

LEAD CRYSTAL BATTERY

THE BATTERY FOR **NOW** AND THE **FUTURE**



ECOBXXX[®]
— POWER4FREE —
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LEAD-ACID BATTERIES

THE PROBLEM

Traditional lead-acid batteries have many defects. This is due to the inherent structural characteristics, which include:

- Plate sulfation
- Active material loss
- Dehydration
- Serious acid pollution
- Short cycle life
- Poor low/high temperature characteristics

LEAD-ACID BATTERIES

THE SOLUTION

To overcome the structural defects in lead-acid batteries, manufacturers started using AGM and a gel electrolyte in batteries. Although this did not solve all the problems, progress was made by:

- Reducing the acid mist
- Reducing the water loss rate
- Reducing the self-discharge rate
- Improving the discharge capacity

By solving these problems, a new series of challenges were introduced:

- Poor electrode penetration by the gel electrolyte
- Weak capacity of AGM separator match
- Slow electrode reaction

LEAD CRYSTAL BATTERIES

THE DIFFERENCE

In order to overcome the fundamental shortcomings of the lead-acid and AGM or gel batteries, the LEAD CRYSTAL BATTERY uses new proprietary technologies, including:

- Silica crystalline state SiO_2 composite electrolyte (NOT A GEL) to replace the conventional sulfuric acid solution
- The preparation method of the Silica crystalline state SiO_2 composite electrolyte
- The irrigation fluid device, and its battery plus liquid method
- Battery terminals connected to protective devices
- Batteries with liquid shunt valve
- New plates
- New AGM

LEAD CRYSTAL BATTERIES

DIFFERENCE RESULTS

As a result, this self-designed SiO₂ cleaning composite electrolyte replaces the conventional sulfuric acid solution/gel. A number of unique and advanced technologies are used in the manufacturing of the Lead Crystal Battery in order to solve the lead-acid/gel battery problems. This includes:

- Virtually no plate sulfation
- No active material loss
- No dehydration
- No acid pollution
- Excellent cycle life
- Very good low/high temperature characteristics

LEAD CRYSTAL BATTERY - COMPARISON TABLE

ITEM	ACID	GEL	LED CRYSTAL	NiCad	LITHIUM	SUPERIOR PRODUCT
Range of Working Temperature	18°C to + 45°C	-18°C to + 50°C	-40°C to + 65°C	-20°C to + 65°C	-20°C to + 65°C	Lead Crystal
Environment	Harmful	Harmful	Friendlier	Harmful	Friendlier	Lead Crystal & Lithium
Safety Transportation	Not Good	Normal	Good	Not Good	Good	Lead Crystal & Lithium
Discharge Cycle at 80%	450	500	1000	1000	1000	Lead Crystal & Lithium
Discharge Ability at High Current	Not Good	Not Good	Good	Good	Normal	Lead Crystal
Work Ability as a Battery Pack	OK	OK	Good	Normal	Normal	Lead Crystal & Lithium (Lithium needs outside control)
Cost	Lowest	Low	Slightly Higher than Gel	Much Higher	Highest	Acid
Battery Lifetime Throughput Cost per kWh	Low	High	Lowest	Highest	2nd Lowest	Lead Crystal
Battery Lifetime Throughput kWh	5th	4th	2nd	3rd	Best	Lithium

THANK YOU



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