

E-CRUISE LTD.

Ni-MH Batteries for HEV Product Instruction

PRESENTED TO:
MODEL NO: EC-T-SERIES-HIGH-288V
DATE :
CUSTOMER CODE:

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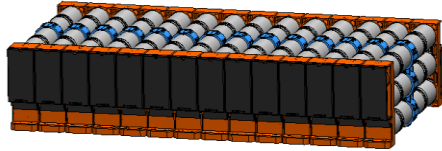
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1. Application Scope

This specification applies to the following model's rechargeable cylindrical Ni-MH batteries that E-Cruise Ltd. supplies.

2. Model No: EC-T-SERIES-HIGH-288V

3. EC-T-SERIES-HIGH-288V includes 3 battery packs with 15 modules in total. 2x EC- RX406 + 1x EC-RX403. EC-RX406 includes 6 modules and EC-RX403 includes 3 modules. The battery pack unit is as shown below:



4. Specification Parameter

Item		Specification
Dimension	L (mm) × W (mm) × H (mm)	/
Approximate Weight (kg)		63
Typical Capacity (mAh)		6500
Minimum Capacity (mAh)		6000
Nominal Voltage (V)		288
Peak Discharge (30C discharge for 10S)		voltage ≥ 192V
Peak Charge (15C charge for 10S)		voltage ≤ 400V
Continuous Discharge (15C discharge for 60S)		voltage ≥ 216V
Specific Power		≥ 1000W/kg
Specific Energy		≥ 40Wh/kg
High Temperature Performance (55°C 1C discharge rate)		≥ 90%
Low Temperature Performance (-20°C 1C discharge rate)		≥ 85%
Charge Retention Performance (28days charge retention rate)		≥ 80%
Working Temperature Range		-40°C to +55°C
Cycle Life (0.5C charge, 1C discharge)		≥ 1000cycles

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4. Cautions of Battery Pack Transportation and Storage

- 4.1 Avoid violent vibration and external force impact, don't cast, roll, invert, extrude, and stack too high during handling and transportation of battery pack.
- 4.2 Protect the battery pack from rain during the transportation, and the ambient temperature is not over 55°C.
- 4.3 Store the battery pack in a cool and dry place and the temperature range is 5-25°C when you are not using it.

5. Maintenance regulations

The SOC of our battery pack is 60%~80% when leaving the factory, in long-term storage, battery should be stored in a charged state (usually the SOC is 80%). Have a charge and discharge maintenance to battery pack when the storage time is over 6 months or battery module's voltage is 15V, to prevent the battery performance's decline caused by the self-discharge. The maintenance regulations are as follows:

- (1) Discharge: 2A discharge to 240V (that is to say: single cell 1.0V)
- (2) Interval: 30 minutes
- (3) Charge: 1.2A charge for 5 hours (voltage \geq 350V, $-\Delta V\geq 0.2V$ and temperature $\geq 50^\circ C$)
- (4) Interval: 1hours
- (5) Discharge: 2A discharge to 240V (that is to say: single cell 1.0V)
- (6) Interval: 30 minutes
- (7) Charge: 2A charge for 2.4 hours

6. Installation Cautions of battery pack

Notes: Installing this product should only be attempted by a qualified technician, the voltage of the battery pack is very high, which has the shock hazards, so when installing the battery pack, you should wear insulating gloves and use insulated handle tools.

- 6.1 Please operate according to assembly manual during the installation of Prius battery pack.
- 6.2 Do not mix our battery modules with those of other manufacturers, or new battery modules in use with semi-used battery modules, and don't mix battery modules within a battery pack with those in other battery pack.
- 6.3 Don't twist and bend battery modules and accessories when assembling battery pack.
- 6.4 Don't connect the anode and cathode of battery module in reverse when assembling battery pack, to prevent short circuits.
- 6.5 Fasten bolts and nuts with appropriate torque, avoid loose connection or damaging other accessories with too big torque.

7. Use Cautions of battery pack

- 7.1 Ensure the normal operation of car management system during the use process, and forbid over-charge and over-discharge to battery.
- 7.2 As storage battery is charged by gasoline engine, so external power supply charge is not needed. However, if the vehicle parks for a long time, the electricity of high power storage battery will run out. Therefore, be sure to drive the car for at least 30minutes or 16Km every several months.

7.3 If there is leaked liquid, don't touch the spilled liquid, because this may be the alkaline electrolyte that hybrid battery leaks. If skin and eyes contact to this liquid, please flush with plenty of water at once, or if possible, wash with boric acid solution and see the doctor at once.

8. Quality warranty

8.1 The battery is guaranteed for 36 months or 50000km, whichever comes first.

8.2 The battery is not within the warranty range in the following situation:

- a.The battery damage caused by failing to in accordance with the provisions of the transport, storage, installation and using.
- b.The battery damage caused by an external force (such as traffic accidents, natural disasters) or by external short circuit during using process.
- c.The battery damage caused by the out of control of BMS.

9. Appendix

E-Cruise Ltd. has the right to change and revise Product specification without any advance notice.