76.8V 150Ah（磷酸铁锂体系）锂离子动力蓄电池系统产品规格书

Product Specification for 76.8V 150Ah Lithium Iron Phosphate (LFP) Lithium-Ion Traction Battery System

文件状态： Document Status: [√] 初版发行 [√] Initial Release [ ] 正式发布 [ ] Official Release	文件编号： Document No.:	
	拟制： Prepared by:	
	校对： Checked by:	
	审核： Reviewed by:	
	批准： Approved by:	
	完成日期： Completion Date:	

版本历史

Version History

序号 No.	版本/状态 Version/Status	版本历史 Version History	修订说明 Revision Description	作者 Author	日期 Date
1	A/00	新版发行 New Release	起草 Drafted by		2026.3.9
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1、适用范围

1. Scope

1.1 本产品规格书适用于以下对应车型：

1.1 This product specification applies to the following corresponding vehicle models:

序号 No.	车型 Vehicle Model	动力蓄电池系统型号 Traction Battery System Model	组合方式 Configuration
1	10K农夫车 10K Utility Vehicle	76.8V 150Ah	单箱使用 Single Pack

1.2 本产品规格书所述锂离子动力蓄电池系统（以下简称动力蓄电池系统）包含：电池箱、蓄电池模块、电池管理系统及电器元器件。

1.2 The lithium-ion traction battery system described in this product specification (hereinafter referred to as the traction battery system) includes: battery pack, battery modules, battery management system (BMS), and electrical components.

2、相关标准

2. Relevant Standards

满足农夫车用动力蓄电池系统相关技术标准（下列文件中对于本文件的应用是必不可少的，凡是注明时间的引用文件，仅注明时间的版本适用于本文件，凡是不注明日期的引用文件，其最新版本（包括所有的修改单）适用于本文件：

This product complies with the relevant technical standards for traction battery systems used in utility vehicles. The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

UN38.3	《联合国危险物品运输试验和标准手册 第 3 部分 38.3 条款》
UN38.3	United Nations Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, Clause 38.3
SAE-J1772-2012	《电动汽车和插电式混合电动汽车传导式充电要求》
SAE-J1772-2012	Electric Vehicle and Plug-in Hybrid Electric Vehicle

	Conductive Charging System
IEC6185-1	《充电系统总体要求》
IEC 61851-1	General requirements for Electric Vehicle Conductive Charging System
GB/T 31484-2015	《电动汽车用动力蓄电池循环寿命要求和试验方法》
GB/T 31484-2015	Cycle Life Requirements and Test Methods for Traction Batteries of Electric Vehicles;
GB/T 31486-2015	《电动汽车动力蓄电池电性能要求和试验方法》
GB/T 31486-2015	Electrical Performance Requirements and Test Methods for Traction Batteries of Electric Vehicles
GB 38031-2020	《电动汽车用动力蓄电池安全要求》
GB 38031-2020	Electric Vehicles Traction Battery Safety Requirements

注：电芯满足 GB/T 31484-2015、GB/T 31486-2015、GB 38031-2020 要求。

Note: The battery cells comply with the requirements of GB/T 31484-2015, GB/T 31486-2015 and GB 38031-2020.

3、产品规格及参数

3. Product Specifications and Parameters

3.1 产品型号：KD76150H

3.1 Product Model: KD76150H

3.2 产品特征：动力蓄电池系统（电池装置）

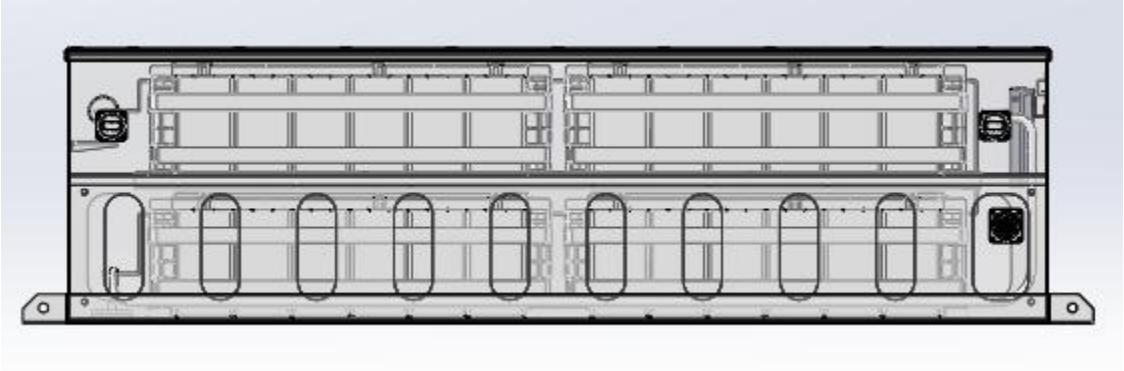
3.2 Product Feature: Traction Battery System (Battery Unit)

3.3 产品布局（见图 I）

3.3 Product Layout (see Figure I)

图 I　蓄电池系统布局图

Figure I　Battery System Layout



3.4 产品总成图详见附件 1

3.4 See Appendix 1 for the product assembly drawing.

3.5 产品技术参数（见表 1）

3.5 Product technical parameters (see Table 1)

表 1

Table 1

类别 Category	Item Name 项目名称	标准要求 Standard Requirements
动力蓄电池系统 Traction Battery System	Product Model 产品型号	KD76150H
	Battery Type 电池类型	磷酸铁锂 Lithium Iron Phosphate
	Nominal Voltage 额定电压	76.8V
	Nominal Capacity 额定容量	150Ah
	Nominal Energy 额定能量	11.52KWh
	Configuration 组合方式	24 串 1 并 24 Series 1 Parallel
	Initial State of Charge 出厂电量	SOC≥70%
	Slow Charging Current 慢充充电电流	20A
	Fast Charging Current 快充充电电流	--
	Standard Discharge Current 标准放电电流	75A（25℃±3℃条件下） 75A at 25℃±3℃
	Max Continuous Discharge Current 最大持续放电电流	150A（25℃±3℃条件下） 150A at 25℃±3℃
	Max Instantaneous Discharge Current 最大瞬间放电电流	430A（25±3℃条件下，持续 10S；） 430A at 25℃±3℃ for 10s
	Charge Cut-off Voltage 充电截止电压	87V
	Discharge Cut-off Voltage 放电截止电压	60V
	Charge/Discharge Mode 充电放电制式	充电：CC-CV；放电：DC； Charge Constant Current-Constant Voltage Discharge DC
	Low-Temperature Discharge Capacity 低温放电容量	≥90Ah(-20℃条件下) ≥90Ah at -20℃
	Charging Ambient Temperature 充电环境温度	0℃～45℃
	Discharging Ambient Temperature 放电环境温度	-20℃～58℃
	AC Impedance 交流内阻	≤35mΩ
	Communication Method 通讯方式	CAN 通讯 CAN Communication
	Insulation Resistance	直流 500V，绝缘电阻≥200MΩ（总正/总负对壳体）；DC

绝缘电阻	500V, insulation resistance ≥ 200MΩ (Total positive / total negative to case)
Weight 重量	109.5kg±0.5Kg
Storage Temperature 存储温度	-10℃～35℃
Cycle Life 循环寿命	2000 次≥80%（25±3℃条件下，以慢充充电电流充电，标准放电电流放电，100%DOD；） ≥80% Capacity Retention after 2000 Cycles (at 25±3℃, charged at the slow charging current and discharged at the standard discharge current with 100% Depth of Discharge)

5、外观要求

5. Appearance Requirements

5.1 动力蓄电池系统箱体不得有变形及裂纹，表面喷塑、平整、干燥、无外伤、无污物等。

5.1 The casing of the traction battery system shall be free from deformation or cracks. The surface shall be plastic-sprayed, smooth, dry, free from mechanical damage and contamination.

5.2 动力蓄电池系统箱体外观颜色为银灰色喷塑。

5.2 The casing of the traction battery system is silver gray with plastic coating.

5.3 标签粘贴牢固不易脱落，位置醒目，包含：铭牌、警告标贴、产品条形码、产品合格证。

5.3 The labels shall be firmly attached and clearly visible, including nameplate, warning label, product barcode and certificate of conformity.

6、包装及运输 (电池包装图详见附件2)

6. Packaging and Transportation (See Appendix 2 for battery packaging drawing)

6.1 动力蓄电池系统包装为/箱为/包装，动力蓄电池系统在包装箱体内应稳固不晃动，箱体内不能有金属等异物、杂物；

6.1 Each traction battery system shall be packed in / carton. The system shall be securely fixed in the package without shaking. No foreign matters such as metal or debris shall exist inside the package.

6.2 在运输中，产品不得受剧烈机械冲撞、爆晒、雨淋；

6.2 During transportation, the product shall be protected from severe mechanical

shock, direct exposure to sunlight and rain.

6.3 在装卸过程中，产品应轻搬轻放、严防摔掷、翻滚、重压。

6.3 During loading and unloading, the product shall be handled with care. Dropping, throwing, rolling and exposure to excessive pressure are strictly prohibited.

7、贮存

7. Storage

7.1 产品应贮存在干燥、清洁及通风良好的仓库内；

7.1 The product shall be stored in dry, clean and well-ventilated warehousing areas.

7.2 应不受阳关直射，距离热源不得少于2 m ；

7.2 It shall be protected from direct sunlight and kept at least 2m away from heat sources.

7.3 不得倒置及卧放，并避免机械冲击和重压。

7.3 It shall not be placed upside down or horizontally, and shall be protected from mechanical impact and excessive pressure.

8、蓄电池系统的拆装

8. Disassembly and Assembly of the Battery System

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Not applicable

9、维护及常见的故障处理

9. Maintenance and Troubleshooting

9.1 蓄电池系统的维护

9.1 Maintenance of the Battery System

蓄电池系统长期不用，请保持50%电量存放于阴凉干燥处，并每隔3个月给蓄电池系统进行充放一次。

If the battery system is not used for a long time, please store it in a cool and dry place with 50% charge, and charge and discharge it once every 3 months.

9.2蓄电池系统故障码表

9.2 Battery System Fault Code Table

表 4 故障诊断与排除

Table 4 Fault Diagnosis and Troubleshooting

序号 No.	故障名称 Fault Name	故障代码 Fault Code	故障码出现后整车的现象 Whole vehicle phenomenon after fault code occurrence	故障处理方法 Fault handling method
1	单体过压 3 级报警 Cell Overvoltage Level 3 Alarm	P3301	插枪无法充电并断开主正继电器 Unable to charge after plug insertion and main positive relay disconnected	跑车给电池组放电 Operate the vehicle to discharge the battery pack
2	总电压过压 3 级报警 Total Voltage Overvoltage Level 3 Alarm	P3304	插枪无法充电并断开主正继电器 Unable to charge after plug insertion and main positive relay disconnected	跑车给电池组放电 Operate the vehicle to discharge the battery pack
3	单体欠压 2 级报警 Cell Undervoltage Level 2 Alarm	P3202	整行车可能限速 Vehicle speed may be limited	整车接入充电枪充电 Connect the whole vehicle to the charging gun for charging
4		P3302	行车限速并可能触发断开主正继电器 Vehicle speed limited and may trigger disconnection of main positive relay	整车接入充电枪充电 Connect the whole vehicle to the charging gun for charging
5	总电压欠压 2 级报警 Total Voltage Undervoltage Level 2 Alarm	P3205	行车可能限速 Vehicle speed may be limited	整车接入充电枪充电 Connect the whole vehicle to the charging gun for charging
6	总电压欠压 3 级报警 Total Voltage Undervoltage Level 3 Alarm	P3305	行车限速并可能触发断开主正继电器 Vehicle speed limited and may trigger disconnection of main positive relay	整车接入充电枪充电 Connect the whole vehicle to the charging gun for charging
7	电芯高温 2 级报警 Cell High Temperature Level 2 Alarm	P3206	插枪无法充电 Unable to charge after plug insertion	电池组静置 2h Allow the battery pack to rest for 2 hours
8	电芯高温 3 级报警电芯高温 3 级报警 Cell High Temperature Level 3 Alarm	P3306	插枪无法充电并断主正继电器 Unable to charge	电池组静置 2h 并下一次开启 ON 档或者接入充电枪 Allow the battery pack to

			after plug insertion and main positive relay disconnected 行车限速并可能触发断开主正继电器 Vehicle speed limited and may trigger disconnection of main positive relay	rest for 2 hours and then switch to the ON gear or connect to the charging gun in the next operation
9	电芯低温 2 级报警 Cell Low Temperature Level 2 Alarm	P3207	行车限速 Vehicle speed limited	行车或者接入充电枪充电（加热模式） Driving or charging with charging gun connected (heating mode)
10	电芯温差 2 级报警 Cell Temperature Difference Level 2 Alarm	P3208	无 None	停止车辆 Stop the vehicle
11	放电电流超限 2 级报警 Discharge Current Overlimit Level 2 Alarm	P3209	无 None	停止车辆 Stop the vehicle
12	放电电流超限 3 级报警 Discharge Current Overlimit Level 3 Alarm	P3309	无 None	停止车辆 Stop the vehicle
13	充电电流超限 2 级报警 Charge Current Overlimit Level 2 Alarm	P320A	无 None	停止车辆 Stop the vehicle
14	充电电流超限 3 级报警 Charge Current Overlimit Level 3 Alarm	P330A	无 None	停止车辆 Stop the vehicle
15	电流传感器 2 级故障 Current Sensor Level 2 Fault	P320B	插枪无法充电并断主正继电器 Unable to charge after plug insertion and main positive relay disconnected 行车限速并可能触发断开主正继电器 Vehicle speed limited and may trigger disconnection of main positive relay	检查电流传感器 Check the current sensor
16	电池 SOC 过低 2 级报警 Battery SOC Low Level 2 Alarm	P320F	行车限速 Vehicle speed limited	整车接入充电枪充电 Connect the vehicle to the charging gun for charging
17	行车绝缘过低 2 级报警 On-running Insulation Low Level 2 Alarm	P3210	无 None	检查电池或者其他电器绝缘 Check the insulation of the battery or other electrical equipment

18	行车绝缘过低 3 级报警 On-running Insulation Low Level 3 Alarm	P3310	插枪无法充电并断主正继电器 Unable to charge after plug insertion and main positive relay disconnected	检查电池或者其他电器绝缘 Check the insulation of the battery or other electrical equipment
19	充电绝缘过低 3 级报警 Charging Insulation Low Level 3 Alarm	P3317	行车限速并可能触发断开主正继电器 Vehicle speed limited and may trigger disconnection of main positive relay	检查电池或者其他电器绝缘 Check the insulation of the battery or other electrical equipment
20	内部通讯 3 级报警 Internal Communication Level 3 Alarm	P3318	插枪无法充电并断主正继电器 Unable to charge after plug insertion and main positive relay disconnected	检查电池组间的通讯线 Check the communication wires between battery packs

注：蓄电池系统应由指定的专业人士进行维修、维护，非专业人士请勿擅自打开！

Note: The battery system must be repaired and maintained by designated professionals. Unauthorized disassembly by non-professionals is prohibited.

10、安全事项

10. Safety Instructions

10.1 动力蓄电池系统应放置于阴凉干燥的环境中，避免在高温或过湿的环境内长期放置。

10.1 The traction battery system shall be stored in a cool and dry environment, avoiding long-term storage in high-temperature or excessively humid conditions.

10.2 不得受剧烈机械冲撞、爆晒、雨淋。

10.2 It shall be kept away from severe mechanical impact, direct exposure to sunlight, or rain.

10.3 禁止将动力蓄电池系统在热高温源旁（如火、加热器等）使用和留置。

10.3 It is forbidden to use or leave the traction battery system near high-temperature heat sources such as fire or heaters.

10.4 禁止将动力蓄电池系统丢于火或加热器中。

10.4 It is forbidden to dispose of the traction battery system in fire or heaters.

10.5 禁止随意拆卸动力蓄电池系统。

10.5 It is forbidden to disassemble the traction battery system at will.

10.6 禁止敲击或抛掷、踩踏动力蓄电池系统等。

10.6 It is forbidden to strike, throw or step on the traction battery system.

10.7 禁止用钉子或其它利器刺穿动力蓄电池系统。

10.7 It is forbidden to pierce the traction battery system with nails or other sharp objects.

10.8 禁止用金属直接连接动力蓄电池系统正负极短路。

10.8 It is forbidden to directly connect the positive and negative poles of the traction battery system with metal to cause a short circuit.

10.9 严禁颠倒正负极使用动力蓄电池系统。

10.9 It is strictly prohibited to use the traction battery system with reversed positive and negative poles.

10.10 禁止将动力蓄电池系统与其他厂家的动力蓄电池系统，或不同类型的电池混用，以防起火。

10.10 It is forbidden to mix the traction battery system with traction battery systems of other manufacturers or different types of batteries to prevent fire.

10.11 动力蓄电池系统应远离儿童放置，避免儿童触摸，避免将电池从电池框或其他电子装置中取出。

10.11 The traction battery system shall be placed out of reach of children to avoid contact by children, and batteries shall not be removed from the battery frame or other electronic devices.

10.12 如果动力蓄电池系统发出异味、发热、变色、变形或使用、贮存、充电过程中出现任何异常，立即从室内中移离并停用。

10.12 If the traction battery system emits odor, generates heat, discolors, deforms, or exhibits any abnormality during use, storage or charging, immediately remove it from indoor areas and discontinue use

11、声明

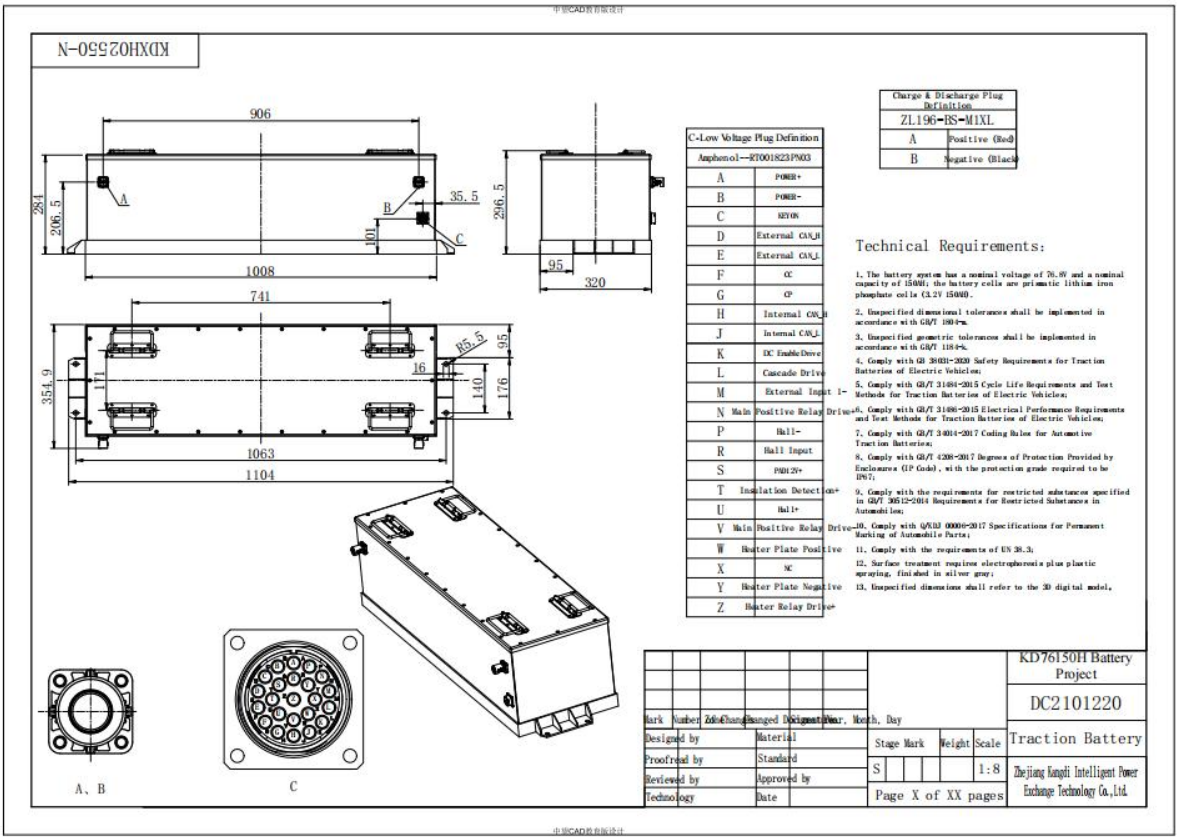
11. Declaration

必须严格按照本产品规格书的相关要求使用动力蓄电池系统，避免充放电方法或储存维护不当而影响动力蓄电池系统使用寿命和安全性。

The traction battery system must be used in strict accordance with the relevant requirements of this product specification to avoid affecting its service life and safety due to improper charging/discharging methods or improper storage and maintenance.

附件 1

Appendix 1



附件 2

Appendix 2

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Not Applicable