

Operation Manual

QDD10L





Fig0000-000110M

EP EQUIPMENT CO.,LTD. is one of the world's leading companies manufacture, design material handling equipment and provide related service. With over 100,000 square metres plant it produces over 100,000 trucks per year, and provides professional, effective and optimized material handling solutions worldwide, until now it has developed three major kinds of business:

- Material handling equipment: Focus on electric truck and warehouse equipment
- OEM parts: Global parts supply
- Imow industry,online: One-stop industrial products supply

Guided by our customer-oriented concept, EP has developed service centers in more than 30 countries around the world, from which customers are able to receive timely local service. Moreover, 95% of warranty parts can be shipped out within 24 hours after been ordered. Through our online after-sales service system, customers can process their warranty claims, order spare parts and consult the operation manuals, maintenance materials and spare parts catalogs.

With business all over the world, EP has thousands of employees and hundreds of agents worldwide to provide our global customers with prompt local service.

Based on the concept of sharing economy, EP also offer rental service for various logistics equipment. Adhering to the idea "Making the leasing of logistic equipment more simple", EP is devoted to providing customized one-stop leasing solutions for our customers with our high quality, reasonable price and prompt rental service.

EP's mission&vision is " Let more people apply the electrical material handling equipment to relieve the intensity of labour" and "Let's grow together".

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Foreword

The present operation manual is designed to provide sufficient instructions for the safe operation of the industrial truck. The information is provided clearly and concisely.

Our trucks are under ongoing development. EP reserves the right to alter the design, equipment and technical features of the system. No guarantee of particular features of the truck should therefore be assumed from the present operation manual.

Safety notices and text mark-ups

Safety instructions and important explanations are indicated by the following graphics:



DANGER

Means that failure to comply can cause risk to life and/or major damage to property.



WARNING

Please strictly adhere to these safety instructions to avoid personal injury or major damage to equipment.



CAUTION

Please pay attention to the important safety instructions.



NOTE

Pay attention to Instruction.

Internet address and QR code of Parts manual

By entering the address <http://www.ep-care.com> in a web browser or by scanning the QR code, Login after registration, Select "Parts purchase" function and input part number or model name to find the truck.



Note: After registration, please send email to info@ep-care.com to activate your account

Legal requirements for marketing

Declaration

EP EQUIPMENT CO., LTD.

Address: No.1 Xiaquan Village, Lingfeng Street, Anji, Huzhou, Zhejiang

We declare that the

Industrial truck: according to this operation manual

Type: according to this operation manual

complies with the most recent version of Machinery Directive 2006/42/EC.

Personnel authorised to compile the technical documents:

See EC/EU Declaration of Conformity

EP EQUIPMENT CO., LTD.

EC/EU Declaration of Conformity

The manufacturer declares that this industrial truck complies with the EC Machinery Directive and the provisions of other applicable EC/EU directives effective at the time of sale. This can be verified by means of the EC/EU Declaration of Conformity and the relevant certification label on the nameplate.

The industrial truck is supplied with the EC/EU Declaration of Conformity document. This declaration proves that this truck complies with the requirements of the EC Machinery Directive. Unauthorized modification or additional installation of equipment to the structure of the industrial truck may affect its safety, and will therefore invalidate the EC/EU Declaration of Conformity.

The EC/EU Declaration of Conformity must be carefully conserved and kept ready to be presented to the relevant authorities. If this industrial truck is sold, this declaration document must be handed over to the new owner.

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A Introduction

The truck described in the present operating instructions is an industrial truck designed for towing trailer loads.

It must be used, operated and serviced in accordance with the present instructions. All other types of use lie beyond the scope of application and can result in damage to personnel, the truck or property. In particular, avoid overloading the truck with loads which are too heavy or placed on one side. The data plate attached to the truck. The owner must ensure that any damaged and/or illegible Rated drawbar pull label are replaced. The industrial truck must not be used in areas at risk of fire or explosion, or subject to corrosion or excessive dust.

Proprietor responsibilities: For the purposes of the present operator manual the “proprietor” is defined as any natural or legal person who either uses the rack himself, or on whose behalf it is used. In special cases (e.g. leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the industrial truck, is charged with operational duties. The proprietor must ensure that the truck is used only for the purpose it is intended for and that danger to life and limb of the user and third parties are excluded. Furthermore, accident prevention regulations, safety regulations and operating, servicing and repair guidelines must be followed. The owner must ensure that all users have read and understood these operating instructions.

If this operation manual is not observed, the warranty becomes void. The same applies if improper works are carried out on the device by the customers and/or third parties without permission of our customer service.

Adding attachments: Adding or fitting any attachments which will interfere with, or supplement, the functions of the truck is permitted only after written approval by the manufacturer has been obtained. If necessary, the approval of local authorities has to be obtained. Any approval obtained from local authorities does not, however, make the approval by the manufacturer unnecessary.

Modification

Unauthorized modification to the truck can result in injury or death.

Can not remove, disable or modify any safeguards or other safety devices. These include any alarms, lights, mirrors, overhead guards, and load backrest extensions. If present, an overhead guard is intended to provide protection to the operator from falling objects, but cannot protect from every possible.

Exception: Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest to the business, may the user arrange for a modification or alteration to a powered industrial truck, provided, however, that the user

- a) arranges for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety.
- b) maintains a permanent record of the design, test(s) and implementation of the modification or alteration.
- c) approves and makes appropriate changes to the capacity plate(s), decals, tags and instruction handbook.
- d) affixes a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration and the name and address of the organization that accomplished those tasks.

➤ Safety devices and warning labels

The safety devices, warning signs and warning instructions in the present operating instructions must be strictly observed.

Hazardous area: A hazardous area is defined as the area in which people are at risk from the truck movement, the load handler (e.g. trailers) or the load itself. This also includes areas which can be reached by falling loads or by the trailer veering.

Where there is danger to personnel, a warning must be sounded with sufficient notice.

Give a warning signal with plenty of time for people to leave.

If unauthorized personnel are still within the hazardous area stop the truck immediately.

1.1 Intended use

- The industrial truck is designed for transporting indicated in the dataplate.
- Safety installations and switches may not be removed or rendered unusable. Specified settings may only be changed with the approval of the manufacturer.
- Only the areas approved by the operating company or its representative may be used for transportation purposes. Loads may only be deposited or stored at the intended places.
- Inclines used by industrial trucks shall not exceed the limits specified by the manufacturer and must have an adequately rough surface.
- Danger points on driving lanes or routes shall be secured or marked by the customary road traffic signs and by additional warning signs, if necessary.
- Driving routes shall be sufficiently paved, level and free of objects. Drain channels and railways crossings, etc., shall be levelled and, if necessary, covered with ramps in such a way that they can be driven over without bumps as far as possible.
The EU Directive 89/654/EEC (Minimum Regulations for Health and Safety for the workplace) shall be observed. The respective national regulations apply for non-EU countries.

- Danger points on driving lanes or routes shall be secured or marked by the customary road traffic signs and by additional warning signs, if necessary.
- Driving routes shall be sufficiently paved, level and free of objects. Drain channels and railways crossings, etc., shall be levelled and, if necessary, covered with ramps in such a way that they can be driven over without bumps as far as possible.
The EU Directive 89/654/EEC (Minimum Regulations for Health and Safety for the workplace) shall be observed. The respective national regulations apply for non-EU countries.
- When driving on public roads, the corresponding regulations must be observed, as well as country-specific restrictions for winter road conditions.
- The operating company is responsible for adequate fire protection in the vicinity of the industrial truck.
- Industrial trucks may only be used to tow trailers if they are intended for this purpose by the manufacturer . The maximum towed load specified in the operating instructions for unbraked or braked trailers must not be exceeded. The towing industrial truck must be operated in such a way that safe driving and braking of the towed vehicle is ensured for all driving movements.

1.2 Improper use

The operating company or driver, and not the manufacturer, is liable if the truck is used in a manner that is not permitted. The following list is exemplary and is not intended to be exhaustive.

- Do not turn when driving on a ramp.
- Never park the truck in a place that may obstruct fire extinguishers, fire escapes or aisles.
- Do not leave the truck unattended.
- Do not stand on the hook device.
- Do not increase the Rated drawbar pull.
- Use the truck for loading / unloading on slopes

1.3 Tractor truck handover

To avoid the inconvenience of making a claim after use, check the Tractor truck is in perfect condition and repair, and confirm your satisfaction with the vehicle on the manufacturer's product qualification certificate upon handover.

B Truck Description

1.1 Application

The truck is a rear drive, industrial electric tow-truck designed to tow tiller operated trailer loads.

- Ambient temperature: during operation: -10°C to 40°C.
- Only use the truck at altitudes not exceeding 2000 meters.
- The truck is not authorized for use on public highways.
- The tractor is not authorised for use in cold stores .
- The tractor is not authorised for use in the rain or water.
- Trucks can only be operated in adequately illuminated working areas to avoid injuries. In case of insufficient light, an additional lighting equipment is needed to ensure that the driver can see properly.
- If you must travel on an incline, the gradients should be below A% at full load, or below B% without a load.(For the value of A and B, refer to the Gradability in Performance Data Sheet)

NOTE

The truck may only be operated in cold stores temporarily as the permissible battery operating temperature is between 0°C and 40°C . If the truck remains in a cold store, we recommend with special measures for the truck or buy cold store truck.

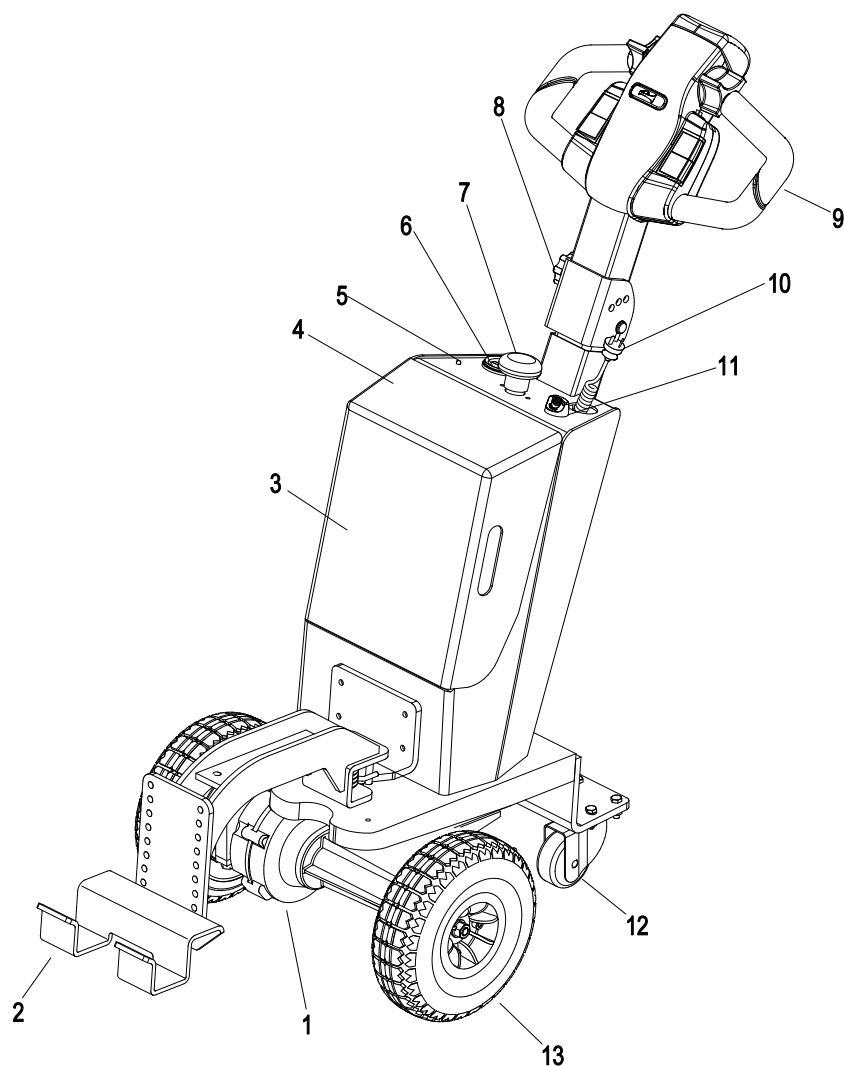


WARNING

Extreme conditions

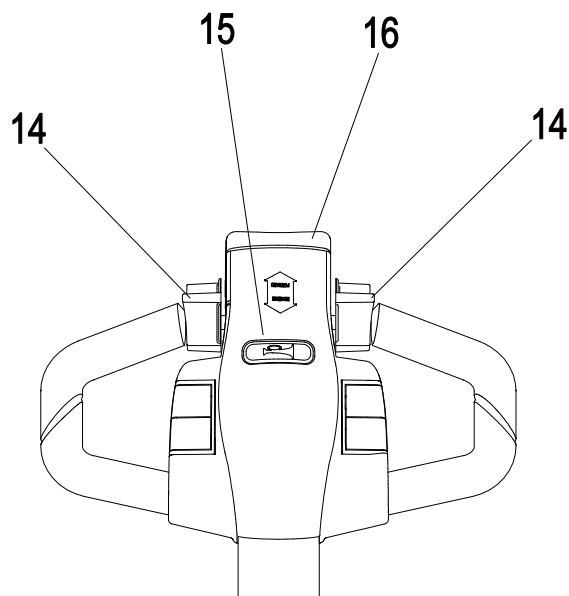
- Special equipment and authorisation are required if the truck is to be constantly used in extreme conditions, especially in dusty or corrosive atmospheres.
- The truck is not authorised for use in areas at risk of explosion.
- In adverse weather conditions (thunder, lightning) the industrial truck must not be operated outside or in endangered areas.

1.2 Truck assemblies



1	Driving Unit	8	Handwheel
2	Hook device	9	Tiller
3	Battery	10	charger plug
4	Cover	11	Key switch
5	LED lamp	12	Load wheels
6	Battery discharge indicator	13	Drive wheels
7	Emergency stop switch		

1.2.1 Tiller



14	Drive switch	Controls travel direction and speed
15	Horn button	Send out sound warning signals
16	Emergency reverse switch	Through touching the button, truck drives away from operator.

1.Key switch

Connect and interrupt control current.

When the key rotates to gear "OFF", the control current of the truck will be interrupted;

When the key rotates to gear "ON", the control current of the truck will be connected.

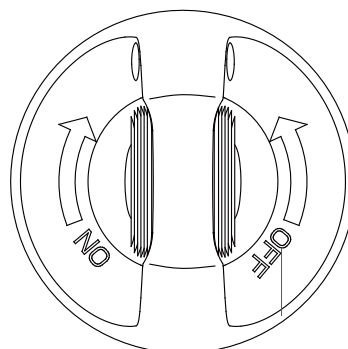
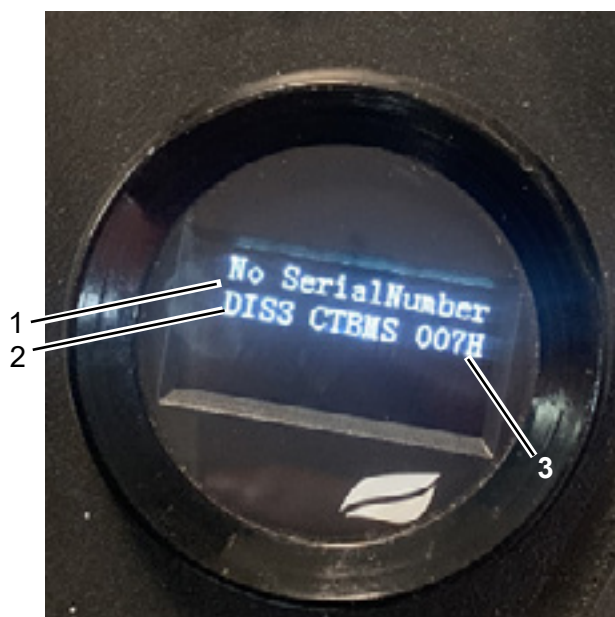


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1.2.2 Battery discharge indicator

When the truck start up, it will show a startup display interface;

- The LED (1) show the No SerialNumber. It indicates the circular meter has no bluetooth function.
- The LED (2) show the DIS3. It indicates the version of the product.
- The LED (3) show the 007H. It indicates the version of software.



After the truck starting , it will display another display interface;

- The LED (4) shows the total operation time of the truck, if the truck failure, it will show *controller error*.
- The LED (5) shows the remaining capacity.

i NOTE

Truck failure is in the service manual controller error message section.



1.3 Identification points and data plates



Anti-pinch hand label



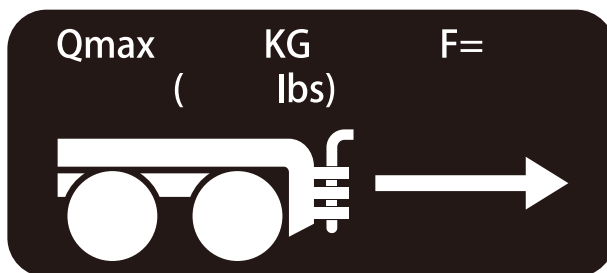
Instructions label



Do not rest on the pallet label



Sling label

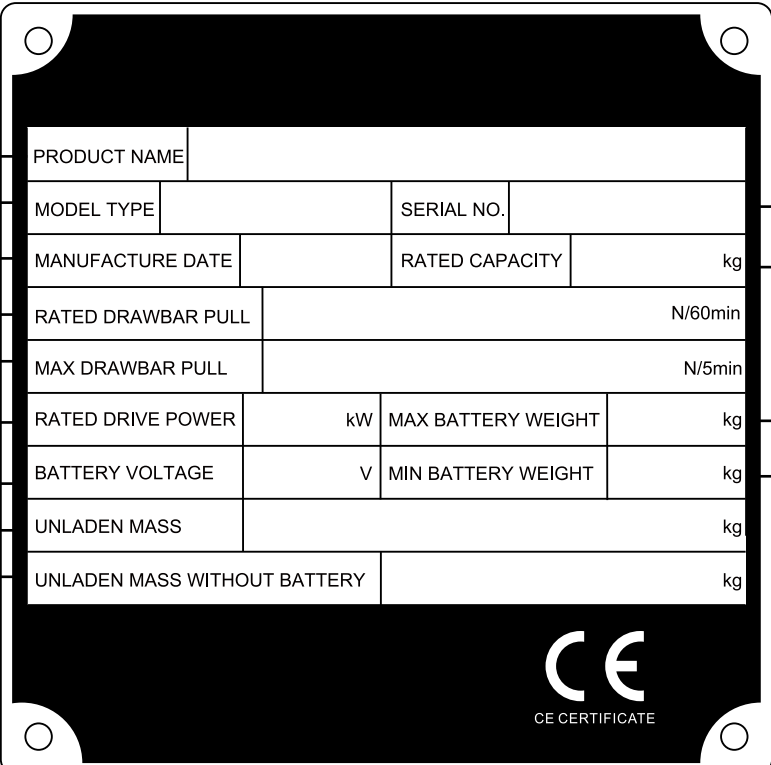


Rated drawbar pull label


1.3.1 Truck data plate

For queries regarding the truck or ordering spare parts please quote the truck serial number.

Item	Description	Item	Description
1	PRODUCT NAME	8	UNLADEN MASS
2	MODEL TYPE	9	UNLANDEN MASS WITHOUT BATTERY
3	MANUFACTURE DATE	10	SERIAL NO.
4	RATED DRAWBAR PULL	11	RATED CAPACITY
5	MAX DRAWBAR PULL	12	MAX BATTEY WEIGHT
6	RATED DRIVE POWER	13	MIN BATTERY WEIGHT
7	BATTERY VLOTAGE		



1	PRODUCT NAME				
2	MODEL TYPE		SERIAL NO.		10
3	MANUFACTURE DATE		RATED CAPACITY	kg	11
4	RATED DRAWBAR PULL		N/60min		
5	MAX DRAWBAR PULL		N/5min		
6	RATED DRIVE POWER	kW	MAX BATTERY WEIGHT	kg	12
7	BATTERY VOLTAGE	V	MIN BATTERY WEIGHT	kg	13
8	UNLADEN MASS		kg		
9	UNLADEN MASS WITHOUT BATTERY		kg		


 CE CERTIFICATE

For queries regarding the tractor or ordering spare parts please quote the tractor serial number(10).

1.4 Standard version specifications

Technical specification details in accordance with VDI 2198. Technical modifications and additions reserved.

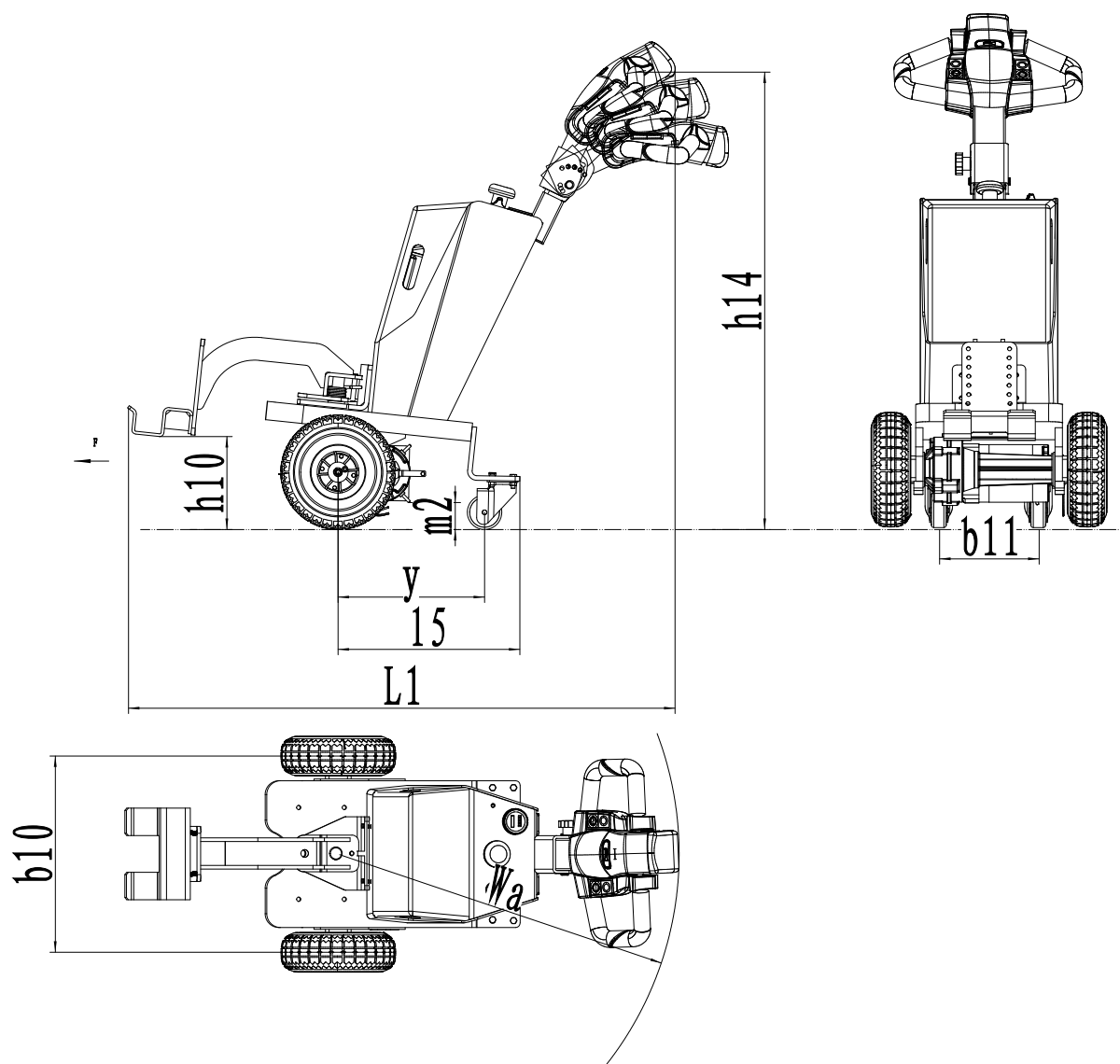
1.4.1 Performance data for standard trucks

Distinguishing mark				
1.1	Manufacturer			/
1.2	Model designation			QDD10L
1.3	Drive unit			Battery
1.4	Operator type			Pedestrian
1.5	rated capacity	Q	kg	1000
1.7	Rated drawbar pull	F	N	200
1.9	Wheelbase	y	mm	320
Weight				
2.1	Service weight (include battery)		kg	120
2.2	Axle loading, laden driving side/ loading side		kg	120/0
2.3	Axle loading, unladen driving side/ loading side		kg	95/25
Types,Chassis				
3.1	"Tyre type driving wheels/loading wheels"			rubber

3.2	Tyre size, driving wheels(diameter×width)		mm	2x Ø250x85
3.3	Tyre size, loading wheels(diameter×width)		mm	2x Ø75x32
3.5	Wheels, number driving, caster/loading (x=drive wheels)		mm	2x /2
3.6	Track width, front,driving side	b10	mm	428
3.7	Track width,rear,loading side	b11	mm	217
Dimensions				
4.8	Height, mast extended	h7 (mm)	mm	
4.9	Height drawbar in driving position min./max.	h14 (mm)	mm	965x1040x1130
4.12	Height of wheel arms	h10(mm)		
4.19	Overall length	l1 (mm)	mm	1200x1260x1290
4.21	Overall width	b1/ b2	mm	520
4.32	Ground clearance, center of wheelbase	m2	mm	/
Performance data				
5.1	Travel speed, laden/unladen	km/ h	km/ h	4.5/5
5.2	Lifting speed, laden/unladen		m/ s	200
5.3	Lowering speed, laden/unladen		m/ s	650
5.8	Max. gradeability, laden/unladen		%	3/16
5.10	Service brake type			Mechanical

Electric-engine				
6.1	Drive motor rating S2 60 min	hp	kW	0.4
6.3	The maximum allowed size battery	in.	mm	193/81/300
6.4	Battery voltage/nominal capacity K5	V/ Ah		24/20
6.5	Battery weight	lb.	kg	5.8
Addition data				
8.1	Type of drive control			DC
10.5	Steering type			Mechanical
10.7	Sound pressure level at the driver's ear		dB (A)	74

1.4.2 Dimensions



C Safety

1.1 Safety guidelines

The operating company must ensure that the driver understands all the safety information.

Observe the relevant regulations and guidelines,

e.g:

- Operation of industrial trucks
- Driving licences
- Rules for driveways and the area of operation
- Driver rights, duties and rules of behaviour
- Special operating areas
- Information regarding setting off, driving and braking
- Information for maintenance and repair
- Periodic checks
- Disposal of greases, oils and battery
- Residual risks
- Only trained and authorized operator shall be permitted to operate the truck.
- Comply with traffic rules.
- Keep enough safe distance.
- Inspect the truck at periodic intervals for oil or water leak, deformation, lousiness, etc. If neglected, short life of components will be caused and in the worst case a fatal accident would occur .
- Make sure to replace the “key component” in schedule maintenance.
- Wipe off oil, grease or water from the floor board and foot and hand controls. if any.
- Check the battery with no-smoking or any sparks, flame near batteries.
- Check motors, controllers, attention should not be scalded.
- The controller has the accumulator, do not contact between B+ and B-, prevent of electrical injury. If you want check or clean the controller, connect load between B+ and B-(such as contactor coil or horn) to short the capacitor, and discharge the energy.
- Electrical appliances, controllers, motor should prevent of washing by water or showing. Whenever in trouble, you must stop the truck, hang a mark of “danger” or “trouble” and take off the key, at the same time inform the manager .
- If any trouble comes on at Load wheels or drive wheels. Please stop the truck and service the truck at once, and let the truck in a safety place.
- Operators should wear a crash helmet, working boot and working clothes. After charging, clean the truck carefully. Don't let any tools close the two terminal of the battery to avoid spark or short circuit.
- Make sure to operate the truck on concrete firmly enough or bituminous macadam. Check the situation early in the work space.
- Clean the work space, remove all obstacles, wipe out the macadam, mud, waste oil, and water.

- This truck can not work in the circumstance where easy to burnt or explode. The trucks not equipped with fire extinguishers, fire extinguishers should be easy to accessible. Staff should be familiar with fire extinguishers storage places and the use of fire extinguishers.
- Before start, press the horn, ensure no others around you. It is forbidden to overload.
- Don't make a sudden start, sudden brake or sharp turning, especially for the stand type trucks.
- The turning speed is must less than 1/3 max speed.
- In the sand, snow, lightning, torrential rains, typhoons, and other adverse weather conditions, do not use this truck. Especially when the wind speed exceeds 10m/s, avoid of using this truck.
- When on the rugged road, or damage of wheel, the truck will make noise because of vibration.
- Pneumatic tyres must be charged correctly according to stand requirement, it is forbidden to charge much high or low.
- Move the truck to the place which respects traffic when it anchors. If the reason is brake or turn system, move it by a suitable truck (Reference Towing an unpowered truck); Other reasons, use a suitable truck to traipse, tie the cord outside of truck. Remove the power supply. Please abide by the traffic regulations when traipse the truck on calzada.
- Please follow this operation manual and nameplate of this truck. Inspect the nameplate, when damaged or lost please replace it.
- The tire is divided type rim, Inflation and replacement must accordance with the following requirements strictly.
- It is forbidden to move slantways and turn on ramp, or it may cause truck to roll over.
- In the process of installation and assembly, it will make noise and vibration. Please use the suitable tool and assembly method to reduce the noise and vibration so as to decrease the noise pollution to the environment.
- The work road surface for truck should be stability and unknit, cement, blacktop or beton. If there is snow, ice, water or other eyewinker, bar. Eliminate all, then work. Otherwise the truck will be out of control and lead the safety accident.
- Affix a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered together with the date of the modification or alteration, and the name and address of the organisation that accomplishes the tasks.

1.2 Battery safety

Remain aware of the following information.

- Remove any metal rings, bracelets, bands, or other jewelry before working with or near batteries or electrical components.
- Never expose batteries to open flame or sparks.
- Shorting of battery terminals can cause burns, electrical shock, or explosion. Do not allow metal parts to contact the top surface of the battery. Make sure all terminal caps are in place and in good condition.
- Batteries may only be charged, serviced, or changed by properly trained personnel.
- Always follow all instructions provided by the manufacturers of the battery, charger, and the truck.
- Following the Appendix section (lithium-ion battery).

1.3 Stability

Stability is only guaranteed if the tow tractor is used according to the indicated recommendations.

It is not guaranteed in the event of:

- Cornering at high speeds
- Turning and driving diagonally on descents or ascents
- Ramp edges or steps.

1.4 Related Safety Instruction and Standard(For CE)

The design and manufacture of electrical element comply with the low voltage standard 2006/95/EC.

Noise emission level

QDD10L/QDD15L: xiaoyu < 74 dB(A)

Noise will be according with EN12053:2001 and 2000/14/EC.

Sound pressure level on the operator's position is lower than 75dB(A), measurement uncertainty is 1.5dB(A).

Vibration and acceleration

Vibration parameters are measured according to standards of ISO5349-2:2001, EN13059:2002, ISO2631-1:1997, and the result meets the requirement of 2002/44/EC.

Whole body vibration is lower than 1.1m/s².

Electrical requirements

The manufacturer certifies compliance with the requirements for the design and manufacture of electrical equipment, according to EN 1175 "Industrial Truck Safety - Electrical Requirements", provided the truck is used according to its purpose.

EMC-Electromagnetic compatibility

Electromagnetic compatibility (EMC) is a key quality feature of the truck.

- EMC involves limiting the emission of electromagnetic interference to a level that ensures the troublefree operation of other equipment in the environment.
- Ensuring sufficient resistance to external electromagnetic interference so as to guarantee proper operation at the planned usage location under the electromagnetic interference conditions to be expected there. An EMC test thus firstly measures the electromagnetic interference emitted by the truck and secondly checks it for sufficient resistance to electromagnetic interference with reference to the planned usage location. A number of electrical measures are taken to ensure the electromagnetic compatibility of the truck.
- Our truck has been successfully tested according to EN12895 as well as the standardized instruction contained there in.



CAUTION

The EMC regulations for the truck must be observed.

When replacing truck components for repair the protective EMC components must be installed and connected again.

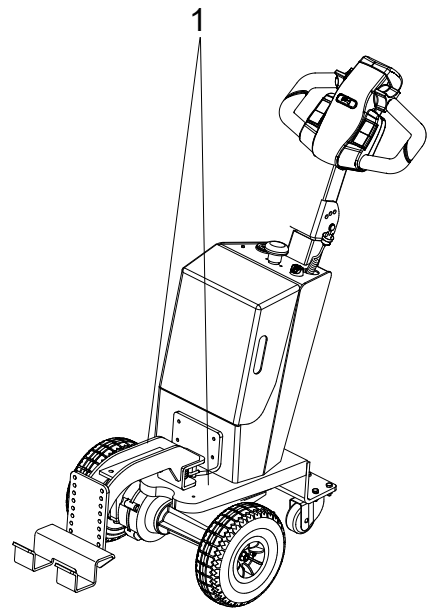
D Transport and Commissioning

1.1 Hosting

Only use lifting gear with sufficient capacity (See truck data plate).

- Park the truck securely (see chapter E Section 1.4).
- Secure the lifting gear to the fixing points (1).

The lifting gear must be attached to the attachment points in such a manner that it cannot slip under any circumstances and cannot come into contact with any attachments of the truck when the truck is lifted.

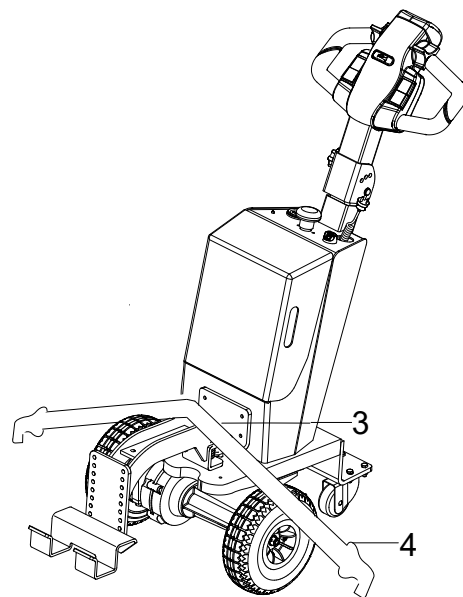


1.2 Securing the truck during transport

The truck must be securely fastened when transported on a lorry or a trailer. The lorry / trailer must have fastening rings.

- To fasten the truck pull the tensioning belt (3) over the truck and attach it to the fastening rings.
- Tighten the tensioning belt with the tensioner (4).

Loading must be carried out by specially trained staff in accordance with recommendations contained in Guidelines VDI 2700 and VDI 2703. In each case correct measurements must be made and appropriate safety measures adopted.



1.3 Commissioning

The truck must only be operated on battery current!

To prepare the truck for operation after delivery or transportation, the following operations must be performed:

- Check the equipment for completeness.
- If necessary, install the battery. Make sure that the battery polarity is correct.
- Charge the battery.
- Put the truck into operation in the stipulated manner.

When the truck is parked, the running surface of the tyres will flatten. The flattening will disappear after a short period of operation.

- Start up the truck as indicated (see "Operation" chapter E).

1.4 Break-in period precautions

Fasten wheel screws again at 50 hours of operation.

Within the first 100 hours in particular, the following requirements should also be met:

- Excessive discharge of a new battery during initial use must be prevented. It should generally be charged promptly when at 20%.
- The specified preventive maintenance must be done thoroughly.
- Avoid sudden braking, driving quickly or sharp turns.
- Change oil or lubricant promptly according to the instructions.
- Limit the load weight to 70-80% of the rated load.

1.5 Towing an unpowered truck

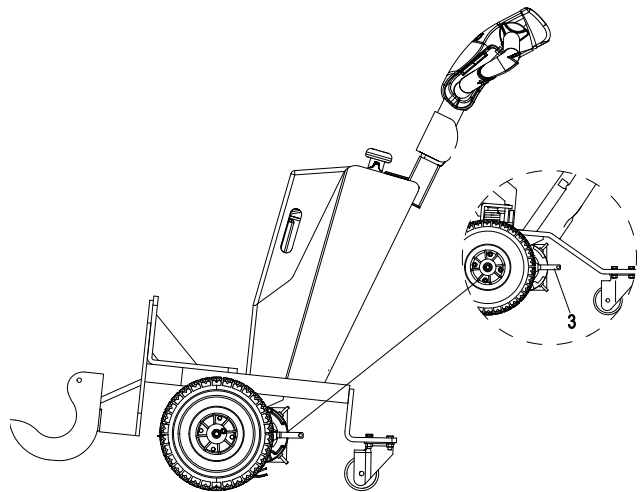
This procedure must never be performed on a ramp.

If the truck still needs to be moved after detecting a malfunction that affects driving and operation, follow the steps below:

- Turn the key switch to the "OFF" position
- and pull out the key.
- Disconnect the battery plug.
- Secure the truck and take care to prevent it from moving unexpectedly.
- Pull up the parking brake handle (3).
brake will be released , enabling the truck to be moved. On reaching the destination, the brake system must be returned to its original state!

Press down the parking brake handle (3) again.

At this point, the brake has been restored to its original state.



WARNING

Do not left the truck unattended while the brake is in the released state.

E Operation

1.1 Safety regulations for the operation of pallet trucks

Driving permission: The truck must only be operated by persons who have been trained in the operation of trucks, who have demonstrated to the user or his representative their capability of moving and handling loads, and who have expressly been charged by the user or his representative with the operation of the truck.

Rights, duties and conduct of the driver: The driver must be: informed of his rights and duties; trained in the operation of the tractor; and familiar with the contents of these operation manual. All necessary rights must be granted to him. If the tractor can be used in the pedestrian-controlled mode, the driver must wear safety boots when operating the truck.

Prohibition of unauthorized use: The driver is responsible for the tractor during working time. He must forbid unauthorized persons to drive or operate the tractor. The transport or lifting of persons is forbidden.

Repairs: Without specific training and express authorization, the driver is not allowed to perform any repairs or modifications on the tractor. Under no circumstances must the driver change the setting of switches or safety installations or render them ineffective.

Safety devices and warning labels: The safety devices, warning labels and warning notes described in the present operation manual must always be heeded.

Driving uphill or downhill:

Follow the specified route when driving uphill or downhill. The floor surface must be clean, safe and reliable, not slippery, and comply with the technical characteristics of the truck. Do not turn or stop the truck when driving uphill or downhill, or drive diagonally across a slope. Slow down when driving downhill and be ready to brake at any time.

Towing trailers: Do not exceed the maximum trailer load specified for the tractor for trailers with or without brakes. The trailer load must be secured in accordance with regulations and must not exceed the dimensions permitted for that roadway. After coupling and before starting the driver shall ensure that the trailer coupling cannot become detached. Tractor pulling a load must be driven such that the trailing vehicle is driven safely and can be stopped under any conditions.

Hook

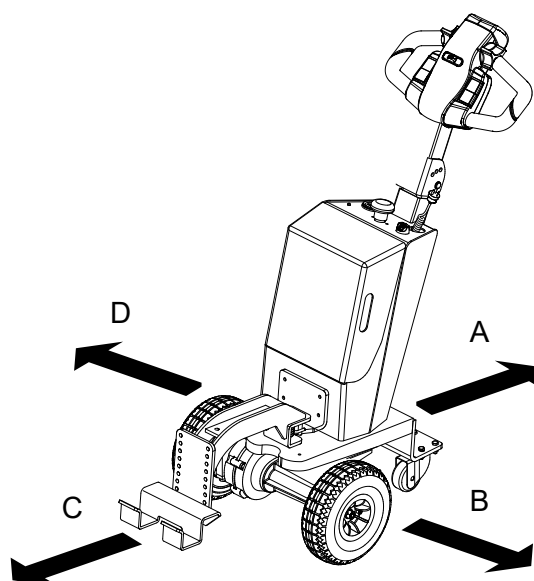
Adjust the trailer so that the bottom is no lower than the load hooks. Raise the tow tractor slightly, and slowly push in the load hooks until securely hitched.

1.2 Check before start up

- Before putting the truck into use, the driver must ensure that no other people are within the hazardous area.
- Daily checks and preparations that must be carried out before putting the truck into use:
- Thoroughly inspect the truck (paying special attention to the wheels and hook device) for any obvious damage.
- Check that the battery is secure and check the battery polarity.

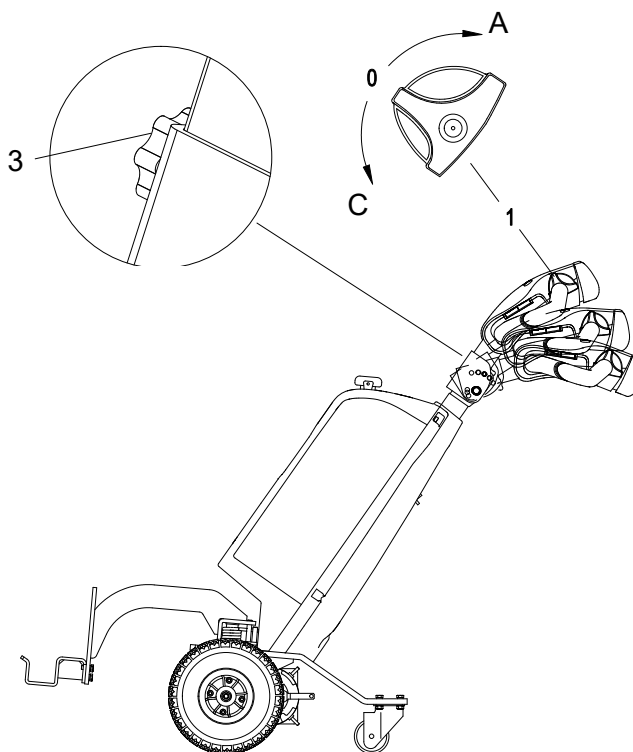
1.2.1 Drive directions

- (A) Forward
- (B) To the Right
- (C) Backward
- (D) To the left



1.2.2 Start up

- Pull out the Emergency Stop switch
- Turn on the key switch, and then the battery discharger indicator is on, it first indicates running time, and then indicates power, and the timer begins to count. confirm there are no obstacles, start the truck stably, and accelerate the truck gradually.



1.2.3 Driving, steering, braking

➤ Driving



WARNING

Observe the speed limit specified by the tow tractor manufacturer.
Before driving the truck, make sure that all openings are closed.
Use the drive switch (1) to control the direction and speed of travel.
Rotate the drive switch to drive the vehicle forwards (A) or backwards (C).



NOTE

The handle position can be adjusted with the star-shaped hand wheel(3).

➤ **Steering**

Steer the tow tractor left or right, depending on the desired direction.

➤ **Braking**

The driver must drive carefully and cautiously.

When there is no danger, the driver should use moderate braking to avoid the load moving or the trailer (if applicable) becoming detached.

➤ **Braking can be done in the following four ways:**

Emergency stop brake

Regenerative braking

Reverse braking

Parking brake

Emergency stop brake

When the emergency stop switch is pressed, all motor functions will be interrupted.

- When the emergency stop switch is pressed, all motor functions will be interrupted.

➤ **Regenerative braking**

Release the drive switch (1). The drive switch will automatically return to the initial position (speed is 0). The vehicle will enter the regenerative braking state and slow down. When it decelerates to less than 1 km/h, the brake will bring the motor to a stop.



CAUTION

Open the drive switch; if the drive switch cannot quickly return to the initial position or resets very slowly, identify the cause and rectify the fault.

➤ **Reverse braking**

Braking can be accomplished by changing the direction of travel.

Press the reverse switch in the opposite direction until the truck comes to a stop, then release the drive switch.



CAUTION

In a dangerous situation, the driver can apply forcedbraking by placing the operating lever in the braking position, or use reverse braking, depending on the actual situation.

➤ Parking brake

Pull up the parking brake handle (3) to lock the motor.



CAUTION

When storing or temporarily leaving the vehicle, pull up the parking brake handle to avoid the tow tractor moving due to inclines or mishandling, thereby causing a hazard.

1.3 Driving with a trailer

In special or difficult work environments (such as ramps, smooth floors or slippery surfaces), care should be taken to reduce the weight of the trailer in order to ensure safe braking in the event of an accident. The indicated maximum load rating is only applicable to trailers that are travelling on a level surface (on a non-slip floor with sufficient load capacity).

Trailers can only be pulled; they cannot be pushed.

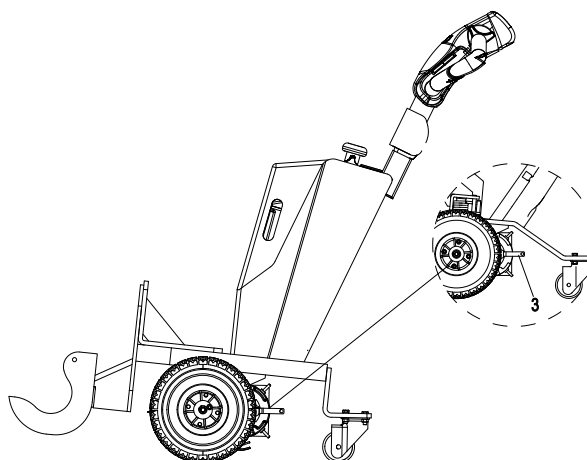
When starting, pay attention to the safety of the brake system and trailer steering.

It is important to note that the field of vision is restricted when the trailer is long and when turning.

- Drive slowly until the tow coupling is tightened. Care must be taken when accelerating.

- Be sure to decelerate gradually when slowing down or stopping the tractor and trailer. Pay attention to safe braking!

Trailers are difficult to move. Pay attention to corners when turning.



1.4 Parking the truck securely

- Drive the truck onto a level surface.
- Pull the parking brake level, and put Direction Switch in the neutral position.
- Turn the key in the key switch to "0".
- Remove the key from the key switch.
- Press emergency stop switch.



WARNING

- *Must park on the solid ground;*
- *Don't park at crossing or entrance and exit; don't park on the running way;*
- *Don't park on ramp, if it has to be parked on ramp, the truck' wheels must be underlayed with solid wood;*
- *Don't park in dangerous condition.*

1.5 Trailer mode

When coupling hook device of tow tractor and trailer must be on level ground. All controls must be set to neutral. The tow tractor and trailer must be secured to prevent any accidental movement.



WARNING

Trapping hazard! When coupling a trailer do not trap your hands between any truck components.

1.6 Operator daily checklist

At the beginning of each shift, inspect your truck by using the EP operator's daily checklist. If necessary, refer to the Maintenance section of this manual for details on how to carry out this inspection. Check for damage and maintenance problems. Any necessary repairs must be completed before the truck is operated. In addition to daily inspection, scheduled maintenance is vital to safe operation of the truck. Adhere to the inspection, lubrication and maintenance schedule given in the Maintenance section of this manual.

Daily Check Items	O.K.(√)	Remark
Check whether the parking brake handle is reliable		
Check chassis if damage or abration		
Visually inspect the battery and plug		
Check decal condition		
Check operation switch, display equipment and component functions.		
Check the steering control function.		
Check the gearbox for abnormal sound and leakage.		
Check the wheel bearings and their mounting.		
Check the load wheels and drive wheels		
Check horn function		
Check Forward and reverse travel function		
Check that the hooks are secure.		
Check the hook device for damage.		

Table 1: Table of Daily Inspections by Operators is only a sample table for the daily inspections of operators, and it can be adjusted according to specific requirements.



WARNING

The truck should be regularly maintained by qualified maintenance engineers or technicians that have passed the training of and also been authorized by the manufacturer.

F Battery Maintenance & Charging

1.1 Precaution

- The truck must be parked within a shady and ventilated room;
- Avoid the existence of any metal object in the surface of the lithium-ion battery;
- The plug connection parts should be inspected in terms of obvious damages before charging;
- The safety provisions related to the lithium-ion battery and the manufacturer of charging station must be strictly abode by.
- Charging in non-charging area is prohibited;
- No modification of vehicles;
- Do not use irregular charging sockets;
- The net height of the charging area shall be higher than 5m, and the safe distance from other areas shall be greater than 5m.

1.2 Charging the battery with internal charger

Charge lithium-ion battery through a built-in charger

- Inspect whether relevant charging requirements are satisfied according to “1.1 precautions”;
- Parking the truck securely (see Chapter E section 1.4);
- Connect the plug (1) to a proper power supply outlet, then connect it into the socket on the truck to start charging.

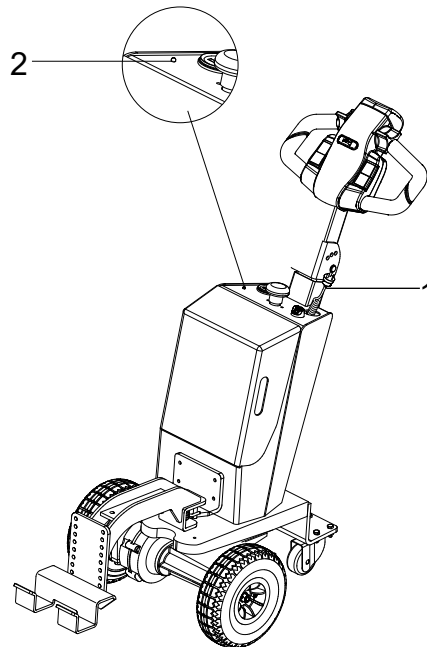
i NOTE

The flashing LED (2) indicates the charge status or a fault (for flashing codes see “Charging indicator” table).



WARNING

*The charging voltage is single-phase, ranging from 100V to 240V, Charger maximum input power 290W.
Please strictly implement the above data to prevent equipment damage and accidental risks such as fire.*



Charging indicator(2)

NO.	LED status	Phenomenon	Cause	Remedy	Description
1	Red light is on		Trouble free	/	Charging
2	Green light is on		Trouble free	/	End of charging
3	No indicator light	Current/voltage changes	Indicator failure	Return to factory maintenance	Charger failure
4		No change in current/voltage	The power input line is in good contact with the socket and the charger	Charger failure,return to factory maintenance	Charger failure
5	Red light flashes		The power input cable is not in good contact with the socket	Check if the input power line is in good contact	
6	Yellow light is on		Storage battery fails. (battery reverse connection)	Eliminate battery failure	
7			Storage battery fails.(battery is not connected)	Eliminate battery failure	
8	Yellow light flashes		Ambient temperature is too high	Ambient temperature drops to normal	
9			Storage battery voltage exceeds 32.5V (65V for WPL201)	Eliminate battery failure	
10			Charger failure	return to factory maintenance	

1.3 Battery type & dimension

Battery type & dimension as follow:

Tuck type	Voltage/ Rated capacity(V/AH)	Dimension (mm)	Charger current	Charging time(h)
QDD10L	24/20	650×145×620	10A	2h

1.4 Battery removal and installation

Parking the truck securely(see Chapter E section1.4) and turn off the power before removal and installation of the battery.

Battery removal and installation steps:

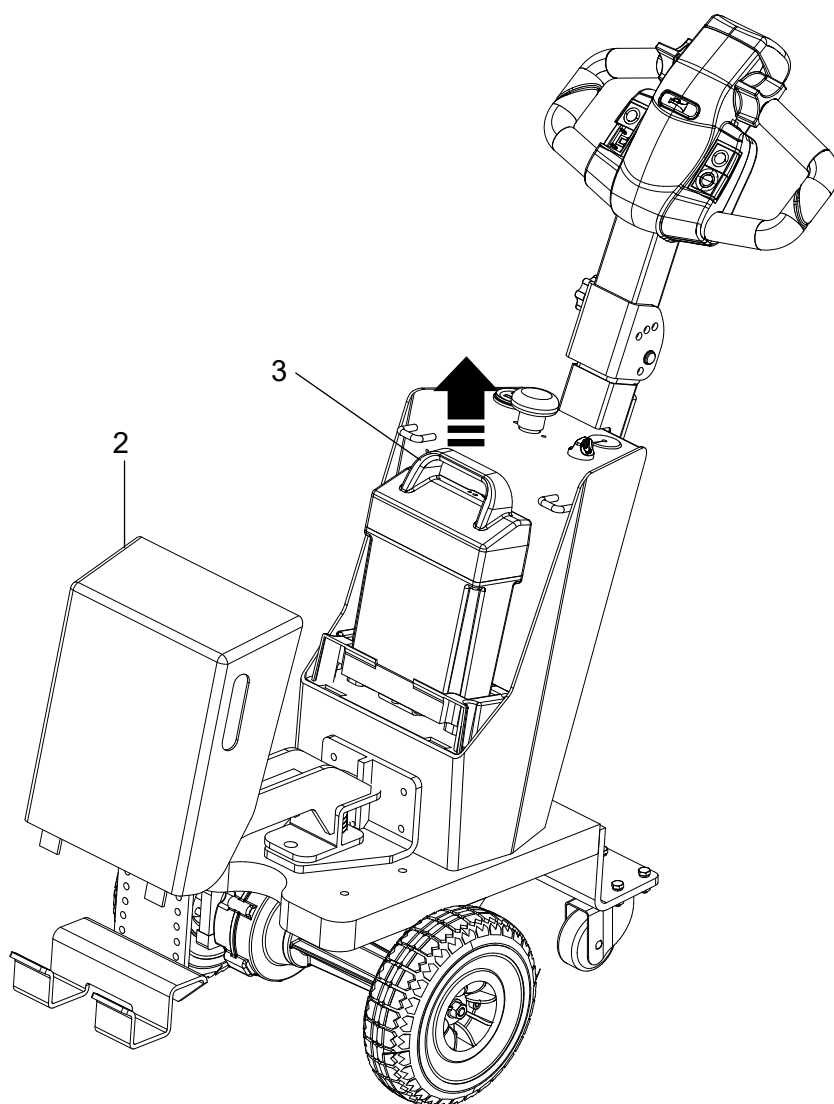
- a: Unscrew screws in the cover, take out the electrical cover(2).
- b: Hold the battery arm (3) and remove the lithium-ion battery.

Installation is in the reverse order of operations.



CAUTION

Pay attention to the battery polarity when installing the lithium-ion battery.



G Truck Maintenance

1.1 Operational safety and environmental protection

- The servicing and inspection operations contained in this chapter must be performed in accordance with the intervals indicated in the service checklists.
- Only use original spare parts that have been certified by our quality assurance. Used parts, oils and fuels must be disposed of in accordance with the applicable environmental protection regulations. For oil changes, the oil service of the manufacturer is available to you.
- Upon completion of inspection and servicing, carry out the activities listed in the "Recommissioning" section.

1.2 Maintenance safety regulations

Servicing and maintenance personnel:

Only qualified personnel authorized by the owner are permitted to perform maintenance or repair work. All items listed in the Scheduled Maintenance Charts must be performed by qualified truck technicians only. They must have knowledge and experience sufficient to assess the condition of a truck and the effectiveness of the protective equipment according to established principles for testing truck trucks. Any evaluation of safety must be unaffected by operational and economic conditions and must be conducted solely from a safety standpoint

Daily inspection procedures and simple maintenance checks, e.g. checking the hydraulic oil level or checking the fluid level in the battery, may be performed by operators. This does not require training as described above.

Lifting and jacking up:

When a tractor is to be lifted, the lifting gear must only be secured to the points specially provided for this purpose. When the truck is to be jacked up, suitable measures must be taken to prevent the truck from slipping or tipping over (use of wedges, wooden blocks).

Cleaning operations:

No inflammable liquids must be used when cleaning the tractor. Prior to commencing cleaning operations, all safety measures that are required to prevent sparking (e.g. by short circuits) have to be taken. For battery operated trucks, the battery plug must be removed. Only weak pressure, weak compressed air and non-conducting, antistatic brushes must be used for the cleaning of electric or electronic assemblies.

Work on the electric system:

Work on the electric system of the truck must only be performed by personnel specially trained for such operations. Before commencing any work on the electric system, all measures required to prevent electric shocks have to be taken. For battery-operated trucks, the truck must also be powered down by removing the battery plug.

Settings

When repairing or replacing hydraulic, electric or electronic components or assemblies, always note the truck specific settings.

1.3 Servicing and inspection

Thorough and expert servicing is one of the most important requirements for the safe operation of the industrial truck. Failure to perform regular servicing can lead to truck failure and poses a potential hazard to personnel and equipment.

The service intervals stated are based on single shift operation under normal operating conditions. They must be reduced accordingly if the truck is to be used in conditions of extreme dust, temperature fluctuations or multiple shifts.

The following maintenance checklist states the tasks and intervals after which they should be carried out. Maintenance intervals are defined as:

W = Every 50 service hours, at least weekly

A = Every 250 operating hours

B = Every 500 operating hours, or at least annually

C = Every 2000 operating hours, or at least annually

W service can be performed by the customer.

In the run-in period - after approx. 100 service hours - or after repair work, the owner must check the wheel nuts/bolts and re-tighten if necessary.

1.3.1 Maintenance checklist

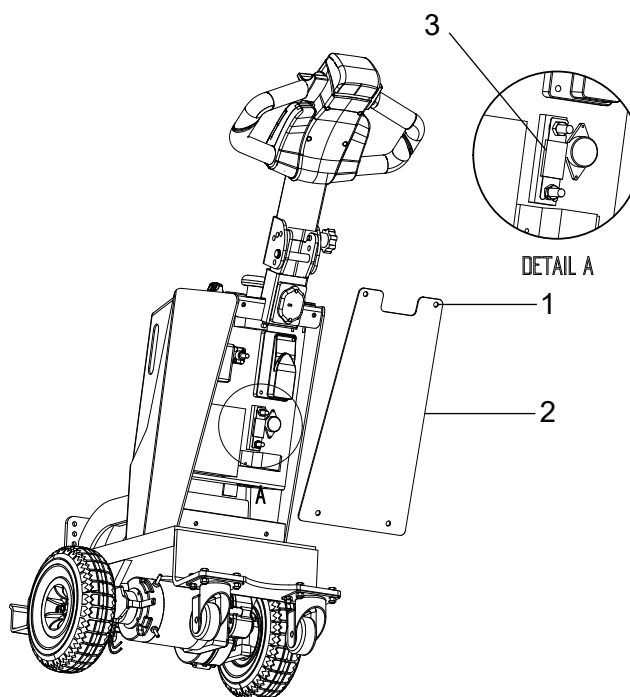
		Maintenance interval●			
		W	A	B	C
Brake	Check brake plate clearance			●	
Electrics	Test instruments, displays and control switches.	●			
	Test warning and safety device.		●		
	Make sure wire connections are secure and check for damage.			●	
	Test micro switch setting.	●			
	Check relays.			●	
	Fix the motor and cable			●	
Power supply	Visually inspect battery		●		
	Check battery cable connections are secure, grease terminals if necessary.			●	
Travel	Check the transmission for noise and leakage.			●	
	Check travel mechanism, adjust and lubricate if necessary.		●		
	Check control handle lifts back to braking position.				
	Check wheels for wear and damage.			●	
	Check wheel bearings and attachments.			●	
Truck frame	Check truck frame for damage.			●	
Hydraulic operation	Test hydraulic system.		●		
	Check that hose and pipe lines and their connections are secure, check for leaks and damage.		●		
	Check cylinders and piston rods for damage and leaks, and make sure they are secure.			●	
	Check hydraulic oil level.			●	
	Replace hydraulic oil.			●	
	Check and clean hydraulic oil filter. Replace it if necessary.			●	

1.4 Maintenance Instructions

1.4.1 Prepare the truck for maintenance and repairs

All necessary safety measures must be taken to avoid accidents when carrying out maintenance and repairs. The following preparations must be made:

- Parking the truck securely (see Chapter section 1.4).
- Remove the key to prevent the truck from accidentally starting.
- When working under a raised lift truck, secure it to prevent it from tipping or sliding away.



1.4.2 Remove the cover

Unscrew the four bolts (1).
Carefully remove the back cover (2).

1.4.3 Checking the fuses

Check that the specifications of all fuses match the parameters specified in the table below and replace if necessary.

Item	To protect:	Rating
3	Traction motor	150A
4	Control system	10A

1.4.4 Changing the tyres

The quality of the tyres directly affects the stability and driving performance of the truck.

If the factory-fitted tyres need replacing, use original spares supplied by the company, so as not to affect the performance and stability of the product. Poor driving surface conditions have a significant impact on the tyres. Always check the condition of the tyres. If a tyre is found to be damaged, it should be replaced immediately.

The tyre load must comply with current national standards. Overloading is strictly prohibited.

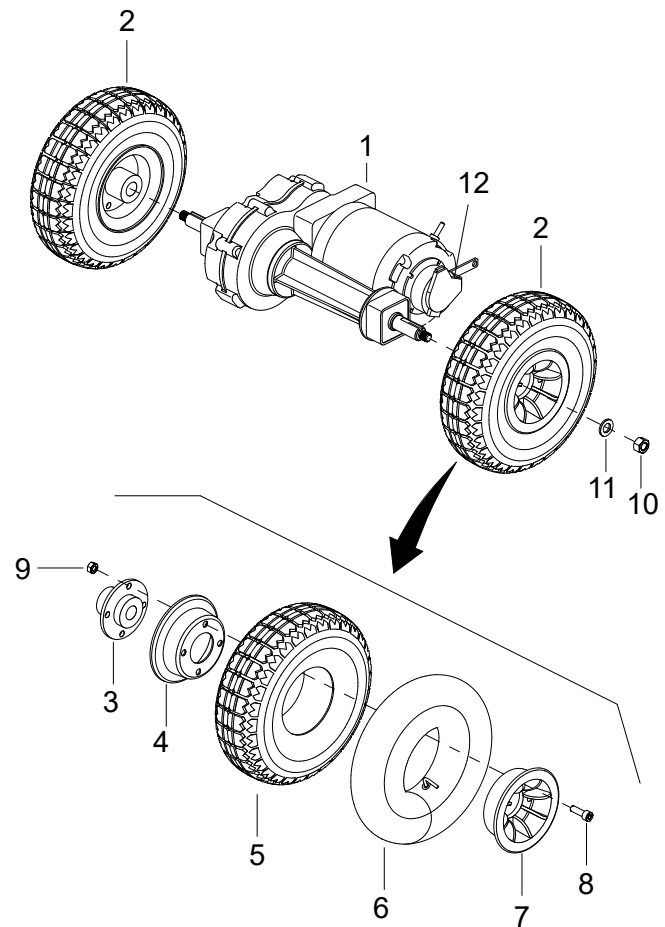
Different tyres have different speed ratings, and driving at excessive speeds can cause premature tyre damage.

Tyres should be stored indoors, away from sunlight and rain.

- Press the emergency stop switch and remove the key from the key switch.
- Use a jack to raise the truck so that the drive wheels are completely off the ground, then secure the truck to prevent it from moving.
- Remove the nut (10), washer (11) and drive assembly (2) from the drive axle (1).
- Unscrew the five screws (6) and knock out the assembly (7) from the case.
- Inspect the inner tube and replace if necessary.

Installation

- Install the new drive wheel in the reverse order to disassembly



1.4.5 Recommissioning

The truck may only be restored to service after cleaning or repair work, once the following operations have been performed.

- Test horn.
- Test main switch operation.
- Test brakes.
- Recharge the battery.
- Follow the daily checklist.

1.5 Decommissioning the industrial truck

If the truck is to be decommissioned for a long period, it must be parked in a frost-free and dry location.

On decommissioning the truck must be jacked up so that all the wheels are clear of the ground. This is the only way of ensuring that the wheels and wheel bearings are not damaged.

If the truck is to be out of service for more than 6 months, further measures must be taken in consultation with the manufacturer's service department.

1.5.1 Prior to decommissioning

- Clean the truck thoroughly;
- Check the brakes;
- Apply a thin layer of lubricating oil or grease to all nonpainted mechanical components;
- Recharge the battery periodically.
- Spray all exposed electrical contacts with a suitable contact spray.



WARNING

Charge the battery every two months to avoid depletion of the battery through self-discharge.

1.5.2 Restoring the truck to operation after decommissioning

- Thoroughly clean the tractor.
- Clean the battery. Grease the pole screws using pole grease and reconnect the battery.
- Recharge the battery.
- Check whether the gear oil contains condensation water. Replace the gear oil if necessary.
- Follow the daily checklist(see chapter E section 1.6).

If there are switching problems in the electrical system, apply contact spray to the exposed contacts and remove any oxide layers on the contacts of the operating controls by applying contact spray repeatedly.

Perform several brake tests immediately after recommissioning the truck.

1.6 Safety checks to be performed at regular intervals

Carry out a safety check in accordance with national regulations. EP has a special safety department with trained personnel to carry out such checks.

The truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector. The inspector must objectively and accurately identify and evaluate the performance and condition of the equipment, focusing on operational safety. The inspector shall be sufficiently instructed and experienced to be able to assess the condition of the truck and the effectiveness of the safety mechanisms based on the technical regulations and principles governing the inspection of trucks.

A comprehensive inspection of the safety technical features of the truck must be specifically carried out in the event of an accident. In addition, the truck must be thoroughly checked for damage caused by improper use. Inspector must carefully record the checks performed and the corresponding data. The results of the inspection must be retained at least until the next inspection. Users of the equipment must take the necessary steps to promptly resolve any problems found. An inspection label must be affixed to the inspected truck. The label should be marked with the year and month of the next safety inspection.

1.7 Final decommissioning, disposal

Final, proper decommissioning or disposal of the truck must be performed in accordance with the regulations of the country of application. In particular, regulations governing the disposal of batteries, fuels, Hydraulic oil, plastic and electronic and electrical systems must be observed.

NOTE

Any repairs or maintenance to the truck must be performed only by trained and authorized technicians.

1.8 Tire replacement

The quality of tyres affects the stability and performance of the truck. When replacing tyres fitted at the factory, only use the manufacturer's original spare parts. Otherwise the data sheet specifications of the truck cannot be guaranteed. When changing wheels and tyres, ensure that the truck does not slew (e.g. when replacing wheels always left and right simultaneously).



WARNING

Only original tires have been certified by our quality assurance service. To ensure safe and reliable operation of the tractor, only tires of the manufacturer must be used.

H Troubleshooting

If the fault cannot be rectified after carrying out the remedial procedure, notify the Manufacture's service department, as any further troubleshooting can only be performed by specially trained and qualified service personnel.

Fault	Probable Cause	Action
Truck does not move	<ul style="list-style-type: none">– Battery don't fixed– Emergency Stop switch depressed.– Key switch set to "0"– Battery charge too low.– Faulty fuse.	<ul style="list-style-type: none">– Check and repeat fixed battery.– Release emergency stop switch– Set the key switch to position "I".– Check the charging condition of the battery and recharge if necessary.– Check fuses G4.

Lithium-ion battery

1.1 Information on the conformity of lithium-ion batteries

The manufacturer of the lithium-ion battery declares that: the lithium-ion battery conforms with the provisions of the following EU directive 2014/30/EU in accordance with EN12895.

These batteries has been certified according to EN 62619:2017 for safe use and according to UN 38.3 for safe transport.

1.2 It is necessary to respect the following guidelines:

- Read the documents provided with the battery carefully.
- Only persons who have been trained to work with lithium-ion technology are permitted to work on the batteries (for example After-Sales Service Centre technicians).
- Do not drop it or allow anything to fall on it.
- Do not expose the battery unit to humidity or water (> 80%).
- Protect the battery from solar irradiation.
- Do not physically machine or modify the battery.
- Do not open the battery. Electrical risk. Only the After-Sales Service Centre technicians can open the battery.
- Do not place lithium-ion batteries on or near flames or hot heat sources (> 65°C). This may cause the batteries to overheat or burst into flames. This type of use also impairs the performance of the batteries and reduces their service life.
- It is forbidden to take out the battery in the charging state.
- It is forbidden to use and store the battery at low power (the use and storage of power loss will cause the early loss of battery system capacity and accelerate the service life of the battery pack);
- During the charging process, liquid and metal substances are not allowed on the charger, and it is forbidden to use the charger in a high temperature and high humidity environment;
- It is forbidden for unqualified personnel to dismantle and overhaul the battery system and supporting charger and other devices; the battery system is a dangerous product, and maintenance and replacement can only be performed by professionals;
- Before the vehicle is started, power on through the button switch. After the vehicle is stopped, the battery system must be powered off and stopped through the button switch, which can be judged by the state of the display screen. If the time is too long, the battery will be over-discharged. In severe cases, it will affect the battery performance;
- The battery should be fully charged for the first time;
- After each use, it should be charged in time (the initial state of charging should keep the battery system temperature below 40° C to ensure the smoothness of charging);
- Have class D fire extinguishers or inert gas, carbon dioxide, powder or foam fire extinguishers near the zone in which the lithium-ion batteries are used.
- Do only use in trucks manufactured by EP and if the battery type is released for that truck.

1.3 Intended use

- Operational application temperature 0° C-40° C, humidity < 80%;
- Charging application temperature 5° C-40° C;
- The battery's maximum operation altitude is up to 2000m;
- The truck shall not be used in a potentially explosive atmosphere or in an especially dusty environment.

1.4 Reasonably foreseeable misuse

- Never short circuit the battery terminals.
- Do not reverse the battery polarity.
- Do not overcharge.



DANGER

Failure to comply with these safety instructions can result in fire and explosion or the leakage of harmful materials.

2.1 Accessories

Do not use a charger that is not released by EP for lithium-ion battery.



WARNING

Should such issues as failing to abide by the operation manual, failing to use the original parts for maintenance or damaging caused by users themselves occur, the quality guarantee will be invalid automatically!

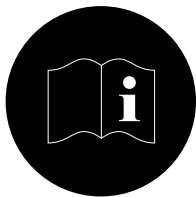
3.1 BMS (Battery Management System)

The battery is permanently monitored by the BMS (Battery Management System).

This provides the communication with the truck.

The BMS continually monitors items such as the cell temperature, the voltage and the charge status of the cells.

4.1 Safety and warning



- Abide by the operation manual!
- All the operations related to the storage battery must be implemented under the instruction of professionals!



Always wear protective clothing (e.g. safety goggles and safety gloves) when working on cells and batteries.



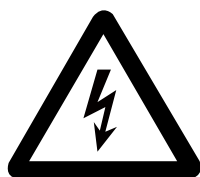
- No smoke and fire!
- Avoid the existence of open fire, fiery metal wire or sparks around the storage battery, otherwise explosion or fire disaster may occur!



- Explosion or fire disaster is likely to occur; avoid short circuit!
- Keep the battery away from all fire sources, heat sources and flammable or explosive materials.



- Don't knock over the storage battery!
- Using lifting and delivery devices as specified. Prevent the storage battery cell, interface and connection cable from being damaged by the lifting hook!
- If the materials leak out, do not inhale the fumes. Wear safety gloves.



- Dangerous voltage!
- Avoid hot plugging!
- Notice: the metal part of the storage battery cell is electrified, so don't place any external object or tool on the battery cell!



Do not place the battery on top of conductive objects.



- Don't trample on the battery to prevent it from fierce shaking or shacking!

5.1 Transportation

Before transporting any lithium-ion battery, check the current regulations on the transport of dangerous goods. Comply with these when preparing the packaging and transport. Train authorised staff to dispatch lithium-ion batteries.

i NOTE

It is recommended that the original packaging is kept for any subsequent dispatch.

A lithium-ion battery is a special product.


Special precautions should be taken when:

- *Transporting a truck equipped with alithium-ion battery*
- *Transporting only the lithium battery*

A class 9 danger label must be affixed to the packaging for transport.

It is different if the battery is transported on its own or in a truck. An example of a label appears in this supplement(see figure below). Refer to the latest current regulations before dispatch as the information might have changed since this supplement was written.

Special documents must be sent with the battery. Refer to the applicable standards or regulations.

For UN3480	Lithium Ion Batteries	
For UN3481	Lithium Ion Batteries packed with Equipment or Lithium batteries built into Equipment	



WARNING

Do not pack higher than 1.2 m above the floor of the container and secure properly.

i NOTE

"Overpack" is the name for the outer packaging of the dangerous goods.

i NOTE

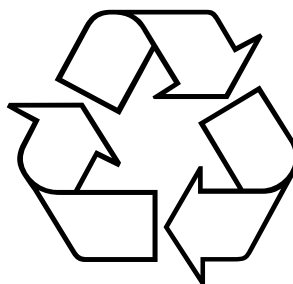
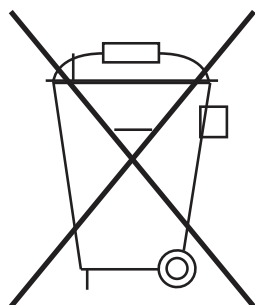
Recharge the lithium-ion battery before transporting it taking account of the transport mode (boat, road). Excessive discharge on arrival could damage the performance of the battery.

5.2 Shipping faulty batteries

To transport these faulty lithium-ion batteries, contact the manufacturer's customer service department. Faulty lithium-ion batteries must not be transported independently.

6.1 Instructions for disposal

- Lithium ion batteries must be disposed of in accordance with the relevant environmental protection regulations.
- Used cells and batteries are recyclable economic goods. In accordance with the mark showing a crossed rubbish bin, these batteries may not be disposed of as domestic waste. Return and / or recycling must be ensured as required by the Batteries Legislation.
- The method of battery recovery and reuse can be discussed with our company. We reserve the right to change the technology.



7.1 Charging

- This battery can only be charged with the vehicle-specific charger, other chargers may cause battery damage.
- The normal charging temperature range of the battery is: 5°C ~ 40°C, please do not charge in the environment beyond the normal temperature range;
- If the battery is not fully charged in specified time, check the max. voltage of the cells of the battery, if it is higher than 3.65V, stop charging it immediately, and contact the after-sales service.
- During the charging operation, it is necessary to have professional personnel to operate and care, in order to ensure that the charging plug and socket work normally without heat, to ensure that the charging device works normally, to ensure that the battery pack and its protection circuit work normally, and the whole power supply system has no sign of short circuit, over current, over temperature or overcharge.
- When charging, connect the battery to the charger; after starting charging, the circular display meter will display the total voltage, the maximum and minimum cell voltages, power, temperature, charging current and other information; pay particular attention to the charging current and the maximum and minimum cell voltages, as well as the voltage difference between them; if there is abnormality, stop charging in time and contact the after-sales service department for solutions. Charging in non-charging area is prohibited;
- No modification of vehicles;
- Do not use irregular charging sockets;
- The net height of the charging area shall be higher than 5m, and the safe distance from other areas shall be greater than 5m.

8.1 Storage

Before a long period of inactivity, the battery must be fully charged.

We recommend that batteries are stored at a height between 60 and 120 cm.

- Store the battery in a dry place at a temperature between 0 and 40° to preserve its service life. This area must not be hermetically sealed to allow air renewal;
- If the battery system needs to be placed on hold for a long time, it would better keep the battery in the semi-electric state and charge the battery every 2 months to ensure that the battery system is in the semi-electric state;
- The positive and negative terminals of the battery system are prohibited from contacting with metal objects during storage.

9.1 Common Problems and Solutions

During the use and maintenance of the lithium-ion battery, the battery or battery system may have one or more of the following abnormal conditions, please organize the professional engineers and technicians to perform the necessary processing according to the instructions in this manual; if you have any questions about the status or solutions, please contact ep dealer or after-sales service department of the company to obtain professional technical support.

- If the battery is found to have abnormal mechanical characteristics such as swelling, cracked casing, melted casing, and distortion of the casing before and during installation, stop using the battery immediately, place it in open and well-ventilated space, and contact the after-sales service.
- If abnormalities such as looseness, cracks, cracks in the insulation layer, burn marks, etc. of the battery's pole pressing bolts, conductive strips, main circuit wires and connectors are found before and during the installation, stop using the battery immediately, check the reason for analysis and give it a fix;
- If the polarity of the positive and negative terminals of the battery is found not match the polarity identification before installation, please stop using the battery immediately and contact the after-sales service department to replace the battery or obtain other solutions;
- If there is fire or smoke happens to the battery, move it to the open air immediately, evacuate people in time, and pour a large amount of cold water onto the battery to cool it down and put out the fire.
- If the battery is found to emit smoke, immediately stop using the battery, using fire sand and explosion-proof box for burial and isolation, wearing respirator and fireproof gloves move the battery to a safe area, notify the after-sales service department of the company for record and obtain technical support;
- If the battery is found to fire, using fire extinguisher (eg. Carbon dioxide extinguisher, Metal fire extinguisher (PM 12i extinguisher), Metal fire extinguisher powder PL 9/78 DIN/EN 3SP-44/95, Dry sand).