



Elecsol Carbon Fibre Deep Cycle Batteries

User Manual & FAQ



FAQ'S

Q1. . WHY DO ELECSOL BATTERIES OUT CYCLE FLOODED/SEALED & GEL TYPES?

All batteries are manufactured to provide a certain number of deep discharge cycles. The conventional leisure battery should give a cycling life of between 200 - 300 deep discharges. A Gel battery will give between 400 - 500 cycles and an AGM battery 600 - 800 cycles. The ELECSOL batteries will give over 1000 deep discharge cycles.

Batteries fail in cycling life due to a permanent encapsulation of PbSO₄ on the plates (lead sulphation). The capacity loss is more rapid with these battery types, the deeper that the battery is discharged, the quicker lead sulphation builds up. Upon recharging the battery, not all of this sulphation is converted back to lead (PbO). The result is a gradual loss of capacity.

Another major reason for premature battery failure is due to the oxide shredding from the plate. Standard lead plates are bound only with acrylic and polyester fibres they do not serve as reinforcement of the plate. The cycling life of the ELECSOL battery is much greater than all other battery types because THE CARBON FIBRE ELIMINATES LEAD SULPHATION OF THE PLATES PERMANENTLY. Upon recharging, all the original capacity will be replenished. Carbon Fibre acts as a mechanical reinforcement fibre to the lead grid and paste reducing oxide shredding.

Q2. HOW DO I CHARGE A LEISURE BATTERY?

There are many ways a leisure battery can be charged, please go to the relevant section.

- Mains Chargers
- Solar Panels
- Generators
- Alternators / Inverters

MAINS CHARGERS

Most caravan/motorcaravanners rely upon the in-built mains charger in their vehicles. Although this charging system is sufficient, the technical disadvantage with this product is it never fully charges the battery to its full capacity. The charge voltage is cut off prematurely at 13.85 volts.

Whichever type of leisure battery you use, the in built charger will give a maximum charge to within 80% of the batteries original capacity. Over a period of time, this can cause sulphation of the plates in other leisure battery brands, due to under charging. It is recommended that you occasionally boost charge your battery away from your caravan/motorcaravan using a stand alone charger to either 14.4 volts for Elecsol batteries or 14.8 volts for other leisure battery brands to ensure that your battery is operating at its full capacity.

If the stand alone charger you use is not self cut off, then rely on a multimeter to check the voltage.

CHARGING WITH SOLAR PANELS

Solar panels are an ideal way to charge a battery. There are many different types of solar panels available from the inexpensive to the top of the range. They have improved considerably in the last few years offering practical power in compact sizes. Once they have been installed they require little or no maintenance allowing you to enjoy your leisure time knowing that you will always have sufficient power when it is required.

A regulator is required with any solar panel above 22 watt. The regulator switches to pulse charging when the battery is 95% charged and turns off completely when charge is completed, turning on again only when required to keep the battery topped up.

CHARGING WITH GENERATORS

There are many different types of generators widely used which offer a quick solution to charging a low/flat battery. Whilst using the generator to charge your battery, always ensure the electrolyte is above the plates. If your battery is low on electrolyte you can inadvertently damage the plates of the battery and cause premature failure of the product.

It is not advisable to leave your generator continually connected to the battery. Always disconnect the generator when the battery is fully charged, and follow the manufacturers guidelines on safety. (Important: To ensure no damage to batteries is sustained whilst charging with a generator, use a multimeter to check charging voltage when 14.40V is reached switch off the generator)

CHARGING WITH ALTERNATORS

Most alternators are regulated to charge to maximum of 14.4 volts. Alternator sizes would be best determined at an example of 15 amps per battery i.e. 3 batteries x 15 amps = 45 amp alternator.

Q3. HOW CAN I AVOID OVER CHARGING A DEEP CYCLE LEISURE BATTERY?

Never leave your battery connected to a charger for more than the time required. Over charging occurs when the battery remains on charge after it has reached full charge (14.40 volts). Overcharging causes excess heat that can cause the plates within the cells to buckle and shred their active material.

The battery will also react to the overcharge by producing excess hydrogen and oxygen as the water within the electrolyte breaks down. The water that is lost due to overcharging can be replaced in a non sealed battery. In a sealed battery the water loss is permanent and will negatively effect the battery service life.

Q4. HOW DO I CONNECT TWO OR MORE BATTERIES TO GIVE ME MORE CAPACITY?

For 240 volts through an inverter, connect the batteries in parallel: negative to negative, positive to positive.

To increase capacity for 12 volts, connect the batteries in parallel: negative to negative, positive to positive.

For 24 volt, 36 volt and 48 volt systems, connect in series: positive - negative

Never mix battery capacities, this will cause over charging on one battery and insufficient charge on the other. A 100 amp should be connected to 100 amp. If one battery is significantly older than the other, it can pull the newer battery down as a result of lead sulphation.

Q5. WHERE DOES THE VENTING TUBE GO?

If you look at the sides of the Elecsol battery you will notice a small breather hole at either end of the box lid. The black end of the tube should be inserted in to the hole and the tube should then be routed to an outside area.

If the battery is being used on a boat, the vent tube must inserted in to the breather hole and pointed upwards or placed flat underneath the handles of the battery, this will ensure that the battery can withstand a tilt of up to 75 degrees without leaking.

For narrow boat inspections where extra lengths of tubing are required for venting we suggest replacing the tube with water washer hose (or similar) which is available in uncut lengths from any motor factor shop.

Q6. HOW DO I RECHARGE AN ELECSOL BATTERY FROM FLAT?

First check the electrolyte is just covering the plates (never over fill), if necessary top up using distilled water. Depending on how flat the battery is, charging will take up to 11 hours using a quality 10 amp charger (based on the EL 90/110). The battery is fully charged when the charging voltage reaches 14.4 volts.

Q7. WHAT HAPPENS IF I LEAVE MY ELECSOL BATTERY IN A DISCHARGED STATE

Unlike conventional batteries, the ELECSOL range does not suffer from permanent lead sulphation which is caused by leaving your battery in a discharged state or by overcharging (see Q1).

Q8. I HAVE A 75 AMP BATTERY, CAN I REPLACE IT WITH A HIGHER RATED ONE?

Yes, if your electrical needs have increased it is always wise to check how much extra amp's you require to run your equipment efficiently. We say there is no substitute for power, however where size restrictions exist the 80/100 amp battery has been designed to give you that extra power you need, whilst keeping the size and weight of the battery to a minimum.

Q9. CAN I USE THE ELECSOL BATTERY FOR ENGINE STARTING

Unlike traditional leisure batteries, ELECSOL has been designed with for dual purpose applications for use both as a domestic battery and for starting.


Q10. SHOULD I CHECK MY STATE OF CHARGE ON MY BATTERY WITH A HYDROMETER?

Elecsol leisure batteries use a much lower sg acid than that of traditional battery brands. This has a result that the sg on the hydrometer will never reach the top of the green marker but will sit in the middle at 1.25sg. When the hydrometer reaches 1.25sg per cell, the Elecsol battery is fully charged. Lower sg's are used to minimise the growth decay / grid corrosion over a period of time.

General guide to maintaining your Elecsol Battery



DO'S

- ✓ Remove one pod end and insert vent tube.
- ✓ Condition charge your battery after purchase and prior to use.
- ✓ Keep the terminals and posts free from corrosion.
Lightly coat with petroleum jelly.
- ✓ Ensure acid levels are kept above the plates. Never over fill.
Check every 6 months as the latest batteries in the Elecsol range are maintenance free. This is just a precautionary check.
- ✓  Use a 2p to open cap.
- ✓ If necessary, top up using distilled water.
- ✓ Always keep your battery in the highest possible state of charge.
- ✓ Always keep the battery upright and adequately secured.
- ✓ For use with boats (cruisers, narrow boats, yachts) ensure the venting tube is mounted in the upright position at all times.
- ✓ Always apply a conditioning charge to the battery at the end of the season and remove from caravan/motorhome/boat.
- ✓ It is highly recommended to use quality charging equipment.



DON'TS

- X** Never over charge your battery. The battery is fully charged when the voltage reaches 14.40V. Once disconnecting the charge and after 24 hrs a fully charged battery should have a voltage of 12.80V, this can be checked with a multimeter.
- X** Never over discharge your battery. The battery is fully discharged when the load voltage is 10.70V. *Charge immediately.*
- X** Never leave your battery in a discharged state for a prolonged period of time.
- X** Never top up using contaminated or impure water.
- X** Never leave the battery connected to your Caravan/Motorhome/Boat during the out of season period.
- X** Never reverse the polarity on your battery charging leads as this may damage your battery.

CHARGING INFORMATION: Guidance to open circuit voltage:

■12.80V Fully charged ■12.40V 50% Discharged ■10.70V Fully Discharged

APPLICATIONS: 5 Years: Caravans & Motorhomes
5 Years: Cruisers/Yachts/Narrowboats
5 Years: Engine Starting/Motor Movers/Wheelchairs

Elecsol UK Warranty



This Elecsol product is warranted under normal usage against defects in workmanship and materials to the original purchaser for a period up to 5 years (see Applications section) from the date of purchase, providing the following conditions are met. This warranty service will be performed free of charge, except for insurance and handling, transportation and incidental charges.

A minimum charge of £10.00 per battery will be levied on any claim returned under warranty for delivery. This charge will only be levied against batteries that have been tested and found to have no manufacturing defects and have been returned due to insufficient charging/ maintenance.

This warranty card with all the required information i.e: Purchasers name, address and proof of purchase must be presented when claiming under warranty. The battery replacement service is to be carried out solely by the manufacturer and not by any of its affiliate dealers. This warranty is void if the product has been damaged by an accident, excludes failure resulting from wear and tear, incorrect application and mis-use (refer to Do's & Don'ts section), negligence either before or during use. The warranty expressly provided for herein is the sole warranty provided in connection with this product and no other warranty expressed or implied is provided.

Elecsol assumes no responsibility for any other claims not specially stated in this warranty statement.

Notes:

This warranty is in addition to and does not apply any loss of consumer statutory rights.