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**Electrically propelled mopeds and  
motorcycles — Test method for  
evaluation of energy performance  
using motor dynamometer**

*Motocycles et cyclomoteurs à propulsion électrique — Méthode  
d'essai pour l'évaluation de la performance énergétique à l'aide d'un  
dynamomètre*



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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)

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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.

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)).

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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, *Mopeds and Motorcycles*.

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).

# Electrically propelled mopeds and motorcycles — Test method for evaluation of energy performance using motor dynamometer

## 1 Scope

This document specifies a test method to evaluate energy performance of electric motorcycles and mopeds by measuring performance of a test motor system (3.4) to be installed to an electric moped or motorcycle under consideration.

The test is carried out on a motor dynamometer test bench where the traction motor system is connected to a load motor system (3.3) that simulates resistance torque arising from running resistance of vehicle and drive train friction loss and inertia effect.

This method provides estimates of specific energy consumption and range of an electric moped or motorcycle to which the traction motor system is intended to be applied.

This document is only applicable to two-wheeled motorcycles and mopeds.

**NOTE** This test method is applicable to motorcycle or moped regardless of types of power transmission devices, such as chains, belts, gears, ratio controllable CVTs, shaft drives, direct drives, etc., once gear ratios (ratio of input to output speed) and transmission efficiencies (ratio of input to output torque) are provided.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 11486, *Motorcycles — Methods for setting running resistance on a chassis dynamometer*

ISO 13064-1, *Battery-electric mopeds and motorcycles — Performance — Part 1: Reference energy consumption and range*

ISO 13064-2, *Battery-electric mopeds and motorcycles — Performance — Part 2: Road operating characteristics*

ISO 28981, *Mopeds - Methods for setting the running resistance on a chassis dynamometer*

IEC 60034-1, *Rotating electrical machines — Part 1: Rating and performance*

IEC 60034-2-1, *Rotating electrical machines — Part 2-1: Standard methods for determining losses and efficiency from test (excluding machines for traction vehicles)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13064-2, IEC 60034-1, IEC 60034-2-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>