

AGM, EFB, ECM: which battery should be used?

TECHNIQUE

Not all batteries are the same. Especially now that the first cars with a start-stop system are due for a new battery, you have to be careful when replacing them. What should be in it, AGM, EFB or ECM? And what do those letters actually stand for?



A conventional lead-acid starter battery prefers to be 'full'. Or better, such a battery lasts the longest if the State of Charge is always 100%. That's fine too. At the cold start, the SoC briefly drops to a minimum of 95%. But if the journey is not too short, the alternator quickly brings the state of charge back to 100%.

Cyclic load in micro hybrid

With micro-hybrid cars, the situation is different. At the traffic lights, they stop the engine, but lights, infotainment and other facilities continue as usual. When accelerating afterwards, all the energy has to go to the wheels, so the 'Passive Boost' switches off the alternator. When braking, the alternator goes the extra mile to regenerate braking energy. Of course, this requires 'space' in the battery. In short, the cyclic load on the battery in a micro hybrid is much greater and the SoC is often only 60% or less.

Advantages of AGM

Under these conditions, a conventional starter battery would quickly succumb to stratification and sulfation. That's why we find AGM batteries in microhybrids. In such an Absorbent Glass Mat battery, the electrolyte is enclosed in a fiberglass fleece. For example, it cannot flow freely and stratification is impossible. An additional advantage is low water consumption. This eliminates the need for an extra electrolyte supply above the plates, so that they can continue to the top of the tank. This gives extra capacity for the same container size.

Disadvantages AGM

The lack of that extra liquid makes the AGM battery more sensitive to high temperatures. Fortunately, an AGM does not gaseous, so it can be installed in the interior without any problem. That's why we often find an AGM under the luggage compartment.

Alternative needed

In search of the last grams of CO₂ gain, cars from the lower price segments have also been given a start-stop system in recent years. For those cars, an AGM is too expensive. In addition, car manufacturers are reluctant to change the location of the battery because of a start-stop system. Not even if the existing location is too thermally loaded.

EFB or ECM

The solution came in the form of the EFB or ECM battery. In terms of construction, performance and price, such an Enhanced Flooded Battery or Enhanced Cycling Mat sits between the AGM and the conventional lead-acid battery. An EFB achieves an excellent lifespan in cars with only a start-stop system. In cars that also regenerate braking energy and 'passively boost' when accelerating, the cyclic load on the battery is too great for an EFB. They can't do without an AGM.

Lifespan after replacement

This gives us the answer to the question of what should be included. Replace an EFB with an EFB and replace an AGM with an AGM. If not, the lifespan of the new battery could be very short.

Photo

