

Lifeline Batteries – Core Advantages

Construction Processes

- Complete hand assembly process – from the first stages of grid casting to the final forming of the batteries, the materials are handled at each phase and carefully inspected to insure flawless operation.
- Careful selection of the highest quality metals, glass matting, separators, epoxies and patented case construction are just a few of the fundamentals that we incorporate to build our highly effective batteries.
- Redundancy of quality control inspections at every stage of construction. Through the entire manufacturing process all quality control data is collected and stored in an extensive electronic library and available for reference if needed.

Battery Testing

- As a pioneer of the highest quality AGM battery technology we have more than 26 years experience with a proven successful battery line. We are an American family-owned and operated battery company that has been manufacturing and testing batteries since 1972.
- Extensive testing in two of our core markets (marine and RV); we have achieved operational life expectancies between 5 and 8 years and back our batteries with one of the most thorough warranties in the industry.
- More importantly than testing higher in an individual rating, Lifeline Batteries have been constructed to provide the optimal performance of what is required in every marine and RV application.

Applied Science

- Our extensive history of developing a premium AGM battery and proven success rate as determined through proper testing, has culminated into a product that is leading the industry in a number of areas.
- Our batteries have an extremely low internal resistance that allows them to accept current, much more efficiently than flooded lead-acid, gelled and other AGM batteries.
- During normal charging conditions there is no dangerous gassing and no hands-on maintenance required. Our batteries are a leader in the industry and provide roughly 1000 life-cycles discharged to the recommended 50%, which is 2 to 3 times more than many industry averages.

Consumer Confidence

- More than 150 original equipment manufacturers around the globe trust the quality assurance provided from our AGM battery line. Like our list of manufacturers, we believe the best way to foster long-term business relationships and repeat customers is through providing the highest quality battery available.
- We provide customers an extensive and expanding dealer / distributor network to make our batteries more easily accessible. Because our batteries are rated non-hazardous and non-spillable, they can be shipped anywhere.
- We encourage anyone seeking additional technical or product assistance to contact us directly and talk to an owner or family member. Our customer support department is readily available Monday-Friday 8AM to 4:30PM PST.

DEEP CYCLE BATTERIES • SPECIFICATIONS

PART NUMBER	NOM VOLTS	OVERALL DIMENSIONS			UNIT WT Lbs. (Kgs)	CCA	CCA	CCA	CAPACITY AMPERE HOURS @20 hr. (1) RATE	MINUTES OF DISCHARGE @		
		L in (mm)	W in (mm)	H in (mm)		68° F	32° F	0° F		25 AMPS	15 AMPS	8 AMPS
GPL-U1T	12	7.71 (196)	4.97 (126)	6.89 (175)	24 (10.9)	325	275	215	33	50	93	185
GPL-24T	12	11.13 <sup>1</sup> (283)	6.60 (168)	9.25 (235)	56 (25.5)	800	680	550	80	149	259	524
GPL-27T	12	13.09 <sup>2</sup> (333)	6.60 (168)	9.25 (235)	65 (29.5)	845	715	575	100	186	324	655
GPL-30HT	12	13.46 (342)	6.77 (172)	11.95 (304)	96 (43.50)	1000	850	700	150	315	555	1120
GPL-31T	12	12.90 (328)	6.75 (171)	9.27 (236)	69 (31.4)	880	750	600	105	195	340	688
GPL-31XT	12	12.90 (328)	6.75 (171)	9.27 (236)	75 (34)	950	800	650	125	230	455	910
GPL-4DA	12	20.76 (527)	8.70 (221)	8.63 (219)	135 (61.2)	1595	1360	1100	210	390	680	1375
GPL-4DL	12	20.76 (527)	8.70 (221)	8.63 (219)	135 (61.2)	1595	1360	1100	210	390	680	1375
GPL-8DA	12	20.76 (527)	10.89 (277)	8.60 (218)	162 (73.6)	1975	1675	1350	255	475	825	1670
GPL-8DL	12	20.76 (527)	10.89 (277)	8.60 (218)	162 (73.6)	1975	1675	1350	255	475	825	1670
GPL-4CT	6	10.28 (261)	7.06 (179)	9.92 (252)	66 (30.0)	1095	925	750	220	492	856	1692
GPL-6CT	6	10.28 (261)	7.06 (179)	12.94 (329)	90 (40.8)	1150	1025	925	300	692	1200	2205
GPL-L16T	6	11.64 (296)	6.95 (177)	15.73 (399)	119 (54)	1975	1675	1350	400	950	1625	3195
GPL-4CT-2V	2	10.28 (261)	7.06 (179)	9.92 (252)	66 (30.0)	2950	2500	2025	660	1476	2568	5076
GPL-6CT-2V	2	10.28 (261)	7.06 (179)	12.94 (329)	90 (40.8)	3100	2750	2500	900	2076	3600	6615
GPL-L16CT-2V	2	11.64 (296)	6.95 (177)	15.73 (399)	119 (54.0)	5332	4552	3645	1200	2850	4875	9585
GPL-31T-2V	2	12.90 (328)	6.75 (171)	9.27 (236)	69 (31.4)	4752	4050	3240	315	1170	2040	4128

<sup>1</sup> Add .091 (23.1) for Handle Embossment. <sup>2</sup> Add 1.06 (27.0) for Handle Embossment.

**Terminals:** GPL-24T, GPL-27T & GPL-31T are heavy duty silicon-bronze Marine Terminals and the GPL-U1T is a 6mm copper alloy threaded insert. All "T" batteries supplied with brass bolts and washers. **Handles:** "T" models- Handles are built into cover design. GPL-24T and GPL-27T also incorporate strap handles. Handles not available on part number GPL-31T. Models GPL-4CT, GPL-6CT, GPL-4DA & GPL-8DA are equipped with rope handles. **Ratings:** Capacity ratings are stated 77° F (25 C) to 1.75 volts per cell. **Drawings:** Product drawings for each model available upon request. (1) All ratings are after 25 cycles and conform to B.C.I. specifications.

STARTING BATTERIES • SPECIFICATIONS

PART NUMBER	NOM VOLTS	OVERALL DIMENSIONS			UNIT WT Lbs. (Kgs)	CCA	CCA	CCA	CAPACITY AMPERE HOURS @20 hr. (1) RATE
		L in (mm)	W in (mm)	H in (mm)		68° F	32° F	0° F	
*GPL-1400T	12	9.78 (248)	4.97 (126)	6.83 (174)	32 (14.5)	850	700	550	43
*GPL-2400T	12	11.13 <sup>1</sup> (283)	6.60 (168)	9.25 (235)	53 (24.1)	870	790	650	75
*GPL-2700T	12	13.09 <sup>2</sup> (333)	6.60 (168)	9.25 (235)	63 (28.6)	1020	900	745	95
*GPL-3100T	12	12.90 (328)	6.74 (171)	9.27 (236)	67 (30.4)	1120	950	810	100



**LIFELINE**  
...the heart of your system®

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**MARINE & RV BATTERIES**





# LIFELINE

...the heart of your system®

## PREMIUM SEALED MARINE & RV BATTERIES



RV BATTERY INSTALL



### CONCORDE'S AGM TECHNOLOGY

Originally developed in 1985 for military aircraft where power, weight, safety and reliability were paramount considerations.

We've incorporated this technology in the LIFELINE series of maintenance-free deep-cycle batteries for your electronics, housekeeping and engine starting requirements.

### AGM TECHNOLOGY – THE DIFFERENCE

Some of the main differences between the old vented lead acid batteries and the LIFELINE AGM valve regulated sealed lead acid batteries are:

The electrolyte is absorbed in a glass mat (AGM) separator in the LIFELINE and it is spillable in the flooded or vented type.

The cells have pressure relief valves in the LIFELINE that are designed to keep positive pressure in each cell. The older vented or flooded type battery cells are open to atmosphere through the vent cap holes. Should the vented battery be tilted or inverted, the result can be electrolyte (sulfuric acid/water mixture) spilled all over your equipment, a highly corrosive and potentially dangerous condition.

The cell groups in the old vented type batteries are loosely packed and thus have high plate separation. In contrast the LIFELINE AGM marine battery has every square inch of positive and negative plate material tightly packed and compressed with the AGM and supported by the walls of each cell.

With this type of construction, LIFELINE offers much lower internal resistance...greater starting power (particularly in cold temperatures)... and a much higher degree of protection against shock and vibration than the old flooded type.

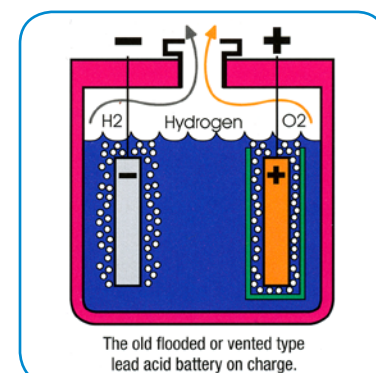
# LIFELINE

...the heart of your system®

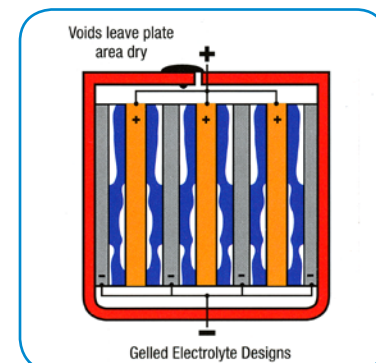
### HOW THEY WORK

For more than 20 years Concorde Battery Corporation has been a leader in the research, development and production of Sealed Lead Acid Batteries.

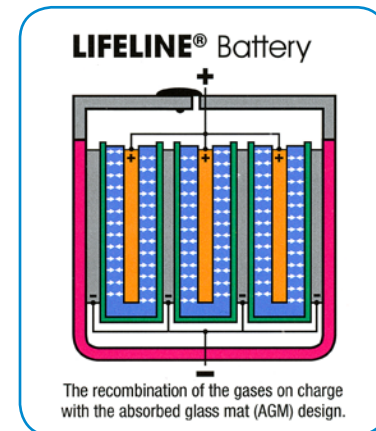
The older flooded electrolyte storage batteries had numerous drawbacks, some hazardous and some merely an inconvenience. They leaked acid and produced abundant quantities of hydrogen and oxygen gases during charge. They required frequent additions of water to replenish that lost by electrolysis and by evaporation.



The old flooded or vented type lead acid battery on charge.



Gelled Electrolyte Designs



The recombination of the gases on charge with the absorbed glass mat (AGM) design.

The LIFELINE Series Battery was designed to correct many of the defects of the earlier batteries. The cells are sealed with pressure relief valves that confine any gases produced during cell operation. These gases are then recombined back into water, substantially eliminating the loss of water from the cells and need for water replenishment.

Early on, some of these features were present in what came to

be known as a gelled electrolyte battery, of a GEL-CELL. The electrolyte in these batteries consists of a mixture of finely divided silica or sand mixed with a sulfuric acid solution. The gelled electrolyte is highly viscous and during charge and discharge often develops voids or cracks which impede acid flow and result in loss of battery capacity. As these voids continue to increase, more and more plate area is left dry and unable to provide a path for ionic flow, thus progressively reducing the capacity of the gelled electrolyte battery.

### NOT A GELLED ELECTROLYTE

In contrast, the electrolyte in the LIFELINE AGM Series Battery is absorbed and held in place by means of a microfibrinous silica glass mat which is sandwiched between the plates. The electrolyte is still liquid and remains so for the entire battery life. Since the glass mat is only about 90% saturated with acid electrolyte, the oxygen produced during charge can readily migrate to the negative plate and recombine into water. This recombination mechanism, and along with charge voltage control, substantially eliminates water loss, making the LIFELINE AGM Series a truly non-spillable, maintenance free battery.

The Life Cycle Performance Chart on the specifications page shows the advantage of LIFELINE AGM over the leading gel battery.

**Reliability...**aboard their ships and aircraft, the U.S. Navy depends on maintenance-free sealed lead acid MIL-SPEC batteries manufactured in the United States by Concorde Battery Corporation.

Textron Marine LCACs are equipped with **LIFELINE GPL-8D** marine batteries.



# AGM - ABSORBED GLASS MAT TECHNOLOGY

### WITH LIFELINE YOU GET:

**Superior Construction:** Aircraft class cell construction; lowest internal resistance that provides high repeated cranking current.

**Unmatched Life-Cycles:** When discharged to the BCI recommended 50%, Lifeline batteries provide nearly 1000 life cycles, which is significantly more than other technologies. Other flooded and gelled batteries fall between 300 to 450 life cycles at 50% discharges.

**Rapid Recharge:** Our batteries facilitate a significant increase in recharge rate, with no current limitations when you properly regulate the charging voltage.

**Low Self Discharge:** Much better charge retention rate when compared to flooded and gelled technologies, around 2% per month vs. 10%.

**Maintenance Free:** With proper charging there is no maintenance required, no adding water, no cleaning corrosion.

**Safety First:** During normal charging conditions there is no dangerous gassing.

**Mil-Spec:** Lifeline battery construction has passed extensive military shock and vibration requirements.

**Eliminate Dangerous Gassing:** Lifeline provides safety even during severe overcharging as the batteries produce less than 2% hydrogen gas (4.1% is required for flammability in air).

**Long Service Life:** Lifeline batteries currently installed in Marine and RV applications are providing a life span ranging from 5 to 8 years.

**Solid Warranty:** We offer one of the best warranties in the industry with our 5-year pro-rated and a one-year free replacement.

**Talk to the Owners:** We offer all customers a toll free technical support line Monday – Friday 8AM to 4:30PM PST.

**Trusted by Manufacturers:** We currently supply more than 150 OEM's both in the US and Internationally.

**Easy to Locate:** We offer customers an extensive and growing dealer / distributor network to make our batteries easily accessible.

**Expertise:** We have more than 25 years of experience developing and producing AGM batteries and are regarded as true pioneers of the technology.

### LIFELINE RECOMBINANT GAS BATTERIES

The cells are sealed with pressure relief valves that provide a positive pressure within the battery. The plates are sandwiched with a micro fibrous silica glass mat consisting of a blend of glass fibers of varying length and diameter that have good wicking characteristics and promote retention of the electrolyte. Electrolyte is absorbed and held in place by the capillary action between the fluid and the glass mat fibers. The mat is over 90% saturated with electrolyte. By design, it is not totally saturated with electrolyte... a portion is filled with gas. The void space provides the channels by which oxygen travels in its path from positive to negative plate during charging. The void spaces allow the freshly generated gases, which are in their atomic state and very reactive, to recombine rapidly and safely. The recombination passivates the negative slightly, reducing electrolysis and ultimately eliminating the need to add water, which makes the battery truly maintenance free. Because of this type of construction, the VRSLAB have much lower internal resistance and thus have greater starting power, particularly at cold temperatures. Additionally, this glass mat provides a much higher degree of support against shock and vibration than the old flooded type.

