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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).

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).

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 by Technical Committee ISO/TC 22 Road vehicles, Subcommittee SC 37 Electrically propelled road vehicles.

This edition of ISO/TR 8713 cancels and replaces the first edition (ISO 8713:2012), which has been technically revised and includes the following main changes:

— addition of all terms and definitions from ISO/TC 22/SC 37 standards;
— addition of source information for terms/definitions not developed in ISO/TC 22/SC 37;
— provision of information on standards using the relevant term and defining a master;
— adaptation of structure to the ISO/IEC Directives Part 2, 2016 edition;
— provision of a list of abbreviations used in this document.

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.
Introduction

This document establishes a vocabulary of terms and the related definitions used in ISO standards for electrically propelled road vehicles.

It provides support for the development of new standards and for the review of existing standards.

This document lists terms as defined in ISO/TC 22/SC 37 publications. For each term, the master publication is assigned based on an ISO/TC 22/SC 37 decision. Other publications of ISO TC 22/SC 37 may contain definitions for those terms as well. This document replicates the definition for the term from the master publication without any change. The master publication and the other publications are listed with each term.

ISO/TC 22/SC 37 decided that project leaders of projects using the term should align themselves with the content of the definition under the leadership of the project leader from the master publication. ISO/TC 22/SC 37 prioritizes a consistent use of definitions for terms.

The terms and definitions are listed in alphabetical order. A topic specific list is given in Annex A.
Electrically propelled road vehicles — Vocabulary

1 Scope

This document establishes a vocabulary of terms and the related definitions used in ISO/TC 22/SC 37 standards.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

— IEC Electropedia available at http://www.electropedia.org/
— ISO Online browsing platform: available at https://www.iso.org/obp

3.1 acceleration ability (v1 to v2)

shortest time required to accelerate the vehicle from speed v1 to speed v2


3.2 alignment

relative position of primary to secondary device


3.3 alignment check

confirmation that the primary and secondary devices are properly positioned relative to each other

Note 1 to entry: Proper positioning is done to assure sufficient system functionality (e.g. system efficiency, EMF/EMC limits, safety requirements etc.).

3.4 applicable driving test

ADT

single driving test schedule which is specified for each region

EXAMPLE Chassis dynamometer test cycle for light-duty vehicles in Japan (JC08), New European Driving Cycle (NEDC), Urban Dynamometer Driving Schedule (UDDS).

3.5 **auxiliary electric system**
vehicle system, other than for vehicle propulsion, that operates on electric energy


3.6 **balance of electric circuit**
remaining section of an electric circuit when all electric power sources that are energized (RESS and fuel cell stacks) are disconnected


3.7 **basic insulation**
insulation of hazardous live parts which provides basic protection

Note 1 to entry: This concept does not apply to insulation used exclusively for functional purposes.

Note 2 to entry: Where insulation is not provided by solid insulation only, it is complemented with protective barriers or protective enclosures to prevent access to live parts in order to achieve basic protection.


3.8 **basic protection**
protection against electric shock under fault-free conditions


3.9 **battery control unit**
BCU
electronic device that controls, manages, detects or calculates electric and thermal functions of the battery system and that provides communication between the battery system and other vehicle controllers


3.10 **battery pack**
energy storage device that includes cells or cell assemblies normally connected with cell electronics, power supply circuits and overcurrent shut-off device, including electrical interconnections, interfaces for external systems

Note 1 to entry: Examples of external systems are cooling, voltage class B, auxiliary voltage class A and communication.


3.11 **battery system**
energy storage device that includes cells or cell assemblies or battery pack(s) as well as electrical circuits and electronics

Note 1 to entry: Battery system components can also be distributed in different devices within the vehicle.
Note 2 to entry: Examples of electronics are the BCU and contactors.


3.12 bus
vehicle designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 t

Note 1 to entry: Master publication in ISO/TC 22/SC 37: ISO 6469-1:—1).

3.13 capacity
total number of ampere-hours that can be withdrawn from a fully charged RESS under specified conditions


3.14 case A
connection of an EV to the a.c. supply network (mains) utilizing a supply cable and plug permanently attached to the EV


3.15 case B
connection of an EV to the a.c. supply network (mains) utilizing a detachable cable assembly with a vehicle connector and a.c. EV supply equipment


3.16 case C
connection of an EV to the a.c. supply network (mains) utilizing a supply cable and vehicle connector permanently attached to the EV supply equipment

Note 1 to entry: Only case C is applicable for mode 4 (see IEC 61851-1).


3.17 cell electronics
electronic device that collects and possibly monitors thermal or electric data of cells or cell assemblies and contains electronics for cell balancing, if necessary

Note 1 to entry: The cell electronics can include a cell controller. The functionality of cell balancing can be controlled by the cell electronics or by the BCU.


3.18 charge balance of RESS
change of charge in RESS during fuel consumption measurement

Note 1 to entry: Normally expressed in ampere hours (Ah).


3.19  
**charge-depleting state**  
*CD state*  
operating mode of a HEV with ICE in which the vehicle runs by consuming mainly the electric energy from the stationary external power source or along with the fuel energy simultaneously or sequentially until CS state  


3.20  
**charger**  
power converter at the vehicle power supply circuit which supplies electric power, e.g. for charging a RESS  


3.21  
**charge-sustaining state**  
*CS state*  
operating mode where the HEV runs by consuming the fuel energy while sustaining the electric energy of the RESS  


3.22  
**clearance**  
shortest distance in air between two conductive parts  

Note 1 to entry: This distance applies only to parts that are exposed to the atmosphere and not to parts which are isolated or covered with coating compound.  

SOURCE: IEC 60664-1:2007, 3.2]  
Note 2 to entry: Master publication in ISO/TC 22/SC 37: ISO 11765-3:2018, also defined in ISO 6469-1:—3].  

3.23  
**complete vehicle kerb mass**  
mass of the vehicle including batteries, without occupants but with fuel, cooling liquid, window washer fluid, lubricating oil, tools and spare wheel, on-board charger, portable charger or part of it, if provided as standard equipment by the vehicle manufacturer  

SOURCE: ISO 1176]  

3.24  
**component operating status**  
describes the general functional behaviour of components which depend directly on the voltage in voltage class B electric circuit  


3.25  
**conductive part**  
part which can carry electric current  


3.26 conductively connected circuit

two electric circuits considered conductively connected unless they are separated by at least basic insulation


3.27 control pilot circuit

circuit designed for the transmission of signals and/or communication between an EV and an EV supply equipment


3.28 control pilot conductor

insulated conductor incorporated in an EV cable assembly that creates, together with the protective conductor, the control pilot circuit


3.29 control pilot function

functionality used to monitor and control the interaction between the electric vehicle and the supply equipment


3.30 coulomb efficiency

Ah efficiency
efficiency of the battery, based on electricity (in coulomb) for a specified charge/discharge procedure, expressed by output electricity divided by input electricity

Note 1 to entry: Master publication in ISO/TC 22/SC 37: ISO/TR 11955.

3.31 customer

defines the customer as the party that is interested in using voltage class B component or system


defines the customer as the party that is interested in using the RESS or RESS subsystem and therefore, orders or performs the test

EXAMPLE A vehicle manufacturer.

Note 2 to entry: Master publication in ISO/TC 22/SC 37: ISO 6469-1:—5).

3.32 creepage distance

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

Note 1 to entry: Master publication in ISO/TC 22/SC 37: ISO 6469-3:2018, also defined in ISO 6469-1:—6).


3.33
d.c. EV charging station
EV supply equipment intended to supply d.c. current to an EV


3.34
degree of protection
IP
protection provided by an enclosure against access, foreign objects and/or water and verified by standardized test methods in accordance with ISO 20653

[SOURCE: ISO 20653, modified — “in accordance with ISO 20653” added]


3.35
direct contact
electric contact of persons or animals with live parts


3.36
displacement power factor
power factor due to the phase shift between voltage and current at the fundamental line frequency


3.37
distortion power factor
product of the displacement power factor and the total harmonic distortion up to the 40th harmonics of the load current


3.38
double insulation
insulation comprising both basic insulation and supplementary insulation


3.39
driving-enabled mode
operating mode in which the vehicle can be moved by its own propulsion system by one action

Note 1 to entry: Examples for this action are: pressure to the accelerator pedal, activation of an equivalent control, release of the brake system.


3.40
dynamic loaded radius (tyre)
effective radius of a tyre when it is deformed by the mass of the vehicle loaded to its test mass

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


3.42 electric circuit
entire set of interconnected live parts through which electrical current is designed to flow under normal operating conditions


3.43 electric drive
combination of an electric traction motor, power electronics and their associated controls for the conversion of electric to mechanical power and vice versa


3.44 electric propulsion system maximum working voltage
highest value of d.c. voltage that can occur in an electric propulsion system under any normal operating conditions according to the customer's specifications, disregarding transients


3.45 electric shock
physiological effect resulting from an electric current through a human body or animal body


3.46 electrically propelled vehicle
EV
vehicle with one or more electric drive(s) for vehicle propulsion


3.47 energized
qualifies a conductive part having an electric potential difference with respect to a relevant reference

