

BS ISO 6469-3:2011



BSI Standards Publication

Electrically propelled road vehicles — Safety specifications

Part 3: Protection of persons against electric shock

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National foreword

This British Standard is the UK implementation of ISO 6469-3:2011.

The UK participation in its preparation was entrusted to Technical Committee PEL/69, Electric vehicles.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Electrically propelled road vehicles — Safety specifications —

Part 3: Protection of persons against electric shock

Véhicules routiers électriques — Spécifications de sécurité —

Partie 3: Protection des personnes contre les chocs électriques



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6469-3 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 21, *Electrically propelled road vehicles*.

This second edition cancels and replaces the first edition (ISO 6469-3:2001), which has been technically revised. Technical Corrigendum ISO 6469-3:2001/Cor.1:2003 has been incorporated.

ISO 6469 consists of the following parts, under the general title *Electrically propelled road vehicles — Safety specifications*:

- *Part 1: On-board rechargeable energy storage system (RESS)*
- *Part 2: Vehicle operational safety means and protection against failures*
- *Part 3: Protection of persons against electric shock*

Electrically propelled road vehicles — Safety specifications —

Part 3: Protection of persons against electric shock

IMPORTANT — The electronic file of this document contains colors which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a color printer.

1 Scope

This part of ISO 6469 specifies requirements for the electric propulsion systems and conductively connected auxiliary electric systems, if any, of electrically propelled road vehicles for the protection of persons inside and outside the vehicle against electric shock.

It does not apply to motorcycles and vehicles not primarily intended as road vehicles, such as material handling trucks or forklifts.

It applies only to on-board electric circuits with maximum working voltages according to voltage class B.

It does not provide comprehensive safety information for manufacturing, maintenance and repair personnel.

NOTE Requirements for the electric power supply interface conductively connected to the external power supply (grid) for charging the RESS are also specified in IEC 61851-1 and IEC 61851-21.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6469-1, *Electrically propelled road vehicles — Safety specifications — Part 1: On-board rechargeable energy storage system (RESS)*

ISO 7010, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 20653, *Road vehicles — Degrees of protection (IP-Code) — Protection of electrical equipment against foreign objects, water and access*

IEC 60664 (all parts), *Insulation coordination for equipment within low-voltage systems*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

- 3.1**
auxiliary electric system
on-board vehicle system, other than the propulsion system, that operates on electric energy
- 3.2**
balance of electric power system
remaining portion of a **voltage class B** (3.31) electric circuit when all RESS and **fuel cell stacks** (3.18) are disconnected
- 3.3**
barrier
part providing protection against direct contact from any usual direction of access
- 3.4**
basic insulation
insulation applied to **live parts** (3.22) for protection against **direct contact** (3.10)
- NOTE Basic insulation does not necessarily include isolations used exclusively for functional purposes.
- 3.5**
basic protection
protection against **direct contact** (3.10) with **live parts** (3.22) under fault-free conditions
- 3.6**
battery pack
mechanical assembly comprising battery cells and retaining frames or trays, and possibly components for battery management
- 3.7**
clearance
shortest distance in air between **conductive parts** (3.8)
- 3.8**
conductive part
part capable of conducting electric current
- 3.9**
creepage distance
shortest distance along the surface of a solid insulating material between two **conductive parts** (3.8)
- 3.10**
direct contact
contact of persons with **live parts** (3.22)
- 3.11**
double insulation
insulation system comprising both **basic insulation** (3.4) and **supplementary insulation** (3.28)
- 3.12**
electric chassis
conductive parts (3.8) of a vehicle that are electrically connected and whose potential is taken as reference
- 3.13**
electric shock
physiological effect resulting from an electric current passing through a human body