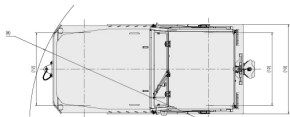
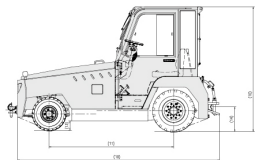
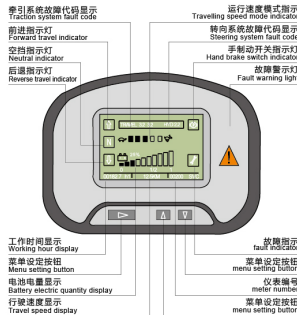


G2 系列/ 20-30 t



» CURTIS ENGAGE IV 交互式多功能液晶仪表



- 可靠的专业仪表将整车运行状态、故障检测等重要信息完整的显示出来，使操作者更直观、方便地了解车辆状态。
- Truck working condition can be known directly and easily through reliable meter displaying important information such as truck working condition, fault and so on.

» G2系列20~30t锂电池牵引车获航空地面设备检测合格证



» 充电机技术 Charger technology



- 高效
大于95%充电效率，符合节能减排要求。
- 快速
大电流快充，减少充电等待时间。
- 兼容
48V/80V兼容，满足不同电压等级需求。
- 安全
内置防反保护，具备优先自隔离功能，完善的故障自检测提示，方便客户保护。
- High Efficiency
Charging efficiency higher than 95% meeting the requirements of energy saving and emissions reduction.
- Speediness
High current fast charge reduce charging period.
- Compatibility
48 v / 80 v compatibility meeting the demand of different voltage levels.
- Safety
Built-in mis-connecting protection offering self isolating function under fault.
- Perfect fault self checking alarm facilitating users maintenance.

显性成本

Explicit Cost

售价

Selling Price

维护费用

Maintenance Cost

电费

Electricity Cost

更换电池费用

Battery Changing Cost

锂电池电动牵引车

Lithium Battery Tractor

隐性成本

Hidden Cost

售价

Selling Price

维护费用

Maintenance Cost

电费

Electricity Cost

更换电池费用

Battery Changing Cost

锂电池电动牵引车

Lithium Battery Tractor

合力锂电池牵引车的优越性，更突出的体现在生命周期内使用成本上。与铅酸蓄电池牵引车相比，锂电池牵引车适合多班次场合，隐性成本低，整体运营成本更经济。

The superiority of HELI lithium battery truck is embodied in the use cost within product lifecycle. Compared with lead-acid battery truck, lithium battery truck is more convenient for multiple working shifts. It has lower implicit cost and more economical total running cost.



技术参数 Technical parameter

项目Item	单位 Unit			
1 车型 Model		QYD200-A1LI	QYD250-A1LI	QYD300-A1LI
2 驾驶方式 Driving mode			坐式 seated	
3 额定牵引重量 Rated towing weight	T	20	25	30
4 自重, 含驾驶员及不含驾驶室 Service weight including cab (Excluding cab)	kg	3590/3380		3670/3460
5 额定牵引力 Rated traction force	kN		14	
6 最大牵引力 Max. traction force	kN		29	
7 行驶速度 (满载/空载) Travelling speed (unloaded/loaded)	km/h	14/26	13/26	11/26
8 爬坡能力 (满载/空载) Gradeability (unloaded/loaded)	%	6/30	5/30	4/30
9 外形尺寸 (含前悬和后悬) Overall dimension (LxWxH including rear traction base and cab)	mm		3230x1425x1980	
10 轴距 Wheelbase	mm		1990	
11 轮距 Tread	mm		1160	
12 最小转弯半径 Min. steering radius	mm		1160	
13 最小离地间隙 Min. ground clearance	mm		3000	
14 牵引钩高度 Traction hook height	mm		150	
15 轮胎 Tire			425	
16 行车制动 Service brake			6.50-10-10PR	
17 驻车制动 Parking brake			28x9-15-14PR	
18 制动方式 Driving type			液压助力制动 Hydraulic power assisted brak	
19 驱动电机功率 Driving motor power	kW		机械制动 Mechanical brake	
20 转向电机功率 Steering motor power	kW		后轮驱动 Rear drive	
21 电池电压/容量 Battery voltage/capacity	V/Ah		28.7 (AC)	
22 行驶控制方式 Driving control mode			1.35	
23 驾驶员耳边噪音 Operator's ear noise	dB		80/606	80/813
			电子无极式 Electronic stepless mode	
			<70	

标准配置 Standard configurations

双腔双回路制动 Double chamber dual loop brak	液晶组合仪表 Liquid crystal combined instrument	倒车镜 Rearview mirror
前后桥减震悬挂 Suspension bridge with front and rear suspension	锂电池 Lithium battery	月白色油漆 Moon white paint
集成驱动电机 Integrated drive bridge	带自锁牵引机构 Self locking traction mechanism	充气轮胎 Pneumatic tire

选装配置 Option configuration

全封闭前推窗驾驶室 Fully enclosed front window driving cab	暖风机 Warm air blower	前牵引座 Front traction base	80V/500Ah (中置 CNSG HONG SIFANG) (QYD200-A1LI)
实心胎 Solid tire	警示灯 Warning lamp	单冷空调 Air conditioner	80V/600Ah (中置 CNSG HONG SIFANG) (QYD250/300-A1LI)



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HELI合力

20-30 t

G2系列锂电池牵引车

G2 series lithium battery tractor



www.helichina.com

图例仅供参考 非标准件 2023/03/21

G2 系列/ 20-30 t



» 整车简介 Brief introduction

G2系列20~30t锂电池牵引车是我公司开发的一款新能源环保型牵引车辆，具有低噪音、无污染、牵引力大、操作简便、造型新颖、转向轻便灵活、操作舒适安全、性能稳定可靠、维护保养方便、四轮制动（双腔双回路制动）、转弯自动减速、便捷式牵引钩操纵机构等优点。

应用领域：QYD200/250/300锂电池牵引车属于区域物流技术领域，是机场、国防、铁道、邮政、制造业、医药、烟草、物流等系统内牵引货物的理想车辆。

G2 series 20-30t lithium battery tractor is a new energy and environmental protection traction vehicle developed by our company. It has low noise, no pollution, large traction force, simple operation, novel shape, light and flexible steering, comfortable and safe operation, stable performance and reliability, convenient maintenance, double-chamber double-circuit braking, automatic deceleration of turning, Convenient traction pin control mechanism and so on.

Application area: QYD200/250/300 lithium battery tractor belongs to the regional logistics technology field. It is an ideal vehicle for traction of goods in airport, national defense, railway, postal, manufacturing, pharmaceutical, tobacco, logistics and other systems.



驱动系统 Drive system

- 驱动桥采用交流电机（含交流电机、湿式多盘制动器、减速器及差速器）结构紧凑，传动平稳，噪音低，使本车具有良好的动力性、通过性。驱动桥结构便于拆装和调整，具有良好的维修性。
- The driving axle adopts AC bridge (including AC motor, wet multi-disc brake, reducer and differential) with compact structure, stable transmission and low noise, so that the car has good power performance and trafficability. The drive axle structure is easy to disassemble and adjust, and has good maintainability.



制动系统 Braking system

- 行车制动（双腔双回路制动）通过前轮盘式、后轮湿式制动器，液压制动作用于前、后轮；
- 停车制动通过湿式制动器，采用拉索作用于后轮。
- The driving brake (double chamber and double circuit brake) passes through the front wheel disc type and the rear wheel wet brake, and the hydraulic brake acts on the front and rear wheels.
- The parking brake is operated through a wet brake and the cable is applied to the rear wheel. Braking system is safer and more reliable.

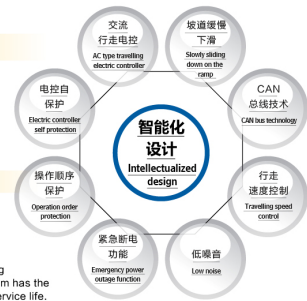
电气系统 Electrical system

- 采用进口控制器，性能可靠，调速性能好；
- 采用锂电控制系统，交流系统再生能量回收率高，高达15%左右，蓄电池与控制系统之间通过CAN总线通讯，保证蓄电池的安全使用，免维护，安全性好，使用寿命长。
- With imported controller, the tractor has excellent speed regulation and reliable performance.
- Adopt lithium battery control system, the regenerative energy recovery rate of AC system is high, up to 15%. The communication between the battery and the control system is through CAN bus to ensure the safe use of the battery, maintenance-free, safe and long service life.



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

- 更多智能化设计的装备与功能使整车智能，这不仅保护驾驶者和整车安全，还提高工作效率，降低了能耗。
- Superior intellectualized designs not only ensure operator and truck safety but also improve working efficiency, reduce energy consumption.



转向系统 Steering system

- 采用全液压横置油缸动力转向桥实现前轮转向。该转向系统具有效率高，操纵轻便，使用寿命长等特点；
- 前、后悬挂减震装置，使得整机更加具有良好的平稳性。
- Adopt the full hydraulic transverse oil cylinder power steering bridge to realize the front wheel steering. The steering system has the characteristics of high efficiency, easy operation and long service life.
- The front and rear suspension shock absorbers make the whole machine more stable.

车身系统 Body system

- 外观造型刚劲有力，最小离地间隙150mm，符合民航MH/T6048标准，通过性好；
- 驾驶员坐在座椅上可以直接观察到牵引座；
- 全框架的驾驶室具有足够的强度，室内宽敞且视野良好，可以实现全方位的观察（选项配置）。
- The outward appearance is strong and powerful, and the minimum ground clearance 150mm is in line with the civil aviation MH/T6048 standard.
- The driver can observe the traction seat directly on the seat.
- The full-frame cab is strong enough, the interior is spacious and the field of view is good, and it can realize all-round observation (option configuration).

可双点操作的带自锁及导引功能的操纵牵引销机构 Two point operation control and traction mechanism with self locking and guiding function

- 驾驶室内外即可实现拖车的脱、挂动作，操纵方便、效率高；自锁功能可有效避免误操作或行车颠簸时导致拖车脱钩断裂，安全性高。
- It is easy to operate and has high efficiency, and the self-locking function can effectively avoid the hidden danger of the trailer running out when it is misoperated or bumpy.

锂电池主要优势 The main advantages of lithium batteries are

- 更环保：**锂电池在制造、使用以及废弃过程中都没有重金属污染；
- 免维护：**无需加水，无漏液腐蚀等污染；
- 长寿命：**五年超长质保，在正常充放电条件下，循环2000次时，容量衰减率低于10%，循环4000次时，容量衰减率低于25%；
- 高效率：**锂电池放电效率超过90%；
- 大倍率充放电：**锂电池有最大2C充电及最大5C倍率放电能力，锂电池可采用快充的模式，利用休息时间进行充电；
- 无记忆效应：**电池无论处于什么样的状态下，可随充随用，无须考虑蓄电池的放电再充电；
- 低温高效：**在冷库环境下，锂电池具有良好的性能表现。
- More environmental protection: lithium batteries are not polluted by heavy metals in manufacturing, using and discarding processes.
- Maintenance free: no need to add water, no leakage, corrosion and other pollution;
- Long life: five-year ultra-long quality assurance, under normal charging and discharging conditions, the capacity attenuation rate is less than 10% for 2000 cycles, and less than 25% for 4000 cycles.
- High efficiency: lithium battery charge and discharge efficiency of more than 90%;
- Large rate charge and discharge: Lithium battery has the maximum 2C charge and 5C rate discharge capacity. Lithium battery can be charged by fast charge mode and recharged by rest time.
- Memory-free effect: the battery can be charged and recharged at any state without considering the recharge of the battery.
- Low temperature and high efficiency: lithium battery has good performance in cold storage environment.

G2 系列/ 20-30 t

CURTIS ENGAGE IV 交互式多功能液晶仪表 CURTIS ENGAGE IV Interactive multifunctional liquid crystal meter



显性成本
Explicit Cost

隐性成本
Hidden Cost

售价
Explicit Cost

维护费用
Maintenance Cost

电耗
Electricity Cost

锂电池电动牵引车
Lithium Battery Tractor

售价
Explicit Cost

维护费用
Maintenance Cost

更换电池费用
Battery Changing Cost

铅酸电池电动牵引车
Lead-acid Battery Tractor

标准配置 Standard configurations

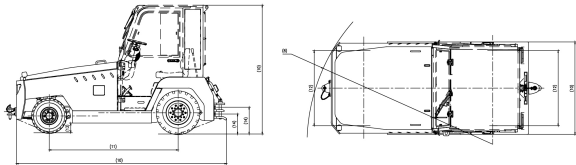
双腔双管路助力制动 Double chamber dual loop braking	液晶彩屏仪表 Liquid crystal combined instrument	倒车镜 Rear view mirror
前后桥板簧悬挂 Suspension bridge with front and rear suspension	锂电池 Lithium battery	月白色油漆 Moon white paint
锁止驻车牵引机构 Self locking traction mechanism	充气轮胎 Pneumatic tire	

选项配置 Option configuration

全封闭前推窗驾驶室 Fully enclosed front window driving cab	警示灯 Warning lamp	前牵引座 Front traction base
实心胎 Solid tire	后工作大灯 Rear work headlights	自动灭火 Auto fire extinguisher
单冷空调 Single cooling air conditioner	用户自选涂装 Customized painting	

技术参数 Technical parameter

项目 Item	单位 Unit	HELI		
1 车型 Model		QYD200-A7GLI	QYD250-A7GLI	QYD300-A7GLI
2 额定牵引重量 Rated towing weight	T	20	25	30
3 额定牵引力 Rated traction force	kN		18	
4 最大牵引力 Max. traction force	kN	25	29	32
5 最大行驶速度 (满载/空载) Max. traveling speed (load/unloaded)	km/h	15/26	13/26	11/26
6 最大爬坡度 (满载/空载) Max. gradeability (load/unloaded)	%	6/30	5/30	4/30
7 桥负荷 Axle load	kg	1180	1200	1260
转向桥 Steering axle	kg	2810	2850	2850
驱动桥 Driving axle	kg			
8 最小转弯半径 Min. steering radius	mm		3000	
9 整车自重 (含驾驶室) Service weight (including cab)	kg	3990	4050	4110
外形尺寸 Overall size	mm		3230(含后牵引座)	
长 L	mm		1425	
宽 W	mm		1980(含驾驶室)	
高 H	mm			
11 轴距 Wheelbase	mm		1990	
12 前轮 Front	mm		1160	
后轮 Rear	mm		1190	
13 最小离地间隙 Min. ground clearance	mm		150	
14 牵引钩中心离地高度 Traction hook height	mm		415/310	
15 行车制动 Service brake			液压助力制动 Hydraulic power assisted brake	
16 驻车制动 Parking brake			机械式 Mechanical type	
17 轮胎 Tyre			6.50-10-10PR	
驱动电机 (永磁同步) 功率 Driving motor power (Permanent Magnet Synchronous)	kW		28x9-15-14PR	
转向电机 (永磁同步) 功率 Steering motor power (Permanent Magnet Synchronous)	kW		30	
20 蓄电池电压/容量 Battery voltage/capacity	V/Ah		4	
			320/202	



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HELI 合力

20-30 t

G2系列高压锂电池牵引车

G2 series lithium battery tractor



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G2 系列 SERIES 20-30 t



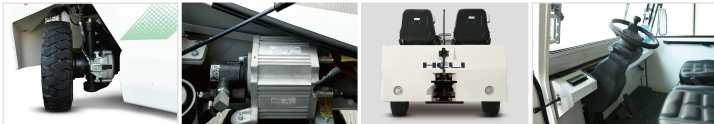
» 整车简介 Brief introduction

G2系列20~30吨高压锂电池牵引车是我公司开发的一款新能源环保型牵引车辆，具有低噪音、无污染、牵引力大、操作简单、造型新颖、转向轻便灵活、操作舒适安全、性能稳定可靠、维护保养方便、四轮制动(双腔双回路制动)、转弯自动减速、便捷式牵引销操纵机构等优点。

应用领域：QYD200/250/300型高压锂电池牵引车属于区域物流技术领域。是机场、国防、铁道、邮政、制造业、医药、烟草、物流等系统内牵引货物的理想车辆。

G2 series 20-30t high-voltage lithium battery tractor is a new energy and environmental protection traction vehicle developed by our company. It has low noise, no pollution, large traction force, simple operation, novel shape, light and flexible steering, comfortable and safe operation, stable performance and reliability, convenient maintenance, double-chamber double-circuit braking, automatic deceleration when turning, convenient traction pin control mechanism and so on.

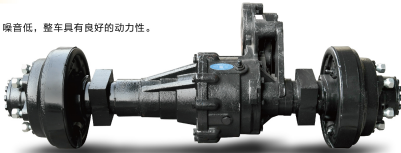
Application area: QYD200/250/300 high-voltage lithium battery tractor belongs to regional logistics technology field. It is an ideal vehicle for traction of goods in airport, national defense, railway, postal, manufacturing, pharmaceutical, tobacco, logistics and other systems.



驱动系统 Drive system

- 采用工业车辆专用驱动桥，结构紧凑，传动平稳，噪音低，整车具有良好的动力性。

The drive axle with compact structure, stable transmission and low noise, is specially designed for industrial vehicles. So that the tractor has good power performance and tractability.



制动系统 Braking system

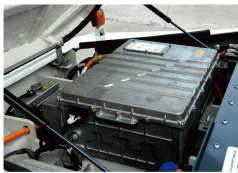
- 行车制动（双腔双回路制动）通过前轮盘式、后轮鼓式制动器，液压制动作用于前、后轮。
- 停车制动通过鼓式制动器，采用拉索作用于后轮。

The driving brake (double chamber and double circuit brake) passes through the front wheel disc type and the rear wheel drum brake, and the hydraulic brake acts on the front and rear wheels. The parking brake is operated through a drum brake and the cable is applied to the rear wheel.

电气系统 Electrical system

- 整车控制系统选用五合一控制器，集成了牵引电机控制、转向控制、DC-DC、高压配电、气泵控制。该控制器兼容性外，外围控制回路接线简洁，布局美观。
- 采用锂电池组320V/202Ah，充电支持国标协议，使用社会充电桩充电，能在1.5小时左右完成电池充电。锂电池与控制系之间通过CAN总线通讯，保证蓄电池的安全使用，免维护，安全性好，使用寿命长。
- 牵引和转向电机选用永磁电机，效率更高。

- Adopt five-in-one controller, integrated traction, steering, DC-DC, high voltage and air pump, which has good compatibility, simple out-side wiring connections and beautiful layout.
- Adopt lithium battery pack-320V/202Ah. Charging support national standard agreement. If the social charging pile is used for charging, the battery charging can be completed in about 1.5 hour. The communication between the lithium battery and the control system is through CAN bus to ensure the safe use of the battery, maintenance-free, safe and long service life.
- The traction motor and steering motor are permanent magnet motor, which has higher efficiency.



转向系统 Steering system

- 双电源（高压/低压）转向电机带动齿轮泵为横置油缸转向桥提供动力实现前轮转向。在高压电突然断电的情况下，低压电瓶可以驱动转向电机工作，驾驶安全性进一步提升。
- 前、后悬挂减震装置，使得整机更加具有良好的平稳性
- The dual power(high-voltage/low-voltage) steering motor drives the gear pump to provide power for the transverse cylinder steering axle to realize the front wheel steering. In case of sudden power failure of high-voltage power, the low-voltage battery can drive the steering motor, which further improves the driving safety.
- The front and rear suspension shock absorbers make the whole machine more stable.

车身系统 Body system

- 外观造型刚劲有力，最小离地间隙150mm，符合民航MH/T6048标准，通过性好
- 驾驶员坐在座椅上可以直接观察到牵引座
- 全框架的驾驶室具有足够的强度，室内宽敞且视野良好，可以实现全方位的观察（选项配置）
- The outward appearance is strong and powerful, and the minimum ground clearance 150mm is in line with the civil aviation MH/T6048 standard.
- The driver can observe the traction seat directly on the seat.
- The full-frame cab is strong enough, the interior is spacious and the field of view is good, and it can realize all-round observation (option configuration).

冷却系统 Cooling system

- 采用水冷系统，有效降低五合一控制器及驱动电机的工作温度，提升车辆的持续工作性。
- Water cooling system is adopted to effectively reduce temperature of the five-in-one controller and drive motor, and improve the continuous working performance of the tractor.

可双点操作的带自锁及导引功能的操纵牵引销机构 Two point operation control and traction mechanism with self locking and guiding function

- 驾驶室室内外即可实现拖车的脱、挂动作，操纵方便、效率高；自锁功能可有效避免误操作或行车颠簸时导致拖车脱钩隐患，安全性高。
- It is easy to operate and has high efficiency, and the self-locking function can effectively avoid the hidden danger of the trailer running out when it is misoperated or bumpy.

锂电池主要优势 The main advantages of lithium batteries are

更环保：锂电池在制造、使用以及废弃过程都没有重金属污染；

免维护：无需加水，无漏液腐蚀等污染；

长寿命：五年超长质保。在正常充电条件下，循环2000次时，容量衰减率低于10%，循环4000次时，容量衰减率低于25%；

高效率：锂电池充电效率超过90%；

大倍率充放电：锂电具有最大2C充电及最大5C倍率放电能力，锂电池可采用快充的模式，利用休息时进行充电；

无记忆效应：电池无论处于什么样的状态下，可随充随用，无须考虑着电池的放完再充电；

低温耐受：在冷库环境下，锂电池具有良好的性能表现；

More environmental protection: lithium batteries are not polluted by heavy metals in manufacturing, using and discarding processes.

Maintenance free: no need to add water, no leakage, corrosion and other pollution;

Long life: five-year ultra-long quality assurance, under normal charging and discharging conditions, the capacity attenuation rate is less than 10% for 2000 cycles, and less than 25% for 4000 cycles.

High efficiency: lithium battery charge and discharge efficiency of more than 90%;

Large rate charge and discharge: Lithium battery has the maximum 2C charge and 5C rate discharge capacity. Lithium battery can be charged by fast charge mode and recharged by rest time.

Memory-free effect: the battery can be charged and recharged at any state without considering the recharge of the battery. Low temperature and high efficiency: lithium battery has good performance in cold storage environment.