

General Knowledge of Sealed Lead Acid Batteries

1. Battery Construction

Positive Plates

Positive plates are electrodes of which a grid frame of lead-tin-calcium alloy holds porous lead dioxide as the active material.

Negative Plates

Negative plates are plate electrodes of which a grid frame of lead-tin-calcium alloy holds spongy lead as the active material.

Electrolyte

Diluted sulfuric acid is used as the medium for conducting ions in the electrochemical reaction in the battery.

Separators

Separators, which retain electrolyte and prevent shorting between positive and negative plates, adopt non-woven fabric of fine glass fiber which is chemically stable in the diluted sulfuric acid electrolyte. Being highly porous, separators retain electrolyte for the reaction of active materials in the plates.

Valve (One way valve)

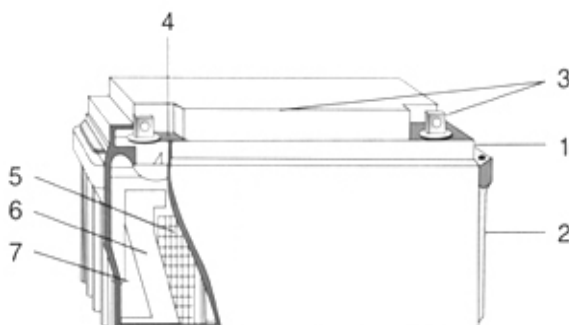
Valve is comprised of a one-way valve made of material such as neoprene. When gas is generated in the battery under extreme overcharge condition due to erroneous charging, charger malfunctions or other abnormalities, the vent valve opens to release excessive pressure in the battery and maintain the gas pressure within specific range (7.1 to 43.6kpa). During ordinary use of the battery, the vent valve is closed to shut out outside air and prevent oxygen in the air from reacting with the active material in the negative electrodes.

Positive and Negative Electrode Terminals

Positive and negative electrode terminals may be fasten tab type, bolt fastening type, threaded post type, or lead wire type, depending on the type of the battery. Sealing of the terminal is achieved by a structure which secures long adhesive-embedded pants and by the adoption of strong epoxy adhesives.

Battery Case Materials

Materials of the body and cover of the battery case are ABS resins, unless otherwise specified.



1. Cover
2. Container
3. Terminal
4. Safety Valve
5. Negative Plate
6. Absorptive Mat Separator
7. Positive Plate

2. Technical Phrase

Sealed Construction

The unique construction and sealing techniques of Lumos SLA batteries guarantee leak proof operation in and position with no adverse effect to capacity or service life.

Electrolyte Suspension System

Lumos SLA batteries utilize an electrolyte suspension system consisting of a high porosity, totally absorb and contain the electrolyte.

Gas Generation

Lumos SLA batteries incorporate a built-in design that controls gas generation and induces recombination of more than 99% of gases generated during float usage.

Maintenance Free Operation

There is no need to check specific gravity of the electrolyte or add water to Lumos SLA batteries during float service life .In fact, there is no provision for this type of maintenance.

Low Pressure Valve Regulated System

All Lumos SLA batteries are equipped with safety release valves, designed to operate between 0.98-196.1kpa and automatically reseal. Hence, there is never an excessive accumulation of gas within the battery.

Heavy Duty Grids

Heavy duty lead calcium tin alloy grids provide an extra margin of performance and service life in either float or cyclic applications, even after repeated over discharges.

Cyclic Service Life

More than 1000 discharge / recharge cycles can be realized from Lumos SLA batteries, dependent on the average depth of discharge.

Float Service Life

Lumos SLA batteries have an expected life span of 3 to 10 years in float service applications.

Self Discharge-Shelf Life

The self-discharge rate of the Lumos SLA batteries at room temperature is approximately 3% of rated capacity per month.

Operating Temperature

Lumos SLA batteries may be operated over a broad range of ambient temperatures.

Deep Discharge Recovery

Lumos SLA batteries recover their capacities even after repeated deep discharges.



Lumos Power & Electronics Co., Ltd.

To ensure safe and efficient operation, please always refer to the latest edition of our Technical Manual as published on our website: www.cnlumos.com