



SLOVENSKI STANDARD SIST EN ISO 16380:2018

01-oktober-2018

Cestna vozila - Prikluček za polnjenje mešanega goriva (ISO 16380:2014, vključno z dopolnilom A1:2016)

Road vehicles - Blended fuels refuelling connector (ISO 16380:2014, including Amd 1:2016)

Straßenfahrzeuge - Kraftstofftankstutzen (ISO 16380:2014, including Amd 1:2016)

Véhicules routiers - Pistolet de remplissage pour les mélanges de carburants gazeux (ISO 16380:2014, including Amd 1:2016)

Ta slovenski standard je istoveten z: EN ISO 16380:2018

ICS:

43.060.40 Sistemi za gorivo Fuel systems

SIST EN ISO 16380:2018 en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

EUROPEAN STANDARD

EN ISO 16380

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2018

ICS 75.200

English Version

Road vehicles - Blended fuels refuelling connector (ISO 16380:2014, including Amd 1:2016)

Véhicules routiers - Pistolet de remplissage pour les mélanges de carburants gazeux (ISO 16380:2014, y compris Amd 1:2016)

Straßenfahrzeuge - Betankungsanschluss für Mischkraftstoffe (ISO 16380:2014, einschließlich Amd 1:2016)

This European Standard was approved by CEN on 2 February 2018.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, 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

| Contents | Page |
|-------------------------------|-------------|
| European foreword..... | 3 |

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018
<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

European foreword

The text of ISO 16380:2014, including Amd 1:2016 has been prepared by Technical Committee ISO/TC 22 "Road vehicles" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 16380:2018 by Technical Committee CEN/TC 301 "Road vehicles" 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 December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

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.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of ISO 16380:2014, including Amd 1:2016 has been approved by CEN as EN ISO 16380:2018 without any modification.

[SIST EN ISO 16380:2018](https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018)

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

INTERNATIONAL
STANDARD

ISO
16380

First edition
2014-06-01

**Road vehicles — Blended fuels
refuelling connector**

*Véhicules routiers — Pistolet de remplissage pour les mélanges
de carburants gazeux*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 16380:2018](https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018)

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>



Reference number
ISO 16380:2014(E)

© ISO 2014

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2014

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

| Contents | | Page |
|---|--|-----------|
| Foreword | | iv |
| Introduction | | v |
| 1 Scope | | 1 |
| 2 Normative references | | 2 |
| 3 Terms and definitions | | 2 |
| 4 General construction requirements | | 3 |
| 5 Nozzles | | 5 |
| 6 Standard receptacle dimensions | | 6 |
| 6.1 Standard receptacle dimensions Size 1 (M200, M250, M350)..... | | 6 |
| 6.2 Standard receptacle dimensions size 2 (N200, N250)..... | | 10 |
| 7 Receptacles | | 12 |
| 8 Instructions | | 12 |
| 9 Marking | | 13 |
| 10 Tests | | 14 |
| 10.1 General requirements..... | | 14 |
| 10.2 User interface..... | | 14 |
| 10.3 Impact resistance..... | | 15 |
| 10.4 Receptacle protective caps..... | | 15 |
| 10.5 Leakage at room temperature..... | | 15 |
| 10.6 Valve operating handle..... | | 16 |
| 10.7 Abnormal loads..... | | 16 |
| 10.8 Rocking/twisting..... | | 17 |
| 10.9 Mounting hardware torque..... | | 18 |
| 10.10 Leakage test at low and high temperatures..... | | 18 |
| 10.11 Durability..... | | 19 |
| 10.12 Hydrostatic strength..... | | 22 |
| 10.13 Corrosion resistance..... | | 22 |
| 10.14 Deformation..... | | 23 |
| 10.15 Non-igniting evaluation..... | | 23 |
| 10.16 Vibration resistance..... | | 23 |
| 10.17 Hydrogen embrittlement..... | | 23 |
| 10.18 Pressure tight protective cap (PTPC)..... | | 24 |
| Annex A (informative) Table of nozzle characteristics | | 32 |
| Annex B (informative) Manufacturing and production test plan | | 33 |
| Annex C (informative) Receptacle test fixture | | 34 |
| Annex D (informative) Nozzle clearance dimensions | | 44 |
| Bibliography | | 45 |

ISO 16380:2014(E)**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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 25, *Vehicles using gaseous fuel*.

[SIST EN ISO 16380:2018](https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018)

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

Introduction

A nozzle certified to this International Standard will be functionally compatible from a safety and performance perspective with all listed receptacles of compatible profile and system pressure. Similarly, a receptacle certified to this International Standard will be functionally compatible from a safety and performance perspective with all listed nozzles of compatible profile and system pressure.

As there can eventually be many different kinds of nozzles and receptacles available from a variety of manufacturers which, for safety reasons, shall all be compatible with each other, this International Standard specifies a series of receptacle profiles. These standard profiles incorporate the design specifications (mating materials, geometry, and tolerances) which can be considered in the certification of a submitted nozzle or receptacle.

The construction and performance of nozzles and receptacles are based on the observation that four main parameters affect user safety and system compatibility.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 16380:2018](https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018)

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

Road vehicles — Blended fuels refuelling connector

1 Scope

This International Standard applies to compressed blended fuels vehicle nozzles and receptacles hereinafter referred to as devices, constructed entirely of new, unused parts and materials. Compressed blended fuels fuelling connection nozzles consist of the following components, as applicable:

- a) Receptacle and protective cap (mounted on vehicle) (see [Clause 7](#));
- b) Nozzle (mounted on dispenser side) (see [Clause 5](#)).

This International Standard applies to devices which have a service pressure of 20 MPa, 25 MPa, and 35 MPa hereinafter referred to in this International Standard as [see [9.1 c](#)]:

- size 1: M200, M250, and M350;
- size 2: N200 and N250.

This International Standard refers to service pressures of 20 MPa, 25 MPa, and 35 MPa for size 1 and 20 MPa and 25 MPa for size 2.

This International Standard applies to devices with standardised mating components (see [5.8](#) and [7.7](#)).

This International Standard applies to connectors which

- a) prevent blended fuels vehicles from being fuelled by dispenser stations with working pressures higher than the vehicle fuel system working pressure,
- b) allow blended fuels vehicles to be fuelled by dispenser stations with working pressures equal to or lower than the vehicle fuel system working pressure,
- c) allow blended fuels vehicles to be fuelled by dispenser stations for compressed natural gas,
- d) allow blended fuels vehicles to be fuelled by compressed natural gas dispenser stations with working pressures equal to or lower than the vehicle fuel system working pressure,
- e) prevent blended fuels vehicles size 1 being refuelled on blended fuels dispenser stations equipped with a size 2 nozzle and vice versa,
- f) prevent natural gas vehicles from being fuelled by blended fuels station, and dispensers, and
- g) prevent pure hydrogen vehicles from being fuelled by blended fuels station dispensers.

This International Standard is applicable to mixtures of hydrogen from 2 % to 30 % in volume and compressed natural gas containing:

- a) natural gas in accordance with ISO 15403-1 and ISO 15403-2;
- b) pure hydrogen in accordance with ISO 14687-1 or ISO/TS 14687-2.

All references to pressures (MPa) throughout this International Standard are to be considered gauge pressures unless otherwise specified.

ISO 16380:2014(E)**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 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

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

ISO 11114-4, *Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 4: Test methods for selecting metallic materials resistant to hydrogen embrittlement*

ISO 14175, *Welding consumables — Gases and gas mixtures for fusion welding and allied processes*

ISO 14687-1, *Hydrogen fuel — Product specification — Part 1: All applications except proton exchange membrane (PEM) fuel cell for road vehicles*

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

ISO 15500-2:2012, *Compressed natural gas (CNG) fuel system components — Part 2: Performance and general test methods*

ISO 15403-1, *Natural gas — Natural gas for use as a compressed fuel for vehicles — Part 1: Designation of the quality*

ISO/TR 15403-2, *Natural gas — Natural gas for use as a compressed fuel for vehicles — Part 2: Specification of the quality*

EN 10204, *Metallic products — Types of inspection documents*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018

<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ac2e-394a22f0978c/iso-16380-2018>

3 Terms and definitions

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

3.1
air, dry
air with moisture content such that the dew point of the air at the required test pressure is at least 11 °C below the ambient test temperature

3.2
hydrostatic pressure
pressure to which a component is tested to verify the structural strength of the component

3.3
working pressure
maximum pressure that the blended fuels refuelling connector can be expected to withstand in actual service (calculatory base: service pressure times 1,25)

3.4
service pressure
settled pressure of 20 MPa, 25 MPa, and 35 MPa at a uniform gas temperature of 15 °C

3.5
positive locking means
feature which requires actuation of an interlocking mechanism to allow connection/disconnection of the nozzle from the receptacle

3.6**compressed blended fuels refuelling nozzle**

device which permits quick connection and disconnection of fuel supply hose to the compressed blended fuels receptacle in a safe manner, hereafter referred to as compressed blended fuels nozzle

3.7**compressed blended fuels refuelling receptacle**

device connected to a vehicle or storage system which receives the compressed blended fuels nozzle and permits safe transfer of fuel, hereafter referred to as receptacle

3.8**compressed blended fuels refuelling connector**

joint assembly of compressed blended fuels nozzle and receptacle, hereafter referred to as connector

3.9**hydrogen embrittlement**

process by which various metals, most importantly high-strength steel, become brittle and crack following exposure to hydrogen

3.10**compressed blended fuels**

blended fuel is a mixture out of hydrogen from 2 % to 30 % in volume and natural gas which is used as a vehicular fuel at a specified pressure as in the Introduction point 2

3.11**leak test gas**

gas used for leak testing purposes

3.12**cycle life**

connections and disconnections to a nozzle

3.13**service life**

operations of the check valve

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 16380:2018
<https://standards.iteh.ai/catalog/standards/sist/a3eb0000-819a-4520-ae2e-294c22209929/sist-en-iso-16380-2018>

4 General construction requirements

a) There are two different sizes of refuelling systems, size 1 and size 2.

Size 1 should suit the need of smaller vehicles with a limited tanks size. Therefore, the flow diameter is limited by the inner front diameter of the receptacle – in this case $\varnothing 7,8 \text{ mm} \pm 0,2 \text{ mm}$.

Size 2 should suit the need of commercial vehicles like busses and trucks. Therefore, the flow diameter is limited by the inner front diameter of the receptacle – in this case $\varnothing 12 \text{ mm} \pm 0,2 \text{ mm}$.

Also, the profile of the two different sizes is so different that no cross connection between the sizes is possible.

b) Working pressure (= 1,25 times service pressure). All nozzles and receptacles are designed to have a working pressure of: