



Absorbent Glass Mat (AGM) Batteries

AGM technology became popular in the early 1980s as a sealed lead acid battery for military aircraft, vehicles and UPS to reduce weight and improve reliability. The acid is absorbed by a very fine fiberglass mat, making the battery spill-proof. This enables shipment without hazardous material restrictions. The plates can be made flat to resemble a standard flooded lead acid pack in a rectangular case; they can also be wound into a cylindrical cell.



The leading advantages are a charge that is up to five times faster than the flooded version, and the ability to deep cycle. AGM offers a depth-of-discharge of 80 percent; the flooded, on the other hand, is specified at 50 percent DoD to attain the same cycle life. The negatives are slightly lower specific energy and higher manufacturing costs than the flooded.

- AGM has very low internal resistance, is capable to deliver high currents on demand and offers a relatively long service life, even when deep-cycled.
- AGM is maintenance free, provides good electrical reliability and is lighter than the flooded lead acid type.
- Up to 5 times faster charge than with flooded technology.
- AGM products are vibration resistant.
- Being sealed, AGM reduces acid spilling in an accident, lowers the weight for the same performance and allows installation at odd angles.
- Good performance at cold temperatures.
- Better cycle life than with flooded systems
- Repeated cycling of a regular flooded type causes a sharp capacity fade after two years of use.



As with all gelled and sealed units, AGM batteries are sensitive to overcharging. These batteries can be charged to 2.40V/cell (and higher) without problem; however, the float charge should be reduced to between 2.25 and 2.30V/cell (summer temperatures may require lower voltages). Marine charging systems for flooded lead acid often have a fixed float voltage setting of 14.40V (2.40V/cell), and a direct replacement with a sealed unit could spell trouble by exposing the battery to undue overcharge on a long drive.



AGM and other sealed batteries do not like heat and should be installed away from the engine compartment. Manufacturers recommend halting charge if the battery core reaches 49°C (120°F). While regular lead acid batteries need a topping charge every six months to prevent the buildup of sulfation, AGM batteries are less prone to this and can sit in storage for longer before a charge becomes necessary.