

**01-april-2023****Nadomešča:****SIST EN 15001-2:2009**

---

**Infrastruktura za plin - Plinske napeljave z delovnim tlakom nad 0,5 bar za industrijsko uporabo in delovnim tlakom nad 5 bar za industrijsko in neindustrijsko uporabo - 2. del: Podrobne funkcionalne zahteve za začetek obratovanja, obratovanje in vzdrževanje**

Gas supply systems - Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations - Part 2: Detailed functional requirements for commissioning, operation and maintenance

[SIST EN 15001-2:2023](#)

Gasversorgungssysteme - Gasleitungsanlagen mit einem Betriebsdruck größer 0,5 bar für industrielle Installationen und größer 5 bar für industrielle und nicht-industrielle Installationen - Teil 2: Detaillierte funktionale Anforderungen an Inbetriebnahme, Betrieb und Instandhaltung

Infrastructures gazières - Canalisations d'installation de gaz avec une pression de service supérieure à 0,5 bar pour les installations industrielles et supérieure à 5 bar pour les installations industrielles et non industrielles - Partie 2 : Exigences fonctionnelles détaillées pour la mise en service, l'exploitation et la maintenance

**Ta slovenski standard je istoveten z: EN 15001-2:2023**

**ICS:**

91.140.40      Sistemi za oskrbo s plinom      Gas supply systems

**SIST EN 15001-2:2023****en,fr,de**



EUROPEAN STANDARD

EN 15001-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2023

ICS 23.040.01

Supersedes EN 15001-2:2008

English Version

Gas supply systems - Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations - Part 2: Detailed functional requirements for commissioning, operation and maintenance

Infrastructures gazières - Canalisations d'installation de gaz avec une pression de service supérieure à 0,5 bar pour les installations industrielles et supérieure à 5 bar pour les installations industrielles et non industrielles - Partie 2 : Exigences fonctionnelles détaillées pour la mise en service, l'exploitation et la maintenance

Gasversorgungssysteme - Gas-Leitungsanlagen mit einem Betriebsdruck größer 0,5 bar für industrielle Installationen und größer 5 bar für industrielle und nicht-industrielle Installationen - Teil 2: Detaillierte funktionale Anforderungen an Inbetriebnahme, Betrieb und Instandhaltung

STANDARD PREVIEW  
(standards.iteh.ai)

This European Standard was approved by CEN on 1 July 2019.

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, 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 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

<b>Contents</b>	<b>Page</b>
European foreword.....	4
<b>1</b> Scope.....	<b>6</b>
<b>2</b> Normative references.....	<b>7</b>
<b>3</b> Terms and definitions.....	<b>7</b>
3.1 Definitions relating to pressure.....	7
3.2 Definitions relating to the gas installation.....	8
3.3 Definitions relating to means of isolation.....	9
3.4 Definitions relating to components.....	9
3.5 Definitions relating to tests.....	9
3.6 Definitions relating to commissioning, operation and maintenance.....	10
3.7 Definitions relating to pressure regulating and metering.....	11
<b>4</b> General.....	<b>11</b>
4.1 Installation drawings and technical file.....	11
4.2 Changes affecting an existing installation pipework.....	11
4.3 Quality system.....	12
4.4 Protection against hazards.....	12
4.4.1 Electrical installation in hazardous area.....	12
4.4.2 Gas detection systems.....	12
4.4.3 Non-odorized gas.....	12
4.5 Protection against adverse influences.....	13
<b>5</b> Commissioning.....	<b>13</b>
5.1 General.....	13
5.2 Purging.....	13
5.2.1 General.....	13
5.2.2 Setting and checking regulators and safety devices.....	14
5.2.3 Inspection of gas pressure boosters/compressors.....	14
<b>6</b> Operation and maintenance.....	<b>14</b>
6.1 Requirements involving operation and maintenance.....	14
6.1.1 Identification of buried services.....	14
6.1.2 Depth of cover.....	14
6.1.3 External hazards.....	15
6.1.4 Supporting structures.....	15
6.2 Operation.....	15
6.2.1 General.....	15
6.2.2 Properties of fuel gas.....	15
6.2.3 Condensation and design temperature effect in pressure control systems.....	16
6.2.4 Effects of construction and other activities on the installation.....	16
6.2.5 Prevention of migration of gas into buildings.....	16
6.2.6 Trees and plants.....	16
6.2.7 Emergencies.....	16
6.3 Maintenance.....	17
6.3.1 General.....	17
6.3.2 Safety engineering.....	17

6.3.3	Appliance isolating valves .....	18
6.3.4	Identification of above-ground gas pipework.....	18
6.3.5	Detail engineering .....	18
6.3.6	Work on pipework .....	19
6.3.7	Inspections .....	19
6.3.8	Operability check on valves .....	21
6.3.9	Pressure control systems.....	21
6.3.10	Pressure settings .....	21
6.3.11	Installation of pressure regulating systems .....	21
6.3.12	Filters and liquid separators .....	21
6.3.13	Corrosion protection .....	21
6.3.14	Hazardous areas.....	22
6.3.15	Hot working in hazardous areas .....	22
6.3.16	Hot tapping.....	23
Annex A (informative) Significant technical changes between this European standard and the previous version EN 15001-2:2008.....		24
Bibliography .....		26

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 15001-2:2023](https://standards.iteh.ai/catalog/standards/sist/1264ff42-0810-4581-ac93-c12a7dd5ed80/sist-en-15001-2-2023)

<https://standards.iteh.ai/catalog/standards/sist/1264ff42-0810-4581-ac93-c12a7dd5ed80/sist-en-15001-2-2023>

## EN 15001-2:2023 (E)

### European foreword

This document (EN 15001-2:2023) has been prepared by Technical Committee CEN/TC 234 “Gas supply”, 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 August 2023, and conflicting national standards shall be withdrawn at the latest by August 2023.

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 supersedes EN 15001-2:2008.

A list of the significant changes compared to EN 15001-2:2008 can be found in Annex A, Table A.1.

The scope of this revised standard is extended with biomethane and vaporized LNG gases. This standard is not designed for various mixtures of natural gas and hydrogen which may be allowed in the different member states.

With respect to hydrogen there are proposals to inject hydrogen (H<sub>2</sub>) from renewable sources into the natural gas network. Investigations have been conducted to evaluate the impact. According to EN 16726 at present it is not possible to specify a limiting hydrogen value which would generally be valid for all parts of the European gas infrastructure.

There is a complete suite of functional standards prepared by CEN/TC 234 “Gas infrastructure” to cover all parts of the gas supply system from the input of gas to the transmission system up to the inlet connection of the gas appliances, whether for domestic, commercial or industrial purposes.

In preparing this document, a basic understanding of gas supply by the user has been assumed.

In the event of conflicts in terms of more restrictive requirements in national legislation/regulation with the requirements of this standard, national legislation/regulation takes precedence as illustrated in CEN/TR 13737.

NOTE CEN/TR 13737 contains:

- clarification of relevant legislation/regulations applicable in a country;
- if appropriate, more restrictive national requirements;
- national contact point for the latest information.

Gas supply systems are complex and the importance on safety of their construction and use has led to the development of very detailed codes of practice and operating manuals in the member countries. These detailed statements embrace recognized standards of gas engineering and the specific requirements imposed by the legal structures of the member countries.

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.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 15001-2:2023](https://standards.iteh.ai/catalog/standards/sist/1264ff42-0810-4581-ac93-c12a7dd5ed80/sist-en-15001-2-2023)

<https://standards.iteh.ai/catalog/standards/sist/1264ff42-0810-4581-ac93-c12a7dd5ed80/sist-en-15001-2-2023>

**EN 15001-2:2023 (E)****1 Scope**

This document specifies detailed functional requirements for the commissioning, operation and maintenance of

- industrial gas installation pipework and assemblies with an operating pressure greater than 0,5 bar; and
- non-industrial gas installation pipework (residential and commercial) with an operating pressure greater than 5 bar in buildings,

starting from the outlet of the network operator's point of delivery up to the inlet connection to the gas appliance; normally the inlet isolation valve. This document also covers the pipework to the inlet connection of a gas appliance that is not included within the scope of the appliance standard.

Apart from the exceptions stated below, this document applies to gas installation pipework operating at ambient temperatures between  $-20\text{ °C}$  and  $40\text{ °C}$  and operating pressures up to and including 60 bar. For operating conditions outside these limitations, reference is additionally be made to EN 13480 for metallic pipework.

For industrial gas installation pipework up to and including 0,5 bar and for non-industrial (residential and commercial) gas installation pipework up to and including 5 bar EN 1775 applies.

For gas installation pipework that do not fall within the scope of EN 1775 or other European Standards, this European Standard applies.

In this document, the term "gas" refers to combustible gases, which are gaseous at  $15\text{ °C}$  and 1 013 mbar absolute atmospheric pressure. These gases are commonly referred to as manufactured gas, natural gas or Liquefied Petroleum Gas (LPG). They are also referred to as first, second or third family gases as classified in EN 437:2021, Table 1 The given values are considered as normal conditions for all volumes given in this document.

This document is applicable to gas installation pipework for the carriage of:

- processed, non-toxic and non-corrosive natural gas according to EN 437:2021 and EN 16726 "Gas infrastructure — Quality of gas — Group H";
- biomethane, complying with EN 16723-1;
- vaporized LNG.

**NOTE** The specification of vaporized LNG is equal to that of natural gas as classified in EN 437:2021.

This document does not cover pipework for hydrogen rich gases that fall outside the definitions within EN 437:2021.

LPG storage vessels (including all ancillaries fitted directly to storage vessels) are excluded. Also excluded are LPG installations and sections of LPG installations operating at vapour pressure or in the liquid state.

In this document, all pressures are gauge pressures unless otherwise stated.

This document specifies common basic principles for gas supply systems. Users of this document should be aware that more detailed national standards and/or code of practice may 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.



For gas installation pipework within the scope of this document, national legislation and regulations are meant to be taken into account.

Functional requirements for design, selection of materials, construction, inspection and testing of industrial gas installation- pipework with an operating pressure greater than 0,5 bar and of gas installation pipework greater than 5 bar in buildings and areas intended for non-industrial installation pipework are described in EN 15001-1:2023.

## 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 12954, *General principles of cathodic protection of buried or immersed onshore metallic structures*

EN 15001-1:2023, *Gas Infrastructure — Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations — Part 1: Detailed functional requirements for design, materials, construction, inspection and testing erection*

EN 60079-17, *Explosive atmospheres - Part 17: Electrical installations inspection and maintenance*

## 3 Terms and definitions

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

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

— IEC Electropedia: available at <http://www.electropedia.org/>

— ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1 Definitions relating to pressure

#### 3.1.1

##### **pressure**

gauge pressure of the fluid inside the system, measured in static conditions

#### 3.1.2

##### **maximum allowable pressure**

##### **PS**

maximum pressure for which pipework is designed in accordance with the strength requirements in this document

Note 1 to entry: For this standard, PS is equivalent to the design pressure (DP).

Note 2 to entry:  $PS \geq \frac{MIP}{1,1}$

#### 3.1.3

##### **maximum incidental pressure**

##### **MIP**

maximum pressure which pipework can experience during a short time, limited by the safety devices

**EN 15001-2:2023 (E)****3.1.4****operating pressure****OP**

pressure which occurs within pipework under normal operating conditions

**3.2 Definitions relating to the gas installation****3.2.1****pipework**

assembly of pipes and fittings

**3.2.2****component**

item from which a gas supply system or installation is constructed and for which a distinction is drawn between the following groups of components:

- ancillaries (for example pressure regulators, valves, safety devices, expansion joints, and insulating joints);
- pipes, including bends made from pipe;
- instrumentation pipework;
- fittings (for example reducers, tees, factory-made elbows, flanges, dome ends, welding stubs, and mechanical joints)

**3.2.3****point of delivery**

point where the gas is transferred to the user

<https://standards.iteh.ai/catalog/standards/sist/1264ff42-0810-4581-ac93->

Note 1 to entry: This can be at a means of isolation or at the meter outlet connection and is normally at the point of transfer of ownership.

**3.2.4****user**

person responsible for the safety of the gas installation and associated risks on a site

Note 1 to entry: Normally the user will be the site occupier, operator or owner. It should be assumed that every user has a responsibility for work performed on their site, whether or not the work is performed directly for the user or not. This does not mean that they cannot take advice from an independent specialist.

**3.2.5****installation pipework**

pipework including components and stations downstream of the point of delivery terminating at the appliance inlet connection

Note 1 to entry: This pipework is normally the property of the customer rather than the supplier.

**3.2.6****ventilated space**

space where the air is continuously changed by natural or mechanical means

**3.2.7****ventilation duct**

duct forming part of the structure of the building and intended exclusively for ventilation purposes

### 3.3 Definitions relating to means of isolation

#### 3.3.1

##### **means of isolation**

device that is intended to interrupt the gas flow in pipework

EXAMPLE A manually operable valve

### 3.4 Definitions relating to components

#### 3.4.1

##### **regulator**

device which reduces the gas pressure to a set value and maintains it within prescribed limits

#### 3.4.2

##### **insulating joint**

fitting installed to insulate electrically one section of pipework from another

#### 3.4.3

##### **sleeve**

protective pipe through which a gas pipe passes

#### 3.4.4

##### **vent pipe**

pipework connected to a safety or control device to release gas at a safe location

#### 3.4.5

##### **creep relief valve**

device designed to release a limited flow of gas in the event of an unacceptable pressure being detected within the system it protects

#### 3.4.6

##### **instrumentation pipework**

pipework required for the proper functioning of the ancillaries installed within the pressure regulating installation

EXAMPLE Sensing, measuring, auxiliary and sampling lines

### 3.5 Definitions relating to tests

#### 3.5.1

##### **strength test**

specific procedure intended to verify that the pipework meets the requirements for mechanical strength

#### 3.5.2

##### **tightness test**

specific procedure intended to verify that the pipework meets the requirements for tightness

#### 3.5.3

##### **leak detection fluid**

specially formulated fluid and foaming product that gives a clear indication that a leak exists when applied to an element of pipework