Battery Care & Maintenance

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The Battery Partner.

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Care and maintenance of batteries and chargers

Batteries – daily

- Recharge the battery as soon as possible after discharge.
- Do not interrupt the charge cycle.
- Always allow the battery to be fully charged before disconnection from the charger.
- Ensure that the top of the battery is clean and dry and free from corrosion – this helps to prevent short circuits.
- Inspect battery cables/plug.
- Check all connections and report any frayed wires or worn insulation.

Batteries – weekly

- Check the electrolyte levels and top up if necessary.
- Manual filling - top up the cells so that the plates and separators are just covered by electrolyte.
- Battery fill system – see section PROCEDURE FOR TOPPING UP WITH B.F.S.
- Use only distilled, de-ionised or approved water for topping up of cells.
- Topping up should only be carried out with the battery in a fully charged state.
- Do not top up before charge.
- Do not overfill.
- Never top up with acid.
- Clean away any spillage after topping.

Batteries fitted with Battery Fill System - B.F.S and AIR System

- Check the Battery Fill System, Air system components and all connections for damage.

Chargers – monthly

- Check output cables and plug for damage.
- Check the charger cabinet for damage.
- Report any damage immediately.

Care for your battery – Care for your safety

General

Make sure you have a copy of the operating instructions for your type of battery.
To ensure safety and to get the best results from your battery, it is essential to operate and maintain your battery in accordance with the manufacturers' recommendations.
Your Veloris Engineer or the Veloris Service Centre will be pleased to supply any advice on battery selection and maintenance.

Electrolyte

Batteries contain dilute sulphuric acid, which is poisonous and corrosive. It can cause burns on contact with the skin and eyes. If electrolyte is spilt on skin or clothing, wash with plenty of clean water. If electrolyte gets into the eyes wash with plenty of clean water and get **IMMEDIATE MEDICAL ATTENTION.**

Always wear protective clothing and protect the eyes especially if your job brings you into contact with the electrolyte.

Gases

Batteries can give off explosive gases.

KEEP SPARKS AND FLAMES AWAY FROM THE BATTERY.

NO SMOKING.

SWITCH OFF CIRCUIT before connecting or disconnecting batteries.
Ensure connections are tight before switching on.
Do not place metal objects on top of the battery.
Areas where batteries are kept or charged must be adequately ventilated.

Electricity

Check the circuit to ensure it is safe before making or breaking connections to the battery.
ELECTRIC SHOCK – take immediate action.

1. Switch off or remove the source of supply.
2. Secure release from contact, ensuring that you are insulated, e.g. rubber gloves, broom handle, etc.
3. Send for a Doctor or Ambulance.
4. Start respiratory resuscitation at once if the casualty is not breathing.

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PRECAUTIONS TO TAKE WHEN HANDLING MOTIVE POWER BATTERIES

Handling

Lead acid traction batteries are very heavy.

Use the correct equipment when lifting and handling batteries. Keep the battery upright.

Keep lifting slings and spreader beams away from the battery terminals and connectors.

Due to the wide variation in the types of electric vehicles, designs of battery trays, equipment used and methods of battery changing it is not possible to give detailed instructions on the procedures to be followed when changing the batteries on an electric vehicle.

The method and procedure to be followed should be obtained from the manufacturer of the vehicle or battery-changing vehicle – or alternatively seek advice from Veloris Industrial head office, based in Witham, Essex on **01376 550825**.

PROCEDURE FOR CHARGING BATTERIES

REMEMBER TO USE THE CORRECTLY MATCHED AND APPROVED CHARGER!

Open or remove battery cover on truck before charging.

Disconnect the battery plug from the electric vehicle.

With the charger switched off connect the charger plug to the battery plug ensuring that the polarity is correct (positive to positive, negative to negative).

Switch the charger on – the charging process will begin.

PLEASE NOTE there may be a delay before the charger switches on.

DO NOT disconnect the battery until the charger has completed a full charging cycle.

DO NOT 'opportunity charge' as this will lead to battery damage if this charging procedure is followed.

DO NOT open vent caps before charging – this is unnecessary and can lead to severe corrosion problems.

Should the charge cycle need to be interrupted please make sure that the charger is **SWITCHED OFF** before disconnecting the battery plug from the charger plug.

It is recommended that a battery should be discharged to 80% before being charged indicated by the Battery Display Indicator on the vehicle.

On completion of the charging cycle switch the charger off and disconnect the battery plug from the charger plug.

After use place charger plug and lead in safe position to avoid damage.

Plug battery into the electric vehicle - battery now ready for use.

NOTE Operation may vary depending on the type of charger. See individual operating instructions.

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BATTERY WATERING SYSTEMS
For use with a Battery Filling System – B.F.S

1. Battery Watering Cart

The battery watering cart operates using a 12 volt electric pump. To commence topping, the filling coupling on the cart is connected to the BFS coupling on the battery. Start the pump by pressing the switch on the cart. You will hear the pump start and you can see the water start to flow as the flow-indicator will start spinning. When the system has topped the battery and the floats in the valves have shut off, completion of topping is indicated by the non-rotation of the flow indicator. Once this happens, switch off the pump and disconnect the two couplings. Wipe up any drips or spillage immediately.

Completion of topping is indicated by the non-rotation of the flow indicator.

2. Battery Gravity Feed Bottle

The Gravity Feed Bottle, as its name implies, relies on gravity for it to operate correctly. It must be sited above the height of the battery in order for a flow of water to enter the battery cells via the Battery Fill System. The height should be adjusted accordingly for optimum performance.

When the filling coupling on the Gravity Feed Bottle is connected to the B.F.S coupling on the battery, the water pressure drops on the output hose and water is gravity fed into the battery. When the B.F.S has stopped and the floats are in the closed position and the valves have shut off, the topping of the battery is complete indicated by the non-rotation of the flow indicator.

3. Automatic water topping controlled by the charger in conjunction with B.F.S

Fully automated and timed watering system where by each charger has a separate water point. The supply of water is then fully controlled by the charger using a solenoid valve. The valve has a Walther coupling end to which the battery is connected (as the above). When the battery nears its end of charge status the charger automatically tops the battery up. A flow of water is pulsed into the battery to allow even circulation.

The main supply of water feeding all the chargers is normally available for 2 days per week set by a timer.

For operation with B.F.S please see **PROCEDURE FOR TOPPING UP WITH B.F.S**

PROCEDURE FOR TOPPING UP WITH B.F.S

If your battery is supplied with a Battery Fill System – B.F.S

This system allows the battery to be topped up automatically without the need for individual cell topping.

With this system, the topping up of batteries with water has to be done after its charge and only once a week or as indicated by the level of the white eye on top of the BFS valve.

1. High Level white eye = battery does not require topping up
2. Low level white eye = battery requires topping up

1. Before connecting the water please ensure that all water connections i.e. plastic piping and end stops on the battery are intact

2. Connect the water coupling on the battery to the coupling on the water supply provided by pulling back on the locking ring and pushing both halves together

3. A flow of water will now enter the battery indicated by the rotation of the in-line flow indicator

4. At the end of the filling process, i.e. the flow indicator is stationary and the white eye is at high level, the water supply must be **Disconnected Immediately**

5. Water topping complete

DO NOT leave the battery unattended whilst the topping up procedure is being carried out

DO NOT top the battery up if any connections are broken as the system will leak and flood the battery and its container

Should a leak appear disconnect the water coupling from the water supply immediately and contact Veloris on the number provided.

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HEALTH AND SAFETY PROCEDURES

SPILLAGES

In the event of a major spillage of any hazardous substance the following procedures should be adopted.

Move away and get help	Move away and get help. Evacuate the area and notify others working nearby.
Seal off the area	Once evacuation has taken place the area should be sealed off using barrier tape and warning signs.
Check for injuries	Check all persons working near the spill for any type of injury.
Identify the hazard	Try to identify the spillage type to ensure that it can be dealt with in the most effective manner.
Protective clothing	Wear the appropriate protective clothing, normal eye protection, gloves, overalls, safety foot wear.
Contain the spill	Prevent contamination of drains by placing a physical barrier between the drain and the spill. e.g. use a response kit.
Disposal	Seal the container, mark in accordance with the CHIP Regulations and dispose of the material through the correct Waste Authority procedures.

CHEMICAL SAFETY

Nature of Hazard

- Corrosive – Sulphuric acid
- Causes damage to the eyes and skin
- Attacks many materials and clothing

Protective Measures

- Eye protection i.e. Goggles
- Rubber or plastic gloves
- Rubber or plastic apron
- Rubber boots
- Eyewash bottle or other suitable facility

Spillage

- Neutralise with sodium carbonate or sodium bi-carbonate and/or
- Drench with water

First Aid

- Wash eyes out with plenty of water for at least 15 minutes
- Seek medical advice
- Wash affected skin with plenty of water

HEALTH AND SAFETY PROCEDURES

BATTERY SAFETY CODE

Always remember that a battery is a source of power, even when fully discharged there remains sufficient energy in a battery to cause serious damage

Never smoke or allow a naked flame or spark near to a battery

Never put metal objects on top of the battery

Replace all insulators and vent plugs firmly

Always wear suitable protective clothing when working on batteries

Wear eye protection

Ensure that an eye bath is available for immediate treatment in the event of an acid splash

If it is necessary to work on a battery, ensure that the electrical connections are isolated first

Use only insulated tools

NOTES:

Our local is your local is their local.

Our Locations

1. Abergele
2. Bristol
3. Crumlin
4. Fareham
5. Glasgow
6. Manchester
7. Portlaoise
8. Sheffield
9. Shefford
10. Shrewsbury
11. Sunderland
12. Witham

36a Vanguard Way
Battlefield Enterprise Park
Shrewsbury, Shropshire SY1 3TG

+44 1743 218500
sales@veloris.com
veloris.com