ICS 43.060.40; 71.100.20 SLOVENSKÁ TECHNICKÁ NORMA Október 2025

STN	**Plynný vodík Plniace stanice Časť 5: Hadice pre výdajné stojany a hadicové zostavy**	**STN ISO 19880-5 30 2340**

Gaseous hydrogen
Fuelling stations
Part 5: Dispenser hoses and hose assemblies

Carburant d'hydrogène gazeux
Stations de ravitaillement
Partie 5: Flexibles et assemblages flexibles pour distributeurs

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 19880-5: 2025 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International standard ISO 19880-5: 2025 and has the status of the official version.

141157

Anotácia

Tento dokument špecifikuje požiadavky na hadice vystužené drôtom alebo textíliou a hadicové zostavy vhodné na plnenie vodíka do menovitého pracovného tlaku 70 MPa v rozsahu prevádzkových teplôt od −40 °C do 65 °C.

Tento dokument špecifikuje bezpečnostné požiadavky na materiál, konštrukciu, výrobu a skúšanie hadíc na plynný vodík a hadicových zostáv pre vodíkové plniace stanice.

Tento dokument sa nevzťahuje na nasledujúce hadice a hadicové zostavy:

a) tie, ktoré sa používajú ako súčasť vysokotlakového palubného systému vozidla pre skladovanie paliva;

b) tie, ktoré sa používajú ako súčasť nízkotlakového systému dodávky paliva vozidla; a

c) pružné kovové hadice.

POZNÁMKA 1. – Tento dokument bol vypracovaný predovšetkým pre hadice a hadicové zostavy na plnenie vodíka pod vysokým tlakom z výdajných stojanov do vodíkových vozidiel. ISO 16964 sa zaoberá hadicami používanými na plnenie vodíka z prepravných nádob (napr. prívesu) do vyrovnávacieho zásobníka stanice.

POZNÁMKA 2. – Zostavy hadíc zahŕňajú hadicu s koncovkami na pripojenie na každom konci. Každá koncovka má dva nasledovné základné funkčné prvky:

a) Spojka na hadicu. Tento prvok je definovaný požiadavkami a overený (spolu so samotnou hadicou) skúškami funkčnosti podľa tohto dokumentu.

b) Tvarovka na prechod a pripojenie k potrubnému systému alebo zariadeniu. Tento prvok je riešený odkazom na príslušné normy pre vodíkové zariadenia a predpisy pre potrubia.

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 1402 prijatá ako STN EN ISO 1402 Gumové a plastové hadice a hadice s koncovkami. Hydrostatické skúšanie (ISO 1402) (63 5414)

ISO 4671 prijatá ako STN EN ISO 4671 Gumové a plastové hadice a hadice s koncovkami. Metódy merania rozmerov hadíc a dĺžok hadicových koncoviek (ISO 4671) (63 5202)

ISO 6802 prijatá ako STN EN ISO 6802 Gumové a plastové hadice a hadice s koncovkami s drôtenou výstužou. Hydraulická impulzová skúška v ohybe (ISO 6802) (63 5422)

ISO 6803 prijatá ako STN EN ISO 6803 Gumové alebo plastové hadice a hadice s koncovkami. Hydraulická tlaková impulzová skúška bez ohýbania (ISO 6803: 2017) (63 5415)

ISO 7326:2016 prijatá ako STN EN ISO 7326: 2017 Gumové a plastové hadice. Stanovenie odolnosti proti ozónu pri statických podmienkach (ISO 7326: 2016) (63 5212)

ISO 8031:2020 prijatá ako STN EN ISO 8031: 2020 Gumové a plastové hadice a hadice s koncovkami. Stanovenie elektrostatických vlastností (ISO 8031: 2020) (63 5220)

ISO 8330 prijatá ako STN EN ISO 8330 Gumové a plastové hadice a hadice s koncovkami. Slovník (ISO 8330) (63 5207)

ISO 8331 prijatá ako STN EN ISO 8331 Gumové hadice a hadice s koncovkami. Návod na výber, uchovanie, použitie a údržbu (ISO 8331) (63 5439)

ISO 9227 prijatá ako STN EN ISO 9227 Korózne skúšky v umelých atmosférach. Skúšky soľnou hmlou (ISO 9227) (03 8132)

ISO 15649 dosiaľ neprijatá

ISO 16964 prijatá ako STN EN ISO 16964 Fľaše na plyny. Ohybné pripojovacie hadice. Špecifikácia a skúšanie (ISO 16964) (69 0030)

ISO 19880-1 prijatá ako STN ISO 19880-1 Plynný vodík. Plniace stanice. Časť 1: Všeobecné požiadavky (30 2340)

ISO 20485 prijatá ako STN EN ISO 20485 Nedeštruktívne skúšanie. Skúšanie tesnosti. Metóda stopového plynu (ISO 20485) (01 5025)

ISO 30013 prijatá ako STN EN ISO 30013 Gumové a termoplastové hadice. Metódy pôsobenia účinku zdrojov laboratórneho svetla. Stanovenie zmien vo farbe, vzhľade a v iných fyzikálnych vlastnostiach (ISO 30013) (63 5445)

IEC 60243-1 prijatá ako STN EN 60243-1 Elektrická pevnosť izolačných materiálov. Skúšobné metódy. Časť 1: Skúšky pri priemyselných frekvenciách (34 6463)

IEC 62631-3-1 prijatá ako STN EN IEC 62631-3-1 Dielektrické a odporové vlastnosti tuhých izolačných materiálov. Časť 3-1: Určovanie odporových vlastností (jednosmerné DC metódy). Objemový elektrický odpor a objemová rezistivita. Všeobecná metóda (34 6460)

Vypracovanie

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

Technická komisia: TK 125 Vodíkové technológie

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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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 ISO/TC 197, *Hydrogen technologies*.

This second edition cancels and replaces the first edition (ISO 19880-5:2019), which has been technically revised.

The main changes are as follows:

— subclause 7.2.3 revised test gas and pass/fail criteria;

— subclause 7.7.2 revised to add temperature tolerance;

— editorial changes.

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.

Introduction

This document specifies the implementation of performance-based testing for components of dispensing systems and fuelling stations that are based on proven engineering principles, research and the combined expertise of gas utilities, fuel providers, manufacturers, users, and others having specialized experience.

The successful commercialization of hydrogen vehicle technologies requires codes and standards pertaining to fuelling stations, vehicle fuel system components, and the global homologation of standards requirements for technologies with the same end use. Essentially this will allow manufacturers to achieve economies of scale by producing one product for use globally.

International harmonization contributes to reducing technical barriers and stimulates related markets. A series of documents that address hydrogen-fuelled vehicles and fuelling stations is being developed. These documents will provide internationally homologized minimum safety performance criteria at the component level, thus providing a foundation to build a safe “fuelling system”.

This document is based on ANSI/CSA HGV 4.2-2022.

This document was developed based on five pressure classes of wire or textile reinforced hoses and hose assemblies suitable for use with gaseous hydrogen for hydrogen dispensing. This is based on technologies in use at the time of the development of the requirements.

In the future, other types and classes of hoses and hose assemblies will need to be evaluated to determine the suitability of requirements in this document.

This document applies to newly manufactured hoses and hose assemblies for connecting a dispenser to a high-pressure fuelling nozzle.

A nozzle vent hose is included in this document; however; the pressure rating may be lower than the nozzle rating, based on the nozzle and dispenser design.

For general hydrogen safety information, see ISO/TR 15916.

International Standard **ISO 19880-5:2025(en)**

Gaseous hydrogen — Fuelling stations —

Part 5:
Dispenser hoses and hose assemblies

1 Scope

This document specifies the requirements for wire or textile reinforced hoses and hose assemblies suitable for dispensing hydrogen up to 70 MPa nominal working pressure, in the operating temperature range of −40 °C to 65 °C.

This document specifies safety requirements for material, design, manufacture and testing of gaseous hydrogen hose and hose assemblies for hydrogen fuelling stations.

This document does not apply to the following hoses and hose assemblies:

a) those used as part of a vehicle high pressure on-board fuel storage system;

b) those used as part of a vehicle low pressure fuel delivery system; and

c) flexible metal hoses.

NOTE 1 This document was developed primarily for hoses and hose assemblies for dispensing high-pressure hydrogen from refuelling dispensers to hydrogen vehicles. ISO 16964 addresses hoses used to deliver hydrogen from a transportable vessel (e.g. trailer) into a buffer storage of a station.

NOTE 2 Hose assemblies include a hose with connectors on each end (see Figure 1). Each connector has two basic functional elements that are addressed as described below.

a) Coupling to hose. This function is defined by requirements and verified (along with the hose itself) by performance-based tests in this document.

b) Fitting for transition and connection to the piping system or equipment. This function is addressed by reference to appropriate hydrogen equipment standards and piping codes.

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 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 6802, *Rubber or plastics hoses and hose assemblies — Hydraulic impulse test with flexing*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*

ISO 7326:2016, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8031:2020, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance and conductivity*

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

ISO 8331, *Rubber and plastics hoses and hose assemblies — Guidelines for selection, storage, use and maintenance*

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

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

ISO 16964, *Gas cylinders — Flexible hoses assemblies — Specification and testing*

ISO 19880-1, *Gaseous hydrogen — Fuelling stations — Part 1: General requirements*

ISO 20485, *Non-destructive testing — Leak testing — Tracer gas method*

ISO 30013, *Rubber and plastics hoses — Methods of exposure to laboratory light sources — Determination of changes in colour, appearance and other physical properties*

IEC 60243-1, *Electric strength of insulating materials — Test methods — Part 1: Tests at power frequencies*

IEC 62631-3-1, *Dielectric and resistive properties of solid insulating materials — Part 3-1: Determination of resistive properties (DC methods) — Volume resistance and volume resistivity — General method*