

**November, 2005**

### **DEEP CYCLE BATTERIES EXPLAINED**

#### **Car batteries vs deep cycle batteries**

##### **Car batteries**

To understand why a deep cycle battery would be used in certain applications, we can compare a deep cycle battery with a standard car battery.

The car battery could be called "shallow cycle", providing a high burst of power for a short time, just long enough to start a car's engine. Only a small portion of the battery's power is used, and this is restored over time by the car's alternator.

Standard car batteries have thinner lead grids and porous active material (lead oxide based paste coated onto the battery grids) to maximise the surface area of grid exposed to the acid.

Maximising the surface area provides greater current flow and as a result, greater starting power. However, because car batteries have thinner grids and more active material, they are not as reliable in providing long periods of power.

##### **Deep cycle batteries**

Unlike standard car batteries, deep cycle batteries are constructed with thicker grids of antimony lead alloy and a denser paste of active material to withstand discharge and recharge cycles.

This construction allows the deep cycle battery to deliver sustained power with low current drain for extended periods of time. Repeated cycling (discharge and recharge) does not cause the same level of damage that a car battery would sustain from the same process.

The ability to deliver steady power with long cycle life makes the deep cycle battery an ideal solution for a range of both recreational and industrial applications.

In recreational applications, deep cycle batteries may be found in golf buggies, caravans, electric scooters, four wheel drive vehicles, boats and electric wheelchairs.

Deep cycle batteries are also ideal for materials handling equipment such as pallet movers and forklifts. However, they can also be used in other industrial applications such as auxiliary power supplies, solar devices and a scissor lifts.

#### **Types of deep cycle battery**



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There are several different types of deep cycle batteries available, each with specific features designed to suit different applications.

### **Flooded Batteries**

These are the most basic widely used type of lead acid battery. Lead plates are suspended in wet acid which means electrolyte levels require periodic topping up. Flooded batteries are fairly tolerant of charging rate and depth of discharge. Leaving flooded lead acid batteries to stand in a discharged state can cause irreparable damage.

### **Gel Batteries**

The electrolyte of a gel battery is held in a jelly-like state. Gel batteries can be left discharged for longer periods of time without affecting their ability to recover. However, the batteries require very strict monitoring of the charger voltage and a rest period is necessary after rapid charging to ensure the true charge state is known.

### **Absorbed Glass Mat (AGM) Batteries**

AGM batteries consist of acid suspended in a special glass mat separator. This is state-of-the-art technology. AGM batteries have a higher charge acceptance rate than other types and they are not as susceptible as gel batteries to damage caused by lack of charge voltage control. These batteries are sealed and do not leak if the battery case is fractured.

### **Spiral Batteries**

These are a variety of AGM battery. Lead plates are in spiral configurations with acid saturated glass mat separators. They have a sealed case to eliminate acid spillage.



# Press Release

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## Sizing the right battery

When choosing a deep cycle battery it is important the battery has adequate capacity (amp hours) to suit the application. The correct battery can easily be calculated by establishing the total power consumption of the application, the number of hours between recharges and the operating voltage.

FOR EXAMPLE:					
Equipment	Loading (Watts)		Est. Usage (Hours)		Watt Hours
Winch	90	x	0.2	=	18
Fridge	40	x	10.0	=	400
Lights	20	x	4.0	=	80
TOTAL WATT HOURS					= 498

Now divide total Watt Hours by Voltage to obtain the required Amp Hours.

FOR EXAMPLE:		
498 Watt Hours ÷ 12 Volts	=	41.5 Amp Hours

Because vehicle electrical systems may not always be perfect, always allow a little extra power in reserve by factoring in at least a 30% safety margin.

FOR EXAMPLE:		
Estimated Amp Hours		41.5
+ 30% safety margin		12.45
TOTAL AMP HOURS	=	53.95

The correct deep cycle battery can then be selected, simply by comparing the Total Amp Hour figure with the 20hr capacity figures shown in the battery manufacturer's product specifications.

**For more information on purchasing deep cycle batteries, please call Century Batteries on 1300 362 287.**

**Deep cycle batteries provide sustained power over extended periods of time and are designed to be repeatedly discharged and recharged.**

**Choose a deep cycle battery when you require long-running power and low current drain with the added peace of mind of knowing your battery will last - charge after charge.**

