

This is a preview of "ISO 13063-3:2022". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2022-07

---

---

# Electrically propelled mopeds and motorcycles — Safety specifications —

## Part 3: Electrical safety

*Cyclomoteurs et motocycles à propulsion électrique — Spécifications  
de sécurité —*

*Partie 3: Sécurité électrique*



Reference number  
ISO 13063-3:2022(E)

© ISO 2022



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 13063-3:2022". Click here to purchase the full version from the ANSI store.

## Contents

	Page
<b>FOREWORD</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Abbreviated terms</b> .....	<b>7</b>
<b>5 Voltage classes</b> .....	<b>7</b>
<b>6 General requirements</b> .....	<b>8</b>
6.1 Environmental and operational conditions .....	8
6.2 Marking .....	8
6.2.1 Marking of voltage class B electric components .....	8
6.2.2 Marking of voltage class B wiring .....	8
<b>7 Requirements for protection against electric shock</b> .....	<b>8</b>
7.1 General requirements .....	8
7.1.1 General requirements for connected sections of a circuit .....	8
7.1.2 General requirements for voltage class B .....	9
7.1.3 Requirements for voltage class A .....	9
7.1.4 Requirements of voltage class A power cables and conduits .....	10
7.2 Basic protection .....	10
7.3 Fault protection and additional measures .....	10
7.3.1 Equipotential bonding .....	10
7.3.2 Isolation resistance .....	11
7.3.3 Provisions for capacitive coupling and capacitive discharge .....	12
7.3.4 Alternative electrical or mechanical measures .....	12
7.3.5 De-energization .....	13
7.3.6 Provision for chassis-connected voltage class B circuit .....	13
7.4 General requirements for protective provisions .....	13
7.4.1 General .....	13
7.4.2 Requirements for insulation of voltage class B .....	13
7.4.3 Requirements of protective barrier and protective enclosures of voltage class B electric components .....	14
7.5 Requirements for connectors .....	14
7.6 Insulation coordination .....	15
7.7 Alternative approach for protection against electric shock .....	15
<b>8 Protection against thermal incidents</b> .....	<b>15</b>
8.1 Overload protection .....	15
8.2 Short-circuit protection .....	15
<b>9 Requirements for vehicle power supply circuit</b> .....	<b>15</b>
<b>10 Owner's guide manual</b> .....	<b>15</b>
<b>11 Test procedures</b> .....	<b>16</b>
11.1 General .....	16
11.2 Continuity test for equipotential bonding .....	16
11.3 Isolation resistance measurements for voltage class B electric circuits .....	16
11.3.1 Preconditioning and conditioning .....	16
11.3.2 Isolation resistance measurements of the balance of electric circuits .....	16
11.3.3 Isolation resistance measurement of the voltage class B electric power sources .....	17
11.3.4 Isolation resistance measurement of entire electric circuits .....	19
11.4 Test for isolation resistance monitoring system .....	19
11.5 Touch current .....	19
11.6 Withstand voltage test .....	20

This is a preview of "ISO 13063-3:2022". [Click here to purchase the full version from the ANSI store.](#)

11.6.1	General.....	20
11.6.2	Preconditioning and conditioning.....	20
11.6.3	Test procedure.....	21
11.6.4	Test criteria.....	21
11.7	Test method of voltage class A wiring.....	21
11.7.1	Test method for the movable part of the voltage class A wiring.....	21
11.7.2	Test method for withstand voltage.....	21
	<b>Bibliography.....</b>	<b>23</b>

This is a preview of "ISO 13063-3:2022". Click here to purchase the full version from the ANSI store.

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 38, *Motorcycles and mopeds*.

This first edition of ISO 13063-3, together with ISO 13063-1 and ISO 13063-2, cancels and replaces ISO 13063:2012, which has been technically revised.

The main changes are as follows:

- extension of protection against electric shock to all electric safety requirements;
- alignment of structure and requirements as possible with ISO 6469-3:2018;
- splitting the document into three documents which consist of the following parts, under the general title *Electrically propelled mopeds and motorcycles — Safety specifications*:
  - *Part 1: On-board rechargeable energy storage system (RESS)*;
  - *Part 2: Vehicle operational safety*;
  - *Part 3: Electrical safety*;
- addition of specific requirements for capacitive discharge;
- new test specification for the isolation resistance monitoring system;
- new requirements and test for touch current; and
- the requirements for conductive connection to an external electric power supply can be covered by ISO 18246.

A list of all parts in the ISO 13063 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).