

EBA Frequently Asked Questions

Batteries/Charging

How long will a set of batteries last?

If looked after correctly 8-10 years.

How expensive will a set of batteries be?

This depends on how many are required. From 1 for a small outboard to 24 for a large 50ft boat.

How long does it take to recharge the batteries?

Batteries are charged by specialist traction chargers in about 10-12 hours. They must be allowed to complete the charge to correctly equalise all the batteries in the pack.

How far can I go on one charge?

Usually boats are designed for a day at cruising speed with a greater range provided by a second battery pack.

Do I need a designated charging point to recharge my batteries?

Most chargers will be happy to run on a domestic 13 amp supply but larger boats need the full 16 amps from the standard marina type blue waterproof socket.

Can I use a car battery?

No. It is designed for short bursts of high power to crank an engine. Electric boats need batteries which give a steady power for a long time and do not mind deep discharges.

What are the main differences between lead acid and gel batteries?

Lead Acid are cheaper but need topping up regularly with distilled water and give off dangerous gases when charging. Gel are sealed so can be mounted anywhere on the boat. Adequate ventilation is most important with both types of battery. Before installing any batteries professional advice should be taken from a battery manufacturer.

What are NiCad batteries and Lithium Iron?

Both are rechargeable batteries which are not always suitable for electric boats. NiCad is being phased out as it is highly polluting and difficult to recycle unlike lead batteries. Lithium is very expensive and also needs a comprehensive management system. Lithium is very much lighter for the power given so is useful where weight is important.

If I use a diesel generator to charge my batteries, doesn't this defeat the object of electric propulsion?

Using a generator is a good way of extending the cruising range without the weight of an extra battery pack, but is not suitable as the only way of recharging the batteries due to the time taken.

How can I tell how much power I am using and are there gauges equivalent to the petrol gauge in a car which would tell me when my batteries are getting low?

Yes there are several gauges available to give indication of power used and power remaining. Some new drive systems have these gauges built in.

Does the speed of the boat affect the amount of battery power used?

Yes, very much. A small increase in speed can almost double the power used.

How should I treat the batteries, should I drain them completely?

You should never completely drain the batteries except in an emergency. You should not use them like a tank of petrol and charge up when empty – always recharge after a trip. You should never leave them partly discharged. Maximum life is achieved when the batteries are kept fully charged. This is specially important over the winter lay-up.

General

How fast does an electric boat go?

Easy to keep up with normal river speeds but the world record is just under 100 mph.

Do I need a licence for an electric boat?

Yes

Do I need a Boat Safety Certificate?

Yes, any type of permanent inboard installation will require a Certificate but an open boat powered by an outboard motor does not. If in doubt, please consult the Boat Safety Scheme. (www.boatsafetyScheme.com)

Are there any companies specialising in insuring electric boats?

Yes, the Electric Boat Association has negotiated a special deal with a large insurance company for a 15% discount. Also most navigation authorities give a substantial discount on boat licenses for electric boats, typically 25%.

I have been a boater for several years, but is there any special advice you would give me regarding looking after my electric boat?

Keep the batteries fully charged and the water level topped up. Have the boat serviced once a year

You say electric boats are better for the environment, but doesn't it just move the pollution to the power station?

Electric boats usually charge up overnight when most power is supplied by 'base load' power stations which are nuclear and non polluting. In operation, electric boats use very little electricity and use it at some 80% efficiency for well designed installations compared with about 25% efficiency for diesel or petrol engines. They also do not pollute the air or water.

Can batteries be recycled or will they be left to pollute the environment?

Batteries are designed to be recycled with 85% of the battery being reused.

I've only recently become aware of electric boats. Is this a new technology?

It was new just over 100 years ago.

How do I compare the power of an electric motor to the horsepower of my petrol outboard?

There are 746 watts in a horsepower. The number of watts is the battery voltage multiplied by the amps taken from the battery. However, because of the much greater efficiency of the electric motor it can be misleading to just compare horsepower.

Conversion

Can I convert my current boat to electric propulsion?

Yes.

How much will it cost to convert my current boat to electric propulsion?

This depends on size of boat and number of batteries required. An EBA Business Member will be happy to give a survey and quote.

What's the maximum length of a boat that can be converted to electric.

There is no maximum.

Motors

What motor do I need for my boat?

A suitably sized traction motor.

Can I use my electric boat in tidal waters – or even at sea?

With careful design for sheltered tidal waters yes, but electric boats driven by batteries are not usually capable of the excess power required for ocean going boats. This is because of the very large and expensive size of the battery pack that would be required. However, all modern cruise liners have diesel electric propulsion.

I have an electric outboard motor. Should I take the motor out of the water when I am not using it?

Yes, it is important you do this as most electric outboards do not have water seals on the motor designed for permanent immersion.

Solar

We don't get much sunshine in the UK. Surely solar power can only be used in sunny conditions?

Solar panels work well on all bright days even if the sun is not shining.

How many panels do I need to power my electric motor?

The panels are specified according to the battery and motor voltage.

Can I recharge my batteries with a solar charger?

Yes, by using a solar controller to prevent overcharging the batteries.