

Automotive Batteries for OEM

Automotive Batteries

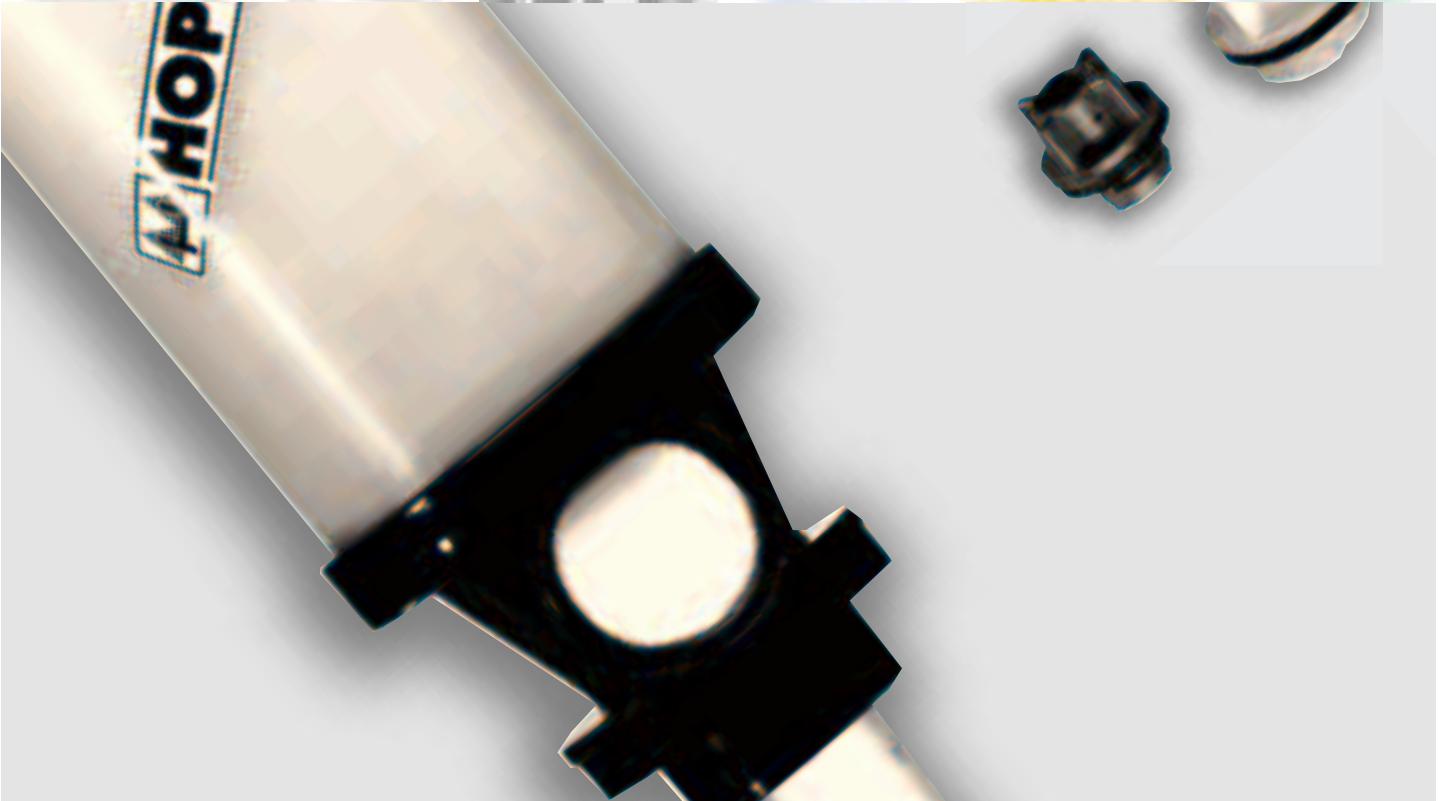
Motive power

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Stand by

AquaGen® RECOMBINATION SYSTEM FOR STATIONARY BATTERIES



AquaGen®

RECOMBINATION SYSTEM FOR STATIONARY BATTERIES



Applications

With the operation of accumulators containing aqueous electrolyte, not only electric energy is stored during charging and float charge but also a secondary reaction takes place, namely the decomposition of water. During this process hydrogen and oxygen are generated. These gases can escape from the battery which in time results in a reduction of the electrolyte level and an increase in electrolyte concentration. The speed with which the electrolyte level sinks depends on the ambient conditions, e.g. temperature and charging parameters. Battery installations must therefore be checked regularly and the electrolyte level topped up with battery water. Please observe the operating instructions of the corresponding batteries.

The gas mixture of hydrogen and oxygen which is generated during battery operation is also called detonating gas. This term is derived from the fact that if hydrogen has a concentration of more than 4% it forms an explosive mixture with air. To prevent such critical concentrations arising, particular ventilation of battery containers and rooms is specified (see EN 50 272-2/DIN VDE 0510 Part 2). The ventilation requirements can be reduced if technical measures can minimize the development or escape of hydrogen from the battery.

To minimize the escape of explosive gas, hydrogen and oxygen can be converted to water in a so-called recombination reaction. This reaction takes place in the recombinators. These are special vent plugs which are attached to the cells. At Hoppecke the recombinators are called: AquaGen® vent plugs.

AquaGen® vent plug D 48 and
AquaGen® vent plug D 30
with adaptors for different
cell openings.



Product features

With adaptors AquaGen® vent plugs can be used on all Hoppecke lead-acid and FNC® cells with bayonet, screw and plug-in plugs (see table).

Note: AquaGen® vent plugs must not be filled with water or electrolyte. Inside the vent plug is a porous ceramic part. Should water penetrate into the vent plug it cannot escape and blocks the gases (hydrogen/oxygen) on their way to the catalyst surface.

Pearls of water appearing on the inside of the vent plug casing show that the vent plug is operating normally.

Hoppecke offers two types of AquaGen® vent plug, D 30 and D 48 vent plugs. In order to guarantee a smooth operation, it is only necessary when choosing the vent plug type, to observe the correct allocation to battery capacity (see table) with regard to the maximum water decomposition current. Otherwise there are no further restrictions when operating up to 2.4 V/cell with lead-acid batteries and up to 1.55 V/cell with FNC® batteries.

Features

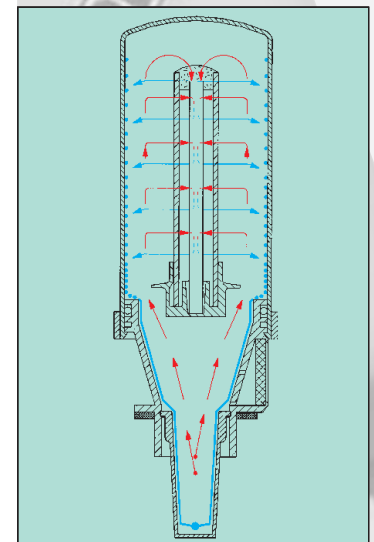
The gas reaches the actual recombinator through an absorber. This is a catalyst in which the controlled conversion of hydrogen and oxygen to water takes place. The catalyst is made of precious metal. The efficiency of this conversion is max. 98%, i.e.: 98% of the hydrogen/oxygen gas mixture generated during charging is converted to water.

Advantages

Under normal operating conditions lead-acid batteries equipped with AquaGen® vent plugs are maintenance-free during their entire service life where topping up with distilled water is concerned. This also reduces the risk of impurities entering the cells when topping up. As acid fumes can be very effectively precipitated and cannot leak out, nothing can corrode in the area surrounding the battery.

AquaGen® vent plugs inhibit backfiring and drastically reduce the danger of explosion as the explosive gas is almost completely catalytically converted.

On principle, when using AquaGen® vent plugs, the ventilation requirements under EN 50 272-2/DIN VDE 05010 Part 2 can be reduced.



Recombination principle in the AquaGen® vent plug D 48.

→ Gas
→ Water

Art.-No.	Cell capacity in Ah	D 30 vent plug
759 611 6005 for OGi bloc	up to 40 Ah	compl. with bayonet fixing Ø 16 mm
759 612 4005 for OGi bloc GroE OPzS/OSP	up to 260 Ah up to 475 Ah up to 490 Ah	compl. with bayonet fixing Ø 24 mm
759 611 4005 for FNC®	up to 180 Ah	compl. with plug-in plug Ø 21.5 mm
Art.-No.		D 48 vent plug
759 510 1150 for GroE OPzS/OSP	> 475 Ah > 490 Ah	compl. with bayonet fixing Ø 24 mm
759 510 1171 for FNC®	> 180 Ah	compl. with plug-in plug Ø 21.5 mm
759 510 1160 for HOPzS	> 400 Ah	compl. with plug-in plug S 35
759 612 7359 for HOPzS	up to 400 Ah	compl. with plug-in plug S 35

The operating instructions for AquaGen® - especially with respect to equalizing charging - must be observed.

Following technical documentations are available:

- Operating instructions