

<b>STN</b>	<b>Technológia palivových článkov Časť 4-600: Napájacie systémy na palivové články pre pohon vozidiel iných ako cestných vozidiel a pohonných hnacích jednotiek (APU) Skúšobné metódy palivových článkov/hybridných systémov batérií pre rýpadlá</b>	<b>STN EN IEC 62282-4-600</b>  36 4512
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Fuel cell technologies - Part 4-600: Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) - Fuel cell/battery hybrid systems performance test methods for excavators

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/22

Obsahuje: EN IEC 62282-4-600:2022, IEC 62282-4-600:2022

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September 2022

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**Fuel cell technologies - Part 4-600: Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) - Fuel cell/battery hybrid systems performance test methods for excavators (IEC 62282-4-600:2022)**

Technologies des piles à combustible - Partie 4-600:  
Systèmes à piles à combustible pour la propulsion, autres que les véhicules routiers et groupes auxiliaires de puissance (GAP) - Méthodes d'essai des performances des systèmes hybrides à piles à combustible/batterie pour les pelles  
(IEC 62282-4-600:2022)

Brennstoffzellen-Technologien - Teil 4-600:  
Brennstoffzellen-Energiesysteme für den Antrieb (mit Ausnahme von Straßenfahrzeugen und Hilfsantrieben) - Leistungskennwerteprüfverfahren für Brennstoffzellen/Batterie-Hybridsysteme für Bagger  
(IEC 62282-4-600:2022)

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**EN IEC 62282-4-600:2022 (E)****European foreword**

The text of document 105/914/FDIS, future edition 1 of IEC 62282-4-600, prepared by IEC/TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62282-4-600:2022.

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) 2023-06-16
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-6	NOTE Harmonized as EN 60068-2-6
IEC 60945	NOTE Harmonized as EN 60945
IEC 61000-4-11:2020	NOTE Harmonized as EN IEC 61000-4-11:2020 (not modified)
IEC 61672-1	NOTE Harmonized as EN 61672-1
IEC 62282-3-200	NOTE Harmonized as EN 62282-3-200
IEC 62282-3-201	NOTE Harmonized as EN 62282-3-201
IEC 62282-4-102	NOTE Harmonized as EN 62282-4-102
CISPR 11:2015	NOTE Harmonized as EN 55011:2016 (modified)
ISO 6974 (series)	NOTE Harmonized as EN ISO 6974 (series)
ISO 6975	NOTE Harmonized as EN ISO 6975
ISO 9000	NOTE Harmonized as EN ISO 9000
ISO 10523	NOTE Harmonized as EN ISO 10523

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-485	-	International Electrotechnical Vocabulary (IEV) - Part 485: Fuel cell technologies	-	-
IEC 60068-2-64	2008	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance	EN 60068-2-64	2008
AMD 1	2019		/A1	2019
IEC 62282-4-101	2022	Fuel cell technologies - Part 4-101: Fuel cell power systems for electrically powered industrial trucks - Safety	EN IEC 62282-4-101	2022
IEC 62282-6-300	2012	Fuel cell technologies - Part 6-300: Micro fuel cell power systems - Fuel cartridge interchangeability	EN 62282-6-300	2013
ISO 14687	2019	Hydrogen fuel quality - Product specification	-	-



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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Fuel cell technologies –  
Part 4-600: Fuel cell power systems for propulsion other than road vehicles and  
auxiliary power units (APU) – Fuel cell/battery hybrid systems performance test  
methods for excavators**

**Technologies des piles à combustible –  
Partie 4-600: Systèmes à piles à combustible pour la propulsion, autres que les  
véhicules routiers et groupes auxiliaires de puissance (GAP) – Méthodes  
d'essai des performances des systèmes hybrides à piles à combustible/batterie  
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IEC 62282-4-600

Edition 1.0 2022-08

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



## Fuel cell technologies –

**Part 4-600: Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) – Fuel cell/battery hybrid systems performance test methods for excavators**

## Technologies des piles à combustible –

**Partie 4-600: Systèmes à piles à combustible pour la propulsion, autres que les véhicules routiers et groupes auxiliaires de puissance (GAP) – Méthodes d'essai des performances des systèmes hybrides à piles à combustible/batterie pour les pelles**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FUEL CELL TECHNOLOGIES –

**Part 4-600: Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) – Fuel cell/battery hybrid systems performance test methods for excavators**

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IEC 62282-6-600 has been prepared by IEC technical committee 105: Fuel cell technologies. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
105/914/FDIS	105/925/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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## FUEL CELL TECHNOLOGIES –

### **Part 4-600: Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) – Fuel cell/battery hybrid systems performance test methods for excavators**

#### **1 Scope**

This part of IEC 62282 covers the requirements for the performance test methods of fuel cell/battery hybrid systems intended to be used for electrically powered applications for excavators.

For this purpose, this document covers electrical performance and vibration tests for the fuel cell/battery hybrid system. This document also covers performance test methods which focus on vibration and other characteristics for balance of plant (BOP) installed in heavy-duty applications with fuel cell/battery hybrid system.

This document applies to both gaseous hydrogen-fuelled fuel cell power, liquid hydrogen-fuelled fuel cell power, direct methanol fuel cell power and battery hybrid power pack systems.

The following fuels are considered within the scope of this document:

- gaseous hydrogen, and
- methanol.

This document does not apply to reformer-equipped fuel cell power systems.

This document can be applied to fuel cell power systems used for either propulsion or for auxiliary power units (APU) purposes. In case of APU, the same hybrid power pack can be used on board or as a stationary APU. In case of the latter, this document can also be applied.

A block diagram of a fuel cell/battery hybrid system is shown in Figure 1. This document covers the configuration, mode of hybridization, operation mode for fuel cell and battery in power pack systems.

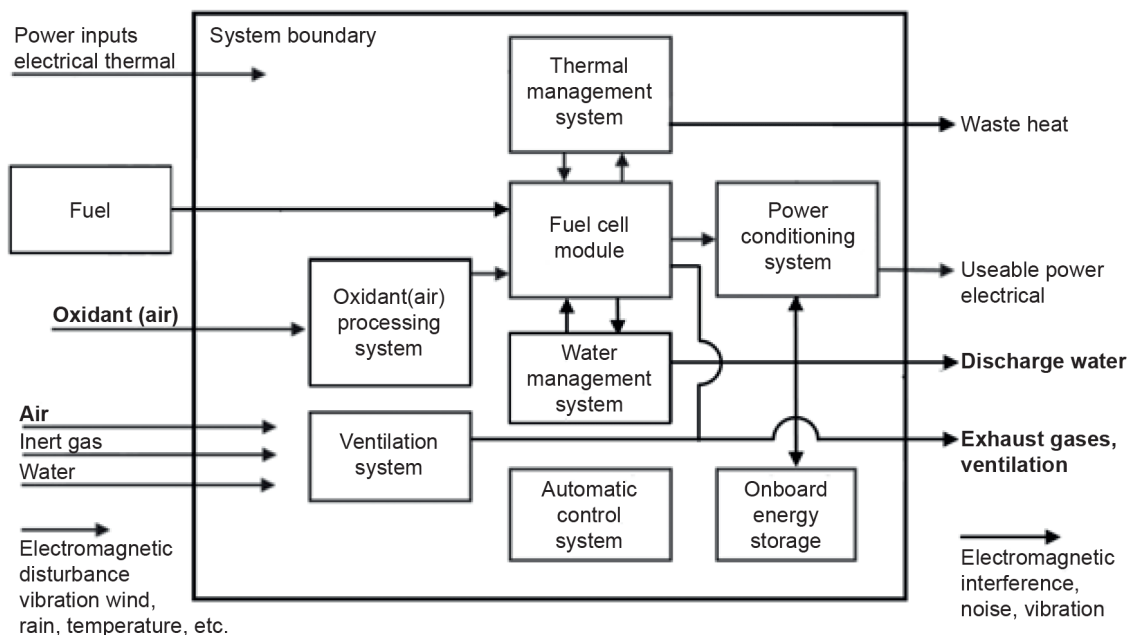


Figure 1 – Fuel cell/ battery hybrid systems block diagram

## 2 Normative references

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IEC 60050-485, *International Electrotechnical Vocabulary (IEV) – Part 485: Fuel cell technologies*

IEC 60068-2-64:2008, *Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance*

IEC 60068-2-64:2008/AMD1:2019

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