BS EN 17127:2020

BSI Standards Publication

Outdoor hydrogen refuelling points dispensing gaseous hydrogen and incorporating filling protocols

Documents
Document Sharing Hub

Full document details: BS EN 17127:2020

National foreword

This British Standard is the UK implementation of EN 17127:2020. It supersedes BS EN 17127:2018, which is withdrawn.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.

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

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 12372 2

ICS 27.075; 75.200; 71.100.20

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 30 November 2020.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: BS EN 17127:2020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17127

November 2020

ICS 27.075; 71.100.20; 75.200

Supersedes EN 17127:2018

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 18 October 2020.

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, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2020 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 17127:2020 E

Documents
Document Sharing Hub

Full document details: BS EN 17127:2020

Contents

Page

European foreword 3
Introduction 4
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 Abbreviated terms 8
5 Characteristics and properties of hydrogen refuelling points 9
5.1 General requirements 9
5.2 Fuel Quality 9
5.3 Dispenser process control 10
5.3.1 General requirements for the fuelling protocol 10
5.3.2 Fuelling protocol process limits for light duty vehicle dispensing systems 10
5.3.3 Fuelling protocol process limits for medium and heavy duty vehicle dispensing systems 11
5.3.4 Vehicle to station communications 12
5.3.5 Dispenser Pressure Control Faults and over-pressure protection 12
5.3.6 Dispenser temperature control faults 13
6 Inspection and validation of hydrogen refuelling points 13
6.1 Inspection prior putting into service and periodical inspection 13
6.2 Minimum Site Acceptance Testing to ensure interoperability 14
Annex A (informative) Anticipated minimum vehicle characteristics 16
Annex B (informative) Countermeasures for unsuitable hydrogen fuelling protocols 18
Bibliography 19

Documents
Document Sharing Hub
Full document details: BS EN 17127:2020

European foreword

This document (EN 17127:2020) 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 May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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 17127:2018.

Compared to the previous version, the following changes apply:

— Improvement of the definitions;

— The general requirements of the characteristics and properties of hydrogen refuelling points have been completed to provide more information;

— Clarification of the fuelling protocols;

— Revision of the acceptable test for the minimum SAT to ensure interoperability;

— Correction of Figure A.1.

This document has been prepared under Mandate M/533 given to CEN by the European Commission and the European Free Trade Association.

It applies to hydrogen refuelling points dispensing gaseous hydrogen to vehicles compliant with GTR13, UNECE R134 or Regulation (EC) No 79/2009.

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, Turkey and the United Kingdom

AVA Documents
Document Sharing Hub

Full document details: BS EN 17127:2020

Introduction

The European Commission in its standardization request M/533 of March 12th, 2015, 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 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 Alternative Fuels Infrastructure Directive (AFID) and M/533, European Standards specifying only the required specifications for ensuring the interoperability of refuelling points have to be provided. European standards and common requirements with respect to "interoperability" mean the capacity 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.

Documents
Document Sharing Hub

Full document details: BS EN 17127:2020

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.

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 — Proton exchange membrane (PEM) fuel cell applications for road vehicles*

EN ISO 17268, *Gaseous hydrogen land vehicle refuelling connection devices (ISO17268)*

3 Terms and definitions

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

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

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

NOTE Units used in this document follow SI (International System of Units).

3.1
compressed hydrogen storage system
CHSS
hydrogen storage on-board vehicle, as defined in the GTR#13 and UNECE R134

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, the fuelling assembly, 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.

3.3
dispenser cabinet
protective housing that encloses process piping and can also enclose measurement, control and ancillary dispenser equipment

Documents
Document Sharing Hub
Full document details: BS EN 17127:2020