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Standards

Irish Standard
I.S. EN 62282-6-300:2013

Fuel cell technologies -- Part 6-300: Micro fuel cell power systems - Fuel cartridge interchangeability (IEC 62282 -6-300:2012 (EQV))

I.S. EN 62282-6-300:2013

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English version

**Fuel cell technologies -
Part 6-300: Micro fuel cell power systems -
Fuel cartridge interchangeability
(IEC 62282-6-300:2012)**

Technologies des piles à combustible -
Partie 6-300: Systèmes à micro-piles à
combustible -
Interchangeabilité de la cartouche de
combustible
(CEI 62282-6-300:2012)

Brennstoffzellentechnologien -
Teil 6-300: Mikrobrennstoffzellen-
Energiesysteme -
Austauschbarkeit der Brennstoffkartusche
(IEC 62282-6-300:2012)

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

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Foreword

The text of document 105/370/CDV, future edition 2 of IEC 62282-6-300, prepared by IEC TC 105, "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62282-6-300:2013.

The following dates are fixed:

- latest date by which the document has (dop) 2014-01-05
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2016-01-17
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62282-6-300:2009.

EN 62282-6-300:2013 includes the following significant technical changes with respect to EN 62282-6-300:2009:

- a) The status of designs yet to be included in the standard is clarified.
- b) Type A to D interchangeable connectors are updated, and Type E is added.
- c) The procedures, criteria and figures of the type tests for interchangeable connectors are updated to ensure they produce accurate and consistent results.
- d) The fuel quality requirements are updated including the test procedures for residue and impurities.

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 62282-6-300:2012 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 61032 | NOTE Harmonized as EN 61032. |
| IEC 62282-6-200 | NOTE Harmonized as EN 62282-6-200. |

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 60950-1	-	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1	-
IEC 62282-6-100 + corr. December	2010 2011	Fuel cell technologies - Part 6-100: Micro fuel cell power systems - Safety	EN 62282-6-100	2010
IEC 62282-6-200	-	Fuel cell technologies - Part 6-200: Micro fuel cell power systems - Performance test methods	EN 62282-6-200	-
ISO 1302	2002	Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation	EN ISO 1302	2002

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUEL CELL TECHNOLOGIES –

Part 6-300: Micro fuel cell power systems – Fuel cartridge interchangeability

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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- 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.

International Standard IEC 62282-6-300 has been prepared by IEC technical committee 105: Fuel cell technologies.

This second edition cancels and replaces the first edition, published in 2009, and constitutes a technical revision.

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

- a) The status of designs yet to be included in the standard is clarified.
- b) Type A to D interchangeable connectors are updated, and Type E is added.
- c) The procedures, criteria and figures of the type tests for interchangeable connectors are updated to ensure they produce accurate and consistent results.
- d) The fuel quality requirements are updated including the test procedures for residue and impurities.

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

CDV	Report on voting
105/370/CDV	105/409/RVC

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.

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning fuel connectors given in 4.3.1, 4.3.2, 4.3.3 and 4.3.4, patents concerning mechanical keys given in 4.2.3, and patents concerning fuel quality in 5.5.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

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- Toyo Seikan Kaisha, Ltd., 3-1 Uchisaiwaicho 1-chome, Tokyo 100-8522 Japan
- Toshiba Corporation, 1-1, Shibaura 1-chome, Tokyo 1005-8001 Japan
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ISO (www.iso.org/patents) and IEC (<http://patents.iec.ch>) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

FUEL CELL TECHNOLOGIES –

Part 6-300: Micro fuel cell power systems – Fuel cartridge interchangeability

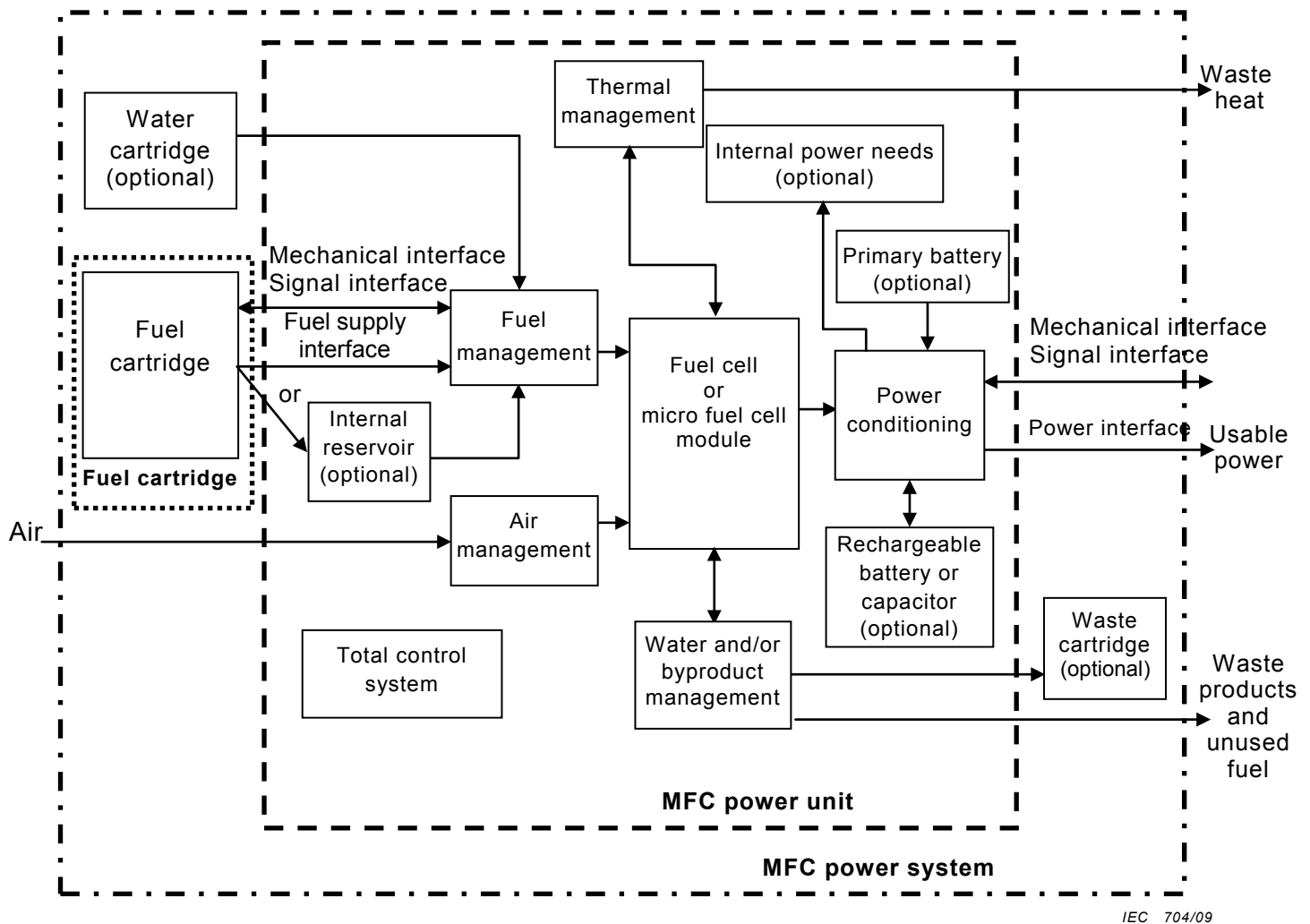
1 Scope

This part of IEC 62282 covers interchangeability of micro fuel cell (MFC) fuel cartridges to provide the cartridge compatibility for a variety of MFC power units while maintaining the safety and performance of MFC power systems. For this purpose, the standard covers fuel cartridges and their connector designs. Fuel type, fuel concentration and fuel quality are also covered. This standard also provides for the means to avoid the miss-connection of an improper fuel cartridge. Test methods for verifying the compliance with the interchangeability requirements for fuel and fuel cartridges are also provided in this standard.

IEC 62282-6-100 and IEC 62282-6-200 do not cover fuel cartridge or fuel from the cartridge. IEC 62282-6-300 describes the performance test methods of fuel cartridges, the fuel from the cartridge, and markings to realize the interchangeability of fuel cartridges. These include performance effect of fuel cartridges, such as fuel quality which may affect the performance of MFC power units and usable fuel volume from fuel cartridges.

A MFC power system block diagram is shown in Figure 1. MFC power systems and MFC power units are defined as those wearable or easily carried by hand, providing d.c. outputs that do not exceed 60 V and power outputs that do not exceed 240 VA. This standard covers the fuel cartridge for MFC power units and the mechanical interface of connectors between fuel cartridges and MFC power units. The main body of this standard includes methanol liquid fuel cartridges, including methanol and water solution. Annex A shows the background used to determine the forces expected in normal operation and in foreseeable misuse. Annex B shows the example design for test fixtures for the fuel connector and fuel cartridge type tests.

NOTE Liquid fuel means fuel transported from a cartridge to a MFC power unit in the liquid state, and gas fuel means fuel transported from a cartridge to a power unit in the gaseous state.



IEC 704/09

Figure 1 – MFC power system block diagram

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 60950-1, *Information technology equipment – Safety – Part 1: General requirements*

IEC 62282-6-100:2010, *Fuel cell technologies – Part 6-100: Micro fuel cell power systems – Safety*

IEC 62282-6-200, *Fuel cell technologies – Part 6-200: Micro fuel cell power systems – Performance test methods*

ISO 1302:2002, *Geometrical product specifications (GPS) – Indication of surface texture in technical product documentation*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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