BS EN 17127:2024

BSI Standards Publication

Outdoor hydrogen refuelling points dispensing gaseous hydrogen and incorporating filling protocols

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National foreword

This British Standard is the UK implementation of EN 17127:2024. It supersedes BS EN 17127:2020, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PVE/3/8, Gas containers - Hydrogen technologies.

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17127

February 2024

ICS 27.075; 75.200

Supersedes EN 17127:2020

English Version

Outdoor hydrogen refuelling points dispensing gaseous hydrogen and incorporating filling protocols

Points de ravitaillement en hydrogène en extérieur distribuant de l'hydrogène gazeux et intégrant des protocoles de remplissage

Gasförmiger Wasserstoff - Betankungsanlagen - Teil 1: Allgemeine Anforderungen

This European Standard was approved by CEN on 17 December 2023.

CEN 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 CEN 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 CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 17127:2024) has been prepared by Technical Committee CEN/TC 268 “Cryogenic vessels and specific hydrogen technologies applications”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2024, and conflicting national standards shall be withdrawn at the latest by August 2024.

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

This document supersedes EN 17127:2020.

The main changes compared to the previous edition are listed below:

— Improvement of the definitions;

— The general requirements of the characteristics and properties of hydrogen refuelling points have been extended for higher flow rates needed for the refuelling of Heavy Duty Road vehicles;

— Communication is considered to improve the level of safety.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

The European Commission in its standardization requests M/533 of March 12th, 2015 and M/581 of March 24th, 2022, aims to ensure that technical specifications for interoperability of refuelling points are specified in European Standards compatible with the relevant International Standards. These specifications aim to meet the European needs, be compatible and aligned as much as possible with relevant International Standards and as far as possible with existing refuelling infrastructure already in place and leave room to accommodate the adopted standard to local technical, analytical and regulatory needs. The requested European Standards aim to be technologically and commercially neutral and based on the know-how currently in the possession of the EU industry and of the public sector on a fair, reasonable and non-discriminatory basis.

According to the legal requirements given in the Directive 2014/94/EU and the future EU Regulation repealing the Directive 2014/94/EU (AFIR) and M/533 and M/581, European Standards specifying only the required specifications for ensuring the interoperability of refuelling points should be provided. European standards and common requirements with respect to "interoperability" mean the capability of an infrastructure to supply energy (in this document, hydrogen) that is compatible with all vehicle technologies and allows seamless EU-wide mobility and a clear definition of fuel pressure and temperature levels and connector designs.

The European Standardization Organizations (ESOs) should adopt European Standards in accordance with Article 10 of Regulation (EU) No 1025/2012 of the European Parliament and of the Council, and those standards should be based on current International Standards or ongoing international standardization work, where applicable.

Direction from the standardization request M/533 for European Standards for hydrogen supply are to develop European Standards containing technical solutions for interoperability with technical specifications in regard to Article 5 and point 2 of Annex II, in particular for:

a) outdoor hydrogen refuelling points dispensing gaseous hydrogen;

b) hydrogen purity dispensed by hydrogen refuelling points;

c) fuelling algorithms and equipment of hydrogen refuelling points;

d) connectors for vehicles for the refuelling of gaseous hydrogen.

This document specifies Items a) and c).

Item b) is covered by EN 17124 and Item d) by EN ISO 17268.

This document also addresses the standardization request M/581 for a European standard supporting an interoperable infrastructure for hydrogen supply for road transport and containing technical specifications with a unified solution for hydrogen refuelling points dispensing compressed (gaseous) hydrogen for heavy duty vehicles.

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1 Scope

This document defines the minimum requirements to ensure the interoperability of hydrogen refuelling points, including refuelling protocols that dispense gaseous hydrogen to road vehicles (e.g. Fuel Cell Electric Vehicles) that comply with legislation applicable to such vehicles.

The safety and performance requirements for the entire hydrogen fuelling station, addressed in accordance with existing relevant European and national legislation, are not included in this document.

This document applies to hydrogen refuelling points dispensing gaseous hydrogen to vehicles compliant with UN R134 (Regulation No. 134), Regulation (EC) No 79/2009.

NOTE Guidance on considerations for hydrogen fuelling stations is provided in ISO 19880-1:2020.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 17124, *Hydrogen fuel - Product specification and quality assurance for hydrogen refuelling points dispensing gaseous hydrogen - Proton exchange membrane (PEM) fuel cell applications for vehicles*

EN ISO 17268, *Gaseous hydrogen land vehicle refuelling connection devices (ISO 17268)*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
compressed hydrogen storage system
CHSS
hydrogen storage on-board vehicle

Note 1 to entry As defined in the UN R134 (Regulation No. 134)

3.2
dispenser
equipment in the dispensing system, including the dispenser cabinet(s) and support structure, that is physically located in the fuelling area

Note 1 to entry: The hydrogen dispenser typically includes, as a minimum, one or more fuelling assemblies consisting of a nozzle, hose and break-away coupling, required temperature and pressure instrumentation, filters, and the user interface to conduct vehicle fuelling.

Note 2 to entry: The manufacturer of the hydrogen dispenser can elect to include additional equipment in the dispenser, including the possibility of all equipment in the dispensing system, such as compressor, pressure storage.

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