



SLOVENSKI STANDARD SIST EN 62282-3-1:2007

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Hydrogen fuel cell technologies -- Part 3-1: Stationary fuel cell power systems - Safety

Fuel cell technologies -- Part 3-1: Stationary fuel cell power systems - Safety

Brennstoffzellentechnologien -- Teil 3-1: Stationäre Brennstoffzellen-Energiesysteme - Sicherheit

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Technologies des piles a combustible -- Partie 3-1: Systemes a piles a combustible stationnaires - Sécurité

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Ta slovenski standard je istoveten z: **EN 62282-3-1:2007**

ICS:

27.070 Gorilne celice Fuel cells

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EUROPEAN STANDARD

EN 62282-3-1

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**Fuel cell technologies -
Part 3-1: Stationary fuel cell power systems -
Safety
(IEC 62282-3-1:2007)**

Technologies des piles à combustible -
Partie 3-1: Systèmes à piles
à combustible stationnaires -
Sécurité
(CEI 62282-3-1:2007)

Brennstoffzellentechnologien -
Teil 3-1: Stationäre Brennstoffzellen-
Energiesysteme -
Sicherheit
(IEC 62282-3-1:2007)

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 105/138/FDIS, future edition 1 of IEC 62282-3-1, prepared by IEC TC 105, Fuel cell technologies, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62282-3-1 on 2007-05-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2008-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-05-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62282-3-1:2007 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> ²⁾
IEC 60079-0 (mod)	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements	EN 60079-0	2006 ²⁾
IEC 60079-2	- ¹⁾	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"	-	-
IEC 60079-10	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas	EN 60079-10	2003 ²⁾
IEC/TR 60079-16	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 16: Artificial ventilation for the protection of analyzer(s) houses	-	-
IEC/TR 60079-20	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus	-	-
IEC 60204-1 (mod)	- ¹⁾	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1	2006 ²⁾
IEC 60300-3-9	- ¹⁾	Dependability management - Part 3: Application guide - Section 9: Risk analysis of technological systems	-	-
IEC 60335-1 (mod)	- ¹⁾	Household and similar electrical appliances - Safety - Part 1: General requirements	EN 60335-1 + A11 + A12	2002 ²⁾ 2004 2006

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> ²⁾
IEC 60335-2-51	- ¹⁾	Household and similar electrical appliances - Safety - Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations	EN 60335-2-51	2003 ²⁾
IEC 60384-14	- ¹⁾	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005 ²⁾
IEC 60417	Data base	Graphical symbols for use on equipment	-	-
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60730-1 (mod)	- ¹⁾	Automatic electrical controls for household and similar use - Part 1: General requirements	EN 60730-1 + A12 + A13 + A14 + A15 + A16	2000 ²⁾ 2003 2004 2005 2007 2007
IEC 60730-2-5 (mod)	- ¹⁾	Automatic electrical controls for household and similar use - Part 2-5: Particular requirements for automatic electrical burner control systems	EN 60730-2-5 + A11	2002 ²⁾ 2005
IEC 60730-2-6	¹⁾	Automatic electrical controls for household and similar use - Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements	-	-
IEC 60730-2-9 (mod)	- ¹⁾	Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls	EN 60730-2-9 + A11 + A12	2002 ²⁾ 2003 2004
IEC 60730-2-17	- ¹⁾	Automatic electrical controls for household and similar use - Part 2-17: Particular requirements for electrically operated gas valves, including mechanical requirements	-	-
IEC 60730-2-19 (mod)	- ¹⁾	Automatic electrical controls for household and similar use - Part 2-19: Particular requirements for electrically operated oil valves, including mechanical requirements	EN 60730-2-19 + A11	2002 ²⁾ 2005
IEC 60812	- ¹⁾	Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA)	EN 60812	2006 ²⁾
IEC 60950-1 (mod)	2005	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1	2006

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-3-2	- ¹⁾	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	EN 61000-3-2	2006 ²⁾
IEC 61000-3-3	- ¹⁾	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	EN 61000-3-3 + corr. July + IS1	1995 ²⁾ 1997 2005
IEC/TS 61000-3-4	- ¹⁾	Electromagnetic compatibility (EMC) - Part 3-4: Limits - Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A	-	-
IEC/TS 61000-3-5	- ¹⁾	Electromagnetic compatibility (EMC) - Part 3-5: Limits - Section 5: Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 16 A	-	-
IEC 61000-6-1	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments	EN 61000-6-1	2007 ²⁾
IEC 61000-6-2	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2 + corr. September	2005 ²⁾ 2005
IEC 61000-6-3	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	EN 61000-6-3	2007 ²⁾
IEC 61000-6-4	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4	2007 ²⁾
IEC 61025	- ¹⁾	Fault Tree Analysis (FTA)	EN 61025	2007 ²⁾
IEC 61508	Series	Functional safety of electrical/electronic/programmable electronic safety-related systems	EN 61508	Series
IEC 61511-1	- ¹⁾	Functional safety - Safety instrumented systems for the process industry sector - Part 1: Framework, definitions, system, hardware and software requirements	EN 61511-1	2004 ²⁾
IEC 61511-3	- ¹⁾	Functional safety - Safety instrumented systems for the process industry sector - Part 3: Guidance for the determination of the required safety integrity levels	EN 61511-3	2004 ²⁾

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> ²⁾
IEC 61779-4 (mod)	- ¹⁾	Electrical apparatus for the detection and measurement of flammable gases - Part 4: Performance requirements for group II apparatus indicating a volume fraction up to 100 % lower explosive limit	EN 61779-4	2000 ²⁾
IEC 61779-6	- ¹⁾	Electrical apparatus for the detection and measurement of flammable gases - Part 6: Guide for the selection, installation, use and maintenance of apparatus for the detection and measurement of flammable gases	-	-
IEC 61882	- ¹⁾	Hazard and operability studies (HAZOP studies) - Application guide	-	-
IEC 62086-1	- ¹⁾	Electrical apparatus for explosive gas atmospheres - Electrical resistance trace heating - Part 1: General and testing requirements	EN 62086-1 ³⁾	2005 ²⁾
IEC 62282-2	- ¹⁾	Fuel cell technologies - Part 2: Fuel cell modules	EN 62282-2	2004 ²⁾
IEC 62282-3-2	- ¹⁾	Fuel cell technologies - Part 3-2 : Stationary fuel cell power plants - Performance test methods	EN 62282-3-2	2006 ²⁾
IEC Guide 104	1997	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO 3864-2	2004	Graphical symbols - Safety colours and safety signs - Part 2: Design principles for product safety labels	-	-
ISO 4413	- ¹⁾	Hydraulic fluid power - General rules relating to systems	-	-
ISO 4414	- ¹⁾	Pneumatic fluid power - General rules relating to systems	-	-
ISO 5388	- ¹⁾	Stationary air compressors - Safety rules and code of practice	-	-
ISO 7000	- ¹⁾	Graphical symbols for use on equipment - Index and synopsis	-	-
ISO 10439	- ¹⁾	Petroleum, chemical and gas service industries - Centrifugal compressors	EN ISO 10439	2002 ²⁾

³⁾ EN 62086-1 is superseded by EN 60079-30-1:2007, which is based on IEC 60079-30-1:2007.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> ²⁾
ISO 10440-1	- ¹⁾	Petroleum and natural gas industries - Rotary-type positive- displacement compressors - Part 1: Process compressors (oil-free)	EN ISO 10440-1	2000 ²⁾
ISO 10440-2	- ¹⁾	Petroleum and natural gas industries - Rotary-type positive-displacement compressors - Part 2: Packaged air compressors (oil-free)	EN ISO 10440-2	2001 ²⁾
ISO 10442	- ¹⁾	Petroleum, chemical and gas service industries - Packaged, integrally geared centrifugal air compressors	EN ISO 10442	2002 ²⁾
ISO 13631	- ¹⁾	Petroleum and natural gas industries - Packaged reciprocating gas compressors	EN ISO 13631	2002 ²⁾
ISO 13707	- ¹⁾	Petroleum and natural gas industries - Reciprocating compressors	-	-
ISO 13709	- ¹⁾	Centrifugal pumps for petroleum, petrochemical and natural gas industries	EN ISO 13709	2003 ²⁾
ISO 13850	- ¹⁾	Safety of machinery - Emergency stop - Principles for design	EN ISO 13850	2006 ²⁾
ISO 14121	- ¹⁾	Safety of machinery - Principles of risk assessment	-	-
ISO 14847	- ¹⁾	Rotary positive displacement pumps - Technical requirements	EN ISO 14847	1999 ²⁾
ISO 15649	- ¹⁾	Petroleum and natural gas industries - Piping	-	-
ISO/TR 15916	- ¹⁾	Basic considerations for the safety of hydrogen systems	-	-
ISO/TS 16528	- ¹⁾	Boilers and pressure vessels - Registration of Codes and Standards to promote international recognition	-	-
ISO/IEC Guide 7	1994	Guidelines for drafting standards suitable for use for conformity assessment	-	-
ISO/IEC Guide 51	1999	Safety aspects - Guidelines for their inclusion in standards	-	-

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Fuel cell technologies –

Part 3-1:
Stationary fuel cell power systems –
Safety

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Technologies des piles à combustible –

Partie 3-1: EST EN 62282-3-1:2007

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Systemes à piles à combustible stationnaires –
Sécurité



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE XC
CODE PRIX

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Pour prix, voir catalogue en vigueur

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUEL CELL TECHNOLOGIES –

**Part 3-1: Stationary fuel cell power systems –
Safety**

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 62282-3-1 has been prepared by IEC technical committee 105: Fuel cell technologies.

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

FDIS	Report on voting
105/138/FDIS	105/143/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 list of all the parts of the IEC 62282 series, under the general title *Fuel cell technologies*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

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