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**Infrastruktura za plin - Postaje za injiciranje - 1. del. Splošne zahteve**

Gas infrastructure - Injection stations - Part 1: General requirements

Gasinfrastruktur - Einspeiseanlagen - Teil 1: Allgemeine Anforderungen

Infrastructures gazières - Stations d'injection - Partie 1 : Exigences générales

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**Gas infrastructure - Injection stations - Part 1: General requirements**

Infrastructures gazières - Stations d'injection - Partie 1  
: Exigences générales

Gasinfrastruktur - Einspeiseanlagen - Teil 1:  
Allgemeine Anforderungen

This European Standard was approved by CEN on 7 July 2024.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 17928-1:2024) has been prepared by Technical Committee CEN/TC 234 “Gas infrastructure”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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.

This document is part of the EN 17928 series, *Gas infrastructure — Injection stations*, which includes the following parts:

- *Part 1: General requirements*
- *Part 2: Specific requirements regarding the injection of biomethane*
- *Part 3: Specific requirements regarding the injection of hydrogen*

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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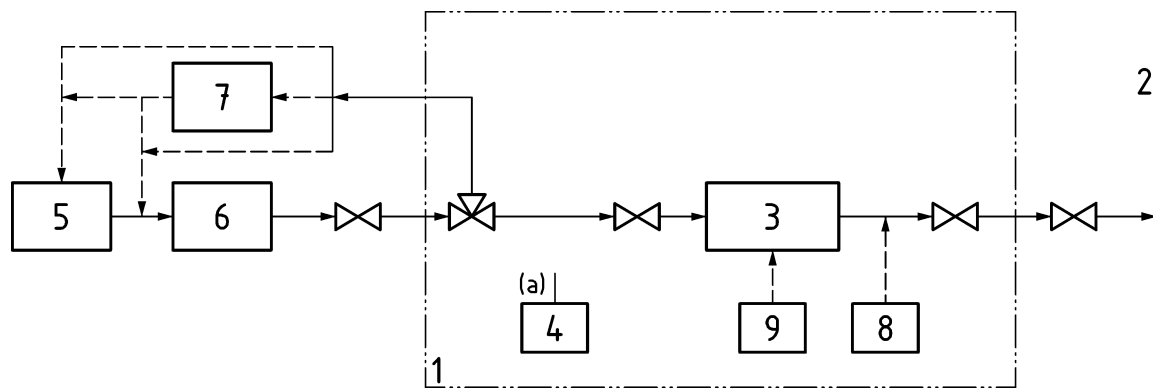
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## EN 17928-1:2024 (E)

### 1 Scope

This document establishes the functional requirements for stations for the injection of biomethane, substitute natural gas (SNG) and hydrogen into gas transmission and distribution systems operated with gases (natural gas, biomethane, SNG, hydrogen, gas mixtures) in accordance with European technical rules that ensure the interoperability of systems.

Figure 1 describes the general approach including all the relevant functions that can be installed in different configurations. The injection of Hydrogen is covered separately in EN 17928-3:2024.



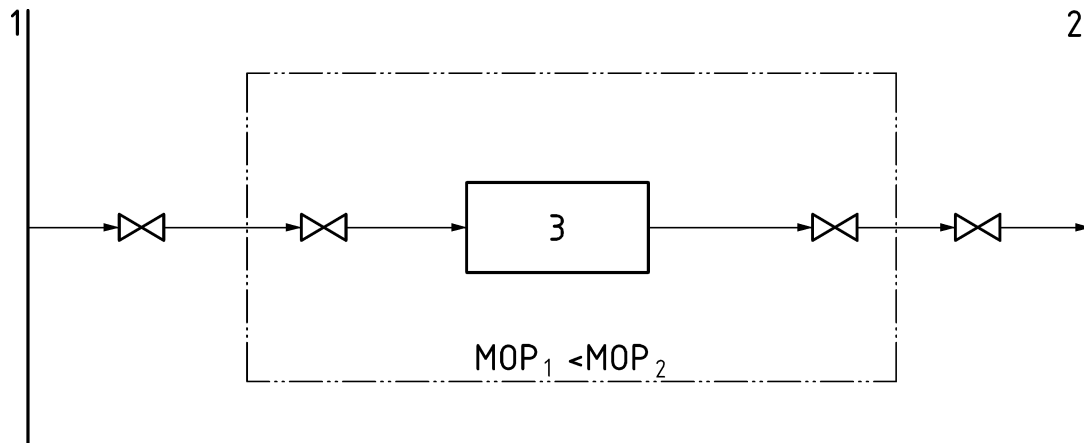
#### Key

- 1 injection station – scope of this document
- 2 gas transmission or distribution system
- 3 measuring and control station – pressure regulation/ compression/gas mixing / flow control
- 4 gas analysis and sampling system
- 5 gas production
- 6 gas purification/upgrading
- 7 storage
- 8 odorization (optional)
- 9 adjusting gases (optional) (see 7.2.5)
- (a) sampling unit to be connected to process line

**Figure 1 — Example of an injection station with gas purification**

This document also applies to refeeding stations that feed such gases back into upstream gas supply networks; see Figure 2.



**Key**

- 1 downstream gas transmission or distribution network
- 2 upstream gas transmission or distribution network
- 3 refeeding station

**Figure 2 — Refeeding station**

This document represents the state of the art at the time of its preparation.

This document does not apply to injection stations operating prior to the publication of this document.

This document specifies common basic principles for gas infrastructure. Users of this document are expected to be aware that more detailed national standards and/or codes of practice can exist in the CEN member countries. This document is intended to be applied in association with these national standards and/or codes of practice setting out the above-mentioned basic principles.

In the event of terms of additional requirements in national legislation/regulation than in this document, CEN/TR 13737 (all parts) illustrates these terms.

CEN/TR 13737 (all parts) gives:

- legislation/regulations applicable in a member state;
- if appropriate, more restrictive national requirements;
- a national contact point for the latest information.

**EN 17928-1:2024 (E)****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.

EN 1081, *Resilient, laminate and modular multilayer floor coverings — Determination of the electrical resistance*

EN 1594, *Gas infrastructure — Pipelines for maximum operating pressure over 16 bar — Functional requirements*

EN 1776, *Gas infrastructure — Gas measuring systems — Functional requirements*

EN 1998 (all parts), *Eurocode 8: Design of structures for earthquake resistance*

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

EN 12007-1:2012, *Gas infrastructure — Pipelines for maximum operating pressure up to and including 16 bar — Part 1: General functional requirements*

EN 12186, *Gas infrastructure — Gas pressure regulating stations for transmission and distribution — Functional requirements*

EN 12405-1, *Gas meters — Conversion devices — Part 1: Volume conversion*

EN 12327, *Gas infrastructure — Pressure testing, commissioning and decommissioning procedures — Functional requirements*

EN 12732, *Gas infrastructure — Welding steel pipework — Functional requirements*

EN 13774, *Valves for gas distribution systems with maximum operating pressure less than or equal to 16 bar — Performance requirements*

EN 14141, *Valves for natural gas transportation in pipelines — Performance requirements and tests*

EN 14382, *Gas safety shut-off devices for inlet pressure up to 10 MPa (100 bar)*

EN 16723-1, *Natural gas and biomethane for use in transport and biomethane for injection in the natural gas network — Part 1: Specifications for biomethane for injection in the natural gas network*

EN 16726, *Gas infrastructure — Quality of gas — Group H*

EN 17649:2022, *Gas infrastructure — Safety Management System (SMS) and Pipeline Integrity Management System (PIMS) — Functional requirements*

EN 17928-2:2024, *Gas infrastructure — Injection stations — Part 2: Specific requirements regarding the injection of biomethane*

EN 17928-3:2024, *Gas infrastructure — Injection station — Part 3: Specific requirements regarding the injection of hydrogen*

CEN/TS 17977, *Gas infrastructure — Quality of gas — Hydrogen used in rededicated gas systems*

EN 60034-1, *Rotating electrical machines — Part 1: Rating and performance*

EN IEC 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres*

EN 60079-14, *Explosive atmospheres — Part 14: Electrical installations design, selection and erection*

EN 60947-5-1, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices*

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

EN 61508-1, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 1: General requirements*

EN 61511 (all parts), *Functional safety — Safety instrumented systems for the process industry sector*

EN 62305 (all parts), *Protection against lightning*

EN 62305-2, *Protection against lightning — Part 2: Risk management*

EN IEC 62443 (all parts), *Security for industrial automation and control systems*

HD 60364 (all parts), *Low-voltage electrical installations*

HD 60364-4-41, *Low-voltage electrical installations — Part 4-41: Protection for safety — Protection against electric shock*

HD 60364-5-54, *Low-voltage electrical installations — Part 5-54: Selection and erection of electrical equipment — Earthing arrangements and protective conductors*

EN ISO 10715, *Natural gas — Gas sampling (ISO 10715)*

EN ISO 12213 (all parts), *Natural gas — Calculation of compression factor (ISO 12213 (all parts))*

EN ISO 12944 (all parts), *Paints and varnishes — Corrosion protection of steel structures by protective paint systems (ISO 12944 (all parts))*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1)*

EN ISO/IEC 27001, *Information security, cybersecurity and privacy protection — Information security management systems — Requirements (ISO/IEC 27001)*

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### 3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **injection station**

umbrella term covering all necessary equipment for the injection of biomethane, substitute natural gas (SNG) and hydrogen into gas infrastructure, including the site and the housing

Note 1 to entry: See Figure 1.

#### 3.2

##### **hydrogen**

gaseous hydrogen with a certain purity as described in CEN/TS 17977

[SOURCE: CEN/TS 17977:2023, modified]

#### 3.3

##### **biomethane**

gas comprising principally methane, obtained from either upgrading of biogas or methanation of bio-syngas

Note 1 to entry: Composition given in EN 16723-1.

[SOURCE: EN 16723-1:2016, 3.3]

#### 3.4

##### **bio-syngas**

gas, comprising principally carbon monoxide and hydrogen, obtained from gasification of biomass

[SOURCE: EN 16723-1:2016, 3.4]

#### 3.5

##### **substitute natural gas**

##### **SNG**

gas which is interchangeable in its properties with natural gas

Note 1 to entry: Substitute natural gas is also called synthetic natural gas.

#### 3.6

##### **gas mixture**

combination of different single gases deliberately mixed in specified proportions

[SOURCE: ISO 10286:2015, definition 704]

#### 3.7

##### **refeeding station**

station for feeding of gas back into upstream gas supply networks

**3.8****monitoring and control devices**

process measuring and control technology devices designed for the operation of the station as intended

Note 1 to entry: Such equipment is used for automation functions such as instrumentation and control, signalling, recording, etc.

**3.9****gas infrastructure**

pipeline system including pipework and their associated stations for the transmission and distribution of gas

Note 1 to entry: An injection station is part of the gas infrastructure.

[SOURCE: EN 12007-1:2012, 3.1.1]

**3.10****odorization**

addition of odorants to gas (normally odourless) to allow gas leaks to be recognized by smell at trace levels (before accumulating to dangerous concentrations in air)

[SOURCE: EN 16723-1:2016, 3.15]

**3.11****protective measure**

means used to reduce risk

Note 1 to entry: Protective measures include risk reduction by inherently safe design, protective devices, personal protective.

[SOURCE: ISO/IEC Guide 51:2014, 3.8]

**3.12****risk**

product of the damage which will be caused by a potential accident and its probability

[SOURCE: ISO/TR 15916:2015, 3.93]

**3.13****hazard**

anything which is a source of potential loss of inventory or damage of the gas infrastructure

[SOURCE: EN 17649:2022, 3.5]

**3.14****safety**

condition of the gas infrastructure being acceptable for the population, for the environment and for the continuity of supply ensured by the adoption of adequate measures in the design, construction, operation, maintenance and abandonment of the gas infrastructure

[SOURCE: EN 17649:2022, 3.8]

**EN 17928-1:2024 (E)****3.15****leak**

unwanted opening or openings through a containment system that could permit the escape of the contents

[SOURCE: EN ISO 12807:2021, 3.6]

**3.16****safety function**

function to be implemented by an electrical/electronic/programmable electronic system E/E/PE or mechanical/pneumatic safety-related system or other risk reduction measures, that is intended to achieve or maintain a safe state for the Equipment Under Control (EUC), in respect of a specific hazardous event

EXAMPLE Examples of safety functions include:

- functions that are required to be carried out as positive actions to avoid hazardous situations (for example switching off a motor); and
- functions that prevent actions being taken (for example preventing a motor starting).

[SOURCE: EN 61508-4:2010, 3.5.1]

**3.17****Equipment Under Control****EUC**

machinery, apparatus or plant used for processing, transportation or other activities which Parameter Under Control (PUC) are regularly supervised

Note 1 to entry: In the case of this document, the EUC is the complete downstream system.

[SOURCE: EN 61508-4:2010, 3.2.3]

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**3.18****Parameter Under Control****PUC**

parameter which is continuously controlled and necessary to ensure safety and operation of the Equipment Under Control (EUC)

**3.19****safety system**

designated system that:

- implements the required safety functions necessary to achieve or maintain a safe state for the Equipment Under Control (EUC); and
- safely prevents any process parameters to exceed the permissible tolerances; and
- is intended to achieve, on its own or with other safety-related systems and other risk reduction measures, the necessary safety integrity for the required safety function

Note 1 to entry: The term refers to those systems, designated as safety-related systems, that are intended to achieve, together with the other risk reduction measures.

[SOURCE: EN 61508-4:2010, 3.4.1]