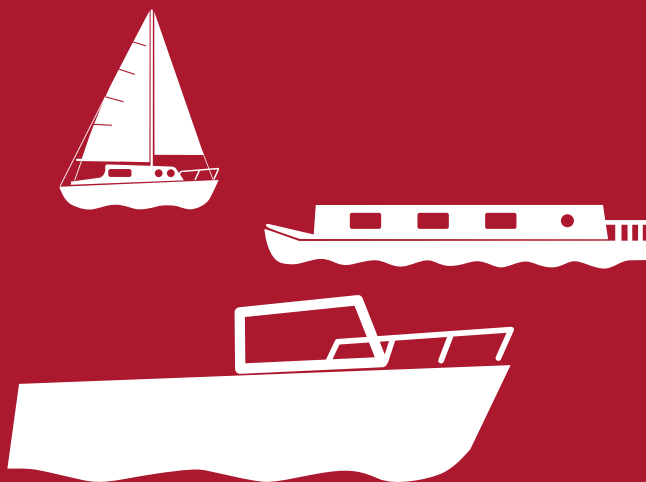


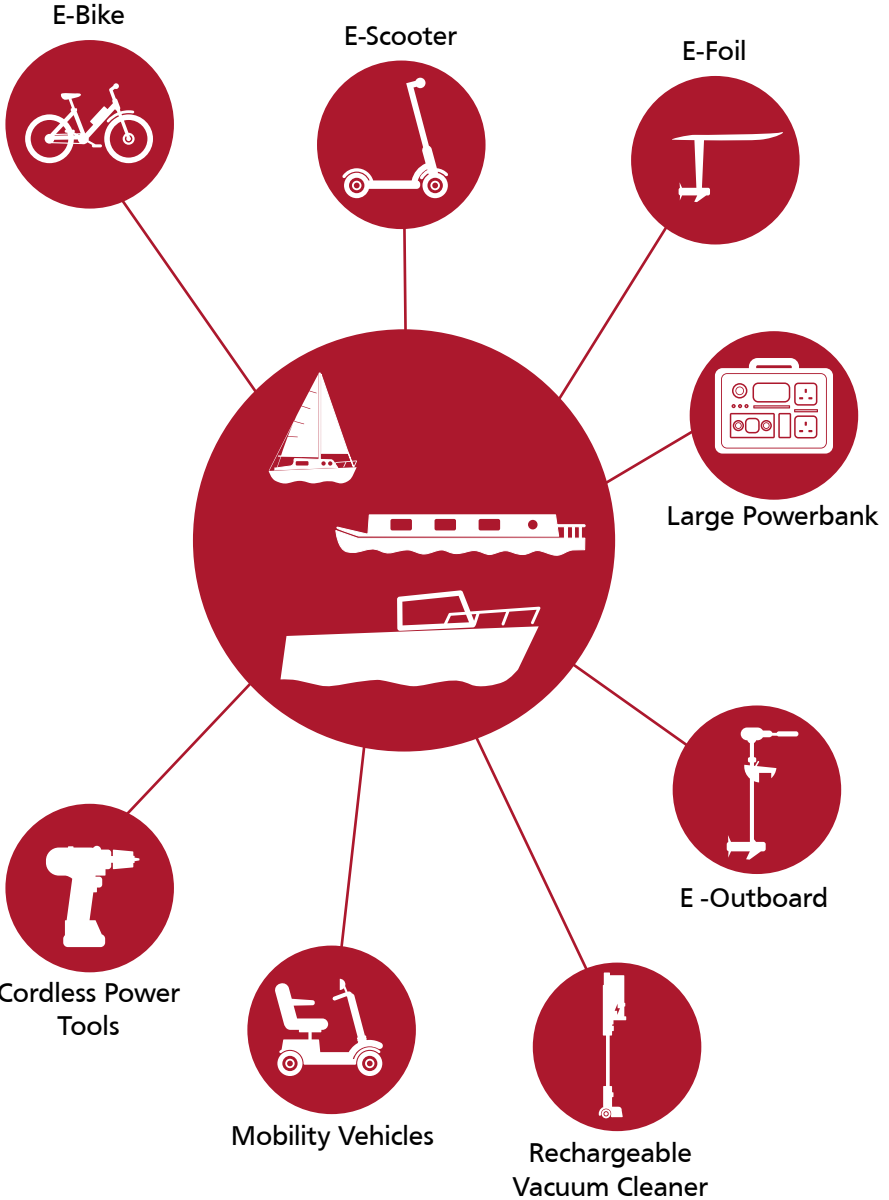
# Lithium-ion Battery Safety on Boats



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**E-bikes, e-scooters, cordless tools  
and other large portable devices**  
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# Typical large portable devices powered by lithium-ion batteries



# Fire safety choices with e-bikes, e-scooters, cordless power tools, electric outboards, and battery-powered water toys

Along with the convenience and green credentials of lithium-ion battery powered devices, the risks associated with batteries failing must be managed so boaters can enjoy their safe use.

While there is a risk of fire with all products using lithium-ion batteries, most are safe if purchased from reputable suppliers and by using the manufacturer's batteries and chargers.

However, where an incorrect charger is connected, or where counterfeit, damaged or poorly modified devices or batteries are used, the fire risk rises significantly. So by making the wrong choices, you may risk your boat or even your life.

Register your product with the manufacturer, validate any warranties and be easy to contact in the event of a product recall or safety alert.

Check if products have been recalled on the official Product Recalls and Alerts website at: [www.gov.uk/guidance/product-recalls-and-alerts](http://www.gov.uk/guidance/product-recalls-and-alerts)

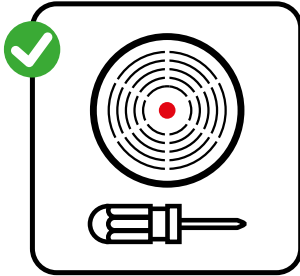
## The right choices when buying an e-bike or e-scooter

Fire services are reporting a rise in ferocious fires that can spread quickly out of control, caused by damaged or failing lithium-ion batteries on e-bikes and e-scooters.

When thinking of buying one, be sure to follow the Government's "Buy Safe, Be Safe" campaign: [www.gov.uk/guidance/buy-safe-be-safe-avoid-e-bike-and-e-scooter-fires](http://www.gov.uk/guidance/buy-safe-be-safe-avoid-e-bike-and-e-scooter-fires)

- Only buy safe e-bikes and e-scooters from reputable UK retailers and that have CE or UKCA marks.
- Only use manufacturer recommended e-bike and e-scooter replacement parts, chargers, and batteries.
- Avoid rogue online sellers and consider checking for Government product recalls and alerts.
- Only use a competent professional to carry out repairs to an e-bike or e-scooter, or to convert a pedal bike to an e-bike.

# How to stay safe – top tips for large portable devices



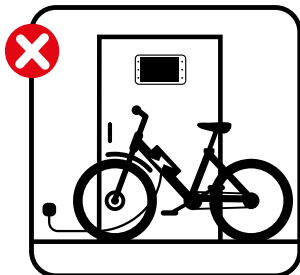
## Install and test smoke alarms

Fit suitable, certified smoke alarms and carbon monoxide alarms.

Ensure they can be heard throughout the boat. Test alarms monthly. Failing lithium-ion batteries can produce carbon monoxide and can lead to serious fires.

## Create a safe-escape plan

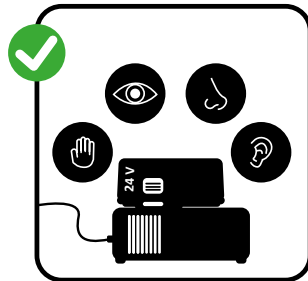
Everyone aboard must know and understand how to act in case of an emergency. Never block your escape. Only charge batteries away from your planned exit and emergency escape routes.



## Protect batteries from damage

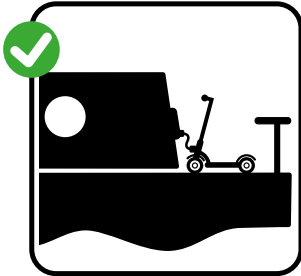
Be mindful when transporting and using your devices. Batteries and charging circuits can be easily damaged by bounces, bashes and bumps.

Avoid extreme temperatures when storing and charging batteries. Keep them away from heat sources and protect them from extremely low temperatures.



## Only use kit in perfect condition

Use your senses to check the condition of your devices routinely. Do not use batteries, devices, chargers, or cables etc that show any signs of damage or problems.



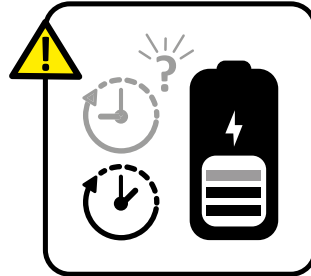
### **Charge and store e-bikes and e-scooters outside the cabin**

If practicable, and where power connections are suitably protected from the weather and any salt spray, charge and store e-bikes and e-scooters outside the cabin.

If the battery is detachable, consider charging the battery outside the cabin or at home.

### **Allow batteries to cool and don't cover chargers or batteries**

After use, let batteries cool down before recharging. They can become warm during use and charging them immediately could lead to overheating. Don't cover chargers or batteries when charging as this could lead to overheating.



### **Use the correct charger and monitor charging times**

Always use the manufacturer-approved charger for your battery. If you spot any signs of wear and tear or damage, buy an official replacement.

Do not overcharge your battery – check the manufacturer's instructions for charge times and keep an eye on them. Unplug the charger once the battery is fully charged - consider using timers as a reminder to unplug.

### **Keep watch during charging**

Be aboard, awake and alert during charging.

## More tips to stay safe

### Watch out for warning indicators of imminent battery failure

Always keep an eye on their condition. The following are indicators that the battery may be about to release extremely harmful emissions, explode or cause a very significant fire.



#### Performance issues:

Longer charge times, incomplete charging, or failing charge indicators.



**Excessive heat:** Batteries that feel extremely hot to touch.



**Bulging/Leaking:** Bulging batteries, odd lumps, or leaking liquid, vapour or gas.



**Smell:** A strong or unusual smell can indicate that the battery is failing.

If you see any of these indicators turn off the power. Take immediate action to stay safe and reduce the risk of fire. Do not use the device again.

If it is safe to do so, consider moving the battery to a safe, non-combustible place outside, or place it in a dedicated fire-safe container.

### Dispose of failing batteries safely

Never dispose of damaged or end-of-life batteries in household waste, or overboard.

Follow local authority guidance on safe disposal or if you are on the move, visit the Recycle Your Electricals website [recycleyourelectricals.org.uk](https://recycleyourelectricals.org.uk) to find out about local battery recycling facilities.



**If a device or battery starts making loud popping, hissing or screaming sounds, or emits toxic gases/vapour or smoke, or catches fire, raise the alarm, warn others, get out, stay out and call 999/Ch16 for help immediately.**



## If a lithium-ion battery fails act immediately

Lithium-ion battery failure can trigger a sudden and violent process called 'thermal runaway'. This is when harmful toxic and explosive gases/vapour are rapidly produced that if inhaled could cause immediate collapse and which can result in a fire and/or an explosion that could eject burning material several metres.

Lithium-ion battery fires can spread fast and produce dense smoke, gases or vapour that can make it difficult to escape. Unlike other fires, they can continue to develop in the absence of oxygen and can readily re-ignite once extinguished.

Gases/vapour or smoke could be lethally toxic, so do not enter a smoke-filled space, you may not escape.

Unless there's no other route, stay away from the device or battery when making your escape and try not to breathe in any toxic gases/vapour or smoke.

Do not touch or try to move any device or battery making loud sounds, or emitting gases/vapour or smoke, or that is already on fire.

Do not attempt to fight a lithium-ion battery fire, such fires can escalate rapidly, and traditional fire extinguishers may not work,

even those marked as suitable for use on lithium-ion battery fires – get out, stay out, call 999/Ch16.

When reporting a fire involving a lithium-ion battery, specify the type of device if possible. For example, e-bike or cordless power tool.



## Take control. Stay safe.

Follow these tips to ensure that e-bikes, e-scooters, cordless power tools, electric outboards, and battery-powered water toys can be used onboard as safely as possible:

- Only buy CE or UKCA marked devices from trusted sellers.
- If you're planning an e-bike conversion, always choose the professional option - don't DIY.
- Use manufacturer recommended batteries and chargers.
- Do not use batteries, devices, chargers, or cables that show any signs of damage or problems.
- Avoid extreme temperatures when storing and charging batteries.
- After use, let batteries cool down before recharging.
- Be aboard, awake and alert during charging.
- Unplug the charger once the battery is fully charged.

Find out more about planning for the safe use of lithium-ion batteries on boats on the Boat Safety Scheme website:

[boatsafetyscheme.org.uk/lithium-ion-battery](https://boatsafetyscheme.org.uk/lithium-ion-battery)



Always dispose or recycle lithium-ion powered devices safely and responsibly at approved facilities: [recycleyourelectricals.org.uk](https://recycleyourelectricals.org.uk)

Endorsed by



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