



» 锂电池技术特点 Technical characteristics of lithium battery

绿色环保 Environment Friendliness

- 零排放
- 低噪音
- 不含重金属
- 无滴漏腐蚀
- 无酸雾挥发
- Zero emission
- Low noise
- Free of heavy metals
- No corrosion
- No acid mist volatilization

免维护 Maintenance Free

- 无需补液、防尘
- 免日常维护
- 免人工保养

使用寿命长 Long Service Life

- 循环使用4000次容量保持75%以上
- 同等应用场合，寿命远超铅酸电池
- 宽性能锂电总成本5年或一万小时超长质保
- Over 75% capacity reserved after 4000 shifts operation
- Longer service life than lead-acid battery in equal working condition
- 5 years or ten thousand hours quality guarantee for high performance lithium battery assembly

高效节能 High Efficiency and Energy Saving

- 2小时充电可满足6-8小时作业使用
- 高能量密度，自放电率1%/月以下，充放电性能优越
- 96%能量转换率，能源转换更高效
- 可随时充电，操作简单，对电池寿命无任何影响
- 电池无需维护，节省成本

适合高低温工作

Suitable for working in both high and low environment

- 在-25℃至55℃之间高低温工作环境，锂电池较铅酸均具有良好的性能
- Lithium battery is better than lead-acid battery when working between 25 °C and 55 °C

高安全 High Safety

- 根据工业车辆特点，实现锂电池材料、电芯类型、PACK工艺以及系统电源管理的整车安全防护设计
- “多节点安全闭环保护”实现车辆多状态实时闭环保护
- 充电“锁扣确认”功能，有效避免“热插拔”操作
- “全系统紧急断电”功能，达到车辆控制系统和BMS电源迅速切断，安全有效

- According to the characteristics of industrial vehicles, it achieves safety protection design which includes lithium battery materials, battery core type, pack technique and system power management.
- "Multiple node safety closed circuit protection" realizing truck real time closed circuit protection in variable conditions.
- "Lock effirming" function during charging avoiding "hot connecting and disconnecting" operation effectively.
- "Whole system emergency button" to disconnect the truck control system and brms power quickly ensuring truck safety.

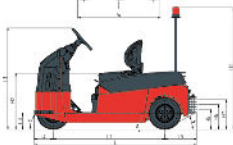
The diagram illustrates the cost components for two types of electric vehicles, represented by two identical-looking but conceptually different structures. Each structure is a house-like shape with a red roof and grey walls.

- Left Structure (Reliability Cost):**
 - Roof (Red):** 售价 (Selling Price) / Explicit Cost
 - Upper Wall (Grey):** 维护费用 (Maintenance Cost)
 - Lower Wall (Grey):** 故障 (Failure) / Reliability Cost
 - Foundation (Grey):** 锂电池测试车 (Lithium Battery vehicle)
- Right Structure (Hidden Cost):**
 - Roof (Red):** 售价 (Selling Price) / Explicit Cost
 - Upper Wall (Grey):** 维护费用 (Maintenance Cost)
 - Lower Wall (Grey):** 故障 (Failure) / Reliability Cost
 - Foundation (Grey):** 家庭充电设施 (Home charging facility) / Pathway-Charging Cost

At the bottom, a note states: 私家车充电口只充车 (Private car charging port only for car) / 私家车充电口只充车 (Private car charging port only for car).

[illegible]

仪器配置 Instrument configuration	光学配置 Optical configuration	软件配置 25 Lithium software options
液体晶体 Liquid crystal instrument	单晶硅探测器 Single-crystal CCD	2600000 1 号 CAGS HONG 5000000 1 号 CAGS HONG
全波长分光器 Full wavelength for all elements	全波长分光器 Full wavelength for all elements	2600000 1 号 CAGS HONG 5000000 1 号 CAGS HONG
多谱线检测器 Multi line detection unit	数据存储器 Data storage	4000000 1 号 CAGS HONG 5000000 1 号 CAGS HONG
能量分散型 Energy dispersive	数据存储器 Data storage	4000000 1 号 CAGS HONG 5000000 1 号 CAGS HONG
磁谱仪 Gauss' wheel	数据存储器 Data storage	4000000 1 号 CAGS HONG 5000000 1 号 CAGS HONG



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» 整车简介

G2系列2-7吨锂电池牵引车是安徽合力股份有限公司研发的全新产品，整车布局、舒适性都能得到全面提升。该车采用低地板框式结构布局，兼职工上、下车方便性与驾驶舒适性，有效降低操作者劳动强度，提高生产效率。G2系列2-7吨锂电池牵引车的研发，体现了合力“以市场需求为导向”的研发体系和“以人为本，以精品回报社会”的核心价值观。

该系列车型适用于汽车制造业、邮政、医疗、烟草等领域货物拖牵作业。

» Brief introduction

G2 series 2-7 ton lithium battery tractor, with huge improvement on layout and operating performance, is a new product designed by HELI. With low step height, the tractor realized both strength of stand-on tractor that low step height which allows for easy entry and exit and strength of sit-down tractor that sit-down driving which provide comfortable driving and reduce operator fatigue.

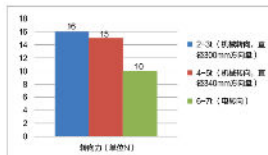
HELI R&D system that "Oriented by market demand" and core values that "people-oriented and repay the society with high quality products" are fully expressed by G2 series 2-7 ton lithium battery tractor.

The tractor is mainly used in car industry, postal service, medicine, tobacco, and other transport and logistics industry.



转向系统 Steering system

- 2-5吨锂电池牵引车采用齿轮式机械转向，结构可靠、转向力小，符合助力转向系统转向力要求。
- 6-7吨锂电池牵引车采用电子转向，选用进口交流转向控制系统，实现无级制动、CAN总线通讯、转向角度显示、开机自动回中功能。
- 2-5吨锂电池牵引车采用可靠的齿轮式机械转向系统，转向力轻且满足助力转向系统的要求。
- 6-7吨锂电池牵引车采用电子转向系统，具有进口转向控制系统，实现无级制动、CAN通讯、转向角度显示及开机自动回中功能。



驱动系统 Driving system

- 采用交流驱动系统，闭环控制，有坡道缓速下滑、CAN总线通讯、车辆定位等功能。
- 驱动电机采用三相交流异步电机，电机配有速度编码器及温度传感器，速度编码器安装在电机的后端盖，维修方便。
- With AC driving system, the tractor has functions of close-loop control, slowly sliding down on the ramp, can communication, inching centering and so on.
- Low voltage three phase AC type asynchronous motor is used for driving. There are speed encoder and temperature sensor in it. Speed encoder is outside installed at the rear end of the motor for easy maintenance.

» 主要特点

- 满足欧洲市场及国内中高端用户开发。
- 优越的人机工效性能，使驾驶员能够舒适地操作所有的按钮和踏板，有效降低驾驶员疲劳。
- 低地板，上下非常方便。
- 采用交流驱动和转向控制系统，高效率、低能耗。
- 前进及后退双向驱动功能，可实现单人操作、轻装作业。
- 6-7吨配置有倒车防撞功能，安全可靠。
- 高效的传动系统设计，爬坡强劲、动力充沛。
- 适配液力式牵引机构，驾驶员无需开离合器即可操纵牵引档。

» Main characteristics

- The tractor was designed for Euro-market and domestic high-end market.
- Ergonomically designed compartment allows easy operation of all controls and pedals to help reduce operator fatigue.
- Low step height allows easy entry and exit.
- AC control system is adopted on driving and steering which provide high efficiency and low energy-consumption.
- With forward&backward inching button at both side, connect&release the pin can be realized by oneself.
- With speed limit when turning as the tractor is more safe and reliable.
- Efficient transmission system provides a strong power while climbing.
- With the option of convenient lowering mechanism, operator can control the pin without leaving the seat.



更加优越的智能化设计 Superior intellectualized design

- 更多智能化设计的配备与功能使整车智能，这不仅保护驾驶员和车辆安全，还提高工作效率，降低能耗。
- Superior intellectualized designs not only ensure operator and truck safety but also improve working efficiency, reduce energy consumption.

操纵系统 Operating system

- 合理的脚踏板、加速踏板的角度及位置，轻巧的踏板力，充分满足人机工效要求。
- 采用可调节方向盘，方向盘的位置可前后调节，以适应不同体形驾驶员操纵的要求。
- 具有良好制动功能，配置机械、液压及电控三重独立的制动系统，安全可靠。
- Proper angle, position of braking pedal, acceleration pedal and slight pedal force fully satisfy ergonomic require.
- Adjustable steering wheel fits different operator's size.
- With three independent braking system, mechanical, hydraulic, and electric, the brake is safe and reliable.

