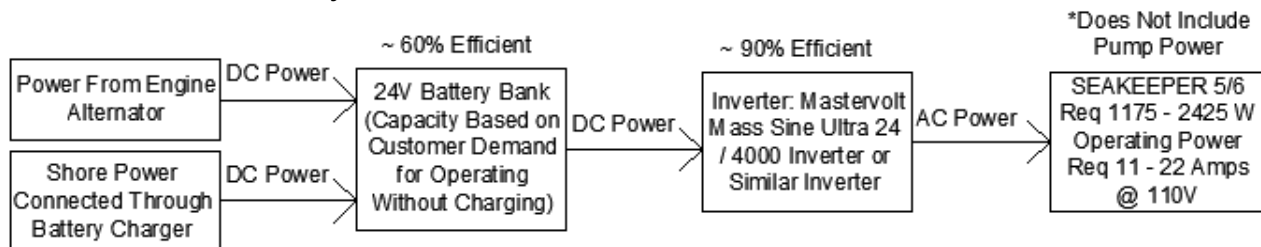


DESCRIPTION

This technical bulletin outlines how to calculate spool-up and operational amperage draw of a Seakeeper 5 or 6 for the purpose of sizing a 24V battery bank for use on a boat without a generator. The spec sheet for the Seakeeper 5 or 6 displays the spool-up (2300W AC and 125W DC) power consumption of the unit as well as the operating power range. Refer to the following sections to understand more about Seakeeper 5 or 6 amperage profile, inverter setups, and 24V battery bank sizing.

SEAKEEPER 5 OR 6 POWERED FROM 24V DC POWER SUPPLY

An example general diagram can be seen below showing the equipment needed to power a Seakeeper 5 or 6 from a 24V DC battery bank:



SEAKEEPER 5 OR 6 AMPERAGE PROFILE

The Power Law Equation: **Power = P = V (Voltage) * I (Amperage)**

The Seakeeper 5 or 6 spec sheets show the power requirements at spool-up and operating conditions:

Spool-up power draw (not including pump power): 2425 W

Sea state dependent operating power draw (not including pump power): 1175 W – 2425W

Assuming a 24V battery bank as the power source for the Seakeeper 5 or 6, we can now solve for amperage required at spool-up and during operation:

For example, solving for spool-up amperage: **Amperage = I = $\frac{P}{V} = \frac{2425 \text{ W}}{24 \text{ V}} = 101 \text{ Amps}$**

Spool-up (maximum operating amperage): 101 Amps

Minimum operating amperage (1175 W): 49 Amps

Spool-up power can be assumed for the entire duration of spool up. Operating power fluctuates within range specified above depending on sea conditions.

SIZING 24V DC BATTERY BANK

The capacity of a battery bank is based on the amp hour rating, using the following equation:

Amp Hours Capacity: **# Hours of Operation × Amps Required = Amp Hours**

Depending on the operational profile of the vessel, the amperage drawn during spool up as well as number of hours while operating, should be considered when sizing the battery bank. Also, the input amperage from the engine alternator should be included in the calculation if the designed operating profile includes operating the Seakeeper with the engines on.

Spooling up the Seakeeper while on shore power will reduce the size requirements of the battery bank and allow for a longer Seakeeper run time on independent battery power.

Remember to consider the power efficiency of the battery bank and of the inverter when calculating the total amp hours needed.