

# EXIDE MARINE & MULTIFIT

## Wh och MCA

In order to simplify the right choice of battery, the Marine & Multifit batteries show not just capacity details in Ah but are also rated either with a Wh figure or an MCA current figure. Wh is stated on batteries intended primarily for consumption, while MCA is on batteries intended for starting purposes.

### Wh

Wh (Watt-hour) is a measure of energy, and the rating on the battery specifies the energy that can be drawn from it between charging. In order to calculate the total energy requirement, it is a good idea to calculate the energy consumption of each individual piece of equipment and then calculate the total.

Wh is calculated as power multiplied by time. For example, a 15 W light bulb burning for 4 hours requires  $15 \times 4 = 60$  Wh, while a 200 W fridge running for 2 hours uses  $200 \times 2 = 400$  Wh etc. Totalling all the various items' energy requirements, together with an added safety margin (for example 20%) will give the total amount of energy to be supplied by the battery. When selecting a battery, the Wh rating on the battery must match the calculated value. If, for example, the initial requirement is 1,350 Wh, then either a battery rated at 1,350 Wh can be chosen, or several smaller batteries that together add up to the requirement – or example 3 batteries each rated at 450 Wh. Note however that when combining batteries, it is important that they are of the same type and size.

*Note:* Batteries with the same capacity, measured in Ah, may have different Wh ratings, because different technologies have different cycling properties. Batteries developed for intensive cycling are intended to be used operationally with frequent deep discharges, whereas for batteries designed for gentler operations the discharge depth must be limited to a lower capacity usage. When the batteries' Wh rating are determined, this is taken into account, and explains why two equally large batteries may have different Wh ratings.

### MCA

For starter batteries, a Cold Cranking Amps (CCA) figure measured at  $-18^{\circ}\text{C}$  is specified as a measure of the battery's starting power. In the same way, the starting power of Marine batteries is defined with a starting current measured at  $0^{\circ}\text{C}$  as this is a more relevant temperature for the operating conditions in which Marine batteries are used. This current is in principle determined in the same way as for CCA. It is usually designated MCA (Marine Cranking Amps).

