

	PRODUCT SPECIFICATION CONFIRMATION		Form No.: QF-T-CTPS-B
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	Model: Product Specification of 150Ah Cell 150Ah Cell Product Specification Confirmation Document		

Product Specification Confirmation

Product Design Preparation	Product Design Approval	Sales Approval	Project engineering approval	Quality Assurance Approval	Product Manager Approval
Li ShiPeng	Wang GuoBao				

Customer Confirmation	Sign one's name	Date
	Customer code :	
	Corporate seal :	

Customer Requirements

Model: CB260

Version: 1.0

Customers are required to document their requirements and communicate them with CATL in advance. If customers have specific applications or operational conditions differing from those described in this document, CATL can customize product design and production according to their particular requirements.

	Special requirements	Standard
1		
2		
3		
4		
5		

customer code : _____ sign : _____ date : ____

Amendant Record

Edition	ECN number	Availability date	Author	Revise description/acknowledgment status
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Terminology

Term	Definition
Product	In this specification, the term 'product' refers to the 150Ah rechargeable lithium iron phosphate battery manufactured by CATL.
Client	Refers to the buyer in the CATL EV Product Sales Contract.
CATL	Refers to the seller in the CATL EV Product Sales Contract.
PN	To differentiate batteries for various application scenarios or conditions, CATL assigns a material code to its 150Ah rechargeable lithium battery.
Ambient temperature	The ambient temperature of the battery.
Battery Management System (BMS)	An effective tracking and control system for customers to monitor and record the operational parameters of products throughout their service life. The tracked parameters include, but are not limited to, voltage, current, temperature, etc., to regulate product operation and ensure that the operating environment and conditions comply with the specifications outlined in this manual.
Cell temperature	The cell temperature is measured by a temperature sensor connected to the battery, with the selection of the sensor and measurement circuit jointly determined by CATL and the customer.
New battery status	It refers to the battery's condition within 7 days from the manufacturing date.
C-Rate charging rate	The charging current is defined as the ratio of the charging current to the battery capacity value measured multiple times by the battery management system. For example: If the battery capacity is 150Ah and the charging current is 30A, the charging rate is 0.2C; when the battery capacity drops to 90Ah and the charging current is 18A, the charging rate remains 0.2C.
Cycle recurrence	A battery cycle is defined as a complete charge-discharge process according to the specified standards. A cycle includes a combination of short-term normal charging or regenerative charging and discharging processes. During charging, there may be instances where only normal charging occurs without regenerative charging. Discharge can be formed by the combination of partial discharges.
Date of manufacture	The manufacturing date of a battery is the date code clearly marked on the top sticker of each relevant battery.
Open Circuit Voltage (OCV)	The voltage of the battery is measured when no load or circuit is connected.
Product Supply Agreement	The transaction terms for the products specified in this specification, jointly agreed upon by CATL and its customers.
Standard charging	The charging mode specified in Section 2.2.4 of this specification.
Standard discharge	The discharge current of 50A as specified in Section 2.3.1 of this specification, and the discharge mode with a minimum voltage of 2.5V as specified in Section 2.3.5 of this specification, are compliant.
State of Charge (SOC)	The linear relationship between battery charge state and capacity, measured in ampere-hours or watt-hours, under no-load conditions. For example, if a 150Ah capacity is considered as 100% SOC, then at 0Ah capacity, the SOC is 0%.
Temperature rise	Under the conditions specified in this specification, such as temperature rise of the cell during charging or discharging processes.
Measurement unit	"V" (Volt), a unit of voltage A" (Ampere) A, unit of electric current "Ah" (Ampere-Hour) is a unit of load. Wh (Watt-Hour) is a unit of energy. Ω (ohm), unit of resistance "m Ω " (MilliOhm) is a unit of resistance.

	°C (degree Celsius), a temperature unit "mm" (millimeter), a unit of length "s" (second), time unit Hz (Hertz), a unit of frequency
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1 Scope of Application

This specification document provides a detailed description of the performance parameters, usage conditions, and risk warnings for CATL's 150Ah rechargeable lithium iron phosphate power batteries.

2 Product Electrical Performance Specifications

2.1 Essentials

No.	Parameter	Size of product	Condition
2.1.1	Standard capacity	150 Ah	25±2°C, 1C, new battery state
2.1.2	Minimum capacity	150Ah	25±2°C, 1C, new battery state
2.1.3	Working voltage	2.5~3.65V 2.0~3.65V	Temperature T>0°C Temperature T≤0°C
2.1.4	Battery internal resistance (1KHz)	0.34±0.05mΩ	New battery state (30~40% SOC)
2.1.5	Ship capacity	60±1Ah	N.A.
2.1.6	Self discharge	≤3.5%	25°C, 50% SOC, new battery after 3 months
2.1.7	Working temperature (charging)	0~60°C	Refer to Section 2.2
2.1.8	Working temperature (discharge)	-30~60°C	Refer to Section 2.3
2.1.9	Battery weight	2.95±0.3Kg	N.A.
2.1.10	Battery size	Refer to Section 8 of this specification	At a pressure of 300 Kgf
2.1.11	Cycle index	≥3500 times	Under a 300Kgf fixture force, the single cell's capacity degrades to 80% of its nominal capacity during standard charge-discharge cycles (25°C, 1C/1C).

2.2 Charging Mode, Parameters

No.	Parameter	Size of product	Condition
2.2.1	Standard charging current	0.5C	25±2°C
2.2.2	Maximum chargeable sustained current	1C	25±2°C
2.2.3	Standard charging voltage	The maximum voltage of a single cell is 3.65V.	/
2.2.4	Standard charging mode	Charge at a constant current of 0.5C until the individual battery reaches a maximum voltage of 3.65V, then continue charging at a constant voltage of 3.65V under normal pressure until the current drops to the lower limit of 0.05C.	
2.2.5	Standard charging temperature	25±2°C	Cell temperature
2.2.6	Absolute charging temperature (cell temperature)	0~60°C	Regardless of the battery cell's charging mode, charging will stop immediately if its temperature exceeds the absolute charging temperature range.

2.2.7	Absolute charging voltage	Maximum 3.65V	Regardless of the battery cell's charging mode, charging will stop immediately if its voltage exceeds the absolute charging voltage range.
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2.3 Discharge Mode

No.	Parameter	Size of product	Condition
2.3.1	Standard discharge current	75.0A	25±2℃
2.3.2	Maximum continuous discharge current	150.0A	N.A.
2.3.3	Maximum pulse discharge current (long pulse)	300.0A	The maximum discharge duration is 3 minutes.
2.3.4	Maximum pulse discharge current (short pulse)	450.0A	When the cell temperature is below 50℃ and the SOC exceeds 40%, the maximum discharge duration is 60 seconds. If the SOC drops below 40%, the maximum discharge duration is 10 seconds.
2.3.5	Discharge cutoff voltage	2.5V 2.0V	Temperature T>0℃ Temperature T≤0℃
2.3.6	Standard discharge temperature	25±2℃	Cell temperature
2.3.7	Absolute discharge temperature	-30~60℃	Whether the cell is in continuous discharge mode or pulse discharge mode, if the cell temperature exceeds the absolute discharge temperature, the discharge will stop.

2.4 Low Temperature Capacity

No.	Parameter	Size of product	Condition
2.4.1	Capacity at 0℃	≥80%	New battery condition: 0℃, 1C, 2.0V~3.65V, rated capacity 150Ah
2.4.2	Capacity at -10℃	≥75%	New battery condition: -10℃, 1C, 2.0V~3.65V, rated capacity 150Ah
2.4.3	Capacity at -20℃	≥70%	New battery condition: -20℃, 1C, 2.0V~3.65V, rated capacity 150Ah

2.5 Safety and reliability(all tests comply with national standards GB/T 31485-2015 and GB/T 31486-2015)

No.	Parameter	Size of product	Test condition
2.5.1	Overcharge test	Non-flammable and non-explosive	1. The test environment temperature is 25°C. 2. charging of single battery; 3. Charge at a constant current of 1.0C until the voltage reaches 1.5 times the charging termination voltage specified in the company's technical specifications, or until the charging time reaches 1 hour. 4. The voltage, current and temperature were monitored during the experiment.
2.5.2	Vibration test	No phenomena such as sharp discharge current variation, abnormal voltage, battery casing deformation, or electrolyte leakage were observed, and the connection remained reliable with intact structure.	1. Test ambient temperature: 25±2°C 2. charging of battery pack 3. The battery module is fastened to the vibration test bench, and the linear frequency sweep vibration test is performed under the following conditions; Discharge current: 1/3C; --Vibration direction: Upward single vibration; --Vibration frequency: 10Hz to 55Hz Maximum acceleration: 30 m/s² --Scan cycle: 10 times; --Vibration time: 3h; 4. During the vibration test, observe for any abnormal phenomena. No sharp changes in discharge current, abnormal voltage, deformation of the battery case, or electrolyte leakage are permitted. Ensure reliable connections and structural integrity.

3 Product Life Termination Management

Batteries have a limited lifespan. Customers must establish an effective tracking system to monitor and record the internal resistance and capacity of each battery during its service life. The measurement and calculation methods for internal resistance and capacity require mutual discussion and agreement between the customer and CATL. If the internal resistance of a battery in use exceeds 150% of its initial value or its capacity falls below 80% of the nominal capacity (at 25°C), the battery must be discontinued. Failure to comply with these requirements will exempt CATL from its warranty obligations under the product sales agreement and this specification.

4 Application Conditions

Customers must strictly comply with the following battery-related application conditions:

- 4.1 Customers should install a battery management system to closely monitor, manage, and protect each battery.
- 4.2 Customers must provide CATL with detailed design specifications, system features, framework, data specifications, and format requirements for the battery management system. This information will enable CATL to conduct design evaluations and establish comprehensive battery management documentation.
- 4.3 Without CATL's authorization, customers must not modify or alter the design or framework of the battery management system, as such actions may compromise the battery's performance.
- 4.4 Customers must retain complete battery operation monitoring data for reference in product quality liability allocation. CATL shall not assume product quality warranty liability if the complete monitoring data within the battery system's service life is not available.
- 4.5 The battery management system must meet the following fundamental testing and control requirements.

No.	Parameter	Size of product	Protective action
4.5.1	Charge termination	3.65V	Stop charging when the battery voltage reaches 3.65V.
4.5.2	First stage overcharge protection	≥ 3.8V	Stop charging when the battery voltage reaches 3.8V
4.5.3	Second stage overcharge protection	Greater than 4.0V	The charging process terminates when the battery voltage reaches 4.0V, and the battery management system (BMS) locks until technicians resolve the issue.
4.5.4	Discharge off	Minimum 2.5V	Stop discharging when the battery voltage reaches 2.5V, and reduce the current to the minimum.
4.5.5	First stage over discharge protection	Minimum 2.0V	Stop discharging when the battery voltage reaches 2.0V and reduce the current to the minimum.
4.5.6	Second level over discharge protection	Minimum 1.8V	When the battery voltage drops below 1.8V, the battery management system will lock until the technician resolves the issue.

4.5.7	Short-circuit protection	Short circuits are not permitted	During a short circuit, the overcurrent device disconnects the battery.
4.5.8	Overcurrent protection	Refer to Section 2.3 Discharge Requirements	Battery management system controls discharge current to meet specifications
4.5.9	Overheat protection	Refer to 2.2 and 2.3	Charging/discharging shall be terminated when the temperature exceeds the specifications in this manual.
4.5.10	Protection due to prolonged charging time	The charging time is within 8 hours.	If the charging time exceeds 8 hours, the charging will be terminated.

Note: Items 4.5.2, 4.5.3, 4.5.5, and 4.5.6 above constitute warning clauses. Please note that when a battery reaches any of the specified performance thresholds or parameter states, it indicates the battery has exceeded the operational conditions defined in this specification. The customer must implement protective measures in accordance with the "Protection Action" and other relevant provisions herein. CATL disclaims all warranty obligations for batteries in such conditions and shall not be liable for any losses incurred by the customer or third parties.

- 4.6 Prevent batteries from reaching over-discharge conditions. When the battery voltage drops below 1.8V, permanent internal damage may occur, at which point CATL's product quality warranty becomes invalid. As specified in Section 2.3.5 of this specification, when the discharge cutoff voltage falls below 2.5V, the system minimizes internal energy consumption and extends the sleep time before recharging. Customers must train users to recharge promptly to prevent battery over-discharge.
- 4.7 If the battery is expected to be stored for over 30 days, the SOC should be adjusted to around 50%.
- 4.8 Batteries must not be charged under low-temperature conditions prohibited by this specification (including standard charging, fast charging, emergency charging, and regenerative charging), as this may lead to unexpected capacity reduction. The battery management system should operate at the minimum charging and regenerative charging temperatures. Charging below the temperature limits specified in this specification is strictly prohibited; otherwise, CATL shall not be liable for quality assurance.
- 4.9 The design of the battery box must fully consider the heat dissipation of the cells. CATL shall not be liable for any damage to the cells or batteries caused by inadequate heat dissipation design in the battery box.
- 4.10 In the design of electrical boxes, adequate consideration must be given to the waterproofing and dustproofing of battery cells. The electrical boxes must meet the waterproofing and dustproofing standards specified by relevant national standards. CATL shall not be liable for quality assurance in cases of battery cell or battery damage caused by waterproofing or dustproofing issues (such as corrosion or rusting).
- 4.11 CATL prohibits the use of cells with different P/N codes in the same battery system (or vehicle). Otherwise, CATL will not be liable for quality assurance.

5 Security Protection

- 5.1 Do not immerse the battery in water.
- 5.2 Batteries must not be placed in fire or exposed to high temperatures exceeding those specified in Sections 2.1.7 and 2.1.8 of this specification, as this may cause fires. Under normal operating conditions, the temperature of battery cells must not exceed 60°C. If the temperature of any cell in the battery exceeds 60°C, the battery management system must shut down the battery and terminate its operation.
- 5.3 Short circuits between the positive and negative terminals of batteries are strictly prohibited, as high currents and elevated temperatures may cause personal injury or fires. Since the battery terminals are exposed within a plastic protective casing, adequate safety measures must be implemented during battery system assembly and connection to prevent short circuits.
- 5.4 Connect the battery terminals strictly according to the markings and instructions; reverse charging is prohibited.
- 5.5 Overcharging of batteries is strictly prohibited, as it may cause overheating and fire hazards. During battery installation and operation, both hardware and software must implement multiple overcharge failure safety protections. The minimum protection requirements are specified in Sections 4.5.3 and 5.11 of this specification.
- 5.6 According to Clause 4.5.9 of this specification, normal charging shall terminate after completion. If the charging duration exceeds the reasonable time limit, the battery may overheat, potentially causing thermal runaway and fire. A timer must be installed for protection. Should the charging current reach an over-charge state and fail to terminate, the timer will activate to stop the charging process, as specified in Clause 5.11 of this specification.
- 5.7 The customer should fix the battery safely on the solid plane and tie the power line safely in the right place to avoid the friction and the electric arc and spark.
- 5.8 Plastic encapsulation of batteries or electrical connections made with plastic are strictly prohibited. Incorrect electrical connections may cause overheating during battery operation.
- 5.9 In the event of electrolyte leakage, avoid contact with the skin and eyes. If contact occurs, wash the affected area thoroughly with large amounts of clean water and seek medical assistance. It is strictly prohibited for any person or animal to ingest any components of the battery or substances contained within the battery.
- 5.10 Protect the battery from mechanical vibrations, impacts, and pressure shocks, as these may cause internal short circuits, leading to high temperatures and fires.
- 5.11 Improper termination of battery charging may occur during charging processes. Examples include exceeding permitted charging duration, terminating charging due to excessively high voltage, or stopping charging when current levels become too strong. These phenomena are defined as "improper termination of charging". When such occurrences happen, they may indicate electrical leakage in the battery system or component failures. Continuing charging without identifying and resolving the root cause **could** lead to battery overheating or fire risks. In such cases, the battery management system should automatically disable further charging through its lockout function and notify the user to return the vehicle containing the faulty battery to the dealership for system maintenance.

The battery may only be restored for charging after undergoing a comprehensive inspection by certified technicians, identifying the root cause, and implementing thorough resolution and improvement measures.

5.12 Improper operation of the test procedure described in Section 2.5 of this specification may cause battery ignition or explosion. This test procedure must be conducted by qualified personnel equipped with appropriate protective gear in a specialized laboratory. Failure to comply may result in severe personal injury and property damage.

6 Disclaimer

If the product user fails to comply with the instructions in this manual, resulting in social consequences and damage to CATL's reputation, CATL will hold the user accountable. The user shall compensate CATL based on the severity of the impact.

7 Risk Warning

7.1 Warning Statement

Warning Batteries pose potential hazards.

Appropriate protective measures must be taken during operation and maintenance!

Incorrect operation of the test procedures described in Section 2.5 of this specification may result in severe personal injuries and property damage!

Always use the correct tools and protective equipment to handle batteries.

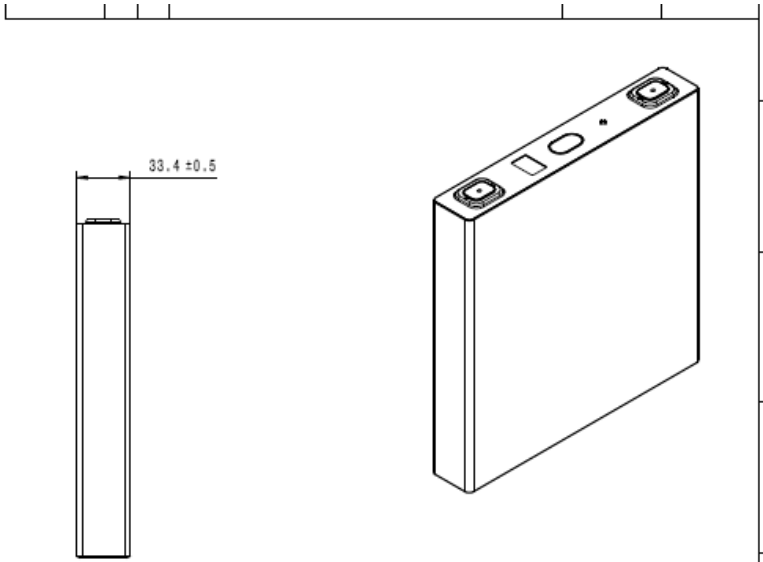
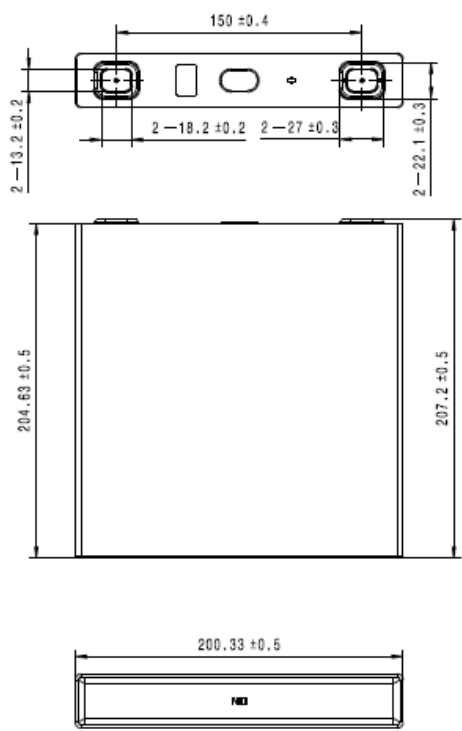
Battery maintenance must be performed by personnel with battery expertise and safety training. Non-compliance with the aforementioned warnings may lead to various disasters.

7.2 Risk type:

The customer is aware of the following potential hazards during battery use and operation:

- 7.2.1 Operators may suffer injuries from chemicals, electric shocks, or electric arcs during operation. Although the human body reacts differently to direct current (DC) and alternating current (AC), DC voltages exceeding 50V and AC currents pose equally severe hazards to human health. Therefore, operators must adopt conservative postures during operations to avoid electric current injuries.
- 7.2.2 There are chemical risks from the electrolyte in the battery.
- 7.2.3 When operating batteries and selecting personal protective equipment, customers and their employees must consider the above potential risks to prevent accidental short circuits, resulting in electric arcs, explosions, or thermal runaway.

8 Battery (Cell) Drawing



GENERAL TOLLS UNLESS NOTED		DRAWN BY	DATE	TITLE 33200-203.7高-简图 CATL Contemporary Apex Technology Co., Limited
0 PLACE (X)	± 0.5	Ca1 DC	Jan.29,2019	
1 PLACE (X.X)	± 0.2	CHECKED BY	DATE	
2 PLACE (X.XX)	± 0.1	Xing CY	Jan.29,2019	
ANGULAR (X °)	$\pm 1^{\circ}$	APPROVED BY	DATE	
		Bond Wang	Jan.29,2019	