

HME BATTERY OWNER'S GUIDE TO REPLACEMENT BATTERIES



**YOUR
BATTERY NEEDS
LOVE TOO**



The HME Battery Owner's Guide to Replacement Batteries

Use this quick reference guide to get the most out of your battery.



Advantages of UPG's Universal® AGM & Gel



GEL



AGM

For end-users of wheelchairs and personal mobility devices, the most important performance feature of your battery must be that of "deep cycle" operation for longer daily run times. UPG's Universal® "Deep-Cycle" Sealed Lead-Acid, in short SLA battery, is a type of battery that is at its best when it is the primary power source for a personal mobility device. UPG's Universal® AGM and Gel batteries have been optimized to constantly cycle, and deliver a long life.

Getting Started

As an owner of a wheelchair, scooter or other battery powered mobility applications, it is critical to ensure you choose the right quality battery for your equipment to maximize its performance. This guide will assist you in making that selection and provide helpful tips on how to charge, maintain and prolong the life of your battery.

Not Every Battery Is The Same

Did you know there are many different configurations of chemical and mechanical composition for lead acid batteries, depending on the job to be done?

Power wheelchair and personal mobility devices from most manufacturers come with Deep-Cycle Sealed Lead-Acid batteries of either Gel or AGM design. The batteries are known as Sealed Lead Acid AGM or Absorbent Glass Mat batteries, meaning the electrolyte is absorbed in highly porous microfiber glass separators between the positive and negative plates. This creates a non-spillable battery or a battery with no excess liquid. In a flooded or wet cell battery, you can hear the liquid or electrolyte moving around. In an AGM battery you can't.

Because of this, non-spillable AGM batteries are advantageous because you can set them in any position except upside down. The electrolyte does not leak like they will in a flooded cell that can cause damage to expensive equipment.

Also, flooded batteries require maintenance. You must add water to them occasionally. With AGM batteries they are maintenance free.



What About Battery Safety?

Unlike wet cell lead acid, or conventional, batteries, Universal® Gel and AGM batteries are made with captured electrolyte, they are declared by the DOT to be non-spillable in 49 CFR 173.159 a, (d) of the hazardous materials regulations. As such, they are excused by the DOT, IATA, ICAO, and IMDG from compliance with the hazmat shipping rules. Portable applications where non-spillable batteries are used, are free to travel by any means desired. This includes airlines and other public transportation. This is considerably important and advantageous because conventional (wet cell) lead-acid batteries are classified as hazardous material by the Department of Transportation.

Your Battery Needs  Too.

Let UPG Power Your World.

SAFETY FEATURES & BENEFITS OF UNIVERSAL® AGM & GEL BATTERIES

For wheelchair installations and personal mobility devices.

- ⊕ Universal® AGM and Gel batteries are optimized for performance in deep cycle applications. Unlike wet batteries, they have a superior long life in these tough installations. Conventional, or wet cell, batteries are designed for starting applications like starting your car; whereas AGM and Gel SLA batteries are designed for discharging or cycling
- ⊕ Non-spillable construction prevents the acid inside the battery from spilling out.
- ⊕ Universal® AGM and Gel batteries are virtually maintenance-free and do not need to be filled with water. This feature keeps the end-user safe from exposure to sulfuric acid in refilling a wet-cell battery.
- ⊕ Universal® AGM and Gel batteries are free to travel on aircraft, boat, and train without restriction because they are non-spillable and classified as non-hazardous.

These advantages make Universal® AGM and Gel batteries an easy first choice over any-wet cell battery option.

Charging - The Life-Force of Your Battery



Regardless of a battery being very high quality, its performance and its lifespan depends heavily on its charger. Charging a battery properly is absolutely necessary. For best results, we recommend our range of UPG mobility chargers. The following list of steps will guide you on correct charging procedures. Follow these steps for longer battery life, better performance and optimum results:

- ⊕ **Charge your AGM or Gel batteries at the end of every day;** even if you haven't used the chair that day.
- ⊕ **Charge your AGM or Gel batteries during the day at any opportunity;** even for as little as half an hour; it counts towards the preserving the lifespan of your battery.
- ⊕ **Use the correct charger for AGM or Gel batteries.** The correct charger is a three-stage (regulated), digitally controlled, float-stage capable charger. The correct size charger will have an output current not less than 10% of the battery's capacity figure. For example, a 35 amp hour battery (2 U-1 batteries) requires a 24 V charger with no less current than 3.5 A.

- ⊕ **Do not store or charge AGM or Gel batteries in an area of elevated temperature (above 86°F).** A temperature this high requires a temperature-compensated charger. Most likely, the charger you have is not temperature-compensated.
- ⊕ **Do not charge your AGM or Gel batteries with your mobility device in direct sunlight.** This produces a temperature too high for the batteries and will cause the batteries to not be able to hold a charge and will cause significant damage to the batteries.
- ⊕ **Do not discharge your batteries below the yellow-area of the "battery charge status indicator" on your scooter.** The following "red-area" is indicating the batteries must be charged. Discharge of your batteries below the red-area of your controller, will likely damage your batteries permanently, and result in premature failure.
- ⊕ **Do maintain your batteries if not being used for extended periods.** If you are going on vacation, or leaving your mobility device idle for an extended period (more than one week), then connect your charger to your batteries before storing your mobility device. The charger will not harm your batteries if it is left connected to the batteries indefinitely. The "float-stage" of your charger is designed as a maintainer for your batteries.

Proper Handling

Please ensure that you adhere to guidelines and pay attention to the warnings on any battery you purchase. Improper handling can result in explosion, fire, and injuries. We recommend having your batteries installed by qualified wheelchair or scooter technicians.



Recycle

Please remember to properly dispose used batteries for recycling at authorized recyclers as improper disposal can result in fines and criminal prosecution. Contact us or your provider to locate an authorized recycler near you.

Universal® AGM or GEL Batteries –Which One is Better?

These two battery constructions are very similar, but they have distinct differences. Therefore, one could be a better choice than the other in various applications or uses. Following are the features that make them alike; or different:

Common Features

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- ⊕ Both Gel and AGM are valve regulated lead acid batteries, and therefore non-spillable.
- ⊕ Gel and AGM are both maintenance-free designs.
- ⊕ Gel and AGM are both optimized for deep-cycle operation.
- ⊕ Both battery constructions are sealed valve regulated lead acid, so unless abused, they will not gas.
- ⊕ These battery designs are both DOT approved for air travel. This means there is no difficulty to get aboard an aircraft.

AGM and Gel have numerous common advantages. It is better to consider they have different qualities.

Differences

AGM

- ⊕ AGM is usually less expensive than Gel.
- ⊕ AGM batteries have higher capacity than Gel batteries in equal case sizes.
- ⊕ AGM has higher discharge rates than Gel.
- ⊕ AGM has higher capacity (more daily range).

GEL

- ⊕ Gel construction is more temperature stable, therefore it can operate on a wider temperature range.
- ⊕ Because Gel is more temperature stable, in some instances it can deliver a longer cycle- life than AGM (more cycles equal more daily uses).
- ⊕ Gel construction allows the lead-acid chemistry to charge more readily than AGM.

Current industry opinion about the value of the two constructions leans toward AGM, and this is reflected in the type of battery coming from the equipment manufacturers. Given that AGM has higher capacity, greater discharge capability, and is generally less expensive gives the nod to AGM. However, some users and manufacturers choose Gel, preferring the longer cycle life, daily range and wider operating temperature range. Both options are very capable of filling the demands of wheelchair and scooter applications.



Your Battery Needs  Too.



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