

THE PROVEN LEADER IN LITHIUM-ION MOTIVE POWER

**FAST
CHARGE**
TECHNOLOGY BY DESIGN



Industrial Batteries⁺

Australia



www.industrialbatteries.com.au



Quality

High-quality Products and Automation Production Lines

**Vertically Integrated
Production Process**

Product quality

Delivery time

Control

Technology

Cost

**Worldwide
Certifications**

Professional Labs

Certifiable of **CNAS**

Certification



Suitable for any Electric Powered Equipment

24V	24V	36V	48V	48V	76.8V	80V	80V
AGV	Pallet Mover	Narrow Aisle Reach	Counter Balance	Reach Truck	Counter Balance	Counter Balance	Airport GSE

Completely Customisable designs, available in any voltage and capacity



A compact fan for cooling

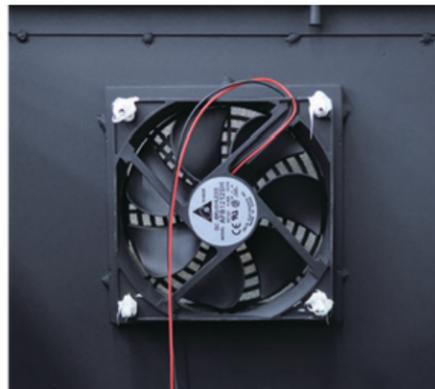


Outperforms at lower temperatures. -35°C

Air-cooled system cools down 5°C to 10 °C

Temperature is an essential element for batteries. The technology we incorporate to manage this is called “active heating” and “active cooling” - designed around temperature regulation in hostile environments.

Sensors measure the temperature of many of the hundreds of cells inside per battery module – around 100 cells per battery box. If it is too hot or too cold, the battery management system activates the air conditioner or heating accordingly. The IP65-protected compact fan from BSLBATT is responsible for active cooling. It extracts outside air through ducts in the battery housing, dissipating it through the metal side of the modules, and cools the cells in a targeted manner. The compact fan is UL-certified, and an OEM safety regulation.



Advantages of BSL Battery Industrial for Cold Storage Usage

1. There is no cold-temperature capacity loss with integrated battery heaters.
2. One-hour fast charging is enabled within the cold storage area (to -40 degrees).
3. Forklifts never have to even leave the freezer, and pallet jacks can be charged in refrigerated trailers, so risks from condensation are minimized.
4. A permanently installed Li-ion battery can support 24/7 continuous operation with an opportunity charging regime.
5. Maintenance is rare, unlike lead-acid batteries.
6. Cycle life enables a useful guaranteed product life of at least 10 years / 3000 cycles as an Australian Standard offering.
7. IBA have the trained knowledge to implement and maintain our Li-ion battery systems across Australia, making execution easy and seamless.




Running time
+60%



Condensed Aerosol Fire Extinguishing Device

NO DOWN TIME FOR YOUR CLIENT with Parallel Battery Topology (PBT):

In case of module malfunction, the faulty module is automatically disconnected and remains inactive via remote action, without interrupting the battery operation until our IBA service representative arrives on-site



Active

The problematic module is isolated via remote action (PBT Mode) without interrupting the operation of the battery & forklift in any capacity



Inactive

Easy & safe replacement of faulty module in a few minutes through an IBA Technician onsite



Active

Operation of battery & forklift back to normal, with after sales Service and Support Guaranteed through our Factory trained Technicians all across Australia

Advantages of BSL Battery - an IBA Standard offering

Condensed Aerosol Fire Extinguishing Device

1. Compact size
2. No pressure storage
3. No need to lay pipe network and maintenance
4. Efficient and rapid-fire extinguishing
5. Non-toxic and harmless
6. Safe and reliable
7. Green and environmental protection



Highly efficient and reliable in extinguishing fires.



Features

1. Cooling And Fire Extinguishing Effect Of Heat Absorption And Decomposition
2. Gas-Phase Chemical Inhibition
3. Solid-Phase Chemical Inhibition

Ultimate Customer Experience

Fully charged potentially in under 90 minutes, BSLBATT batteries enable a 3-shift operation, without the need to change batteries in the middle of the workday.

The Power Behind the Innovation for Electric Forklifts

Achieve up to and beyond **3,500+** cycle life

Minimum **10** years design life

Potentially Save up to **70%** of expense in 5 years

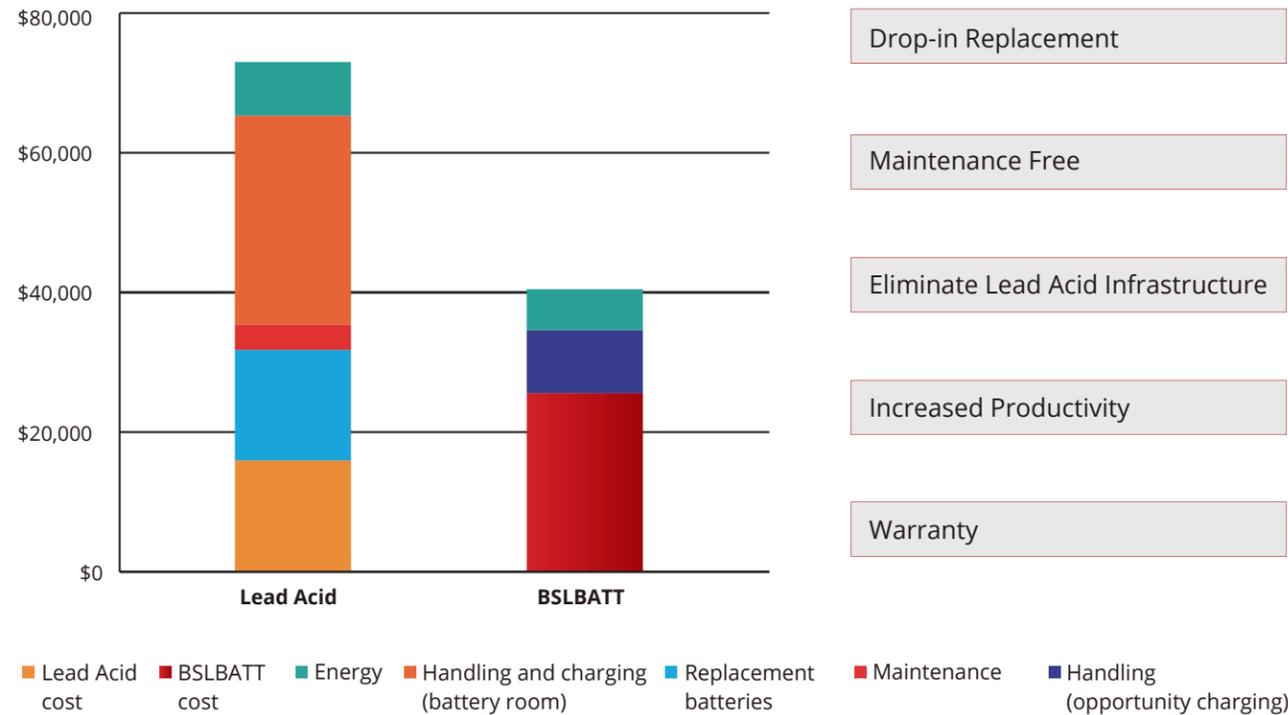


Capitalize on Your Investment

BSLBATT Li-ion batteries can transform your business and maximise the efficiency of your operation by eliminating the potential complexity of lead acid battery management

Total Cost of Ownership

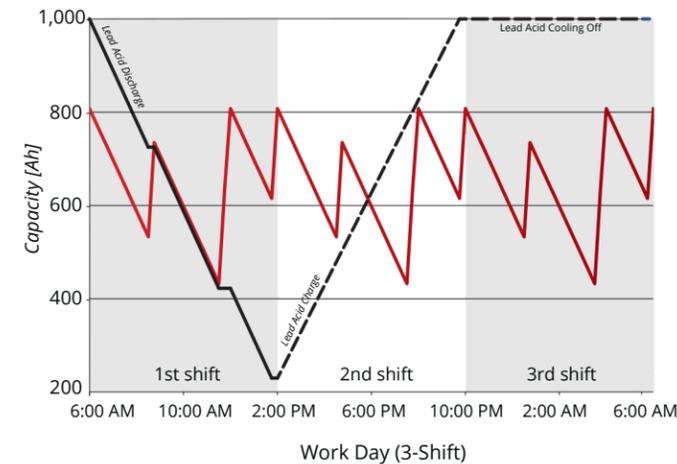
5 Years - 260 workdays/year - 2 shifts/day - 8 hour



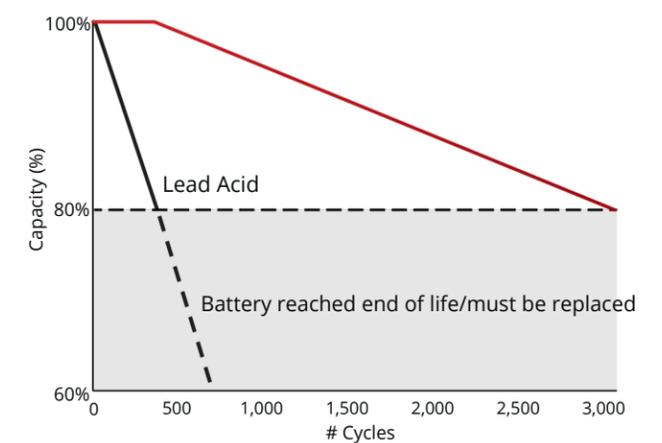
Performance

When compared with conventional lead acid batteries, BSLBATT delivers unmatched performance and capabilities in high usage sites. BSLBATT batteries will increase your forklift uptime and overall efficiency compared to other Battery Technologies.

Rapid Opportunity Charging



Battery Capacity vs # Cycles



Quick Comparison Table

PARAMETER	LEAD-ACID BATTERIES	LITHIUM-ION BATTERIES
No. Of Shifts With One Battery	1	Up to 3
Charging Time	8 hours	2-3 hours as standard
Opportunity Charging	Possible, however battery life may reduce	Charging for as low as 5-10 minutes whenever possible
Safety & Health Risks	High	Low
Watering The Battery	Yes	N/A
Maintenance Cost	High	Low
Battery Lifespan	~ 1500 cycles	3500 cycles
Electrical Infrastructure	Use existing	May need Upgrade
Replacement Cost	High	Low
Energy Efficiency	Low	High
Electricity Cost	High	Lower Save up to 30% because of higher energy efficiency
Upfront Cost	Low	High
Total Cost Of Ownership	High	Low
Environment Friendly	No	Yes

Advantages of Lithium-ion Technology

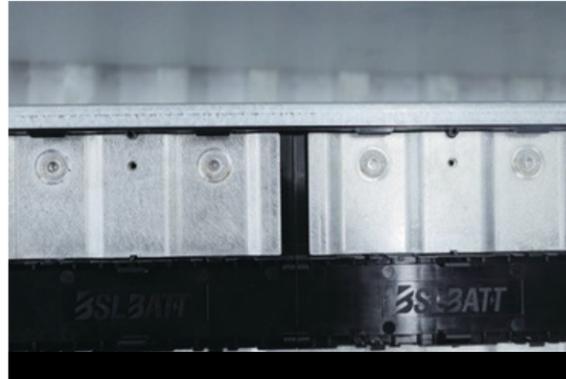
Proven Technology	High Energy Density	Quick Recharge	Extended Life	Completely Recyclable	Maintenance Free
Smart	Efficient	Quick Return on Investment	Extremely Safe	Drop-in Solution	High & Low Temperature Performance

WHY BUY BSLBATT LI-ION BATTERIES?

Based on its long experience with Li-ion, BSL Battery has developed a new generation of Li-ion Traction batteries with **2 important advantages**:

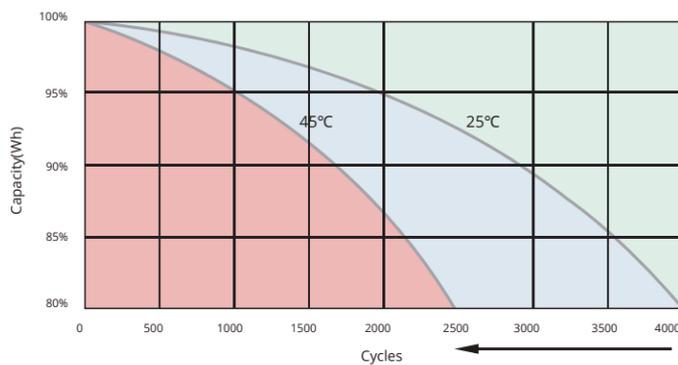
1. The BSLBATT Lithium batteries use prismatic cells based on the superior LifeP04 (Lithium Iron Phosphate) technology. This cell offers a longer cycle life with an excellent energy density. In industrial and logistics applications only LiFeP04 should be used. It is important to understand that this technology does not ignite or explode, even if the battery breaks down.

2. It is fully protected. The cells are assembled in modules with laser welded bushbars. This connection reduces the internal resistance, greatly reducing the risk of poor connections.



2. The heat dissipation in the cells has a sizeable negative impact on the lifetime of the battery. Higher temperatures will reduce the lifetime drastically (each °C extra can reduce the overall life time by 2%).

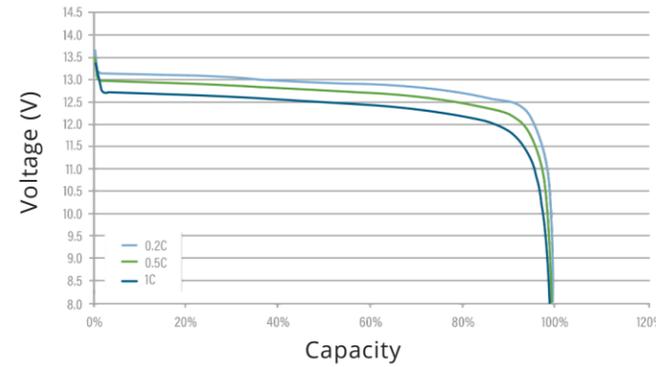
For most Li-ion batteries on the market, the cells and modules are placed together, which leads to unstable heat dissipation and local hotspots of the cells. The BSLBATT Lithium batteries have an optimal heat balance: the modules are placed to allow excellent natural venting. This venting is designed to transfer any heat towards the forklift and better balance the overall temperature.



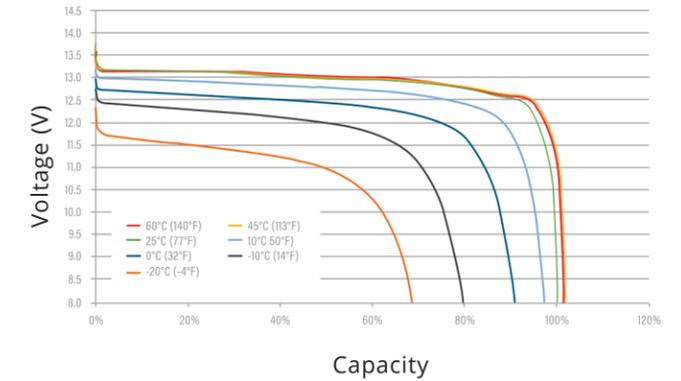
Optionally, the battery can be equipped with a compact fan for high-temperature cooling or a heating system for low temperature applications.

TYPICAL LITHIUM IRON PHOSPHATE CHARACTERISTICS

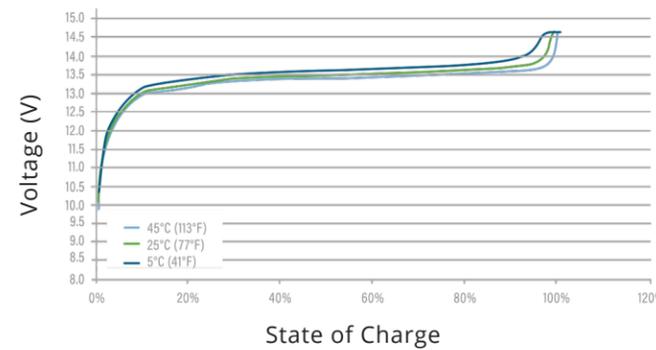
DISCHARGE VOLTAGE CHARACTERISTICS at VARIOUS RATES 25°C (77°F)



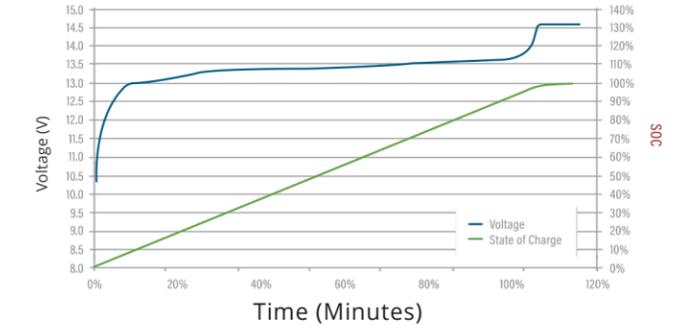
DISCHARGE VOLTAGE CHARACTERISTICS AT VARIOUS TEMPERATURES DISCHARGE 1C



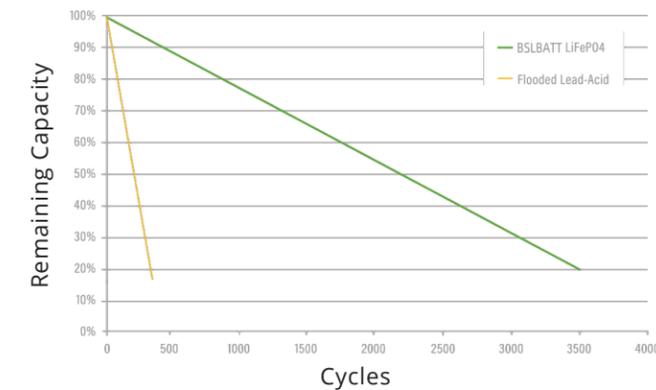
CHARGE VOLTAGE CHARACTERISTICS AT VARIOUS RATES CHARGE 0.2C



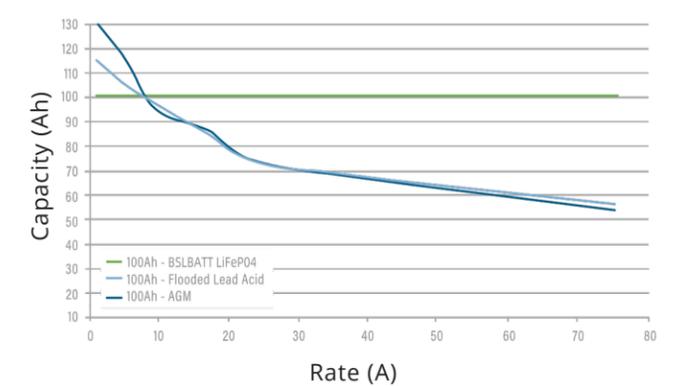
CHARGE VOLTAGE AND STATE OF CHARGE (SOC) CHARGE 0.2C @ 25°C (77°F)



CYCLE LIFE VS. DEPTH OF DISCHARGE (DOD) AT 80% DISCHARGE 0.5C/CHARGE 0.5C @ 25°C (77°F)



CAPACITY OF BSLBATT LiFePO4 VS. LEAD ACID at VARIOUS RATES OF DISCHARGE



*Performance between applications and batteries may vary. The customer should independently verify all results.

On track for success with BSLBATT



BSLBATT's forklift lithium batteries use LiFePO4 cells. Our cell has a confirmed cycle life of between 3500-4500 cycles. In addition, some of our cells have a shown a potential cycle life of more than 6000 cycles depending on discharge use.

Long Life Spans



Discharge Capacity ≥100%*nominal

Battery capacity is one of the important performance indicators to measure battery performance. The actual capacity of our battery under certain conditions (discharge rate, temperature, termination voltage, etc.) ≥100%*Nominal

Our "A" type cell is a cell that has no abnormality within the range of technical parameters, that all meet the national standard or above in every aspect.

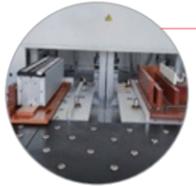
Brand New Class A Cells



Remote Intelligent BMS

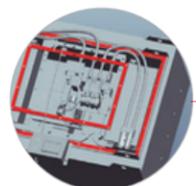
High-performance 32-bit processor and high-precision front-end sampling chip, multiple hard core technologies improve cell consistency management and estimation accuracy. Our BMS provides remote real-time online monitoring of batteries with every unit.

We use high-quality aluminum bus bars, and laser welding to seamlessly and perfectly weld the aluminum bus bar and the lug of the cell together, as well as the use of aluminum alloy and steel frames, which greatly improves the strength and stiffness of the battery pack. Therefore, our modules are more able to withstand harsh working environments, and any charge and discharge expansion.



Reliable Module Welding

Our battery uses a waterproof sealing ring that prevents moisture from passing through. The battery case is a battery pack that is effectively protected and can prevent potentially harmful substances from damaging the battery internally.

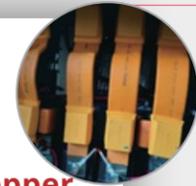


Waterproof Structure

PDU integrates BMS main control, charging module, DC module, etc. Our PDU has more vehicle functional modules, which are integrated in function and more mature in structure. The PDU configuration is flexible, and we can customize and develop it according any customer requirements, which can meet the needs of different customers and their various Equipment models.

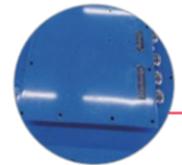


Integrated PDU



Flexible Copper Busbar

Our Bus bars are customized based on different configurations, it is flexible to operate, reliable and the lowest cost.



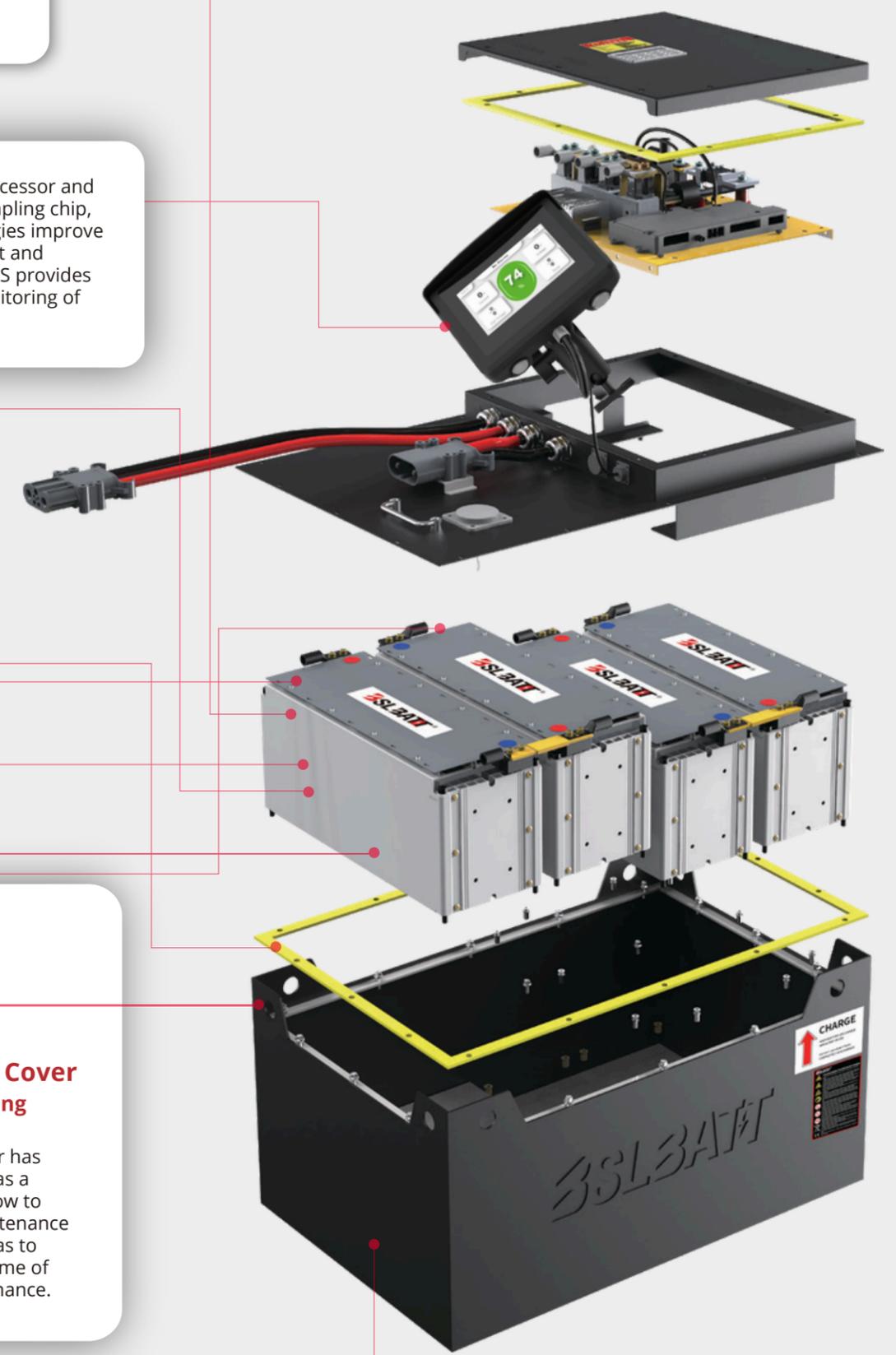
Maintenance Cover Makes Maintaining Easy

Battery upper cover has specially designed as a maintenance window to facilitate easy maintenance and inspection, so as to shorten the downtime of equipment maintenance.

The battery is fully insulated and protected, and flame retardant materials are used, with an internal fire suppression system supplied as standard with every Li-ion Battery.



Safety Material Insulated and protected with flame retardant materials





Pushback Tractors / Belt Loaders /
Luggage Tugs

GSE Pack COMPARED TO DIESEL / LPG / GASOLINE

UP TO 75% LOWER COST:

- Maintenance free
- No battery swapping required for multi-shift applications
- 10-year warranty / 3000 Cycle Australian Standard product Warranty
- Typically uses 30% less energy than other Technologies
- The annual reduction in costs to a major airline associated with not purchasing unleaded gasoline for GSE operations at SMF was approximately \$19,100 per year.
- The switch to lithium-ion provides a yearly per tractor cost saving of approximately \$1,277 over gasoline and \$1,028 over lead acid.



Model	Nominal Voltage (V)	Capacity (Ah)	Stored Energy (kWh)	Weight (kg/lbs)	Length(mm/inch)	Width(mm/inch)	Height(mm/inch)
B-LFP48-230MH	51.2	230	11.78	499 (1100)	815 (32.09)	406 (15.98)	500 (16.69)
B-LFP48-280MH	51.2	280	14.34	535 (1180)	907 (35.7)	415 (16.35)	610 (24)
B-LFP48-305MH	51.2	305	15.62	500 (1102)	490 (19.29)	770 (30.31)	495 (19.49)
B-LFP48-460MH	51.2	460	23.55	1256 (2770)	1060 (41.73)	450 (17.72)	555 (21.85)

Model	Nominal Voltage (V)	Capacity (Ah)	Stored Energy (kWh)	Weight (kg/lbs)	Length(mm/inch)	Width(mm/inch)	Height(mm/inch)
B-LFP80-300MH	83.2	300	24.96	555 (1224)	1250 (49.21)	578 (22.76)	580 (22.83)
B-LFP80-410MH	83.2	410	34.11	1213 (2674)	1010 (39.76)	680 (26.77)	655 (25.79)
B-LFP80-460MH	83.2	460	38.27	1700 (3748)	1015 (39.96)	680 (26.77)	795 (31.3)
B-LFP80-560MH	83.2	560	46.59	1480 (3263)	1015 (39.96)	680 (26.77)	795 (31.3)
B-LFP80-615MH	83.2	615	51.17	1500 (3307)	1015 (39.96)	680 (26.77)	795 (31.3)

Charge Temperature Range

32°F to 131°F(0°C to 55°C)

Discharge Temperature Range

-4°F to 131°F(-20°C to 55°C)

*For more lithium batteries request, please contact our sales for support .



**Standard And
Customizable Battery
Systems For GSE Applications**



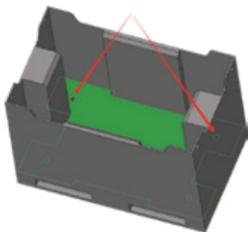
① **Black box technology with counterweight placed at the bottom**

Your next truck might have a different compartment? Simply update your weight module to fit the new dimensions, weight and most optimized charge socket location.

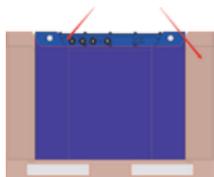
Standard options
Relay remote solution, LCD touch screen, charging and discharging interface, discharging REMA 320, charging REMA 320, charging relay 300A, discharging relay 600A.



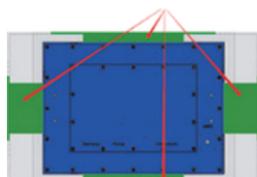
Distribution Box And Drainage Hole



Standard BoxWeight Box



Clump Weight



② **A counterweight technology is placed around the black box**

Our Batteries may outlast the Equipment it is powering. This is made easy with our customised Battery Tray designs, simply change the weight module requirements to suit any new dimensions

LiFePO4 Forklift Battery Components

Superior Power & Optimal Performance

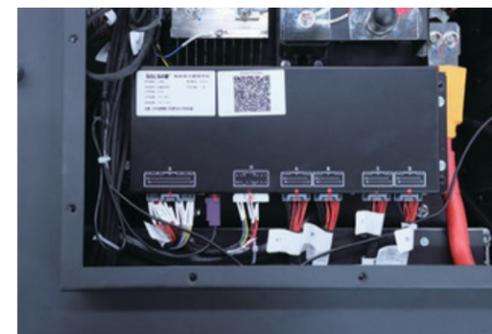
Next Generation Li-ion BMS Display Screen supplied through IBA



Battery Management System (BMS)

The built-in BMS is equipped with automotive-grade components assuring safety, top quality and high energy density to provide a fully optimized solution for demanding industrial applications.

BMS software ensures the battery provides peak performance when in operation, delivers longer run time betweencharges, maximizes the total battery lifespan and to communicate well between the charger, battery and users.



The BMS can offer:

All-time Cell Balancing and Battery Management.

Through intelligent balancing strategy, the BMS can always maintain the consistency of the cells and realise the balance between individual cells.

Battery Real-time Monitoring and Communication Through CAN.

Monitoring cell voltage, electric current and battery temperature so that any movement outside the normal range disconnects the cell or the entire battery.

Fault Alarm and Safety Protection.

When the battery is less than 10%, it will sound an alarm for charging. Over/under voltage, low/over temperature, over current alerts or other faults will prompt to make the battery safe. Safety always comes first.

Create fleets.
Monitor each of your batteries:

BSL Cloud platform

CLOUD-BASED TELEMATICS AND ASSET MANAGEMENT

Keep your fleets running around the clock with intelligent fleet management

Track usage patterns and diagnose issues remotely for real-time monitoring, maximum efficiency and operator safety—BSL BMS will notify you before an issue occurs. View battery performance and data, monitor fleet activity, and generate real-time metrics from the web portal.



WORKFLOW

BENEFITS

- View/share real-time data
- Diagnose issues remotely
- Manage maintenance costs
- Impact energy usage and savings
- Optimize operator safety
- Improve productivity
- Eliminate unplanned downtime
- Avoid unexpected breakdowns
- Monitor equipment allocation
- Real-time alerts
- GPS tracking capability

ADVANTAGES

- Real-time fleet monitoring
- Performance metrics and data reports
- Generate custom alerts to notify multiple users
- Aggregate data to identify over/under utilized batteries
- Optimize operator practices
- Password-protected account
- Custom user permissions and functionality
- Saves 1 month of full debug data locally
- Wi-Fi/Cellular/Bluetooth compatibility



Why Product Safety is key with our Li-ion Batteries

Why is the BSL Forklift Battery Safer?

We start with a safer battery chemistry. BSL forklift batteries use LiFePO₄, one of the safest lithium battery chemistries, ideal for warehouses, logistics centers, and indoor forklift operations.

- ✓ High thermal stability, no fire risk.
- ✓ Stable chemistry, no explosion risk.
- ✓ Designed for high-duty and people-dense environments.

BSL forklift batteries are tested and certified to meet major international safety and transportation standards. We hold certifications including UL, IEC, CE, UN38.3, and PICC Insurance.

- ✓ Safer Daily Operation
- ✓ Reliable Compliance
- ✓ Reduced Operational Risk

Safety Proven by Certifications



Conclusion

BSL forklift lithium batteries combine safer chemistry, certified quality, and built-in fire protection — so you can operate with confidence.

Extra Protection for Total Peace of Mind

Beyond safe cells and certifications, BSL forklift batteries feature a built-in automatic fire suppression system.

- ✓ Continuous battery condition monitoring
- ✓ Automatic fire suppression at early risk stage
- ✓ Prevents fire spread and protects forklifts and facilities
- ✓ No manual intervention required

Designed for forklifts · Built for safety · Ready for global use



BSL Battery Compatible Brands Charger



BSLBATT AND SPE CHARGER



BSL Forklift Lithium Batteries join the SPE Industrial Electronics Charger Manufacturer's Compatibility Program. IBA is already a supply partner to SPE with their Flooded Lead Acid High Frequency Charger ranges supplied here in Australia locally.



BSLBATT AND FRONIUS CHARGER

BSLBATT Battery recently announced that it has joined Fronius Perfect Charging's new partner program "Charger Compatibility".



BSLBATT IS PART OF THE CHARGER BY DELTA-Q PROGRAM
BSLBATT Batteries announces a new partnership with Delta-Q Technologies, a Tier 1 OEM charger Manufacturer.



SYDNEY | BRISBANE | MELBOURNE | ADELAIDE | PERTH

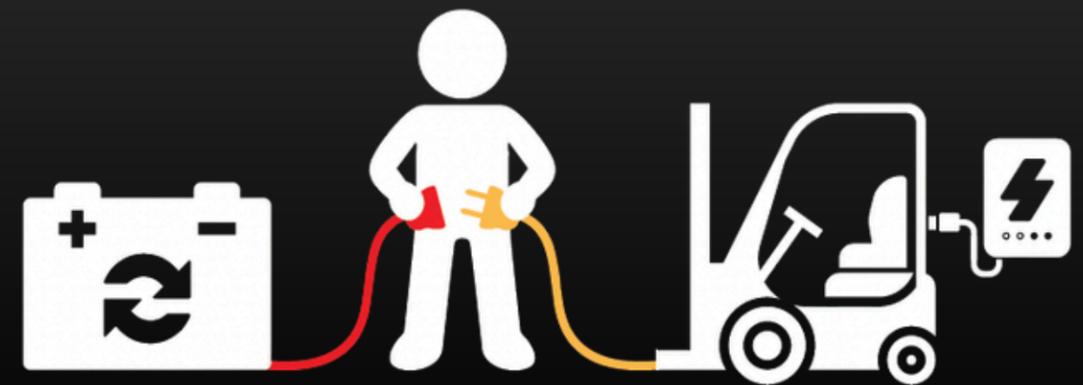


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