



SWEDISH
STANDARDS
INSTITUTE

SVENSK STANDARD SS-EN 13447

Fastställt
2001-05-04

Utgåva
1

Sida
1 (1+19)

© Copyright SIS. Reproduction in any form without permission is prohibited.

Electrically propelled road vehicles – Terminology

The European Standard EN 13447:2001 has the status of a Swedish Standard. This document contains the official English version of EN 13447:2001.

Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

Eldrivna vägfordon – Terminologi

Europastandarden EN 13447:2001 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13447:2001.

Motsvarigheten och aktualiteten i svensk standard till de publikationer som omnämns i denna standard framgår av "Katalog över svensk standard", som ges ut av SIS. I katalogen redovisas internationella och europeiska standarder som fastställts som svenska standarder och övriga gällande svenska standarder.

ICS 01.040.43; 43.120

Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.
Postadress: SIS, Box 6455, 113 82 STOCKHOLM
Telefon: 08 - 610 30 00. Telefax: 08 - 30 77 57
E-post: sis.sales@sis.se. Internet: www.sisforlag.se

Upplysningar om **sakinnehållet** i standarden lämnas av SIS (SMS).
Telefon: 08 - 459 56 00. Telefax: 08 - 667 85 42
E-post: info@sms-standard.se

Tryckt i juni 2001

EUROPEAN STANDARD

EN 13447

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2001

ICS 01.040.43; 43.120

English version

Electrically propelled road vehicles - Terminology

Véhicules routiers à propulsion électrique - Terminologie

Elektrisch angetriebene Straßenfahrzeuge - Terminologie

This European Standard was approved by CEN on 8 March 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions at the vehicle's level.....	4
3.1 Electrically propelled road vehicle.....	4
3.2 Types of electrically propelled road vehicles	4
3.3 Driving modes	6
3.4 Road operating abilities of an electrically propelled road vehicle	6
3.5 Energy performances of the vehicle.....	7
3.6 Pollutant emissions of a thermal electric hybrid vehicle in hybrid mode	8
3.7 Other definitions for electrically propelled road vehicles	8
4 Sub-systems of the vehicle.....	9
4.1 Power circuit.....	9
4.2 Drive direction selector	9
4.3 Auxiliary electrical functions	9
4.4 Auxiliary network / Auxiliary electrical circuit	9
4.5 Ancilliary function.....	9
4.6 Electric power control	9
4.7 Electric drive train.....	9
4.8 Transmission.....	10
4.9 Energy transmission	10
4.10 Electric power train.....	10
4.11 Electric traction system	10
4.12 On board energy source	10
4.13 On board primary electric energy source	10
4.14 On board secondary electric energy source.....	11
4.15 Opening parts.....	11
4.16 Connecting elements.....	11
5 Definitions about battery and its environment	11
5.1 Cell.....	11
5.2 Battery module.....	11
5.3 Battery pack.....	11
5.4 Battery.....	11
6 General definitions applied to electrically propelled road vehicles	11
6.1 Conductive part.....	11
6.2 Live parts	11
6.3 Exposed conductive part	11
6.4 Connection terminal	12
6.5 Electrical circuit	12
6.6 Nominal voltage of an electrical system	12
6.7 Working voltage of an electrical circuit.....	12
6.8 Direct contact	12
6.9 Indirect contact	12
6.10 Basic insulation.....	12
6.11 Supplementary insulation	12
6.12 Double insulation	12
6.13 Reinforced insulation	12
6.14 Protection degrees	13
6.15 Class I equipment	13
6.16 Class II equipment	13
Alphabetical index	17
Bibliography	19

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 301 "Electrically propelled 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 October 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard gives definitions used in European standards for electrically propelled road vehicles. It is not intended to give definitions of all terms concerning these vehicles, but to permit a good understanding of the content of standards dealing with electrically propelled road vehicles.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1821-1:1996	Electrically propelled road vehicles - Measurement of road operating ability - Part 1 : Pure electric vehicles.
EN 1821-2:1999	Electrically propelled road vehicles - Measurement of road operating ability - Part 2 : Thermal electric hybrid vehicles.
EN 1986-1:1997	Electrically propelled road vehicles - Measurement of energy performances - Part 1 : Pure electric vehicles.
EN 1986-2:2001	Electrically propelled road vehicles - Measurement of energy performances - Part 2 : Thermal electric hybrid vehicles.
EN 60529	Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989).
ISO 1176	Road vehicles - Masses - Vocabulary and codes.
IEV	International Electrotechnical Vocabulary.

3 Terms and definitions at the vehicle's level

3.1 Electrically propelled road vehicle

road vehicle in which electric energy is transformed by electrical machine(s) into mechanical energy for traction purposes

NOTE Traction is the term used with the same meaning as propulsion, but for historical reasons, this is the most widely used term.

3.2 Types of electrically propelled road vehicles

3.2.1

electrically supplied road vehicle

road vehicle which is supplied by electric energy as an external energy input for traction purpose

It comprises two families :

— first family : infrastructure independent (i.e. autonomous) when driving. This road vehicle has an on board secondary electric energy source for traction purposes which is recharged / replaced periodically ;

NOTE Replacement / fuel refill of an on board primary electric energy source is not regarded as an electric energy supply.

- second family : infrastructure dependent when driving. This road vehicle is electrically supplied from the outside when driving.

3.2.2

pure electric road vehicle

electrically propelled and infrastructure independent, exclusively electrically supplied road vehicle

3.2.3

hybrid vehicle

vehicle in which the propulsion energy is available from two or more types of on board energy sources, creating at least one path of energy flow between an energy storage and the wheels which is reversible and at least one path of energy flow between an energy storage and the wheels which is not reversible

3.2.4

electric hybrid (road) vehicle

hybrid vehicle in which one of the reversible energy sources delivers electric energy

3.2.5

thermal electric hybrid vehicle

electric hybrid vehicle in which the traction system contains a thermal machine

NOTE Vehicle integrating electric machine(s) for functional assistance to the engine such as load levelling devices, starter, electrically driven auxiliary units, etc. should not be considered as electric hybrid vehicles, in so far they are not intended participate to the traction.

3.2.6

pure fuel cell electric vehicle

electrically propelled road vehicle in which the electric energy source is a fuel cell

EXAMPLES Zinc air electric vehicle, hydrogen air electric vehicle.

3.2.7

fuel cell electric hybrid vehicle

series electric hybrid vehicle in which the unreversible electric energy source is a fuel cell

3.2.8

series electric hybrid vehicle

electric hybrid vehicle in which all on board energy sources deliver electric energy

3.2.9

parallel electric hybrid vehicle

electric hybrid vehicle in which one of the power trains is an electric power train (see Figure 2)

3.2.10

thermal electric split hybrid vehicle

combined hybrid vehicle in which at least one connecting element (see 4.16 below) is mechanical and one other is electrical at the output level of electric on-board energy source(s)

3.2.11

thermal electric parallel hybrid vehicle

thermal electric hybrid vehicle in which the connecting element(s) between the thermal power train and the electric power train is mechanical

3.2.12

thermal electric series hybrid vehicle

thermal electric hybrid vehicle in which the connecting element(s) between electric on-board energy source(s) is electric

3.2.13

externally chargeable vehicle

electrically propelled road vehicle where the secondary electric energy source can be fed by an external electric energy supply

3.2.14

not externally chargeable vehicle

electrically propelled road vehicle where the secondary electric energy source can not be fed in the normal operation by an external electric energy supply

3.3 Driving modes

3.3.1

pure electric mode

driving mode when only the secondary on board electric energy source delivers energy for traction purpose. The pure electric mode can be either selected by the driver or automatically selected by the system

For definitions of primary or secondary on board electric energy source, see 4.11 and 4.12.

3.3.2

pure thermal mode for thermal electric hybrid vehicle

is the driving mode when the secondary electric energy sources (do not participate to the propulsion of the vehicle. In this case, the on board secondary electric energy sources are not active even for energy recovery

3.3.3

hybrid mode (for an electric hybrid vehicle)

driving mode when all the on board energy sources can participate in the propulsion of the vehicle

3.4 Road operating abilities of an electrically propelled road vehicle

3.4.1

maximum speed

highest average value of the speed, which the vehicle can maintain twice over a distance of 1 km

Depending on the driving mode and on the type of electrically propelled road vehicle, there are several maximum speeds as follows:

- maximum speed in pure electric mode for a pure electric road vehicle: the test procedure is described in 9.3 in EN 1821-1:1996;
- maximum speed in pure electric mode for a thermal electric hybrid road vehicle: the test procedure is described in 9.2 in EN 1821-2:1999;
- maximum speed in hybrid mode for a thermal electric hybrid road vehicle: the test procedure is described in 9.1 in EN 1821-2:1999.

3.4.2

maximum thirty minute speed

highest average value of the speed which the vehicle can maintain for 30 min

Depending on the driving mode and on the type of electrically propelled road vehicle, there are several maximum thirty minute speeds as follows:

- maximum thirty minute speed in pure electric mode for a pure electric road vehicle: the test procedure is described in 9.1 in EN 1821-1:1996;
- maximum thirty minute speed in hybrid mode for a thermal electric hybrid road vehicle: the test procedure is described in 9.7 in EN 1821-2:1999.