



FAQ



## FAQ: **grid** | Xtreme VR - Pure Lead AGM Batteries Application area: **Telecommunication**

### What is behind HOPPECKE's **grid** | Xtreme VR technology?

- ▶ The HOPPECKE **grid** | Xtreme VR is the next generation of pure lead AGM batteries. The special design of the **grid** | Xtreme VR with its thin-plate technology provides superior energy and power density - this means more usable energy in the same installation space. The result is a smaller footprint, which also translates into lower infrastructure costs.

The use of pure lead to produce the electrodes forms the basis of this thin-plate technology. Its superior corrosion properties compared to other lead alloys enable this significant reduction in electrode thickness with the longer service life at the same time. In addition, pure lead increases stability at high temperatures by reducing electrolyte ageing. This often makes it possible to dispense with air conditioning and thus save energy and CO<sub>2</sub> emissions.

The **grid** | Xtreme VR technology enables use in harsh environments with unreliable power grid.

### Why is the product **green**?

- ▶ The colour green stands for sustainability and a small CO<sub>2</sub> footprint. Lead can be recycled indefinitely in an environmentally friendly and efficient way. Here is an example: perhaps the lead from your telecom battery has already been used in your grandfather's car – that is a cool second life, isn't it?

The HOPPECKE return and recycling system for lead batteries makes a substantial contribution towards protecting natural resources. In accordance with the "cradle to cradle approach", HOPPECKE carries out a consistent recycling management. Precious resources are not wasted but reused.

The lead is professionally processed and recycled in the company's own metal smelter. The recovered metallic lead is refined, alloyed and cast into ingots, which are then fed back into the production process. In this way we ensure careful handling of a scarce raw material, nearly 100% of which is utilised in an environmentally compatible economic cycle.

## Tell me, what makes HOPPECKE's grid | Xtreme VR so unique?

- ▶ It represents the next generation of modern pure lead batteries with the following product benefits:
  - Monitored, automated and fully digitalised production processes
  - Complete traceability of every production step
  - Long storage time enables high logistical flexibility
  - Uniformity and modularity enable the replacement of expensive individual cells with standardised block batteries
  - Common parts strategy: One model fits all due to parallel battery strings which minimises logistics costs and increases availability
  - Unique dual-pole design enables simple and safe impedance measurements to be carried out using separate measuring contacts on interconnected block batteries
  - Integrated true front connectors for easy installation and safe maintenance
  - Proven ESS technology provides improved recharge, increases resistance to thermal runaway and improves safety and durability

## What achievable service life can I expect?

- ▶ Several factors influence the service life of a battery: temperature, cycling and temporary overload. It is therefore important to consider these factors to achieve the maximum service life.

Temperature: The use of pure lead with its superior corrosion properties as well as the lower water consumption extends the service life, especially at high temperatures.

Cycles: The EES technology and the lower charge factor of pure lead result in a higher number of cycles and lower energy consumption at the same time.

Temporary overload: The pure lead reduces the wear of the important components of the battery such as the electrode and electrolyte. In detail, this means that both grid corrosion and water consumption are reduced.

As a rule, the weakest link in the chain determines the overall performance. Due to the fully automated production, all components behave evenly which is beneficial to the overall performance of the system as well as the service life.

## What are the benefits in operation and maintenance?

- ▶ In terms of operation and maintenance, the grid | Xtreme VR brings the following product advantages:
  - Flexible due to up to 24 months shelf life
  - Xtremely wide usable temperature range from -40°C to 55°C
  - Parallel battery strings for easy scalability of performance
  - Stable and safe performance until the end of life
  - Safe and easy impedance measurement to determine battery condition
  - High serviceability due to true-front terminal connections

## Have you considered all international standards?

- ▶ HOPPECKE, as a long-term and experienced manufacturer of industrial batteries, holds all relevant ISO certificates according to quality. Furthermore, all our products meet the international battery test standard IEC-60896. Additionally, we follow many customer and country specific approvals in telecom, UPS, and railway infrastructure business.

## Let's talk about investment and cost.

- ▶ The grid | Xtreme VR pure lead AGM battery can be operated in higher temperature environments thanks to the extended operating temperature range. This means significant operating cost savings due to less air conditioning. The high quality and very long service life expectancy reduces OPEX, as the batteries need to be replaced less frequently.

Thanks to parallel battery strings, the grid | Xtreme VR pure lead battery is also optimally suited for high power requirements. Logistics costs are minimised and availability is increased.

It is the best of both worlds: low TCO and OPEX mean optimal total costs!

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