

VRLA (AGM) battery vs Gel Battery

A **VRLA battery** (valve-regulated lead-acid battery), also known as a sealed battery (SLA), is a type of lead-acid rechargeable battery. Due to the design and structure, both our **AGM** and **Gel** batteries are VRLA (valve-regulated lead-acid battery) which do not require constant maintenance.

AGM (absorbed glass mat) is a special design glass mat designed to wick the battery electrolyte between the battery plates. AGM batteries contain only enough liquid to keep the mat wet with the electrolyte and if the battery is broken no free liquid is available to leak out.

Our **Gel type** batteries also use AGM design but contain a silica type gel that the battery electrolyte is suspended in, this thick paste like material allows electrons to flow between plates but will not leak from the battery if the case is broken.

Both **AGM** and **Gel** batteries have similar traits; such as being maintenance free, non-spillable, may be mounted in most places, low self-discharge, safe for use in limited ventilation areas.

AGM is better performing when a high burst of amps may be required. The life expectancy remains excellent in most AGM batteries if the batteries are not discharged more than 60% between recharge.

Gel type Batteries are typically a bit more costly than AGM batteries. The Gel battery excels in slow discharge rates and slightly higher ambient operating temperatures. The gel type electrolyte is filled into the battery cells to avoid dry out and prevent thermal runaway of batteries. Radioactive structure of grids can enhance the utilization ratio of active material, improve the corrosion-proof performance of positive plates and reduce come out of hydrogen form negative plates. Same as AGM batteries, Gel batteries have good recharge efficiency and good performance for cycle operation. However, Gel batteries have a better cycle life performance than normal lead-acid batteries and less leakage of acid gas within cycle use. But, one issue with Gel Batteries that must be addressing is the charge profile. Gel type Batteries need to be recharged correctly or the battery will suffer premature failure.

AGM	Gel
VRLA, SLA, AGM design	VRLA, SLA, AGM, Gel type electrolyte
Conventional charging system	Requires stabilized, regulated charging

	system
Less expensive	Better cycle life
Maintenance free, non-spillable, may be mounted in most places, low self-discharge, safe for use in limited ventilation areas.	Maintenance free, non-spillable, may be mounted in most places, low self-discharge, safe for use in limited ventilation areas, less leakage of acid gas.
Can be designed to deliver a high burst of amps (if require).	Does not deliver high CCA; better suited for long duration discharges
Ability to dissipate heat	Excels in slow discharge rates and slightly higher ambient operating temperatures