



SLOVENSKI STANDARD SIST EN ISO 17268:2020

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

Gasförmiger Wasserstoff - Anschlussvorrichtungen für die Betankung von Landfahrzeugen (ISO 17268:2020)

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

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EUROPEAN STANDARD

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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.

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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of an identical text or by endorsement, at the latest by August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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**Gaseous hydrogen land vehicle
refuelling connection devices**

*Dispositifs de raccordement pour le ravitaillement des véhicules
terrestres en hydrogène gazeux*

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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 (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).

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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.

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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

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3.2 component pressure rating

maximum pressure at which it is permissible to operate a component as specified by the manufacturer at a specified temperature

Note 1 to entry: Components designed to the maximum allowable pressure per the European Pressure Equipment Directive (PED) represent the component ratings by the manufacturer that is indicated by the value of "PS."

Note 2 to entry: See [Table 1](#) for required component pressure ratings for various *pressure classes* ([3.13](#)) of fuelling connectors ([3.3](#)).

Note 3 to entry: Further guidance on dispenser pressure terminology is included in ISO 19880-1.

Table 1 — Dispensing system pressure levels and refuelling connector ratings

NWP (3.10) of vehicle (receptacle) (3.15) or HSL (3.7) of dispenser (nozzle) (3.11)	Pressure class (3.13)	Maximum operating pressure (MOP) (3.9)	Minimum dispenser component pressure rating (PS)
<i>Equal to NWP of the vehicle storage system per vehicle label</i>		$1,25 \times HSL / 1,25 \times NWP$ <i>Highest fill pressure during normal fuelling</i>	$1,375 \times HSL$ <i>Highest permissible set-point for dispenser pressure protection in ISO 19880-1:—, 8.2.2.3</i>
11 MPa	H11	13,75 MPa	15,125 MPa
25 MPa	H25	31,25 MPa	34,375 MPa
35 MPa	H35 or H35HF ^a	43,75 MPa	48,125 MPa
70 MPa	H70	87,5 MPa	96,25 MPa

^a High-flow connectors for heavy-duty commercial vehicles.

3.3 connector

joined assembly of *nozzle* ([3.11](#)) and *receptacle* ([3.15](#)) which permits the transfer of hydrogen

3.4 cycle

process of making a positive connection between the *nozzle* ([3.11](#)) and the *receptacle* ([3.15](#)), pressurizing to the *maximum operating pressure* ([3.9](#)), depressurizing and disconnecting

3.5 dry helium

helium with a dew point adequate to prevent condensation during testing and at least 99 % pure

3.6 dry hydrogen

hydrogen which meets or exceeds the quality level in ISO 14687-2

3.7 hydrogen service level

HSL
pressure level used to characterize the hydrogen service of the dispenser based on the *NWP* ([3.10](#)) rating of the vehicle

Note 1 to entry: The numerical value of HSL also matches the number after the "H" in the *pressure class* ([3.13](#)).

Note 2 to entry: HSL is expressed in MPa.

3.8**leak test gas**

gas for testing leaks that consists of *dry hydrogen* (3.6), or *dry helium* (3.5), or blends of a minimum 10 % of hydrogen or helium with nitrogen

3.9**maximum operating pressure****MOP**

highest pressure that is expected for a component or system during normal operation

Note 1 to entry: Further guidance on dispenser pressure terminology is included in ISO 19880-1.

Note 2 to entry: The maximum operating pressure is 125 % of the *nominal working pressure* (3.10) or *hydrogen service level* (3.7), as applicable, for the purpose of testing of *nozzles* (3.11) and *receptacles* (3.15) in this document.

3.10**nominal working pressure****NWP**

pressure of a full vehicle compressed hydrogen storage system at a gas temperature of 15 °C

Note 1 to entry: See ECE/TRANS/180/Add. 13 Global Technical Regulation No. 13 clause II-3.37.

Note 2 to entry: See [Table 1](#) for NWPs covered in this document.

Note 3 to entry: Further guidance on pressure terminology is included in ISO 19880-1.

Note 4 to entry: NWP is also known as “settled pressure” in ISO 10286.

3.11**nozzle**

device connected to a fuel dispensing system, which permits the quick connect and disconnect of fuel supply to the vehicle or storage system

3.12**positive locking device**

device with the feature which requires actuation of an interlocking mechanism to achieve proper connection of the *nozzle* (3.11) to the *receptacle* (3.15) before pressure is applied

3.13**pressure class**

non-dimensional rating of components that indicates the components are designed to dispense hydrogen to road vehicles at the required pressure and temperature

Note 1 to entry: See [Table 1](#) for pressure classes of fuelling *connectors* (3.3).

Note 2 to entry: Further guidance on dispenser pressure terminology is included in ISO 19880-1.

3.14**protective cap**

means to prevent dirt and other contaminants from getting into the inlet of the vehicle *receptacle* (3.15)

3.15**receptacle**

device connected to a vehicle or storage system which receives the *nozzle* (3.11)

Note 1 to entry: This can also be referred to as a fuelling inlet of gas filling port in other documents.

4 General construction requirements

4.1 Nozzles and receptacles shall be designed in accordance with reasonable concepts of safety, durability and maintainability.