

GP Batteries

Product Specifications

Model No.:GP908G

Document Number: G005

Revision:0

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1.0 Scope

This specification shall be applied to pasted and paper lined General Purpose carbon-zinc 4R25 (6-volts) battery.

2.0 Requirements

- 2.1 Product Age : The maximum age of the product from time of manufacture to time of receipt shall not exceed 6-months.
- 2.2 Dimensions : The dimensions shall be in accordance with the dimensional data sheets in Appendix I of this specification.
- 2.3 Leakage : The battery shall be free from leakage or salting (reaction products: electrolyte and internal battery component) on its external surface.

2.4 Electrical Characteristics

2.4.1 No-Load voltage

Minimum : 6.20 volts

Maximum : 6.80 volts

2.4.2 Short Circuit Current : 8.0 A (minimum)

2.4.3 Insulation Resistance : 10 megohms minimum (For metal jacketed battery only)

2.4.4 Service Life : Shall be in accordance with Table I, and battery age shall not exceed 30 days after assembly.

Table I

Simulated Use	Discharge Resistance (ohm)	Discharge Condition	End Point Voltage (Volts)	Average Service Requirement
Reference	6.80	30mins.hr 8hrs./day	3.60	380 mins
Lighting	8.20	30mins./day	3.60	11.0 hours
Road Lamp	120.0	12hrs./day	3.60	230 hours

Note: The service level of individual battery pack should not be 20% lower than the average service requirement.

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6.8 ohm is high drain service test and considered as reference service test. if battery fails under 6.8 ohm, both 8.2 ohm and 120 ohm service tests shall be done. The acceptance and rejection of the lot depends on the secondary service test results. No second testing is required.

- 2.4.5 Shelf Life : Minimum 80% of service life in Table I up to 12-months at ambient storage (25±2°C and 85% RH) for pasted and paper lined LeClanche battery only.
- 2.4.6 Polarity : The polarity, configuration and location of each terminal shall be in accordance with the dimensional data sheets in the Appendix of this specification.

2.5 Appearance

2.5.1 Minor Appearance: are those appearance defects which are objectionable but do not interfere with product saleability or its proper use and function.

- 1) Heavy scratches on jacket
- 2) Missing Battery Code
- 3) Illegible Battery Code
- 4) Serious discoloration
- 5) Bulge or dent in jacket
- 6) Missing label/Wrong label position
- 7) No shrink sleeve
- 8) Missing coil spring cover

2.5.2 Major Appearance: are those appearance defects which adversely affect product saleability or its proper use of function.

- 1) Damaged terminals
- 2) Loose terminal
- 3) Visible rust on plastic parts
- 4) Open lid
- 5) Damaged jacket
- 6) Sounded battery

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- 2.6 Lid Strength: The lid must not be fully left the battery case when pulled by hand after being dropped once in a cement floor from 1-meter height. See Appendix II for battery direction.
- 2.7 Battery Code: Unless specified by the customer, a four-digit code shall be marked in each battery to indicate the latest date of consumption. First two digits indicate the month, the third and fourth digits suggests the year. (e.g. 0992 would represent September 1992)
- 2.8 Certificate of Conformity: The supplier is required to provide with each shipment lot a certificate that contains a statement of conformity to the requirements of this specification and support inspection data. The certificate and data will identify each shipment lot by description, battery code, quantity, shipment date, purchase order number destination and may include other pertinent information that the supplier deems necessary to assure the product identification. Lot size should nor be more than 34,500. Failure to provide a certificate and data, no GPI inspection will commence.
- 2.9 Package/ Making: Battery packaging and marking shall be examined in accordance to customer requirements as specified in the purchase order. The packaging shall be such as to provide adequate protection to prevent undue damage in transit and storage. Marking should be legible for proper identification.
- 2.10 Product Weight: 535±15g.

3.0 TESTING METHODS

- 3.1 Testing Conditions: Unless otherwise stated all electrical test shall be measured in the sequence shown below at 25±2°C with a relative humidity between 45% and 85% after stabilization under these conditions for minimum period of 8-hours.

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- 3.2 Dimensions: Shall be measured using suitable measuring equipment with accuracy of $\pm 0.05\text{mm}$.
- 3.3 No-Load Voltage: No load voltage shall be measured on a voltmeter with an input impedance of 1-megohm minimum.
- 3.4 Short Circuit Current : The short circuit current value shall be measured between 2 to 3 seconds. The wire cross-section area should not less than 1.5mm^2 .
- 3.5 Insulation Resistance: The insulation resistance shall be measured between each terminal and the battery jacket exterior. For metal jacketed battery only.
- 3.6 Load Resistor: The load resistor, including all parts of external circuit shall be within 0.5% of the value stated.
- 3.7 Service life: Discharge 4 batteries through the prescribed resistive load under the conditions.
- 3.8 Leakage
- 3.8.1 Post-Discharge Leakage Test: After the service life tests, the discharge batteries shall be observed for leakage for 7-days at ambient conditions ($25\pm 2^\circ\text{C}$ and 85%RH).
- 3.9 Packaging/Marking : Lot size for sampling inspection is based on the no. of shipping cartons.

4.0 INSPECTION

- 4.1 General: All inspection shall commence within 30 days of manufacturing date or within 30 days upon receipt.

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4.2 Sampling Plan:

Battery samples shall be randomly collected to represent each lot. Detail of the sampling plan is shown in Table II.

Table II

Item	Sampling Plan	Inspection Levels	Acceptance Quality Level(AQL)
1. Dimensions a) A and B b) C, D and E	50pcs 20pcs	-- --	Ac 1 Re 2 Ac 1 Re 2
2. No-Load Voltage a) Serious LOCV <6.0V(Major) b) Slight LOCV 6.0E V<6.2V (minor)	MIL-STD-105E MIL-STD-105E	II II	0.15% 0.65%
3. Short Circuit Current a) No Current b) Low SCC	MIL-STD-105E MIL-STD-105E	II II	0.15% 0.65%
4. Insulation Resistance	MIL-STD-105E	II	0.65%
5. Appearance a) Major b) Minor	MIL-STD-105E MIL-STD-105E	II II	2.5% 4.0%
6. Service Life	4 psc./shipment	--	Ac 0 Re 1
7. Leakage	MIL-STD-105E	II	Ac 0 Re 1
8. Lid Strength	MIL-STD-105E	S-2	4%
9. Polarity	MIL-STD-105E	II	0.15%
10. Packaging	MIL-STD-105E	S-4	2.5%

4.3 Switching Rules

For Inspection Level:

Inspection levels will be revised depending on the quality of the initial shipment lots. If 10 consecutive lots are accepted, inspection level will be reduced, however if one of the succeeding lots is rejected, inspection level will shift back to normal. If 2 out of 5 consecutive lots are rejected, inspection level will be tightened, similarly if the 5 succeeding lots are accepted, inspection level will shift back to normal.

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5. PACKAGING

Packaging shall be a form agreed by both parties.

Precaution & Handling

- 1) Do not disassemble or short-circuit batteries.
- 2) Do not recharge batteries.
- 3) Do not dispose of batteries in fire.
- 4) Do not allow metal objects to contact the battery terminals.
- 5) Do not mix with used or other battery type (such as alkaline with carbon zinc).
- 6) Do not solder the batteries directly. If soldering or welding connection to the battery is required, consult our engineer for proper methods.
- 7) Do not over-discharge batteries. Force discharging batteries by external power source in a series may cause explosion.
- 8) To install or remove batteries, follow the equipment manufacturer's instructions.
- 9) Keep battery away from small children. If swallowed, consult a physician at once.
- 10) Remove batteries from device when it is not is use.

Storage

- 1) Store in a cool, dry place before use.
- 2) Do not keep batteries at temperature of 45°C or above.
- 3) Do not keep batteries at relative humidity of 75% or above.

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Drawing 1

