

Gaseous hydrogen land vehicle refuelling connection
devices (ISO 17268:2020)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 17268:2020 sisaldab Euroopa standardi EN ISO 17268:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 17268:2020 consists of the English text of the European standard EN ISO 17268:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 26.02.2020.	Date of Availability of the European standard is 26.02.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 43.180, 71.100.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Gaseous hydrogen land vehicle refuelling connection devices (ISO 17268:2020)

Dispositifs de raccordement pour le ravitaillement des
véhicules terrestres en hydrogène gazeux (ISO
17268:2020)

This European Standard was approved by CEN on 24 January 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

European foreword

This document (EN ISO 17268:2020) has been prepared by Technical Committee ISO/TC 197 "Hydrogen technologies" in collaboration with 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 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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 ISO 17268:2016.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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.

Endorsement notice

The text of ISO 17268:2020 has been approved by CEN as EN ISO 17268:2020 without any modification.

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General construction requirements	3
5 Nozzles	5
6 Receptacles	7
7 Design verification test procedures	8
7.1 General requirements	8
7.2 Test conditions	8
7.3 Nozzle tests	8
7.4 Receptacle tests	8
7.5 User — Machine interface	8
7.6 Dropping	9
7.7 Leakage at room temperature	9
7.8 Valve operating handle	10
7.9 Receptacle vibration resistance	10
7.10 Abnormal loads	10
7.11 Low and high temperatures	11
7.11.1 Purpose	11
7.11.2 General	11
7.11.3 Leakage tests	11
7.11.4 Operation tests	11
7.12 Durability and maintainability	12
7.12.1 Purpose	12
7.12.2 Nozzle durability test	12
7.12.3 Receptacle check valve durability test	13
7.12.4 Receptacle durability test	13
7.12.5 Connected nozzle and receptacle durability test	13
7.13 Sealing material aging test	13
7.13.1 Purpose	13
7.13.2 Oxygen aging test procedure	14
7.13.3 Ozone aging test procedure	14
7.14 Non-metallic material hydrogen resistance test	14
7.15 Electrical resistance	14
7.16 Hydrostatic strength	14
7.17 Corrosion resistance	15
7.17.1 Purpose	15
7.17.2 General	15
7.17.3 Nozzle test	15
7.17.4 Receptacle test	15
7.18 Deformation	15
7.19 Contamination test	15
7.20 Thermal cycle test	16
7.21 Pre-cooled hydrogen exposure test	16
7.22 Misconnected nozzle test	16
7.23 Upward/downward nozzle compatibility test	17
7.23.1 General	17
7.23.2 Upwards nozzle compatibility test	17
7.23.3 Downwards nozzle compatibility test	17
7.24 Washout test	18
7.25 User abuse test	18

7.26	Freezing test.....	18
7.27	Rocking test.....	19
7.28	Communication test.....	20
8	Instructions.....	20
9	Marking.....	21
Annex A	(normative) Receptacle/nozzle interface envelope.....	22
Annex B	(normative) Hydrogen receptacles.....	23
Annex C	(normative) Loose fit test fixtures.....	29
Annex D	(normative) Tight fit test fixtures.....	34
Annex E	(normative) Wear pattern test fixtures.....	39
Annex F	(informative) Example hex design.....	44
Bibliography	45

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 (see 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 (see 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.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 268, *Cryogenic vessels and specific hydrogen technologies applications*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 17268:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

— [Clause 1](#), [Clause 2](#), [3.1](#), [4.9](#), [5.8](#), [5.9](#), [5.17](#), [6.1](#), [6.9](#), [7.2](#), [7.5](#), [7.7](#), [7.8](#), [7.12.2](#), [7.12.3](#), [7.12.4](#), [7.16](#), [7.22](#), [7.25](#), [7.26](#), [7.27](#), [7.28](#), [Clause 9](#), [Table 1](#), [Figure 3](#), [Figure 4](#), [Annex A](#), [Annex B](#), [Annex C](#), [Annex D](#), [Annex E](#) and [Annex F](#) have been modified.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Gaseous hydrogen land vehicle refuelling connection devices

1 Scope

This document defines the design, safety and operation characteristics of gaseous hydrogen land vehicle (GHLV) refuelling connectors.

GHLV refuelling connectors consist of the following components, as applicable:

- receptacle and protective cap (mounted on vehicle);
- nozzle;
- communication hardware.

This document is applicable to refuelling connectors which have nominal working pressures or hydrogen service levels up to 70 MPa.

This document is not applicable to refuelling connectors dispensing blends of hydrogen with natural gas.

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.

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 12103-1, *Road vehicles — Test contaminants for filter evaluation — Part 1: Arizona test dust*

ISO 15501-1, *Road vehicles — Compressed natural gas (CNG) fuel systems — Part 1: Safety requirements*

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:

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

3.1

communication hardware

infrared data association (IrDA) components which are used to transmit signals from the vehicle (*receptacle*) (3.15) to the dispenser (*nozzle*) (3.11) and designed to meet SAE J2799 or equivalent