



NSAI
Standards

Irish Standard
I.S. EN ISO 17409:2020

Electrically propelled road vehicles - Conductive power transfer - Safety requirements (ISO 17409:2020)

I.S. EN ISO 17409:2020

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National Foreword

I.S. EN ISO 17409:2020 is the adopted Irish version of the European Document EN ISO 17409:2020, Electrically propelled road vehicles - Conductive power transfer - Safety requirements (ISO 17409:2020)

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EUROPEAN STANDARD

EN ISO 17409

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2020

ICS 43.120

Supersedes EN ISO 17409:2017

English Version

Electrically propelled road vehicles - Conductive power transfer - Safety requirements (ISO 17409:2020)

Véhicules routiers à propulsion électrique - Transfert de puissance par conduction - Exigences de sécurité (ISO 17409:2020)

Elektrisch angetriebene Straßenfahrzeuge - Kabelgebundene Energieübertragung - Sicherheitsanforderungen (ISO 17409:2020)

This European Standard was approved by CEN on 18 February 2020.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 17409:2020 (E)

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European foreword

This document (EN ISO 17409:2020) has been prepared by Technical Committee ISO/TC 22 "Road vehicles" in collaboration with Technical Committee CEN/TC 301 "Road vehicles" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

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

This document supersedes EN ISO 17409:2017.

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**INTERNATIONAL
STANDARD**

**ISO
17409**

Second edition
2020-02

**Electrically propelled road vehicles —
Conductive power transfer — Safety
requirements**

*Véhicules routiers à propulsion électrique — Transfert d'énergie
conductive — Exigences de sécurité*



Reference number
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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).

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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.

This document was prepared jointly by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled road vehicles*, and Technical Committee IEC/TC 69, *Electric road vehicles and electric industrial trucks*.

This second edition replaces the first edition (ISO 17409:2015), which has been technically revised. The main changes compared to the previous edition are as follows:

- terms and definitions have been updated,
- requirements for mode 1 have been removed because it is no longer relevant for new designs,
- requirements for reverse power transfer have been added,
- requirements for a DC connection with a thermal management system have been added,
- short circuit during DC charging has been reworked, and
- requirements for charging with pantograph have been added.

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.

Electrically propelled road vehicles — Conductive power transfer — Safety requirements

1 Scope

This document specifies electric safety requirements for conductive connection of electrically propelled road vehicles to external electric circuits. External electric circuits include external electric power supplies and external electric loads. This document provides requirements for the charging modes 2, 3, 4, as defined in IEC 61851-1, and reverse power transfer. For mode 4, this document provides requirements regarding the connection to an isolated DC EV charging station according to IEC 61851-23.

NOTE 1 This edition does not provide requirements for mode 1.

NOTE 2 External electric circuits are not part of the vehicle.

This document applies to the on-board sections of vehicle power supply circuits. It applies also to dedicated power supply control functions used for the connection of the vehicle to an external electric circuit.

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

NOTE 3 ISO 6469-3 provides general electrical safety requirements for electrically propelled road vehicles.

NOTE 4 With this edition of this document the limitation of y-capacitance for protection against electric shock under single failure conditions is no longer applicable as a fault protection provision when the vehicle has a conductive DC connection to an external electric circuit.

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 6469-3, *Electrically propelled road vehicles — Safety specifications — Part 3: Electrical safety*

ISO 15118 (all parts), *Road vehicles — Vehicle to grid communication interface*

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

ISO 26262 (all parts), *Road vehicles — Functional safety*

IEC 60038, *IEC standard voltages*

IEC 60364-4-41:2005, *Low-voltage electrical installations — Part 4-41: Protection for safety — Protection against electric shock*

IEC 60364-4-43:2008, *Electrical installations of buildings — Part 4-43: Protection for safety — Protection against overcurrent*

IEC 60364-5-54, *Low-voltage electrical installations — Part 5-54: Selection and erection of electrical equipment — Earthing arrangements and protective conductors*

IEC 60364-6, *Low-voltage electrical installations — Part 6: Verification*

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