
Tehnologije gorivnih celic – 3-2. del: Nepremični elektroenergetski sistemi z gorivnimi celicami – Preskusne metode zmogljivosti

Fuel cell technologies - Part 3-2: Stationary fuel cell power systems - Performance test methods

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Fuel cell technologies
Part 3-2: Stationary fuel cell power systems -
Performance test methods
(IEC 62282-3-2:2006)

Technologies des piles à combustible -
Partie 3-2: Systèmes à piles
à combustible stationnaires -
Méthodes d'essai des performances
(CEI 62282-3-2:2006)

Brennstoffzellentechnologien
Teil 3-2: Stationäre
Brennstoffzellen-Energiesysteme -
Leistungskennwertepfverfahren
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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 105/103/FDIS, future edition 1 of IEC 62282-3-2, prepared by IEC TC 105, Fuel cell technologies, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62282-3-2 on 2006-05-01.

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) 2007-02-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-05-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62282-3-2:2006 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC ISO 8041

NOTE

Harmonized as EN ISO 8041:2005 (not modified).

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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>
IEC 60051	Series	Direct acting indicating analogue electrical measuring instruments and their accessories	EN 60051	Series
IEC 60359	2001	Electrical and electronic measurement equipment - Expression of performance	EN 60359	2002
IEC 60688	1992	Electrical measuring transducers for converting a.c. electrical quantities to analogue or digital signals	EN 60688	1992
IEC 61000-4-7	- ¹⁾	Electromagnetic compatibility (EMC) Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	EN 61000-4-7	2002 ²⁾
IEC 61000-4-13	- ¹⁾	Electromagnetic compatibility (EMC) Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	EN 61000-4-13	2002 ²⁾
IEC 61028	1991	Electrical measuring instruments - X-Y recorders	EN 61028	1993
IEC 61143	Series	Electrical measuring instruments - X-t recorders	EN 61143	Series
IEC 61672-1	- ¹⁾	Electroacoustics - Sound level meters Part 1: Specifications	EN 61672-1	2003 ²⁾
IEC 61672-2	- ¹⁾	Electroacoustics - Sound level meters Part 2: Pattern evaluation tests	EN 61672-2	2003 ²⁾
IEC 62052-11	- ¹⁾	Electricity metering equipment (AC) - General requirements, tests and test conditions Part 11: Metering equipment	EN 62052-11	2003 ²⁾
IEC 62053-22	- ¹⁾	Electricity metering equipment (a.c.) - Particular requirements Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)	EN 62053-22	2003 ²⁾

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>
ISO 3648	- ¹⁾	Aviation fuels – Estimation of net specific energy	-	-
ISO 3744	1994	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane	EN ISO 3744	1995
ISO 4677-1	- ¹⁾	Atmospheres for conditioning and testing - Determination of relative humidity Part 1: Aspirated psychrometer method	-	-
ISO 4677-2	- ¹⁾	Atmospheres for conditioning and testing - Determination of relative humidity Part 2: Whirling psychrometer method	-	-
ISO 5167	Series	Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full	EN ISO 5167	Series
ISO 5348	- ¹⁾	Mechanical vibration and shock - Mechanical mounting of accelerometers	-	-
ISO 6060	- ¹⁾	Water quality - Determination of the chemical oxygen demand	-	-
ISO 6326	Series	Natural gas - Determination of sulfur compounds	EN ISO 6326	Series
ISO 6974	Series	Natural gas - Determination of composition with defined uncertainty by gas chromatography	EN ISO 6974	Series
ISO 6975	- ¹⁾	Natural gas - Extended analysis - Gas-chromatographic method	EN ISO 6975	2005 ²⁾
ISO 6976	- ¹⁾	Natural gas - Calculation of calorific values, density, relative density and Wobbe index from composition	EN ISO 6976	2005 ²⁾
ISO 7934	- ¹⁾	Stationary source emissions - Determination of the mass concentration of sulfur dioxide - Hydrogen peroxide/barium perchlorate/Thorin method	-	-
ISO 7935	- ¹⁾	Stationary source emissions - Determination of the mass concentration of sulfur dioxide - Performance characteristics of automated measuring methods	-	-
ISO 8217	- ¹⁾	Petroleum products - Fuels (class F) - Specifications of marine fuels	-	-
ISO 9096	- ¹⁾	Stationary source emissions - Manual determination of mass concentration of particulate matter	-	-
ISO 10101	Series	Natural gas - Determination of water by the Karl Fischer Method	EN ISO 10101	Series

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 10396	- ¹⁾	Stationary source emissions - Sampling for the automated determination of gas concentrations	-	-
ISO 10523	- ¹⁾	Water quality - Determination of pH	-	-
ISO 10707	- ¹⁾	Water quality - Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds - Method by analysis of biochemical oxygen demand (closed bottle test)	EN ISO 10707	1997 ²⁾
ISO 10780	- ¹⁾	Stationary source emissions - Measurement of velocity and volume flowrate of gas streams in ducts	-	-
ISO 10849	- ¹⁾	Stationary source emissions - Determination of the mass concentration of nitrogen oxides - Performance characteristics of automated measuring systems	-	-
ISO 11042-1	- ¹⁾	Gas turbines - Exhaust gas emission Part 1: Measurement and evaluation	-	-
ISO 11042-2	- ¹⁾	Gas turbines - Exhaust gas emission Part 2: Automated emission monitoring	-	-
ISO 11541	- ¹⁾	Natural gas - Determination of water content at high pressure	EN ISO 11541	1997 ²⁾
ISO 11564	- ¹⁾	Stationary source emissions - Determination of the mass concentration of nitrogen oxides - Naphthylethylenediamine photometric method	-	-
ISO 14687	1999	Hydrogen fuel - Product specification	-	-
ISO 16622	- ¹⁾	Meteorology - Sonic anemometers/thermometers - Acceptance test methods for mean wind measurements	-	-
ASTM D4809-00	- ¹⁾	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	-	-

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Technologies des piles à combustible –

Partie 3-2:

**Systèmes à piles à combustible stationnaires –
Méthodes d'essai des performances**

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Fuel cell technologies –

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**Stationary fuel cell power systems –
Performance test methods**

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FUEL CELL TECHNOLOGIES –

**Part 3-2: Stationary fuel cell power systems –
Performance test methods**

FOREWORD

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International Standard IEC 62282-3-2 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
105/103/FDIS	105/108/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.

IEC 62282 consists of the following parts under the general title *Fuel cell technologies*:

- Part 1: Terminology
- Part 2: Fuel cell modules
- Part 3-1: Stationary fuel cell power systems – Safety (under consideration)
- Part 3-2: Stationary fuel cell power systems – Performance test methods
- Part 3-3: Stationary fuel cell power systems – Installation (under consideration)
- Part 4: Fuel cell systems for propulsion and auxiliary power units (under consideration)
- Part 5: Portable fuel cell appliances – Safety and performance requirements (under consideration)
- Part 6-1: Micro fuel cell power systems – Safety (under consideration)
- Part 6-2: Micro fuel cell power systems – Performance (under consideration)
- Part 6-3: Micro fuel cell power systems – Interchangeability (under consideration)

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

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INTRODUCTION

This part of IEC 62282 describes how to measure the performance of stationary fuel cell power systems for residential, commercial, agricultural and industrial applications. The following fuel cell types have been considered: Alkaline Fuel Cells (AFC), Phosphoric Acid Fuel Cells (PAFC), Polymer Electrolyte Fuel Cells (PEFC), Molten Carbonate Fuel Cells (MCFC) and Solid Oxide Fuel Cells (SOFC).

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