

Compressed hydrogen surface vehicle refuelling connection devices

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National foreword

This British Standard was published by BSI. It is the UK implementation of ISO 17268:2006.

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

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

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Compressed hydrogen surface vehicle refuelling connection devices

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



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Documents

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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 General construction requirements	3
5 Nozzles	3
6 Standard receptacle dimensions	4
7 Receptacles	6
8 Instructions	6
9 Marking	6
10 Design verification test procedures	7
10.1 General requirements	7
10.2 User - Machine interface	7
10.3 Dropping	8
10.4 Leakage at room temperature	8
10.5 Valve operating handle	9
10.6 Receptacle vibration resistance	9
10.7 Abnormal loads	9
10.8 Rocking/twisting	10
10.9 Mounting hardware torque	11
10.10 Low and high temperatures	11
10.11 Durability and maintainability	12
10.12 Hydrostatic strength	15
10.13 Materials	15
10.14 Corrosion resistance	15
10.15 Deformation	16
10.16 Contamination test	16
10.17 Thermal cycle test	16
Annex A (informative) Nozzle characteristics	19

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 the Society of Automotive Engineers (SAE) as SAE J2600 and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 197 *Hydrogen technologies*, in parallel with its approval by the ISO member bodies.

Compressed hydrogen surface vehicle refuelling connection devices

1 Scope

1.1 This International Standard applies to design, safety and operation verification of Compressed Hydrogen Surface Vehicle (CHSV) refuelling connection devices hereinafter referred to as nozzle and receptacle. CHSV Refuelling nozzles and receptacles consist of the following components, as applicable.

- Receptacle and protective cap (mounted on vehicle);
- Nozzle.

1.2 This International Standard applies to devices which have working pressures of 25 MPa and 35 MPa, hereinafter referred to in this International Standard as the following:

- H25 - 25 MPa at 15 °C
- H35 - 35 MPa at 15 °C

1.3 This International Standard applies to nozzles and receptacles which (1) prevent hydrogen fuelled vehicles from being refuelled by dispenser stations with working pressures higher than the vehicle; (2) allow hydrogen vehicles to be refuelled by dispenser stations with working pressures equal to or lower than the vehicle fuel system working pressure; (3) prevent hydrogen fuelled vehicles from being refuelled by other compressed gases dispensing stations; and (4) prevent other gaseous fuelled vehicles from being refuelled by hydrogen dispensing stations.

1.4 All dimensions used in this document are in metric units [International System of Units (SI)].

1.5 For the purposes of this document, compressed hydrogen gas meeting the requirements of ISO 14687 is to be used.

1.6 All references to pressures (MPa) throughout this document are considered gauge pressures unless otherwise specified.

All test procedures listed in this document are design verification test procedures unless otherwise noted.

All products are to pass all tests to be considered to have met this design standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For date 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 1817, *Rubber, vulcanized — Determination of the effect of liquids*

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

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

ISO 12103-2, *Road vehicles — Test dust for filter evaluation — Part 2: Aluminium oxide test dust*

ISO 14687, *Hydrogen fuel — Product specification*

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

ISO 15501-2, *Road Vehicles — Compressed natural gas (CNG) fuel systems — Part 2: Test methods*

SAE J2574, *Fuel Cell Vehicle Terminology*

SAE J2578, *Recommended Practice for General Fuel Cell Vehicle Safety*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in SAE J2578 and the following apply.

3.1

air, dry

air with a maximum dew point of $-40\text{ }^{\circ}\text{C}$

3.2

connector

a joined assembly of CHSV nozzle and receptacle which permits quick connect and disconnect of fuel supply to the vehicle or storage system

3.3

cycle

the process of a making a positive connection between the nozzle and the receptacle, pressurizing to design pressure, depressurizing and disconnecting

3.4

design pressure

the maximum pressure that a component will experience in actual service

NOTE The design pressure is 125 % of the working pressure for the purpose of design of nozzles and receptacles in this document.

3.5

helium or hydrogen, dry

helium or hydrogen with a maximum dew point of $-40\text{ }^{\circ}\text{C}$ and at least 99 % pure

3.6

leak test gas

dry hydrogen or helium, preferably hydrogen

NOTE Adequate safety precautions are to be taken when testing with hydrogen.

3.7

nozzle

device connected to a fuel dispensing system, which permits the transfer of fuel

3.8

positive locking means

a feature which requires actuation of an interlocking mechanism to verify proper connection of the connector before pressure is applied