



SLOVENSKI STANDARD SIST EN 62282-6-200:2012

01-december-2012

Nadomešča:

SIST EN 62282-6-200:2008

**Tehnologija gorivnih celic - 6-200. del: Tehnologija mikro gorivnih celic -
Preskusne metode delovanja**

Fuel cell technologies - Part 6-200: Micro fuel cell power systems - Performance test methods

Brennstoffzellentechnologien - Teil 6-200: Mikrobrennstoffzellen-Energiesysteme -
Leistungskennwertepfverfahren

Technologies des piles à combustible - Partie 6-200: Systèmes à micro-piles à
combustible - Méthodes d'essai des performances

Ta slovenski standard je istoveten z: EN 62282-6-200:2012

ICS:

27.070 Gorilne celice Fuel cells

SIST EN 62282-6-200:2012 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62282-6-200:2012

<https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62282-6-200

September 2012

ICS 27.070

Supersedes EN 62282-6-200:2008

English version

**Fuel cell technologies -
Part 6-200: Micro fuel cell power systems -
Performance test methods
(IEC 62282-6-200:2012)**

Technologies des piles à combustible -
Partie 6-200: Systèmes à micro-piles
à combustible -
Méthodes d'essai des performances
(CEI 62282-6-200:2012)

Brennstoffzellentechnologien -
Teil 6-200: Mikrobrennstoffzellen-
Energiesysteme -
Leistungskennwertepfverfahren
(IEC 62282-6-200:2012)

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

This European Standard was approved by CENELEC on 2012-08-28. 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.

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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 105/394/FDIS, future edition 2 of IEC 62282-6-200, prepared by IEC/TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62282-6-200:2012.

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) 2013-05-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-08-28

This document supersedes EN 62282-6-200:2008.

EN 62282-6-200:2012 includes the following significant technical changes with respect to EN 62282-6-200:2008:

- a) changes have been incorporated to make this edition fuel independent:
 - the definition of "fuel" is now consistent with that of IEC/TS 62282-1:2010;
 - the restriction on specific fuels (methanol or methanol/water solution, formic acid, hydrogen, methanol clathrate compound, borohydride compound, butane, etc.) has been lifted;
- b) modification of definition of "off-state" to "standby state";
- c) in Clause 3, Terms and definitions, for the purposes of this document, IEC/TS 62282-1:2010 applies except for the following terms:
 - conditioning; [SIST EN 62282-6-200:2012](https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012)
 - micro fuel cell power system; <https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012>
 - standby state; and
 - starting duration.

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 62282-6-200:2012 was approved by CENELEC as a European Standard without any modification.

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 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>
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60721-3-7	-	Classification of environmental conditions - Part 3-7: Classification of groups of environmental parameters and their severities - Portable and non-stationary use	EN 60721-3-7	-
IEC/TS 62282-1	2010	Fuel cell technologies - Part 1: Terminology	-	-
ISO 4677-1	-	Atmospheres for conditioning and testing - Determination of relative humidity - Part 1: Aspirated psychrometer method	-	-
ISO 4677-2	-	Atmospheres for conditioning and testing - Determination of relative humidity - Part 2: Whirling psychrometer method	-	-
ISO/IEC 17025	-	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 62282-6-200:2012

<https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012>



IEC 62282-6-200

Edition 2.0 2012-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Fuel cell technologies – Part 6-200: Micro fuel cell power systems – Performance test methods

Technologies des piles à combustible – Partie 6-200: Systèmes à micro-piles à combustible – Méthodes d'essai des performances

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

P

ICS 27.070

ISBN 978-2-83220-260-90

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	7
3 Terms and definitions	7
4 General principles	8
4.1 Testing environment.....	8
4.2 Minimum required measurement accuracy.....	8
4.3 Measuring instruments	8
4.3.1 General	8
4.3.2 Voltage.....	8
4.3.3 Current.....	8
4.3.4 Time.....	8
4.3.5 Weight.....	9
4.3.6 Temperature.....	9
4.3.7 Humidity.....	9
4.3.8 Pressure.....	9
4.3.9 Vibration frequency.....	9
4.3.10 Volume.....	9
5 Tests.....	9
5.1 Test procedure.....	9
5.2 Power generation characteristics.....	9
5.2.1 Starting duration.....	9
5.2.2 Rated power test and rated voltage test.....	10
5.2.3 Power generation test after disuse.....	10
5.2.4 Power generation test at low and high temperatures.....	10
5.2.5 Power generation test under low and high humidity conditions.....	10
5.2.6 Altitude test.....	10
5.3 Fuel consumption test	11
5.4 Mechanical durability tests	11
5.4.1 Drop test	11
5.4.2 Vibration test.....	12
6 Labelling and marking	13
7 Test report.....	13
 Figure 1 – Typical example of a functional arrangement of a micro fuel cell power system.....	 6
 Table 1 – Drop height	 12
Table 2 – Vibration condition	12
Table 3 – Test report of micro fuel cell power system – Performance test	13

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUEL CELL TECHNOLOGIES –

Part 6-200: Micro fuel cell power systems –
Performance test methods

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62282-6-200 has been prepared by IEC technical committee 105: Fuel cell technologies.

This second edition cancels and replaces the first edition, published in 2007, and constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- a) changes have been incorporated to make this edition fuel independent:
 - the definition of "fuel" is now consistent with that of IEC/TS 62282-1:2010;
 - the restriction on specific fuels (methanol or methanol/water solution, formic acid, hydrogen, methanol clathrate compound, borohydride compound, butane, etc.) has been lifted;
- b) modification of definition of "off-state" to "standby state";

c) in Clause 3, Terms and definitions, for the purposes of this document, IEC/TS 62282-1:2010 applies except for the following terms:

- conditioning;
- micro fuel cell power system;
- standby state; and
- starting duration.

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

FDIS	Report on voting
105/394/FDIS	105/401/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.

A list of all 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 stability 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.

(standards.iteh.ai)
SIST EN 62282-6-200:2012
<https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012>

INTRODUCTION

With advancements in technology, the expectation or demand for the commercial introduction of fuel cells has increased dramatically in recent years. It is especially strong for micro fuel cell power systems intended for applications in laptop computers, mobile phones, personal digital assistants (PDAs), cordless home appliances, TV broadcast cameras, autonomous robots, etc. The essential component of a micro fuel cell power system is its power unit. Some micro fuel cell power systems have built-in power units and others have external power units.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[SIST EN 62282-6-200:2012](https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012)

<https://standards.iteh.ai/catalog/standards/sist/40bfc6e-718b-4184-8068-80872eeeaec6/sist-en-62282-6-200-2012>