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## Marine Battery Sizing

### Size Your Batteries for Long Life

READING ELECTRIC, a leading supplier of electro-mechanical equipment, services, and problem solver for Industrial and Commercial customers for over 50 years provides technical information to the Region's Residential, Commercial and Industrial Community. This Bulletin provides information about properly sizing your Marine Cycling Battery.

**REMEMBER:** When removing your batteries, installing, commissioning new batteries, or performing servicing operations, be sure to follow safety precautions and always WEAR PROPER EYE PROTECTION.

Historically, there have been two ratings that have been the most popular among the Marine Community to determine the rating and application of a battery for non-starting purposes. These ratings are Amp-Hours and Reserve Minutes and definitions are provided below. While both ratings give insight to a battery's capacity, you should use the rating that best fits your service application. It has been our experience that the Amp-Hour Rating is the most popular among mariners because the expected loads can be summed up and directly related to the Amp-Hour Rating of the battery.

When determining the size and number of batteries to have in your "house battery bank" there are varying opinions. A popular method is to size your battery bank by doubling the calculated expected amp-hours discharged between charging cycles. This assumes a 50% discharge of the batteries before re-charging. **The "life cycles" of a battery are an important consideration. Battery life is directly proportional to the depth of the discharge.** In general, any increases or decreases in the capacity of the battery bank will result in disproportionate increase or decrease in battery life.

Average Capacity Withdrawn	Typical Life Cycles versus Depth of Discharge		
	Typical Life Cycles to Failure <u>Flooded Wet Cell</u>	<u>Gel</u>	<u>AGM</u>
100%	150*	450	150
50%	370*	1,000	370
25%	925*	2,100	925
10%	3,100*	5,700	3,100

\* These Life Cycles can be achieved only if the battery is properly maintained at all times.

**Amp-Hours:** The Amp-Hour rating tells you how much amperage is available when discharged evenly over a 20 hour period. The amp hour rating is cumulative, so in order to know how many constant amps the battery will output for 20 hours; you have to divide the amp hour rating by 20. Example: If a battery has an amp hour rating of 75, dividing by 20 = 3.75. Such a battery can carry a 3.75 amp load for 20 hours before dropping to 10.5 volts. (10.5 volts is the fully discharged level, at which point the battery needs to be recharged.)

**Reserve Minutes:** The 'Reserve Minutes' are the number of minutes a battery will carry a 25 amp load before dropping to 10.5 volts.

READING ELECTRIC is a leading **Authorized Full Service Distributor** and offers a complete line of Deka Batteries. For assistance and additional information on Battery Power Systems, contact Russ Yerger at READING ELECTRIC. Phone: 610-929-5777; Fax: 610-929-1670; Visit our Website at [www.readingelectric.com](http://www.readingelectric.com) or email us for additional information at [info@readingelectric.com](mailto:info@readingelectric.com)

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