

Electrically assisted pedal cycles

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This guidance is for England, Scotland and Wales

Electrically assisted pedal cycles (EAPCs) - which are also known as electrically power assisted cycles (EPACs) and e-bikes - have become increasingly popular in recent years as a means of transport.

When assessing the safety of an EAPC, a number of matters are taken into consideration and anyone in the supply chain can be held liable for the supply of unsafe products.

Product safety

The law requires that any product sold to consumers must be safe. Products should not present any unnecessary risk to anyone when used in a normal or reasonably foreseeable way. When assessing the safety of a product, the following must be taken into account:

- packaging, labelling and instructions
- effect of the product on other products with which it might be used
- special needs of particular types of people, such as elderly people or those with disabilities

Where there are national, European or international standards relating to the product, these standards will also need to be taken into account. Not all personal light electric vehicles are approved for use in the same way. EAPCs are a particular type of motorised or electric vehicle designed for carrying persons and goods;

they have their own set of regulations and standards governing their safety.

EAPCs are vehicles that are essentially cycles with two or more wheels and the following definitions:

- cycle must be fitted with pedals that are capable of propelling it
- continuous rated power of the electric motor must not exceed 250 W
- electrical assistance must cut off when the cycle reaches 15.5 mph or 25 km/h

An EAPC that complies with the above is not considered to be a motor vehicle within the meaning of the Road Traffic Act 1988. As a result, it is not required to be registered and is not subject to vehicle excise duty (road tax), nor does it have to be insured as a motor vehicle. EAPCs must not be ridden by anyone under the age of 14.

The Department for Transport is aware that there are electric bikes limited to 15.5 mph, but are fitted with off-road switches or modes that enable the bike's motor to continue assisting at speeds beyond 15.5 mph. Any electric bike that does not meet the EAPC rules is classed as a motorcycle or moped and needs to be registered and taxed to comply with DVLA requirements. A driving licence is required to ride one as well as a motorcycle crash helmet.

Getting vehicle approval for your electric bike

An electric bike must be [type approved](#) if it either:

- can be propelled without pedalling (a 'twist and go' EAPC)
or
- does not meet the EAPC rules

This should have been done by the manufacturer or importer before you bought it. If it has been type approved, it will have a plate showing its type approval number.

Anyone in the supply chain, including retailers, can be held liable for the supply of unsafe products. In general, it is a criminal offence to supply unsafe products and you could also be liable to pay compensation for any injury or property-damage caused.

You should be prepared to carry out checks on the product and/or on your suppliers to ensure that they meet the appropriate product safety requirements. Doing nothing is not enough.

BSI has produced [PAS 7050: Bringing safe products to the market. Code of practice](#), which was published in March 2022 and can be downloaded for free from the BSI website. For more information on PAS 7050, see Business Companion's Business in Focus guide '[Providing safe products for the UK marketplace](#)'.

You have obligations under the GPSR if an incident arises that requires corrective action, such as a recall. Guidance to assist with putting together a product safety incident plan (PSIP) can be found in [PAS 7100: Product recall and other corrective actions. Code of practice](#), which was updated in March 2022 and can also be downloaded for free from the BSI website.

Special safety requirements

The Electrically Assisted Pedal Cycles Regulations 1983 and the Electrically Assisted Pedal Cycles (Amendment) Regulations 2015 apply to EAPCs designed for use on roads in the UK.

Manufacturers, their representatives, and importers have to ensure that, when their cycles, systems,

components or separate technical components are placed on the market or are entering into service, they are manufactured and approved in accordance with the requirements set out in the Regulations.

Manufacturers are required to equip EAPCs with battery management systems / master control devices that prevent tampering or modification, so as not to prejudice safety by enabling the cycle's performance to increase torque, power or maximum speed limits.

Anyone in the supply chain that modifies an incomplete cycle in such a way that it then qualifies for a different category of vehicle or cycle, with the consequence that the legal requirements for the vehicle have changed, is also responsible for the type approval and conformity necessary for that category. This includes the instructions given to consumers concerning the legal and safe use of the vehicle, in particular the type of personal protective equipment that may be appropriate.

To be ridden legally on the road, EAPCs must also have the following:

- pedals that are capable of propelling it
- a battery that does not leak so as to be a source of danger
- a power switch or control that defaults to 'off', requiring constant intervention from the rider in order to maintain power assistance

EAPCs' power output and road speed must not exceed the limits set out in the Regulations.

The Regulations include requirements for EAPCs on brake construction and performance. EAPCs must comply with one or other of the following:

1. Be marked with the following:

- manufacturer
- maximum speed at which the motor can propel the vehicle in mph or km/h
- maximum continuous rated power of the motor

(This mainly covers vehicles constructed to current European standards and legislation.)

2. Be fitted with a plate showing the following:

- manufacturer
- nominal voltage of the battery
- maximum continuous rated output of the motor

(This mainly covers vehicles in use prior to April 2015.)

Particular safety concerns

The current Standard for EAPCs is BS EN 15194: *Cycles. Electrically power assisted cycles. EPAC Bicycles*. This Standard is aligned to meet the regulatory requirements for construction and use, as well as the Supply of Machinery (Safety) Regulations 2008.

Mechanical safety

As well as strength tests, BS EN 15194 requires safety measures that relate to the general safety of EAPCs, including:

- sharp edges
- security and strength of safety-related fasteners
- protrusions
- brakes*
- steering
- frames
- front fork
- wheels and wheel / tyre assembly
- rims, tyres and tubes
- front mudguard
- pedals and pedal / crank drive system
- drive-chain and drive belt
- chain-wheel and belt-drive protective device
- saddles and seat-posts
- spoke protector
- luggage carriers
- road-test of a fully-assembled EAPC
- lighting systems and reflectors
- warning device
- thermal hazards

[*Brakes must comply with appropriate paragraphs of the Pedal Cycles (Construction and Use) Regulations 1983 and the Pedal Cycles (Construction and Use) (Amendment) Regulations 2015. The standards for braking systems are contained in paragraph 4.6.8 of BS EN ISO 4210-2: *Cycles. Safety requirements for bicycles. Part 2: Requirements for city and trekking, young adult, mountain and racing bicycles.*]

Electrical compliance

- the EAPC and battery pack must be designed in order to avoid risk of fire and mechanical deterioration resulting from abnormal use
- during the test, the EAPC and the batteries must not emit flames, molten metal or poisonous ignitable gas in hazardous amounts and any enclosure must show no damage that could impair compliance with BS EN 15194
- safety and compatibility of the battery / charger combination must be ensured, according to the manufacturer's specifications
- the battery terminals must be protected against creating an accidental short circuit
- appropriate care must be taken to ensure that the batteries are protected against overcharging
- an appropriate overheating and short circuit protection device must be fitted
- batteries and the charger unit must be labelled in order to be able to check their compatibility

Labelling requirements, instructions and warnings

Since the publication of the Standard BS EN 15194, EAPCs are required to be labelled with:

- contact and address of the manufacturer or authorised representative
- EAPC according to BS EN 15194
- appropriate marking required by legislation (UKCA / CE - see below)
- year of construction - that is, the year in which the manufacturing was completed (it is not possible to use a code)
- cut off speed expressed as XX km/h
- maximum continuous rated power XX kW
- maximum permissible total weight - for example, marked near the seat post or handlebar

- designation of series or type
- individual serial number, if any
- mass, if EAPC's mass is more than 25 kg
- mass of the EAPCs in the most usual configuration

The frame must be marked with:

- a successive frame number at a readily visible location - for example, near the pedal-crank, the seat-post or the handlebar
- the name of the manufacturer of the complete EAPCs or the manufacturer's representative and the reference to BS EN 15194
- the type number or identification number

There are additional markings if the EAPC is equipped with a coupling device for a trailer. There are also recommendations for safety-critical components to be marked with traceable identification. You should seek the advice of your local Trading Standards service if you need more information.

All markings should be clear and permanent in accordance with specifications set out in the Standard.

As well as labelling requirements EAPCs must be supplied with a set of instructions for use relevant to the country in which the EAPC is destined to be supplied. The Standard states that it is obligatory to deliver these in paper form, along with more detailed information to enable access for vulnerable people. Instructions for use should be available additionally in electronic form on demand. The Standard also stipulates that the instructions for use cover all aspects of the safe use of the EAPC, including preparation and making adjustments for riding, maintenance, charging the batteries, and safe riding, as well as warnings related to wear-and-tear and impact damage.

Technical documentation

The Regulations also place an obligation for manufacturers and importers that place EAPCs on the market to:

- ensure that the technical documentation is compiled and made available in accordance with the requirements
- provide information as necessary to operate it safely, such as instructions for use, repair and maintenance
- follow appropriate conformity assessment procedures as prescribed by the Regulations
- ensure that there is a UK / EU declaration of conformity undertaken by the manufacturer

The UKCA / CE mark is placed on a product by the manufacturer as confirmation that it complies with all the relevant safety standards. All machinery requires UKCA / CE marking in accordance with the Supply of Machinery (Safety) Regulations 2008, and (where relevant to electrical components such as chargers) the Electrical Equipment (Safety) Regulations 2016.

For more information on the UKCA / CE marks - as well as the UKNI mark - see ['UKCA / CE marking'](#).

The position for retailers

Retailers may not have the same degree of technical knowledge and expertise as a manufacturer or importer; however, they may be able to carry out certain checks on the safety of EAPCs.

Retailers should ensure that the vehicle has undertaken any relevant conformity certification and has a

'declaration of conformity' certificate. They also need to ensure that each vehicle is marked visibly, legibly and indelibly with the following particulars:

- business name and full address of the manufacturer and, where applicable, the manufacturer's authorised representative in the UK
- designation of the machinery, series and type
- serial number
- UKCA / CE mark
- year of construction
- any information that is essential for safe use as per the manufacturer's responsibilities, as listed above

Retailers should ensure that each vehicle is supplied with adequate written instructions. Reliance on verbal instructions only would make it very difficult to prove what you have said and may not reach the end user (if the EAPC is a gift, for example).

Instructions for maintenance are particularly important to pass on in written format, as they will be relied on for safe use for the entire expected life of the product. If there are parts of the instructions that have a particular relevance to safety, you may wish to highlight them.

You should also examine each vehicle before you supply it and carry out basic checks - for example:

- all fixings, nuts and bolts are correctly and securely fastened
- frame is not damaged
- condition and inflation of tyres
- brakes are working effectively
- no sharp edges and entrapment hazards
- ensure that the steering is aligned
- ensure that you can supply full instructions for use

You may wish to offer advice on the appropriate safety equipment that needs to be used with the EAPC - for example, a cycle helmet and suitable clothing - and to offer to supply this equipment. Any such advice should also be included in the written instructions. It is worth noting that the safety equipment approved for use for an EAPC, such as ordinary cycle helmets, will be insufficient for the more powerful or off-road electrical cycles.

Other electrical cycles as well as EAPCs are supplied with rechargeable batteries and chargers. Chargers must be compliant with the Electrical Equipment (Safety) Regulations 2016 as well as being compatible with the batteries. There are designated safety standards* for both batteries and chargers.

[*Designated standards' are those approved by the Secretary of State and published by the British Standards Institution (BSI).]

Product quality

Under the Consumer Rights Act 2015, the goods you sell must be of satisfactory quality, fit for their purpose and as described. A consumer may expect to have to carry out some maintenance and replace some parts over time. EAPCs would be expected to be sufficiently robust to use on UK roads for a reasonable service life. Electric cycles intended to be ridden off-road should be robust enough to provide a reasonable service life over rough terrain.

If an electric cycle or EAPC fails prematurely, the consumer may be entitled to claim their losses from the retailer. This could include a repair, replacement, full or partial refund and/or compensation.

If the manufacturer offers a guarantee, remember that this does not take away a consumer's rights. Your consumer may still have a claim against you even after the manufacturer's guarantee has expired.

See '[Selling and supplying goods](#)' for more information.

Legal and illegal use of EAPCs and other electrical cycles

The law only permits those electrical cycles that fall into the classification of EAPCs to be used on the public highway. Electrical cycles suitable only for off-road use cannot be used on the public highway. Furthermore, under the Road Traffic Act 1988 (and related legislation) they cannot be used anywhere off-road, except on private land with the landowner's permission.

Consumers may not be fully aware of the legal restrictions that apply to the use of off-road electrical cycles. They may well be disappointed if they buy an electrical cycle, expecting to be able to ride it on a local park or common, only to find out later that they cannot do so. It would therefore be advisable to check with your consumer, at least in general terms, what they wish to use the electrical cycle for, and only supply an electrical cycle or EAPC that is suitable for their intended use.

Under the Consumer Protection from Unfair Trading Regulations 2008 (CPRs), retailers are obliged to disclose information that might affect a consumer's decision to buy, even if the consumer does not ask for it. You should therefore make it clear to prospective customers that the electrical cycle or EAPC that they buy may have restrictions on its use or capability, and to advise them to only purchase one that meets their requirements.

For more information on the CPRs, please see '[Consumer protection from unfair trading](#)'.

Counterfeit cycles

Trading Standards services are aware of a number of cases where pedal cycles are being converted into either EAPCs or off-road electric cycles. Some of these have been badged with the registered name of a manufacturer or even the name of a famous motorcycle manufacturer, even though that manufacturer had no involvement in their production.

If you are offered the chance to supply such vehicles, you should check with the manufacturer's UK representatives to find out whether the vehicles are genuine, and whether you need their consent to keep the badge or remove it.

Anyone supplying counterfeit cycles should be reported to Trading Standards. The products might also be dangerous.

Outside the scope of this guide

If you are importing EAPCs or other electric cycles into the UK, to sell at retail or wholesale, you may need to take specialist advice from your local Trading Standards service, an accredited test house or a notified body that can test this type of product.

Trading Standards

For more information on the work of Trading Standards services - and the possible consequences of not abiding by the law - please see '[Trading Standards: powers, enforcement and penalties](#)'.

In this update

Extra information added on the requirements for brakes.

Last reviewed / updated: September 2023

Key legislation

[Electrically Assisted Pedal Cycles Regulations 1983](#)

[Pedal Cycle \(Construction and Use\) Regulations 1983](#)

[Road Traffic Act 1988](#)

[Consumer Protection from Unfair Trading Regulations 2008](#)

[Supply of Machinery \(Safety\) Regulations 2008](#)

[Consumer Rights Act 2015](#)

[Electrically Assisted Pedal Cycles \(Amendment\) Regulations 2015](#)

[Pedal Cycles \(Construction and Use\) \(Amendment\) Regulations 2015](#)

[Electrical Equipment \(Safety\) Regulations 2016](#)

Please note

This information is intended for guidance; only the courts can give an authoritative interpretation of the law.

The guide's 'Key legislation' links often only shows the original version of the legislation, although some amending legislation is linked to separately where it is directly related to the content of a guide.

Information on changes to legislation can be found by following the above links and clicking on the 'More Resources' tab.

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