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BSI Standards Publication

Electrically propelled mopeds and motorcycles — Safety specifications

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National foreword

This British Standard is the UK implementation of ISO 13063:2012.

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Foreword

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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 13063 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 23, *Mopeds*.

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1 Scope

This International Standard specifies requirements for functional safety means, protection against electric shock and the on-board rechargeable energy storage systems intended for the propulsion of any kind of electrically propelled mopeds and motorcycles when used in normal conditions.

It is applicable only if maximum working voltage of the on-board electrical circuit does not exceed 1000 V a.c. or 1500 V d.c.

This International Standard does not provide comprehensive safety information for manufacturing, maintenance and repair personnel.

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 3864-1, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 6469-3, *Electrically propelled road vehicles — Safety specifications — Part 3: Protection of persons against electric shock*

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

IEC 60227-1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 1: General requirements*

IEC 60245-1, *Rubber insulated cables — Rated voltages up to and including 450/750 V — Part 1: General requirements*

IEC 60479-1:2005, *Effects of current on human beings and livestock — Part 1: General aspects*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests*

IEC 60950-1, *Information technology equipment — Safety — Part 1: General requirements*

3 Terms and definitions

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

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3.1
auxiliary electric system
on-board vehicle system, other than for vehicle propulsion, which operates on electric energy

3.2
balance of electric power system
remaining portion of an electric power system when the power sources (e.g. fuel cell stacks, batteries) 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 for protection against direct contact under fault-free conditions

NOTE Basic insulation does not necessarily include isolations used exclusively for functional purposes.

3.5
basic protection
protection against direct contact with live parts under fault-free conditions

3.6
battery-electric vehicle
BEV
electric vehicle with only a traction battery as the power source for vehicle propulsion

NOTE The abbreviation BEV is often shortened to EV.

3.7
battery pack
single mechanical assembly comprising battery cells and retaining frames or trays and possibly components for battery management

3.8
BEV operating mode
in operating mode of an HEV, in which only the RESS is used for energy supply for vehicle propulsion and possibly auxiliary electric systems

3.9
conductive part
conductor
part capable of conducting electric current

3.10
creepage distance
shortest distance along a surface of a solid insulating material between two conductive parts

3.11
direct contact
contact of persons with live parts

3.12
double insulation
insulation system comprising both basic insulation and supplementary insulation

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3.13
drive direction control
device physically actuated by the rider for selecting the driving direction of the road vehicle (forward or backward)

EXAMPLE Lever or push-button switch.

3.14
driving-enabled mode
only operating mode in which the vehicle can be moved by its own propulsion system

3.15
electric chassis
conductive parts of a vehicle that are electrically connected and whose potential is taken as reference

3.16
electric drive
combination of an electric motor and associated power electronics for the conversion of electric to mechanical power and vice versa

3.17
electric power system
electric circuit, containing electric power sources (e.g. fuel cell stacks, batteries)

3.18
electric shock
physiological effect resulting from an electric current passing through a human body

3.19
electrically propelled vehicle
EPV
vehicle with one or more electric drive(s) for vehicle propulsion

3.20
enclosure
part providing protection of equipment against direct contact from any direction

3.21
exposed conductive part
conductive part of the electric equipment that can be touched by a test finger according to IPXXB after removing barriers/enclosures that can be removed without using tools and that is not normally live, but which may become live under fault conditions

NOTE Protection degrees (e.g. IPXXB) are defined in ISO 20653.

3.22
hybrid electric vehicle
HEV
vehicle with at least one RESS and one fuelled power source for vehicle propulsion

EXAMPLE ICE or fuel-cell systems are typically types of fuelled power sources.

3.23
isolation-resistance monitoring system
system which periodically or continuously monitors the isolation resistance between live parts and the electric chassis or exposed conductive parts

3.24
isolation resistance
resistance between live parts of voltage class B electric circuit and the electric chassis or exposed conductive parts as well as the voltage class A system

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