



**SLOVENSKI STANDARD**  
**SIST EN IEC 62282-5-100:2018**

**01-oktober-2018**

**Nadomešča:**  
**SIST EN 62282-5-1:2013**

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**Tehnologije gorivnih celic - 5-100. del: Naprave s prenosnimi gorivnimi celicami - Varnost (IEC 62282-5-100:2018)**

Fuel cell technologies - Part 5-100: Portable fuel cell power systems - Safety (IEC 62282-5-100:2018)

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**Ta slovenski standard je istoveten z EN IEC 62282-5-100:2018**

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**ICS:**

27.070            Gorilne celice    Fuel cells

**SIST EN IEC 62282-5-100:2018    en**

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EUROPEAN STANDARD

**EN IEC 62282-5-100**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2018

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Supersedes EN 62282-5-1:2012

English Version

**Fuel cell technologies - Part 5-100: Portable fuel cell power systems - Safety  
(IEC 62282-5-100:2018)**

Technologies des piles à combustible - Partie 5-100:  
Systèmes à piles à combustible portables - Sécurité  
(IEC 62282-5-100:2018)

Brennstoffzellentechnologien - Teil 5-100: Portable  
Brennstoffzellen-Energiesysteme - Sicherheit  
(IEC 62282-5-100:2018)

This European Standard was approved by CENELEC on 2018-05-17. CENELEC 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 CEN-CENELEC Management Centre or to any CENELEC member.

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

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

**EN IEC 62282-5-100:2018 (E)****European foreword**

The text of document 105/649/CDV, future edition 1 of IEC 62282-5-100, prepared by IEC/TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62282-5-100:2018.

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) 2019-02-17
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-05-17

This document supersedes EN 62282-5-1:2012

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**Endorsement notice**

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The text of the International Standard IEC 62282-5-100:2018 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 60079 series	NOTE Harmonized as EN IEC 60079 series
IEC 60079-0	NOTE Harmonized as EN IEC 60079-0
ISO/IEC 80079-20-1	NOTE Harmonized as EN ISO 80079-20-1 <sup>1</sup>
IEC 60079-32 series	NOTE Harmonized as EN 60079-32 series
IEC 60664-1	NOTE Harmonized as EN 60664-1
IEC 60730 series	NOTE Harmonized as EN 60730 series
IEC 61140	NOTE Harmonized as EN 61140
IEC 61439-1	NOTE Harmonized as EN 61439-1
ISO 4080	NOTE Harmonized as EN ISO 4080
ISO 15156-1	NOTE Harmonized as EN ISO 15156-1
IEC 62282-6-100	NOTE Harmonized as EN 62282-6-100

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<sup>1</sup> To be published.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

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](http://www.cenelec.eu).

Publication	Year	Title	EN/HD	Year
IEC 60034	series	Rotating electrical machines	-	-
IEC 60068-2-75	-	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	-EN 60068-2-75	-
IEC 60079-2	-	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"	EN 60079-2	-
IEC 60079-10	series	Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres	EN 60079-10	series
IEC 60079-15	-	Explosive atmospheres - Part 15: Equipment protection by type of protection	EN IEC 60079-15	-
IEC 60079-29	series	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases	EN 60079-29	series
IEC 60086-4	-	Primary batteries - Part 4: Safety of lithium batteries	EN 60086-4	-
IEC 60204-1 (mod)	2016	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1	2018
IEC 60216-4-1	-	Electrical insulating materials - Thermal endurance properties -- Part 4-1: Ageing ovens - Single-chamber ovens	EN 60216-4-1	-
IEC 60335-1 (mod)	2010	Household and similar electrical appliances - Safety - Part 1: General requirements	EN 60335-1	2012
+ A1	2013			
+ A2	2016			
-	-		+ A11	2014
-	-		+ AC	2014
-	-		+ A13	2017
IEC 60364-4-41	-	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	-
IEC 60529	-	Degrees of protection provided by-enclosures (IP Code)		-
IEC 60695-2-11	-	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products (GWEPT)	EN 60695-2-11	-

## EN IEC 62282-5-100:2018 (E)

IEC 60695-2-13	-	Fire hazard testing -- Part 2-13:EN 60695-2-13	-
		Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials	
IEC 60695-11-5	-	Fire hazard testing - Part 11-5: Test flamesEN 60695-11-5	-
		- Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	
IEC 60695-11-10	-	Fire hazard testing -- Part 11-10: TestEN 60695-11-10	-
		flames - 50 W horizontal and vertical flame test methods	
IEC 60695-11-20	-	Fire hazard testing - Part 11-20: TestEN 60695-11-20	-
		flames - 500 W flame test method	
IEC 60730-1 (mod)	2013	Automatic electrical controls - Part 1:EN 60730-1	2016
		General requirements	
+ A1	2015		2016
IEC 60730-2-5	-	Automatic electrical controls -- Part 2-5:EN 60730-2-5	-
		Particular requirements for automatic electrical burner control systems	
IEC 60730-2-17	-	Automatic electrical controls for household- and similar use -- Part 2-17: Particular requirements for electrically operated gas valves, including mechanical requirements	-
IEC 60812	-	Analysis techniques for system reliability -EN 60812	-
		Procedure for failure mode and effects analysis (FMEA)	
IEC 60884-1	-	Plugs and socket-outlets for household and similar purposes -- Part 1: General requirements	-
IEC 60934	-	Circuit-breakers for equipment (CBE) EN 60934	-
IEC 60950-1 (mod)	2005	Information technology equipment - SafetyEN 60950-1	2006
		- Part 1: General requirements	
-	-	<a href="https://standards.iteh.ai/catalog/standards/sist/2e6c7c74-f15d-4c84-1102-5821e6773ea0/sist-en-iec-62282-5-100-2018">https://standards.iteh.ai/catalog/standards/sist/2e6c7c74-f15d-4c84-1102-5821e6773ea0/sist-en-iec-62282-5-100-2018</a>	2009
+ A1 (mod)	2009	+ A1	2010
-	-	+ A12	2011
-	-	+ AC	2011
+ A2 (mod)	2013	+ A2	2013
IEC 60990	2016	Methods of measurement of touch currentEN 60990	2016
		and protective conductor current	
IEC 61000-3-2	-	Electromagnetic compatibility (EMC) - PartEN IEC 61000-3-2	-
		3-2: Limits - Limits for harmonic current emissions (equipment input current $\leq$ 16 A per phase)	
IEC 61000-3-3	-	Electromagnetic compatibility (EMC) - PartEN 61000-3-3	-
		3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq$ 16 A per phase and not subject to conditional connection	
IEC 61000-6-1	-	Electromagnetic compatibility (EMC) - PartEN 61000-6-1	-
		6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	
IEC 61000-6-2	-	Electromagnetic compatibility (EMC) - PartEN 61000-6-2	-
		6-2: Generic standards - Immunity standard for industrial environments	
IEC 61000-6-3	-	Electromagnetic compatibility (EMC) -- PartEN 61000-6-3	-
		6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	

IEC 61000-6-4	-	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN IEC 61000-6-4	-
IEC 61025	-	Fault Tree Analysis (FTA)	EN 61025	-
IEC 61032	-	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	-
IEC 61508-1	-	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements	EN 61508-1	-
IEC 61511-1	-	Functional safety - Safety instrumented systems for the process industry sector - Part 1: Framework, definitions, system, hardware and application programming requirements	EN 61511-1	-
IEC 61511-3	-	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	-
IEC 61882	-	Hazard and operability studies (HAZOP studies) - Application guide	EN 61882	-
IEC 62040-1	-	Uninterruptible power systems (UPS) - Part 1: Safety requirements		-
IEC 62040-2	-	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements		-
IEC 62133	series	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications	EN 62133 series	series
IEC 62282-2	-	Fuel cell technologies -- Part 2: Fuel cell modules	EN 62282-2	-
ISO 3864	series	Graphical symbols - Safety colours and safety signs		-
ISO 7000	-	Graphical symbols for use on equipment -- Registered symbols		-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	EN ISO 7010	-
ISO 15649	-	Petroleum and natural gas industries -- Piping		-
ISO 16000-3	-	Indoor air -- Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method		-
ISO 16000-6	-	Indoor air -- Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS or MS-FID		-
ISO 16017-1	2000	Indoor, ambient and workplace air Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography -- Part 1: Pumped sampling	EN ISO 16017-1	2000
ISO 16111	-	Transportable gas storage devices --- Hydrogen absorbed in reversible metal hydride		-
ISO 16528	series	Boilers and pressure vessels		-

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IEC 62282-5-100

Edition 1.0 2018-04

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Fuel cell technologies –  
Part 5-100: Portable fuel cell power systems – Safety**

**Technologies des piles à combustible –  
Partie 5-100: Systèmes à piles à combustible portables – Sécurité**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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INTERNATIONALE

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## CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references .....	10
3 Terms and definitions .....	13
4 Design and construction requirements .....	18
4.1 Physical environment and operating conditions.....	18
4.1.1 General requirements .....	18
4.1.2 Electrical power input .....	18
4.1.3 Handling, transportation, and storage .....	18
4.2 Material compatibility .....	18
4.2.1 General requirements for material compatibility .....	18
4.2.2 Polymeric and elastomeric components .....	19
4.2.3 Fuel connection devices .....	19
4.3 Protection against mechanical hazards .....	19
4.4 Protection against toxicity of fuels and fuel feedstocks.....	20
4.5 Protection against explosion hazards .....	20
4.5.1 General requirements for protection against explosion hazards .....	20
4.5.2 Flammable atmospheres within the portable fuel cell power system.....	20
4.5.3 Normal operation .....	20
4.5.4 Abnormal operation .....	20
4.5.5 Purging.....	20
4.5.6 Electrostatic discharge .....	21
4.6 Protection against electric shock.....	21
4.6.1 General requirements for protection against electric shock .....	21
4.6.2 Protection against direct contact with live parts .....	21
4.6.3 Protection against indirect contact with live parts.....	22
4.6.4 Protection by the use of SELV .....	22
4.7 Selection of electrical components and equipment .....	23
4.7.1 Area classification and suitability .....	23
4.7.2 Turning moments .....	23
4.7.3 Fuses .....	23
4.7.4 Capacitor discharge.....	23
4.7.5 Securing of parts .....	23
4.7.6 Current-carrying parts.....	24
4.7.7 Internal wiring.....	24
4.7.8 Cord-connected portable fuel cell power systems .....	24
4.7.9 Strain relief.....	25
4.7.10 Creepage and clearances .....	25
4.7.11 Separation of circuits .....	25
4.7.12 Protection of receptacles .....	26
4.7.13 Earthing and bonding.....	26
4.8 Protection against fire hazard .....	26
4.8.1 General intent and purpose of protection against fire hazard .....	26
4.8.2 Flammability .....	26
4.8.3 Openings in equipment .....	27
4.9 Protection against temperature hazards .....	28
4.9.1 General requirements for protection against temperature hazards .....	28

4.9.2	Surface temperatures .....	28
4.9.3	Component temperatures .....	28
4.9.4	Wall, floor and ceiling temperatures .....	28
4.10	Protection against electromagnetic disturbances .....	28
4.11	Hazard and risk assessment .....	28
4.11.1	General requirements for hazard and risk assessment and the approach .....	28
4.11.2	Safety and reliability analysis .....	29
4.12	Safety control circuits .....	29
4.13	Protection against oxygen depletion .....	29
4.14	Emission of effluents .....	30
4.15	Fuel supply .....	30
4.16	Fuel processing systems (if applicable) .....	30
4.17	Enclosures .....	31
4.17.1	General requirements for all enclosures .....	31
4.17.2	Enclosure requirements for outdoor use .....	31
4.18	Battery supplies .....	31
4.18.1	General requirements for batteries .....	31
4.18.2	Battery compartments .....	31
4.18.3	Vented wet cell batteries .....	32
4.18.4	Ventilation of battery compartments .....	32
4.19	Pressure vessels and piping .....	32
4.19.1	General requirements for pressure vessels and piping .....	32
4.19.2	Piping systems .....	32
4.20	Hoses .....	33
4.21	Automatic shut-off valves .....	33
4.22	Regulators .....	33
4.23	Process control equipment .....	33
4.24	Filters .....	33
4.24.1	Air filters .....	33
4.24.2	Liquid fuel filters .....	34
4.25	Motors .....	34
4.26	Fuel pumps .....	34
5	Instructions .....	34
5.1	Operation and maintenance manual .....	34
5.2	User's information manual .....	36
5.2.1	User's information manual general requirements .....	36
5.2.2	User's information manual front cover .....	36
5.2.3	Users information manual safety section .....	36
6	Labelling .....	37
6.1	General labelling requirements .....	37
6.2	Marking .....	37
6.3	Warnings .....	38
7	Type tests .....	38
7.1	General requirements for type tests .....	38
7.2	Tests sequence .....	39
7.3	Leakage test for liquid fueled systems .....	39
7.3.1	General requirements for leakage tests for liquid fueled systems .....	39
7.3.2	Method of test .....	39
7.4	Flammable fuel gas concentration test .....	40

7.4.1	General requirements for flammable gas concentration testing .....	40
7.4.2	Method of test.....	40
7.5	Surface temperature test.....	40
7.6	Component temperature test.....	40
7.7	Wall, floor and ceiling temperatures test .....	40
7.8	Dielectric strength test .....	41
7.8.1	General requirements for dielectric strength and testing .....	41
7.8.2	Test method .....	41
7.9	Humidity test.....	41
7.10	Leakage current at operating temperature.....	41
7.10.1	Leakage current testing requirement and duration .....	41
7.10.2	Test method .....	42
7.11	Abnormal operation testing .....	42
7.11.1	Abnormal operation testing – General requirements.....	42
7.11.2	Abnormal operation tests – Outcomes and further testing requirements.....	42
7.11.3	Abnormal operation test methods .....	42
7.12	Strain relief test .....	43
7.13	Insulating material test.....	43
7.14	Earthing test .....	43
7.15	Tank pressure test .....	43
7.16	Stability.....	44
7.17	Impact test.....	44
7.18	Free drop test .....	45
7.19	Adhesion and legibility of marking materials.....	46
7.20	Flammable gas accumulation test basis and applicability.....	46
7.20.1	Flammable gas accumulation test basis and applicability.....	46
7.20.2	Test set-up .....	47
7.20.3	Test method .....	47
7.21	Oxygen depletion test .....	47
7.21.1	Oxygen depletion test basis and applicability.....	47
7.21.2	Test set-up .....	47
7.21.3	Test method .....	48
7.22	Emission of effluents tests .....	48
7.22.1	Emission of effluents testing sequence .....	48
7.22.2	Emission of effluents for indoors.....	48
7.23	Wind test .....	50
7.23.1	Wind test applicability.....	50
7.23.2	Method of test.....	50
7.24	Strength test .....	51
7.24.1	Strength test sequencing and alternative compliance methods .....	51
7.24.2	Method of test (liquid).....	51
7.24.3	Method of test (gas).....	51
7.24.4	Passing criteria.....	51
7.25	Stress relief test.....	52
7.26	Fuel supply securement test .....	52
7.27	Shutdown parameters .....	52
7.28	Non-metallic tubing conductivity test .....	52
7.28.1	Passing criteria.....	52
7.28.2	Test method .....	52

7.29	Non-metallic tubing test for accumulation of static electricity.....	53
7.29.1	Passing criteria.....	53
7.29.2	Test method .....	53
8	Routine tests .....	53
8.1	Routine test requirements .....	53
8.2	Liquid leakage test.....	53
8.3	Gas leakage test.....	53
8.4	Dielectric strength test .....	54
8.5	Routine test records.....	54
Annex A	(normative) Ventilation rates for batteries .....	55
A.1	Ventilation rate for valve regulated lead acid batteries .....	55
A.2	Ventilation rate for vented wet cell batteries.....	55
Annex B	(informative) Shock and vibration limits for high shock environments .....	56
B.1	Field of application.....	56
B.2	Vertical axis test .....	56
B.3	Longitudinal and lateral axes tests .....	56
Annex C	(normative) Uncertainty of measurements .....	58
Bibliography	.....	59
Figure 1	– Portable fuel cell power systems .....	9
Figure 2	– Articulated probe.....	46
Table 1	– Emission limits based on STEL .....	50
Table B.1	– Vertical axis vibration conditions .....	56
Table B.2	– Longitudinal and lateral axes vibration conditions .....	57
Table C.1	– Measurements and their maximum uncertainties .....	58

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FUEL CELL TECHNOLOGIES –

## Part 5-100: Portable 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 62282-5-100 has been prepared by IEC technical committee 105: Fuel cell technologies.

This edition cancels and replaces the second edition of IEC 62282-5-1, published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 62282-5-1:

- the requirements and verification method regarding 4.13 and 7.21 for oxygen depletion have been modified;
- the requirements and verification method regarding 4.14 and 7.22 for emission of effluents have been modified;
- Subclauses 4.21 and 7.20.3, for fuel cell power systems with flammable gas generators relying on water reactive technology, new safety requirements and test procedures have been added;
- Subclause 7.11.1 e) has been updated; for an overcurrent test in abnormal operations, a new test procedure in consideration of safety has been added.

The text of this International Standard is based on the following documents:

CDV	Report on voting
105/649/CDV	105/670/RVC

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

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

A list of all parts in the IEC 62282 series, published under the general title *Fuel cell technologies*, can be found on the IEC website.

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

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

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<https://standards.iteh.ai/catalog/standards/sist/2e6c7c74-f15d-4e34-9b02-5821e6773ea0/sist-en-iec-62282-5-100-2018>