SLOVENSKI STANDARD
SIST EN ISO 17268:2017

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Plinasti vodik - Priključne naprave za polnjenje goriva v kopenska vozila (ISO 17268:2012)

Gaseous hydrogen land vehicle refuelling connection devices (ISO 17268:2012)

Gasförmiger Wasserstoff - Anschlussvorrichtungen für die Betankung von Landfahrzeugen (ISO 17268:2012)

Dispositifs de raccordement pour le ravitaillement des véhicules terrestres en hydrogène gazeux (ISO 17268:2012)

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43.180	Diagnostična, vzdrževalna in preskusna oprema	Diagnostic, maintenance and test equipment
71.100.20	Industrijski plini	Gases for industrial application

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EUROPEAN STANDARD

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EN ISO 17268

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ICS 43.180; 71.100.20

English Version

Gaseous hydrogen land vehicle refuelling connection devices (ISO 17268:2012)

Dispositifs de raccordement pour le ravitaillement des véhicules terrestres à hydrogène gazeux (ISO 17268:2012)

Gasförmiger Wasserstoff - Anschlussvorrichtungen für die Betankung von Landfahrzeugen (ISO 17268:2012)

This European Standard was approved by CEN on 8 July 2016.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword

The text of ISO 17268:2012 has been prepared by Technical Committee ISO/TC 197 “Hydrogen technologies” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17268:2016 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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

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Endorsement notice

The text of ISO 17268:2012 has been approved by CEN as EN ISO 17268:2016 without any modification.

INTERNATIONAL STANDARD

ISO 17268

Second edition
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Gaseous hydrogen land vehicle refuelling connection devices

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

Reference number
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Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 17268 was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*.

This second edition cancels and replaces the first edition (ISO 17268:2006), which has been technically revised.

Gaseous hydrogen land vehicle refuelling connection devices

1 Scope

This International Standard 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.

This International Standard applies to refuelling connectors which have working pressures of 11 MPa, 25 MPa, 35 MPa and 70 MPa, hereinafter referred to in this International Standard as the following:

— H11 – 11 MPa at 15 °C;

— H25 – 25 MPa at 15 °C;

— H35 – 35 MPa at 15 °C;

— H35HF – 35 MPa at 15 °C (high flow for commercial vehicle applications);

— H70 – 70 MPa at 15 °C.

Nozzles and receptacles that meet the requirements of this International Standard will only allow GHLVs to be filled by fuelling stations dispensing hydrogen with nominal working pressures equal to or lower than the vehicle fuel system working pressure. They will not allow GHLV to be filled by fuelling stations dispensing blends of hydrogen with natural gas.

Refuelling connectors dispensing blends of hydrogen with natural gas are excluded from the scope of this International Standard.

NOTE This International Standard can be used for certification purposes.

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 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 dust for filter evaluation — Part 1: Arizona test dust*

ISO 14687-2, *Hydrogen fuel — Product specification — Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles*

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.

3.1
connector
joined assembly of nozzle and receptacle which permits the transfer of hydrogen

3.2
cycle
the process of a making a positive connection between the nozzle and the receptacle, pressurizing to the maximum working pressure, depressurising and disconnecting

3.3
dry helium
helium with a dew point adequate to prevent condensation during testing and at least 99 % pure

3.4
dry hydrogen
hydrogen which meets or exceeds the quality level in ISO 14687-2

3.5
leak test gas
gas for testing leaks that consists of dry hydrogen, or dry helium, or blends of a minimum 10 % of hydrogen or helium with nitrogen.

3.6
maximum working pressure
maximum pressure that a connector will experience in service independent of temperature

NOTE The maximum working pressure is 125 % of the nominal working pressure at 15 °C for the purpose of testing of nozzles and receptacles in this International Standard.

3.7
nominal working pressure
pressure for which the connector is intended to be operated for a given gas temperature of 15 ºC

NOTE This defines a full tank gas density.

3.8
nozzle
device connected to a fuel dispensing system, which permits the quick connect and disconnect of fuel supply to the vehicle or storage system

3.9
positive locking means
feature, which requires actuation of an interlocking mechanism to achieve proper connection of the nozzle to the receptacle before pressure is applied

3.10
protective cap
means to prevent dirt and other contaminants from getting into the inlet of the vehicle receptacle

3.11
receptacle
device connected to a vehicle or storage system which receives the nozzle

NOTE 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.

4.2 Nozzles and receptacles designed and tested in accordance with this International Standard shall

a) prevent hydrogen fuelled vehicles from being filled by fuelling stations with working pressures or flow rates higher than the vehicle,

b) prevent hydrogen fuelled vehicles from being filled by other compressed gas fuelling stations, and

c) prevent other gaseous fuelled vehicles from being filled by hydrogen fuelling stations.

4.3 Nozzles and receptacles shall be well fitted and manufactured in accordance with good engineering practice.

4.4 Nozzles and receptacles shall be

a) designed to minimise the possibility of incorrect assembly,

b) designed to be secure against displacement, distortion, warping or other damage,

c) constructed to maintain operational integrity under normal and reasonable conditions of handling and usage, and

d) designed with no self-evident means of defeating the safety features.

4.5 Nozzles and receptacles shall be manufactured of materials suitable and compatible for use with compressed hydrogen at the pressure and the temperature ranges to which they will be subjected as specified in 5.8 and 6.9. Materials used in the construction of nozzles, receptacles and protective caps shall be non-sparking or spark-reducing. All pressure bearing and wetted components shall also be made from material that is compatible with deionised water. Non-metallic material compatibility shall be documented by the component manufacturer or an independent third party.

4.6 The nozzle shall be connected to or disconnected from the receptacle without the use of tools.

4.7 The H11 and H25 receptacles shall be mounted on the vehicle in compliance with ISO 15501-1. All other receptacles shall be mounted on the vehicle in compliance with the envelope requirements specified in Annex A.

4.8 Protective caps are intended to protect the receptacle from foreign debris and shall not hold pressure. Resistance shall be appropriate to prevent inadvertent dislodging. All protective caps shall have a retainer to attach them to the receptacle or vehicle.

5 Nozzles

5.1 Nozzles shall comply with the dimensional requirements of 6.1 to ensure proper interchangeability. Nozzles shall couple with receptacles of equal or higher nominal working pressures and they shall be designed so that they will not couple with receptacles of lower nominal working pressures. The nozzle shall extend to within 1 mm of the stop ring for all nominal working pressures. Nozzles shall be designed so that they will not couple with gaseous fuelled vehicles other than GHLV.

5.2 Nozzles shall be one of the following three types.

a) TYPE A - A nozzle for use with dispensing hoses that may remain fully pressurized at dispenser shutdown. The nozzle shall not allow gas to flow until a positive connection has been achieved. The nozzle shall be equipped with an integral valve or valves, incorporating an operating mechanism which first stops