

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fuel cell technologies –
Part 3-3: Stationary fuel cell power systems – Installation**

**Technologies des piles à combustible –
Partie 3-3: Systèmes à piles à combustible stationnaires – Installation**

IEC 62282-3-3:2007

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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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FUEL CELL TECHNOLOGIES –

**Part 3-3: Stationary fuel cell power systems –
Installation**

FOREWORD

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International Standard IEC 62282-3-3 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
105/152/FDIS	105/170/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 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- withdrawn,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
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INTRODUCTION

This International Standard covers the installation of stationary fuel cell power systems that are built in compliance with IEC 62282-3-1.

The requirements of this standard are not intended to constrain innovation. Installations employing materials and/or methods differing from those detailed in this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

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FUEL CELL TECHNOLOGIES –

Part 3-3: Stationary fuel cell power systems – Installation

1 Scope

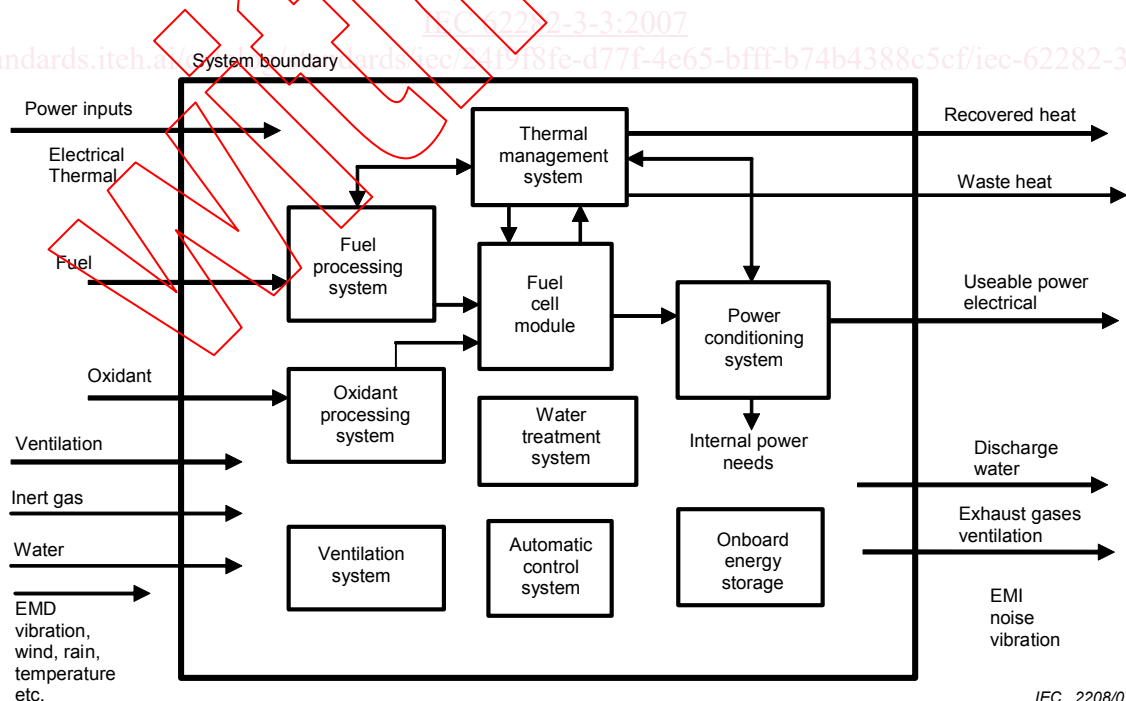
This part of IEC 62282 provides minimum safety requirements for the installation of indoor and outdoor stationary fuel cell power systems in compliance with IEC 62282-3-1 and applies to the installation of the mentioned systems

- intended for electrical connection to mains directly or with a transfer switch,
- intended for a stand-alone power distribution system,
- intended to provide AC or DC power,
- with or without the ability to recover useful heat.

This part of IEC 62282 does not cover:

- fuel supply and/or fuel storage systems,
- power connector to the grid,
- portable fuel cell power systems,
- propulsion fuel cell power systems,
- APU (auxiliary power units) applications.

A typical stationary fuel cell power system installation is represented in Figure 1.



IEC 2208/07

Figure 1 – Fuel cell power system

Fuel cell power systems are divided into two categories:

- Small systems.
- Large systems.

Definitions are given in Clause 3.

2 Normative references

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.

IEC 60079-10, *Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas*

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*

IEC 61779-4: *Electrical apparatus for the detection and measurement of flammable gases – Part 4: Performance requirements for group II apparatus indicating up to 100 % lower explosive limit*

IEC 61779-6: *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, *Hazard and operability studies (HAZOP studies) – Application guide*

IEC 62282-3-1, *Fuel cell technologies – Part 3-1: Stationary fuel cell power systems – Safety*

ISO 14121, *Safety of machinery – Principles of risk assessment*

3 Terms and definitions

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

3.1

accessible (operator access area)

area to which, under normal operating conditions, one of the following applies:

- access can be gained without the use of a tool;
- the means of access are deliberately provided to the operator;
- the operator is instructed to enter regardless of whether or not a tool is needed to gain access

NOTE The terms "access" and "accessible", unless qualified, relate to operator access area as defined above.

3.2

approved

acceptable to the authority having jurisdiction

3.3

authority having jurisdiction

AHJ

organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure

3.4

exhaust

gases removed from a fuel cell power system and not reused

3.5**exhaust system**

gas-conveying system for moving gases from a source to a point of discharge

3.6**fire prevention**

measures directed toward avoiding the inception of fire

3.7**fire protection**

methods of providing for fire control or fire extinguishment

3.8**fire risk evaluation**

detailed engineering review of a plant's construction features and operating process conducted to ensure that applicable fire prevention and fire protection requirements for safeguarding life and physical property are met

3.9**forced ventilation**

flow of air or gas created by a fan, blower, or other mechanical means that will push or induce the gas stream through a ventilation system

3.10**indoor installation**

fuel cell power system completely surrounded and enclosed by walls, a roof, and a floor

3.11**installation**

- location where a fuel cell power system is sited as a unit or built as an assembly
- act to install a fuel cell power system

3.12**large fuel cell power systems**

fuel cell power systems having a net electrical output of more than 10 kW

3.13**lower flammable limit****LFL**

lowest concentration of a flammable gas/vapour in air in which flame is propagated

3.14**natural ventilation**

flow of air or gases created by the difference in the pressures or gas densities between the outside and inside of a vent, room, or space

3.15**non-combustible**

not capable of supporting combustion in accordance with ISO 1182 or equivalent method

3.16**outside or outdoor installation**

power system installation that is not an indoor installation. When permitted by local or national regulations, an open-air structure with partial roof and/or walls may be considered an outdoor installation.

3.17**portable fuel cell power system**

fuel cell power system which is intended to be moved while in operation and not fastened or otherwise secured to a specific location

3.18**rooftop installation**

power system installation located on the roof of a building