



## **Lifeline – The Impossible Battery**

With the ever increasing load on today's boats and specialist vehicles, the quality and type of battery used is becoming fundamental to the installation's reliability and efficiency.

Ordinary lead/acid and gel batteries are simply unable to cope with many of these demands. Therefore, Lifeline was developed to provide solid, dependable power in the most extreme environments.

## **Lifeline – The Benefits**

Concorde batteries developed their AGM battery technology for the military market. Namely for starting jet engines and running sophisticated avionics and control equipment on the ground. The military needed a sealed, deep cycle battery that could be rapidly recharged and retain that charge for a long period of time. After millions of dollars of research, the technology was perfected and the brand Lifeline was born.

- Low internal resistance allows Lifeline to charge at around 20% faster than a standard lead/acid or gel battery
- No upper charging level limit – the larger your charging device, the faster the battery will recharge
- Fully sealed construction,
- Non-spillable – certified for transport by aircraft
- Submersible without damage
- Maintenance free (no adding water or repairing corroded terminals)
- Deep Cycle (thick positive plates to provide real deep cycle performance)
- Outstanding high surge/cranking performance (aircraft cell construction lowers internal resistance allowing high current to easily flow)
- Best charge retention (especially against flooded cell types)
- Lowest discharge rates (Less than 3 percent per month unattended)
- Shock and vibration resistant. (100% of plates are covered with separator liners)
- Properly supported, Lifeline AGM batteries can be installed and operated on their side.

With all of these benefits and Lifeline costing less than an equivalent Gel battery, it's no wonder that everyone's calling Lifeline the "Impossible Battery".

## **Warning – Not All AGM Batteries Are The Same!**

With the introduction of Lifeline Batteries, many other brands have also launched their own AGM types. These are typically manufactured in the far east and were originally developed for the telecommunications industry.

Lifeline is the *only* deep cycle AGM battery available. Lifeline's technology is patented to ensure that other manufacturers cannot duplicate the deep cycle ability and service life.

So, what is the difference? Other AGM batteries are generally 5-15% cheaper than Lifeline, this is due to a number of factors:

**Case Quality** – Lifeline uses heavy duty Polypropelene construction, others use cheaper ABS which can be prone to fracture and splitting

**Plate & Connector Thickness** – Lifeline has the thickest plates of all AGM batteries, these are then coupled using oversized internal connectors. In environments with excess vibration and movement, Lifeline will continue to work, others will be damaged. Due to the plate thickness, Lifeline is the only truly deep cycle (traction) AGM battery available today.

**Recombination System** – Lifeline incorporates an advanced recombination system for gases created during charging. Lifeline batteries are hand assembled using special interlocking cases which are sealed with epoxy resin. Once fully charged and drained, the cells are charged to a slight positive pressure. They have superior strength, do not leak while inverted, and internally process all charging gasses. Other AGM batteries are mechanically assembled with automated equipment and sealed at atmospheric pressure. They can leak acid when inverted, dry out from gassing, and are susceptible to vibration and impact damage.

**Longer Life** – Lifeline batteries actually cost you less in the long term. Typically a Lifeline battery will outlast other AGM batteries with around 40% more cycles available in it's Lifetime. Not only does it outperform other AGM's but will provide double the life cycles of a gel battery. Lifeline is so proud of it's technology that it provides a 5 year warranty with every battery sold.

**Terminal Quality** – Lifeline batteries are supplied as standard with the best terminals in the industry. Built from corrosion proof materials, they allow a low resistance, heavy duty connection to your electrical system – important if you are running 'high surge' devices like inverters, winches and bow thrusters

**Proven** – Lifeline is proven in use by the RNLI (Royal National Lifeboat Institution), Ambulance, Police & Fire authorities, outside broadcast TV companies, railway operators and yachtsmen everywhere.

**Validation** – The claims above haven't been dreamt up; scientific and independent tests back all these claims up; What's more, other AGM manufacturer's sales literature back it up – usually by promoting their AGM's solely for engine starting purposes or recommending their own gel batteries for deep cycle use (where Lifeline AGM would be much more appropriate and outperform the gel cells).

## **Lifeline – An inherent part of the charging system**

Lifeline batteries become an inherent part of a yacht or vehicle's electrical system. Due to their fast charging characteristics you don't need particularly 'smart' charging systems – just basic and efficient ones. You can also "juggle" between battery bank size and charging system size to ensure that you get the best weight for the installation, battery run time, charge time etc.

For example, a conventional electrical system would consist of two battery banks (one for engine starting, the other for house loads), a blocking diode split charger and alternator controller. The diode would split charge between the two battery banks while the alternator controller would develop high charging voltage to ensure rapid battery charging.

With Lifeline, the system could be changed to include the two battery banks and simply, a VSR (Voltage Sensitive Relay) – that's all (see the Merlin Split Charging Guide or [www.merlinequipment.com](http://www.merlinequipment.com) for more info). The system would work in exactly the same way and would also charge as quickly. While the initial battery cost is higher than conventional batteries, the expensive split charger and alternator controller isn't needed. What's more, the system would be easier (and less expensive overall) to install – AND be more reliable.

## **Lifeline for inverters**

Due to Lifeline's low internal resistance, response to high power surge demands on inverters is better matched. Conventional thick plate lead/acid batteries or gel cells take time to respond to, and deliver high currents; Lifeline provides high current instantly – preventing the surge from motors, power tools etc tripping out the inverter's low battery cut-out (this often happens even if the conventional battery bank isn't flat). Leading inverter manufacturers recommend Lifeline for professional installations of their products.

## **Lifeline for bow thrusters**

Bow thrusters require high surge power to start (in the same way as inverters, above) making Lifeline entirely appropriate for this application. However, how long does a bow thruster run for? Typically, 3 minutes maximum. Say the thruster was rated at 4kW at 12V (which equates to around 333 amps); Remember though that this is an hourly rate (333 amps), so divide it by 60 to get an approximate 5.5 Ah per minute. So why do people install massive batteries in the bow of a boat? Answer: because their conventional battery cannot provide such a high current instantaneously! Lifeline can, which means you don't need such large batteries in the bow of your boat (improving sailing performance and of course, with Lifeline, safety).

The bow area of the boat is typically a sleeping cabin, so are you happy installing (and charging) ordinary batteries in the space under the bed? Because Lifeline is safe and doesn't gas, they can be confidently used in "human occupied" compartments.

Due to the low amp hour requirement of bow thrusters (and windlasses), we often recommend a much smaller battery for bow purposes. This not only reduces weight but brings installation cost down. Our Lifeline GPL-U1, GPL24T or even GPL1400T engine start battery are ideal for bow installations

## **Lifeline for solar applications**

Lifeline have proven themselves in solar applications. Due to their rapid recharging ability, more of the available solar/wind energy is used for charging (rather than wasted in heating up the battery). In military applications (where solar equipment often has to be air transportable), the Lifeline batteries are classified as non-hazardous goods.

## **Lifeline for industrial use**

Lifeline batteries are in daily use in a wide range of industrial applications. From running access equipment, emergency power systems, cleaning machines, remote vehicle barriers, traffic signs and even portable tills in supermarkets; Lifeline's remarkable technical characteristics and safety benefits make them the battery of choice.

Lifeline's resistance to extreme vibration also means that they can be used in environments where other batteries simply fail.

## **Lifeline for vehicles**

Operating equipment in police cars, ambulances, fire engines, outside broadcast vehicles, surveillance vans, tow trucks and mobile command units is another perfect application for Lifeline.

By using a basic (VSR based) split charging system and Lifeline, installation time/cost is significantly reduced. Often, because the batteries are fitted inside the vehicle, it is essential that the units fitted are "safe for use in occupied compartments". Lifeline has also been crash tested at the British MIRA institute for fitment upon emergency vehicles.

Because Lifeline can be installed in any orientation, vehicle builders are often able to fit the batteries in compartments not normally available for batteries. Military vehicles often require the ability to be "air-transportable" – Lifeline makes this possible due to their classification as "non-hazardous goods".

## **Lifeline for Marine Use**

Lifeline is ideal for marine use and one of the primary applications for this product range. Not only do Lifeline mean faster recharge times (reducing generator and engine run times) with your existing alternator and charger installation, but by fitting a large marine grade alternator (or charger) can reduce charge times further.

Sealed construction means that no additional battery venting or box is required (reducing production costs for boat builders and allowing installation in human occupied compartments)

## **Lifeline for engine starting**

Due to their low internal resistance, Lifeline batteries are capable of providing high Cranking Current. This is unheard of from a conventional deep cycle "traction" battery. This means that if the main engine battery runs flat (say on board a boat), you can safely start from the Lifeline house battery bank.

Lifeline also manufacture a range of specific, engine starting batteries. These employ the same manufacturing techniques as standard Lifeline products but use thinner plates to provide ultra high cranking amps. In fact, our 57Ah Lifeline 1400T engine start battery provides more cranking current than a conventional 150Ah lead/acid unit. This means that you can remove large cranking batteries, replace them with a small Lifeline AGM Starting Battery and use the space freed up for a larger house battery bank.

For further information on the Lifeline range of batteries view [www.impossiblebattery.com](http://www.impossiblebattery.com) and [www.lifelinebatteries.com](http://www.lifelinebatteries.com).

## **Available Lifeline Batteries**

### 12V Engine Starting Series

GPL1400T	57Ah	850CCA
GPL2400T	75Ah	870CCA
GPL2700T	95Ah	1020CCA
GPL3100T	100Ah	1120CCA

### 12V Deep Cycle Series

GPL-U1	50Ah
GPL-24T	80Ah
GPL-27T	100Ah
GPL-31T	105Ah
GPL-4D	210Ah
GPL-8D	255Ah

### 6V Deep Cycle Series

GPL-4C	220Ah
GPL-6C	300Ah

*Lifeline is distributed in Europe by Merlin Equipment Limited and authorised national dealers. For your nearest dealer, please contact:*

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