

STN	Plynný vodík Plniace stanice Časť 1: Všeobecné požiadavky	STN ISO 19880-1 30 2340
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Gaseous hydrogen
Fuelling stations
Part 1: General requirements

Carburant d'hydrogène gazeux
Stations-service
Partie 1: Exigences générales

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 19880-1: 2020 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International standard ISO 19880-1: 2020 and has the status of the official version.



138524

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

Anotácia

Tento dokument definuje minimálne požiadavky na konštrukciu, inštaláciu, uvedenie do prevádzky, prevádzku, kontrolu a údržbu, na bezpečnosť a na výkon verejných a neverejných plniacich/čerpacích/staníc, pomocou ktorých sa plní plyný vodík do osobných /M1/ a úžitkových vozidiel /N1/ (elektrické vozidlá s palivovými článkami).

Dokument nie je použiteľný na dávkovanie kryogénneho vodíka alebo vodíka do metalhydridových aplikácií.

Keďže je tento dokument určený na poskytnutie informácií o minimálnych požiadavkách na plniace stanice, výrobcovia môžu prijať dodatočné bezpečnostné opatrenia na základe vykonaných analýz rizík so zameraním na špecifické ohrozenia a rôzne druhy aplikácií pri prevádzke plniacich staníc.

Aj keď je tento dokument zameraný na plnenie osobných a úžitkových vozidiel s vodíkovým pohonom, zahŕňa tiež požiadavky na plniace médium pre ťažké cestné vozidlá (napr. autobusy, nákladné autá).

Mnohé zo všeobecných požiadaviek v tomto dokumente sa vzťahujú na plniace stanice pre iné vodíkové aplikácie napr.:

- plniace stanice pre motocykle, vysokozdvížne vozíky, vlaky, riečne a námorné aplikácie - lode;
- plniace stanice s výdajom v interiéri;
- aplikácie pre využitie v domácnosti na pohon pozemných vozidiel;
- mobilné plniace stanice;
- neverejné predvádzacie plniace stanice.

Ďalšími špecifickými požiadavkami, ktoré môžu byť potrebné pre bezpečnú prevádzku takýchto plniacich staníc, sa však tento dokument nezaobrá.

Tento dokument poskytuje požiadavky a návod na nasledujúce prvky plniacej stanice:

- systém výroby/dodávky vodíka:
 - dodávka vodíka potrubím, prepravovaným v plynnom a/alebo kvapalnom stave, alebo prostredníctvom metalhydridových skladovacích príviesov;
 - lokálne systémy výroby vodíka využívajúce proces elektrolyzy vody alebo iné technológie pre jeho výrobu;
 - skladovanie kvapalného vodíka;
 - systémy na čistenie vodíka podľa potreby;
- kompresiu:
 - kompresia plynného vodíka;
 - čerpadlá a odparovače;
 - vyrovnávacie skladovanie plynného vodíka;
 - ochladzovacie zariadenie;
 - systémy dávkovania plynného vodíka.

Národný predhovor

Normatívne referenčné dokumenty

Na nasledujúce dokumenty sa odkazuje v texte takým spôsobom, že časť ich obsahu alebo celý obsah predstavuje požiadavky tohto dokumentu. Pri datovaných odkazoch sa používa len citované vydanie. Pri nedatovaných odkazoch sa používa najnovšie vydanie citovaného dokumentu (vrátane akýchkoľvek zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN a TNI možno získať na webovom sídle www.unms.sk.

ISO 13850 prijatá ako STN EN ISO 13850 Bezpečnosť strojov. Funkcia núdzového zastavenia. Princípy navrhovania (ISO 13850) (83 3311)

ISO 14687 dosiaľ neprijatá

ISO 15649 dosiaľ neprijatá

ISO 17268 prijatá ako STN EN ISO 17268 Pripájacie zariadenia na tankovanie plynného vodíka do pozemných vozidiel (ISO 17268) (69 7230)

ISO 19880-8 dosiaľ neprijatá

ISO 21013-1 dosiaľ neprijatá

ISO 21013-2 dosiaľ neprijatá

ISO 21013-3 prijatá ako STN EN ISO 21013-3 Kryogénne nádoby. Príslušenstvo na uvoľňovanie tlaku v kryogénnych systémoch. Časť 3: Určovanie veľkosti a kapacity (ISO 21013-3) (69 8873)

ISO 22734 dosiaľ neprijatá

súbor ISO/IEC 80079 prijatý ako súbor STN EN ISO/IEC 80079 Výbušné atmosféry (38 9630)

súbor IEC 60079 prijatý ako súbor STN EN (IEC) 60079 Výbušné atmosféry (33 2320)

IEC 60204-1:2005 prijatá ako STN EN 60204-1: 2007 Bezpečnosť strojových zariadení. Elektrické zariadenia strojov. Časť 1: Všeobecné požiadavky (33 2200)

IEC 60529 prijatá ako STN EN 60529 Stupne ochrany krytom (krytie – IP kód) (33 0330)

IEC 62282-3-100 prijatá ako STN EN IEC 62282-3-100 Technológia palivových článkov. Časť 3-100: Stacionárne výkonové sústavy palivových článkov. Bezpečnosť (36 4512)

EN 13445-5 prijatá ako STN EN 13445-5 Nevyhrievané tlakové nádoby. Časť 5: Kontrola a skúšanie (69 0010)

SAE J2600: 2015-08 dosiaľ neprijatá

Vypracovanie slovenskej technickej normy

Spracovateľ: Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

Technická komisia: –

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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).

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*.

This first edition cancels and replaces ISO/TS 19880-1:2016, which has been technically revised.

The main changes compared to the ISO/TS 19880-1:2016 are as follows:

- where appropriate, guidance information from the TS was converted to requirements;
- the difference between the risk assessment and the design requirement clauses were clarified and references were added to ensure that the appropriate clauses were linked;
- Annex A from the TS on safety distances was removed;
- Annex C from the TS on hydrogen quality control was removed to ISO 19880-8;
- the presentation of the information was improved and much of the guidance information was moved to informative annexes.

A list of all parts in the ISO 19880 series can be found on the ISO website.

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 — Fuelling stations —

Part 1: General requirements

1 Scope

This document defines the minimum design, installation, commissioning, operation, inspection and maintenance requirements, for the safety, and, where appropriate, for the performance of public and non-public fuelling stations that dispense gaseous hydrogen to light duty road vehicles (e.g. fuel cell electric vehicles).

This document is not applicable to the dispensing of cryogenic hydrogen, or hydrogen to metal hydride applications.

Since this document is intended to provide minimum requirements for fuelling stations, manufacturers can take additional safety precautions as determined by a risk management methodology to address potential safety risks of specific designs and applications.

While this document is targeted for the fuelling of light duty hydrogen road vehicles, requirements and guidance for fuelling medium and heavy duty road vehicles (e.g. buses, trucks) are also covered.

Many of the generic requirements within this document are applicable to fuelling stations for other hydrogen applications, including but not limited to the following:

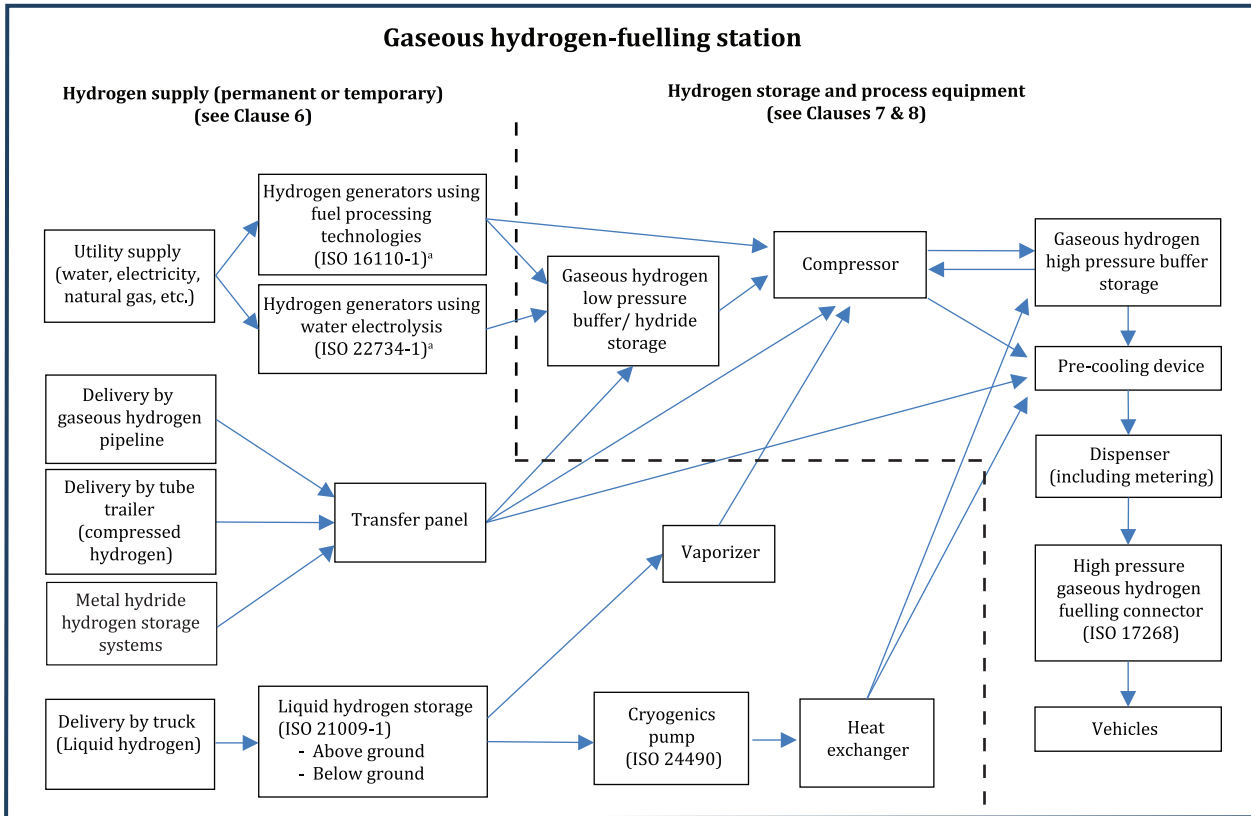
- fuelling stations for motorcycles, fork-lift trucks, trams, trains, fluvial and marine applications;
- fuelling stations with indoor dispensing;
- residential applications to fuel land vehicles;
- mobile fuelling stations; and
- non-public demonstration fuelling stations.

However, further specific requirements that can be necessary for the safe operation of such fuelling stations are not addressed in this document.

This document provides requirements for and guidance on the following elements of a fuelling station (see [Figure 1](#) and [Figure 2](#)):

- hydrogen production/delivery system:
 - delivery of hydrogen by pipeline, trucked in gaseous and/or liquid hydrogen, or metal hydride storage trailers;
 - on-site hydrogen generators using water electrolysis process or hydrogen generators using fuel processing technologies;
 - liquid hydrogen storage;
 - hydrogen purification systems, as applicable;
- compression:
 - gaseous hydrogen compression;

- pumps and vaporizers;
- gaseous hydrogen buffer storage;
- pre-cooling device;
- gaseous hydrogen dispensing systems.



^a May include a buffer vessel (or accumulator) for dampening or adjusting flow of compressor suction inlet.

Figure 1 — Example of typical elements that a fuelling station consists of, including hydrogen supply

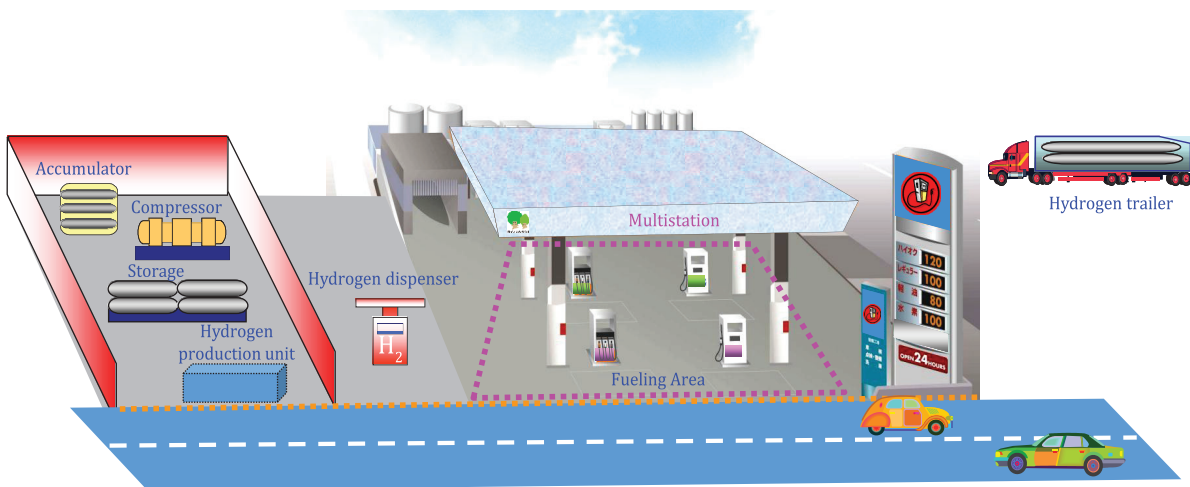


Figure 2 — Image of an example hydrogen fuelling station

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 13850, *Safety of machinery — Emergency stop function — Principles for design*

ISO 14687, *Hydrogen fuel — Product specification*

ISO 15649, *Petroleum and natural gas industries — Piping*

ISO 17268, *Gaseous hydrogen land vehicle refuelling connection devices*

ISO 19880-8, *Gaseous hydrogen — Fuelling stations — Part 8: Hydrogen quality control*

ISO 21013-1, *Cryogenic vessels — Pressure-relief accessories for cryogenic service — Part 1: Reclosable pressure-relief valves*

ISO 21013-2, *Cryogenic vessels — Pressure-relief accessories for cryogenic service — Part 2: Non-reclosable pressure-relief devices*

ISO 21013-3, *Cryogenic vessels — Pressure-relief accessories for cryogenic service — Part 3: Sizing and capacity determination*

ISO 22734, *Hydrogen generators using water electrolysis*

ISO/IEC 80079 (all parts), *Explosive atmospheres*

IEC 60079 (all parts), *Explosive atmospheres*

IEC 60204-1:2005, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 62282-3-100, *Fuel cell technologies. Stationary fuel cell power systems. Safety*

EN 13445-5, *Unfired pressure vessels. Inspection and testing*

SAE J2600: 2015-08, *Compressed Hydrogen Surface Vehicle Fuelling Connection Devices*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN