SVENSK STANDARD SS-EN 61377

Fastställd	Utgåva	Sida	Ansvarig kommitté
2016-12-14	1	1 (1+48)	SEK TK 9

Järnvägstillämpningar – Rullande materiel – Kombinerad provningsmetod för traktionssystem

Railway applications – Rolling stock – Combined test method for traction systems

Som svensk standard gäller europastandarden EN 61377:2016. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61377:2016.

Nationellt förord

Europastandarden EN 61377:2016

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61377, Second edition, 2016 - Railway applications - Rolling stock - Combined test method for traction systems**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61377-1, utgåva 1, 2006, SS-EN 61377-2, utgåva 1, 2003 och SS-EN 61377-3, utgåva 1, 2003, gäller ej fr o m 2019-02-23.

ICS 45.060.00

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Stora delar av arbetet sker internationellt

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Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61377

April 2016

ICS 45.060

Supersedes EN 61377-1:2006, EN 61377-2:2002, EN 61377-3:2002

English Version

Railway applications - Rolling stock - Combined test method for traction Systems (IEC 61377:2016)

Applications ferroviaires - Matériel roulant - Méthode d'essais combinés pour systèmes de traction (IEC 61377:2016)

Bahnanwendungen - Bahnfahrzeuge - Kombiniertes Prüfverfahren für Traktionssysteme (IEC 61377:2016)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 61377:2016 E

SEK Svensk Elstandard

European foreword

The text of document 9/2078/FDIS, future edition 2 of IEC 61377, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61377:2016.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-11-23
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-02-23

This document supersedes EN 61377-1:2006, EN 61377-2:2002 and EN 61377-3:2002.

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

Endorsement notice

The text of the International Standard IEC 61377:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60077-3	NOTE	Harmonized as EN 60077-3.
IEC 60077-4	NOTE	Harmonized as EN 60077-4.
IEC 60310	NOTE	Harmonized as EN 60310.
IEC 60322	NOTE	Harmonized as EN 60322.
ISO 14253-2	NOTE	Harmonized as EN ISO 14253-2.
ISO/IEC 17025	NOTE	Harmonized as EN ISO/IEC 17025.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60050	Series	International Electrotechnical Vocabulary	-	-
IEC 60349-1	-	Electric traction - Rotating electrical machines for rail and road vehicles - Part 1: Machines other than electronic converter-fed alternating current motors	EN 60349-1	-
IEC 60349-2	-	Electric traction - Rotating electrical machines for rail and road vehicles - Part 2: Electronic converter-fed alternating current motors	EN 60349-2	-
IEC/TS 60349-3	-	Electric traction - Rotating electrical machines for rail and road vehicles - Part 3: Determination of the total losses of converter-fed alternating current motors by summation of the component losses	-	-
IEC 60349-4	-	Electric traction - Rotating electrical machines for rail and road vehicles - Part 4: Permanent magnet synchronous electrical machines connected to an electronic converter	EN 60349-4	-
IEC 60850	-	Railway applications - Supply voltages of traction systems	-	-
IEC 61133	-	Railway applications - Rolling stock - Testing of rolling stock on completion of construction and before entry into service	-	-
IEC 61287-1	-	Railway applications - Power converters installed on board rolling stock - Part 1: Characteristics and test methods	EN 61287-1	-
IEC 62313	-	Railway applications - Power supply and rolling stock - Technical criteria for the coordination between power supply (substation) and rolling stock	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RAILWAY APPLICATIONS – ROLLING STOCK – COMBINED TEST METHOD FOR TRACTION SYSTEMS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61377 has been prepared by IEC technical committee 9: Electrical equipment and systems for railways.

This edition cancels and replaces IEC 61377-1 (2006), IEC 61377-2 (2002) and IEC 61377-3 (2002). It constitutes a technical revision.

This edition includes the following main technical changes with regard to the previous editions: it includes updates as necessary in order to meet the current technical state of the art, to improve clarity and to create an edition that considers all types of motors part of a traction system.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/2078/FDIS	9/2113/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

RAILWAY APPLICATIONS – ROLLING STOCK – COMBINED TEST METHOD FOR TRACTION SYSTEMS

1 Scope

This International Standard applies to the traction system consisting (when it applies) of traction motor(s), converter(s), traction control equipment including software, transformer, input filters, brake resistors, main circuit-breaker, cooling equipment, transducers, contactors, etc.

Figure 1 is just an overview and is not representative of all traction system architectures.

Current collector, mechanical braking systems and gearbox are not in the scope of this standard.

Types of motors applicable in this standard are asynchronous, or synchronous including permanent magnet (PMM), or direct current (DC).

The auxiliary converter(s) is (are) part of the scope when the auxiliary converter is enclosed within the traction converter. Otherwise, when the traction system feeds an auxiliary system outside the traction converter, the auxiliary system can be replaced by an equivalent load.

NOTE 1 Energy storage system is not considered in this standard since there is no specific type test standard for energy storage system.

NOTE 2 Auxiliary loads validation is not part of this standard.

NOTE 3 The gearbox can be part of test set-up, but it is not a part of traction system.

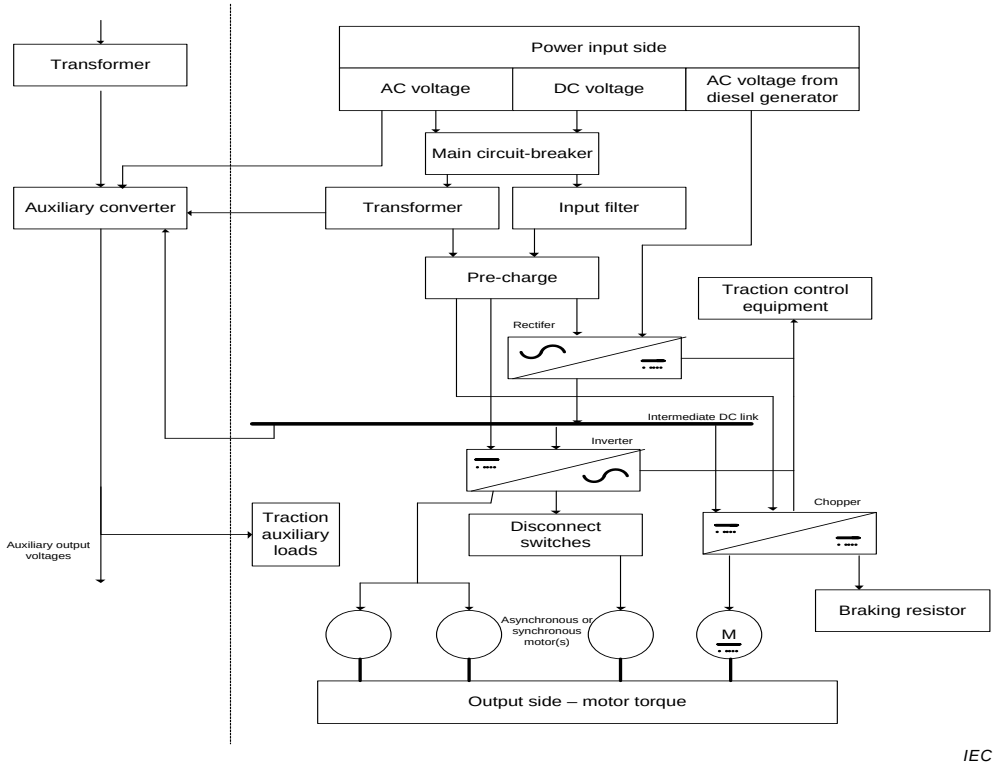

Figure 1 – Overview of traction system architecture

The objective of this standard is to specify the type test of a traction system, mainly comprising of:

– test of performance characteristics;
– test methods of verifying these performance characteristics.

This standard does not specify the type test of each individual component.

The traction system under test incorporates at least one complete traction conversion line (at least one traction converter and its related loads, one transformer in the case of AC supply or input filter in the case of DC supply). The representativeness of the traction system under test versus the actual traction system is agreed between the user and manufacturer.

Figure 2 gives one example of the relationship between the traction system under test and the whole traction system.

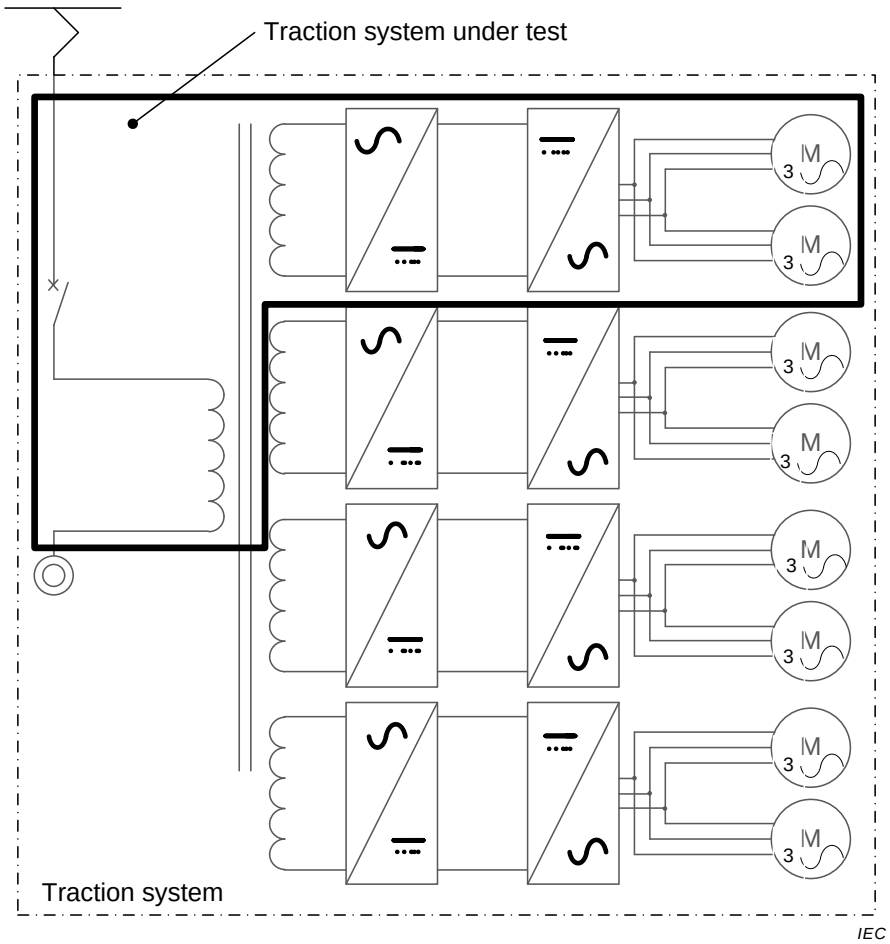

Figure 2 – Example of relationship between the “traction system under test” and the “traction system”

The traction system under test is equipped with components that are representative of the production series.

Deviations may be permitted by agreement between user and manufacturer, and are justified from an impact stand point in advance of the test. Using equivalent components or parts is permitted if no significant influence on the test result is expected.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts): *International Electrotechnical Vocabulary* (available at http://www.electropedia.org)

IEC 60349-1, *Electric traction – Rotating electrical machines for rail and road vehicles – Part 1: Machines other than electronic converter-fed alternating current motors*

IEC 60349-2, *Electric traction – Rotating electrical machines for rail and road vehicles – Part 2: Electronic converter-fed alternating current motors*

IEC TS 60349-3, *Electric traction – Rotating electrical machines for rail and road vehicles – Part 3: Determination of the total losses of converter-fed alternating current motors by summation of the component losses*

IEC 60349-4, *Electric traction – Rotating electrical machines for rail and road vehicles – Part 4: Permanent magnet synchronous electrical machines connected to an electronic converter*

IEC 60850, *Railway applications – Supply voltages of traction systems*

IEC 61133, *Railway applications – Rolling stock – Testing of rolling stock on completion of construction and before entry into service*

IEC 61287-1, *Railway applications – Power converters installed on board rolling stock – Part 1: Characteristics and test methods*

IEC 62313, *Railway applications – Power supply and rolling stock – Technical criteria for the coordination between power supply (substation) and rolling stock*