fixing, high/low voltage harness assembling, air tightness testing

02 **Production process controlling**
Strictly follow TS16949 quality management system, make a detailed controlling plan and a process flow, balance high-quality rate, efficiency, cost to make manufacturing system reasonable and optimal.

03 **EOL testing**
When the product off the assembly line, we have comprehensive test, safety test, simulated operating condition test for each product to keep a good operation of system./

04 **Module & PACK informationize/automation/**
Adopt advanced industrial robot, PROFINET fieldbus technology, MES system to keep module and PACK production in a high automation, high information and high intelligence.

05 **Heat radiation**
Leading thermal management technology

Battery management system & console & cloud platform

BMS

BSLBATT battery management system (BMS) monitors the li-ion cells at all time. As a result, our li-ion solution is the most reliable power option.

Battery safety management
- ◆Overcharge/over discharge protection
- ◆Overcurrent/over-temperature/low- temperature protection
- ◆Multi-level fault diagnosis protection
- ◆Double fault monitoring

Battery Parameter Detection
- ◆Battery voltage detection and analysis
- ◆Battery current detection and analysis
- ◆Battery temperature detection and analysis

SOC/SOH Detection
- ◆Residual capacity estimates
- ◆Battery health estimates
- ◆High precision capacity integration

Equilibrium Management
- ◆Equalization based on voltage mode
- ◆Equalization based on time mode
- ◆Equalization based on battery cell SOC
- ◆Active/passive equalization optional

High Pressure Safety Management
◆High voltage interlock(HVIL) ◆High voltage insulation monitoring ◆High voltage switch diagnostics

Console

Function:

The console is a human-computer interface that displays the running status of the system. All models are designed according to industry standards and are suitable for use in various environments. The display interface of the console can display various operating parameters and failure conditions of the system.

Status description:

The operating status indicator of the console includes three indicators: power supply (PWR), RUN (RUN), and COM (COM). The power indicator (PWR) is always on when the console is powered on. The indicator light (RUN) is always bright yellow to indicate that the console is running normally; A failure of the RUN indicator indicates a console failure; The communication light (COM) is flashing yellow when the BMS has been connected.

PWR RUN COM

The following table shows the display status of the three LED lights in each case of the console:

Equipment status	GREEN LED(PWR)	YELLOW LED(RUN)	YELLOW LED(COM)
No power	○	○	○
Power on, no communication	●	●	●
Communication with connected devices	●	●	※

○ LED LIGHT OFF ● LED LIGHT ON ※ LED LIGHT FLICKER

Note) This table is based on the 3.5-inch screen display status

Display description

The complete information of the console inter faceis shown in the following figure:

The console displays the interface diagram
Single voltage display interface diagram
Monomer temperature display interface diagram
Alarm information display interface diagram
Screen interface Settings display the interface diagram

Cloud platform

Real-time monitoring

Factory engineers in China , customers from all over the world, can read the data through the Internet. Easy for communication, and fast to analyze and find the solution if battery has any problems.

Product list 【Popular Capacity】

24V Series

NO	MODEL	Voltage	Capacity	DIMENSION (mm)				TOTAL WEIGHT
		V	Ah	L	W	H	TH	Kg
1	B-LFP24-100	25.6	100	624	207	627	627	212
2	B-LFP24-135	25.6	135	624	207	627	627	212
3	B-LFP24-230	25.6	230	624	284	627	627	288
4	B-LFP24-280	25.6	280	624	284	627	627	288
5	B-LFP24-300	25.6	300	624	284	627	627	288
6	B-LFP24-405	25.6	405	624	356	627	627	362
7	B-LFP24-460	25.6	460	624	356	627	627	362
8	B-LFP24-540	25.6	540	624	428	627	627	435
9	B-LFP24-560	25.6	560	624	428	627	627	435
10	B-LFP24-615	25.6	615	624	500	627	627	513

* We don’t list all our model here, please contact our sales for other model

36V Series

NO	MODEL	Voltage	Capacity	DIMENSION (mm)				TOTAL WEIGHT
		V	Ah	L	W	H	TH	Kg
1	B-LFP36-405	38.4	405	798	439	575	575	520
2	B-LFP36-460	38.4	460	965	337	775	775	748
3	B-LFP36-540	38.4	540	969	397	775	775	1070
4	B-LFP36-560	38.4	560	978	461	772	772	1178
5	B-LFP36-615	38.4	615	978	689	575	575	908
6	B-LFP36-690	38.4	690	973	512	775	775	1178
7	B-LFP36-840	38.4	840	978	859	575	575	1361
8	B-LFP36-920	38.4	920	982	978	575	575	1584
9	B-LFP36-1120	38.4	1120	1105	1130	575	575	1815

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48V Series

NO	MODEL	Voltage	Capacity	DIMENSION (mm)				TOTAL WEIGHT
		V	Ah	L	W	H	TH	Kg
1	B-LFP48-300	51.2	300	830	522	627	627	708
2	B-LFP48-405	51.2	405	830	522	627	627	708
3	B-LFP48-460	51.2	460	830	522	627	627	708
4	B-LFP48-540	51.2	540	830	630	627	627	856
5	B-LFP48-560	51.2	560	830	630	627	627	856
6	B-LFP48-615	51.2	615	830	738	627	627	856
7	B-LFP48-690	51.2	690	830	738	627	627	1013
8	B-LFP48-840	51.2	840	830	846	627	627	1162
9	B-LFP48-920	51.2	920	830	954	627	627	1162
10	B-LFP48-1120	51.2	1120	830	954	627	627	1315

*We don’t list all our model here, please contact our sales for other model

80V Series

NO	MODEL	Voltage	Capacity	DIMENSION (mm)				TOTAL WEIGHT
		V	Ah	L	W	H	TH	Kg
1	B-LFP80-280	83.2	280	1026	564	627	627	965
2	B-LFP80-300	83.2	300	1026	564	627	627	965
3	B-LFP80-405	83.2	405	1026	564	627	627	965
4	B-LFP80-460	83.2	460	1026	708	627	627	1210
5	B-LFP80-540	83.2	540	1026	852	627	627	1458
6	B-LFP80-560	83.2	560	1026	852	627	627	1458
7	B-LFP80-615	83.2	615	1026	852	627	627	1458
8	B-LFP80-690	83.2	690	1026	996	627	627	1721
9	B-LFP80-300	83.2	300	1028	567	784	784	1238
10	B-LFP80-405	83.2	405	1028	567	784	784	1238
11	B-LFP80-460	83.2	460	1028	567	784	784	1238
12	B-LFP80-540	83.2	540	1028	711	784	784	1558
13	B-LFP80-560	83.2	560	1028	711	784	784	1558
14	B-LFP80-615	83.2	615	1028	855	784	784	1863
15	B-LFP80-690	83.2	690	1028	855	784	784	1863
16	B-LFP80-840	83.2	840	1028	999	784	784	2178

*We don’t list all our model here, please contact our sales for other model

** We can offer more than 600 Li-ion battery models to match with most of the popular materials handling equipment brand for SLA battery replacement .

TOYOTA MATERIAL HANDLING

JUNGHEINRICH

STILL

Linde Material Handling

CROWN lift trucks

DOOSAN

HYSTER

Yale People. Products. Productivity.™

KOMATSU

TCM LIFT TRUCKS

CLARK THE FORKLIFT

UNICARRIERS FORKLIFT

COMBILIFT LIFTING INNOVATION

CAT Lift Trucks

MITSUBISHI FORKLIFT TRUCKS

MANITOU HANDLING YOUR WORLD

Battery charger

24V Series

Charger model	Rate input voltage	Output voltage range (V)	Rate output current (A)
BSLBATT-2450	220VAC Single phase	16-32 VDC	50
BSLBATT-24100		16-32 VDC	100
BSLBATT-4850		18-60 VDC	50
BSLBATT-48100		18-60 VDC	100
BSLBATT-24150	380VAC Three phase five-wire	16-32 VDC	150
BSLBATT-24200		16-32 VDC	200
BSLBATT-48100		18-60 VDC	100

48V 80V 150V Series

Charger model	Rate input voltage	Output voltage range (V)	Rate output current (A)
BSLBATT-48100	380VAC Three phase four-wire	20-65 VDC	100
BSLBATT-48150		20-65 VDC	150
BSLBATT-48200		20-65 VDC	200
BSLBATT-48250		20-65 VDC	250
BSLBATT-48300		20-65 VDC	300
BSLBATT-80100	380VAC Three phase four-wire	30-100 VDC	100
BSLBATT-80150		30-100 VDC	150
BSLBATT-80200		30-100 VDC	200
BSLBATT-80250		30-100 VDC	250
BSLBATT-80300		30-100 VDC	300
BSLBATT-150100	380VAC Three phase four-wire	60-200 VDC	100
BSLBATT-150200		60-200 VDC	200

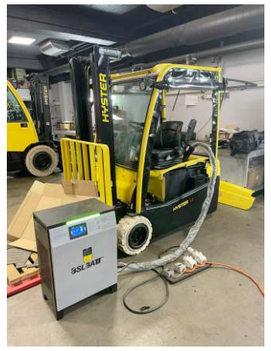
48V 80V 150V Series

Charger model	Rate input voltage	Output voltage range (V)	Rate output current (A)
BSLBATT-48200-480UL	400V Three phase four-wire	30-65 VDC	200
BSLBATT-80200-480UL		30-100 VDC	200
BSLBATT-48200-220UL	220VAC Three-phase four-wire	30-58 VDC	200
BSLBATT-80200-220UL		30-100 VDC	200

** We don't list all our charger here, please contact our sales for other charger model

Case reference

▲ Linde



▲ HYSTER

▲ Yale forklift

▲ STILL

▲ CROWN