

# SVENSK STANDARD

## SS-ISO 23273:2013



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**Vägfordon – Bränslecellsdrift, säkerhetsspecifikationer – Skydd mot hydrogen-relaterade risker för fordon som använder komprimerad hydrogen (ISO 23273:2013, IDT)**

**Fuel cell road vehicles – Safety specifications – Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen (ISO 23273:2013, IDT)**

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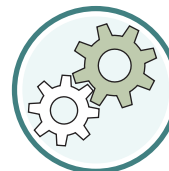
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Den internationella standarden ISO 23273:2013 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 23273:2013.

Denna standard ersätter SS-ISO 23273-2:2006, utgåva 1.

The International Standard ISO 23273:2013 has the status of a Swedish Standard. This document contains the official version of ISO 23273:2013.

This standard supersedes the Swedish Standard SS-ISO 23273-2:2006, edition 1.

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Denna standard är framtagen av kommittén för EI- och hybridfordon, SIS/TK 517.

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. [www.iso.org/patents](http://www.iso.org/patents)

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 21, *Electrically propelled road vehicles*.

This first edition of ISO 23273 cancels and replaces ISO 23273-2:2006, of which it constitutes a minor revision.

# Fuel cell road vehicles — Safety specifications — Protection against hydrogen hazards for vehicles fuelled with compressed hydrogen

## 1 Scope

This International Standard specifies the essential requirements for fuel cell vehicles (FCV) with respect to the protection of persons and the environment inside and outside the vehicle against hydrogen-related hazards.

It applies only to such FCV where compressed hydrogen is used as fuel for the fuel cell system.

This International Standard does not apply to manufacturing, maintenance, and repair.

The requirements of this International Standard address both normal operating (fault-free) and single-fault conditions of the vehicles.

## 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.

ISO 17268, *Gaseous hydrogen land vehicle refuelling connection devices*

ISO 6469-2, *Electrically propelled road vehicles — Safety specifications — Part 2: Vehicle operational safety means and protection against failures*

## 3 Terms and definitions

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

### 3.1

#### **air processing system**

system that processes (i.e. that filters, meters, conditions, and pressurizes) the incoming air for the fuel cell system

### 3.2

#### **contaminant**

substances within raw fuel, such as sulphur, that, at or above a specified concentration level, may poison reaction catalysts

### 3.3

#### **electric chassis**

conductive mechanical structure of the vehicle, including all associated electric and electronic components, whose parts are electrically connected and whose potential is taken as reference

### 3.4

#### **excess flow valve**

valve which automatically shuts off or limits the gas flow when the flow exceeds a set design value

### **3.5**

#### **fuel cell**

electrochemical device that generates electricity by the conversion of fuel and an oxidant without any physical or chemical consumption of the electrodes or electrolyte

### **3.6**

#### **fuel cell stack**

assembly of two or more fuel cells, which are electrically connected

### **3.7**

#### **fuel cell system**

system typically containing the following subsystems: fuel cell stack, air processing system, fuel processing system, thermal management, water management, and their control system

### **3.8**

#### **fuel cell vehicle**

##### **FCV**

vehicle that receives propulsion power from an on-board fuel cell power system

Note 1 to entry: The general term FCV also includes vehicles with an additional other source of propulsion power.

### **3.9**

#### **fuel processing system**

system that converts (if necessary) and/or conditions the fuel as stored in the on-board fuel storage into fuel suitable for operation in the fuel cell stack

### **3.10**

#### **fuel system**

combination of the on-board fuel storage, the fuel processing system, and the fuel cell stack

### **3.11**

#### **main hydrogen shut-off valve**

valve designed to automatically isolate the high-pressure hydrogen source

### **3.12**

#### **maximum allowable working pressure**

##### **MAWP**

maximum working pressure at which a component or system may be normally operated without damage, including leakage and deformation

Note 1 to entry: The maximum allowable working pressure is used in determining the setting of pressure-limiting/relieving devices installed to protect the part or system from accidental over-pressurizing.

### **3.13**

#### **nominal working pressure**

pressure level at which a component typically operates

Note 1 to entry: For fuel containers, it is the settled pressure at a uniformed temperature of 15 °C (288 K) for a full fuel container.

### **3.14**

#### **purge**

process to eliminate unwanted gas constituents from the hydrogen system

### **3.15**

#### **temperature-triggered pressure relief device**

##### **PRD**

excessive temperature-triggered, activated non-reclosing resealing device which vents gas to protect the fuel container from rupture when subjected to a standard fire test