BS EN 62282-6-300:2013

BSI Standards Publication

Fuel cell technologies

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

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 62282-6-300:2013. It is identical to IEC 62282-6-300:2012. It supersedes BS EN 62282-6-300:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/105, Fuel cell technologies.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2013

ISBN 978 0 580 77430 0
ICS 27.070

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2013.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62282-6-300

July 2013

ICS 27.070

Supersedes EN 62282-6-300:2009

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)

This European Standard was approved by CENELEC on 2013-01-17. 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.

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

Ref. No. EN 62282-6-300:2013 E

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• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-01-17

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.

Publication	Year	Title	EN/HD	Year
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

CONTENTS

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:

– Hitachi, Ltd., 1-1, Omika-cho 7-chome, Hitachi-shi, 319-1292 Japan
– Toyo Seikan Kaisha, Ltd., 3-1 Uchisaiwaicho 1-chome, Tokyo 100-8522 Japan
– Toshiba Corporation, 1-1, Shibaura 1-chome, Tokyo 1005-8001 Japan
– Tokai Corporation, 3-4, Shimohara, Subashiri, Oyama-cho, Sunto-Gun, Shisuoka, 410-1431 Japan
– NEC Corporation, 7-1, Shiba 5-chome, Tokyo 108-8001 Japan
– Samsung SDI Co., Ltd., 575 Shin-dong, Yeongtong-gu, Suwan-si, Gyeonggi-do, 443-731, Korea.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

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.