



**SLOVENSKI STANDARD**  
**oSIST prEN 15001-1:2017**  
**01-julij-2017**

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**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 - 1. del: Podrobne funkcionalne zahteve za načrtovanje, materiale, gradnjo, nadzor in preskušanje**

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

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Gasinfrastruktur - Gas-Leitungsanlagen mit einem Betriebsdruck größer 0,5 bar für industrielle Installationen und größer 5 bar für industrielle und nicht-industrielle Installationen - Teil 1: Detaillierte funktionale Anforderungen an Planung, Material, Bau, Inspektion und Prüfung;

Infrastructures gazières - Canalisations d'installations de gas avec une pression de service supérieure à 5 bar pour les installations industrielles et non industrielles (domestiques et commerciales) - Partie 1: Exigences fonctionnelles d'taillées relative à la conception, au matériaux, à la construction, à l'inspection et au essais

**Ta slovenski standard je istoveten z: prEN 15001-1**

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EUROPÄISCHE NORM

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**prEN 15001-1**

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English Version

**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**

Infrastructures gazières - Canalisations d'installations de gaz avec une pression de service supérieure à 5 bar pour les installations industrielles et non industrielles (domestiques et commerciales) - Partie 1: Exigences fonctionnelles d'installations relatives à la conception, au matériau, à la construction, à l'inspection et aux essais

Gasinfrastruktur - Gas-Leitungsanlagen mit einem Betriebsdruck größer 0,5 bar für industrielle Installationen und größer 5 bar für industrielle und nicht-industrielle Installationen - Teil 1: Detaillierte funktionale Anforderungen an Planung, Material, Bau, Inspektion und Prüfung

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 234.

If this draft becomes a European Standard, 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.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (prEN 15001-1:2017) has been prepared by Technical Committee CEN/TC 234 “Gas Infrastructure”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15001-1:2009.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

Annexes A to D are informative.

The normative Annex E of this document lists some suitable materials for pipework, in addition to the materials listed in Clause 5.

A list of the significant changes compared to EN 15001-1:2009 can be found in Annex F, Table F.1.

This standard includes requirements concerning current design practice and reflects the state of the art at the time of publication. It provides clear solutions for users of the standard. Other design solutions and construction materials, as well as new developments, may be used if equal or greater safety than that required by this EN can be demonstrated or established.

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 residential, commercial or industrial purposes.

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

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.

**prEN 15001-1:2017 (E)****1 Scope**

This European Standard specifies detailed functional requirements for the design, selection of materials, construction, inspection and testing 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 standard also covers the pipework to the inlet connection of a gas appliance that is not included within the scope of the appliance standard.

NOTE 1 The use of the term installation and pipework is interchangeable.

Apart from the exceptions stated below, this standard applies to gas installations operating at ambient temperatures between  $-20\text{ }^{\circ}\text{C}$  and  $40\text{ }^{\circ}\text{C}$  and operating pressures up to and including 60 bar. For operating conditions outside these limitations, reference should additionally be made to EN 13480 (all parts) for metallic pipework.

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

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

In this European Standard, the term "gas" refers to combustible gases, which are gaseous at  $15\text{ }^{\circ}\text{C}$  and 1 013 mbar absolute atmospheric pressure (normal conditions). 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 437:2003+A1:2009, Table 1. The given values are considered as normal conditions for all volumes given in this standard.

This European Standard is applicable to installation pipework for the carriage of:

- processed, non-toxic and non-corrosive natural gas according to EN 437:2003+A1:2009 and EN 16726 "Gas infrastructure - Quality of gas - Group H";
- vaporized LPG;
- biomethane, complying with EN 16723-1;
- vaporized LNG.

NOTE 2 The specification of vaporized LNG is equal to that of natural gas as classified in EN 437:2003+A1:2009.

This European Standard does not cover pipework for hydrogen rich gases that fall outside the definitions within EN 437:2003+A1:2009.

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 in the liquid state (e.g. between the storage vessel and any pressure regulator).

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

This standard has been harmonized to address the essential safety requirements of the Pressure Equipment Directive (PED, 2014/68/EU [formerly 97/23/EC]) relevant for the joining of gas

installation pipework (assemblies) falling within the scope of the PED. These are listed in Annex ZA. However, “this Directive does not cover the assembly of pressure equipment on the site and under the responsibility of the user, as in the case of industrial installations” (PED, Preamble, 7th recital, last paragraph).

Although in this respect, the standard takes into account the essential safety requirements of the PED, no inference can be drawn from this as to whether or not the installation or parts of the installation falls within the scope of the PED. Reference should therefore be made to the PED and relevant national legislation.

This European Standard specifies common basic principles for gas supply systems. Users of this European Standard should be aware that more detailed national standards and/or code of practice may exist in the CEN member countries.

This European Standard 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 conflicts in terms of more restrictive requirements in national legislation/regulation with the requirements of this standard, the national legislation/regulation takes precedence as illustrated in CEN/TR 13737-1 and CEN/TR 13737-2.

This provision does not apply to requirements that are harmonized to directive 2014/68/EU (see Annex ZA).

CEN/TR 13737-1 and CEN/TR 13737-2 give:

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

Functional requirements for commissioning, operation and maintenance of industrial gas installations and assemblies with an operating pressure greater than 0,5 bar and of gas installations greater than 5 bar in buildings and areas intended for non-industrial installations greater than 5 bar are described in EN 15001-2.

Generally, additional safety precautions may be necessary where non-odorized gas is used. For non-industrial purposes, the gas should be odorized.

## 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.

EN 331:2015, *Manually operated ball valves and closed bottom taper plug valves for gas installations for buildings*

EN 334:2005+A1:2009, *Gas pressure regulators for inlet pressures up to 100 bar*

EN 751-1:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 1: Anaerobic jointing compounds*

EN 751-2:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 2: Non-hardening jointing compounds*

**prEN 15001-1:2017 (E)**

EN 751-3:1996<sup>1</sup>, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 3: Unsintered PTFE tapes*

EN 764-5:2014, *Pressure equipment - Part 5: Inspection documentation of metallic materials and compliance with the material specification*

EN 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1092-1:2007+A1:2013<sup>2</sup>, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

EN 1092-3:2003<sup>3</sup>, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 3: Copper alloy flanges*

EN 1254-1:1998, *Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes*

EN 1254-2:1998, *Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for use with copper tubes*

EN 1254-5:1998, *Copper and copper alloys - Plumbing fittings - Part 5: Fittings with short ends for capillary brazing to copper tubes*

EN 1514-1:1997, *Flanges and their joints - Dimensions of gaskets for PN-designated flanges - Part 1: Non-metallic flat gaskets with or without inserts*

EN 1514-2:2014, *Flanges and their joints - Gaskets for PN-designated flanges - Part 2: Spiral wound gaskets for use with steel flanges*

EN 1515-4:2009, *Flanges and their joints - Bolting - Part 4: Selection of bolting for equipment subject to the Pressure Equipment Directive 97/23/EC*

EN 1555-2:2010, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes*

EN 1555-3:2010+A1:2012, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings*

EN 1555-4:2011, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves*

EN 1563:2011, *Founding - Spheroidal graphite cast irons*

EN 1594:2013, *Gas infrastructure - Pipelines for maximum operating pressure over 16 bar - Functional requirements*

EN 1775:2007, *Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations*

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<sup>1</sup> As impacted by EN 751-3:1996/AC:1997.

<sup>2</sup> As impacted by EN 1092-1:2007+A1:2013/AC:2014.

<sup>3</sup> As impacted by EN 1092-3:2003/AC:2007.

EN 10087:1998, *Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods*

EN 10088-1:2014, *Stainless steels - Part 1: List of stainless steels*

EN 10088-3:2014, *Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 10216-5:2013, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 5: Stainless steel tubes*

EN 10217-7:2014, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 7: Stainless steel tubes*

EN 10220:2002, *Seamless and welded steel tubes - Dimensions and masses per unit length*

EN 10222-5:2017, *Steel forgings for pressure purposes – Part 5: Martensitic, austenitic and ferritic-austenitic stainless steels*

EN 10226-1:2004, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10241:2000, *Steel threaded pipe fittings*

EN 10242:1994, *Threaded pipe fitting in malleable cast iron*

EN 10253-2:2007, *Butt-welding pipe fittings - Part 2: Non alloy and ferritic alloy steels with specific inspection requirements*

EN 10253-4:2008<sup>4</sup>, *Butt-welding pipe fittings - Part 4: Wrought austenitic and austenitic-ferritic (duplex) stainless steels with specific inspection requirements*

EN 10255:2004+A1:2007, *Non-Alloy steel tubes suitable for welding and threading - Technical delivery conditions*

prEN 10344:2017, *Malleable cast iron fittings with compression ends for steel pipes*

EN 12007-2:2012, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)*

EN 12007-3:2015, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 3: Specific functional requirements for steel*

EN 12068:1998, *Cathodic protection - External organic coatings for the corrosion protection of buried or immersed steel pipelines used in conjunction with cathodic protection - Tapes and shrinkable materials*

EN 12186:2014, *Gas infrastructure - Gas pressure regulating stations for transmission and distribution - Functional requirements*

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<sup>4</sup> As impacted by EN 10253-4:2008/AC:2009.

**prEN 15001-1:2017 (E)**

EN 12266-1:2012, *Industrial valves - Testing of metallic valves - Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements*

EN 12266-2:2012, *Industrial valves - Testing of metallic valves - Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements*

EN 12279:2000<sup>5</sup>, *Gas supply systems - Gas pressure regulating installations on service lines - Functional requirements*

EN 12560-1:2001, *Flanges and their joints - Gaskets for Class-designated flanges - Part 1: Non-metallic flat gaskets with or without inserts*

EN 12560-2:2013, *Flanges and their joints - Dimensions of gaskets for Class-designated flanges - Part 2: Spiral wound gaskets for use with steel flanges*

EN 12732:2013+A1:2014, *Gas infrastructure - Welding steel pipework - Functional requirements*

EN 12799:2000<sup>6</sup>, *Brazing - Non-destructive examination of brazed joints*

EN 12954:2001, *Cathodic protection of buried or immersed metallic structures - General principles and application for pipelines*

EN 13100-1:1999, *Non destructive testing of welded joints of thermoplastics semi-finished products - Part 1: Visual examination*

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EN 13134:2000, *Brazing - Procedure approval* (standards.iteh.ai)

EN 13445-6:2014<sup>7</sup>, *Unfired pressure vessels - Part 6: Requirements for the design and fabrication of pressure vessels and pressure parts constructed from spheroidal graphite cast iron*

EN 13480-2:2012<sup>8</sup>, *Metallic industrial piping - Part 2: Materials*

EN 13480-3:2012, *Metallic industrial piping - Part 3: Design and calculation*

EN 13480-6:2012, *Metallic industrial piping - Part 6: Additional requirements for buried piping*

EN 13774:2013, *Valves for gas distribution systems with maximum operating pressure less than or equal to 16 bar - Performance requirements*

EN 14141:2013, *Valves for natural gas transportation in pipelines - Performance requirements and tests*

EN 14291:2004, *Foam producing solutions for leak detection on gas installations*

EN 14382:2005+A1:2009,<sup>9</sup> *Safety devices for gas pressure regulating stations and installations - Gas safety shut-off devices for inlet pressures up to 100 bar*

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<sup>5</sup> As impacted by EN 12279:2000/A1:2005.

<sup>6</sup> As impacted by EN 12799:2000/A1:2003.

<sup>7</sup> As impacted by EN 13445-6:2014/A1:2015.

<sup>8</sup> As impacted by EN 13480-2:2012/A1:2013.

EN 16129:2013, *Pressure regulators, automatic change-over devices, having a maximum regulated pressure of 4 bar, with a maximum capacity of 150 kg/h, associated safety devices and adaptors for butane, propane, and their mixtures*

EN 60079-14:2014<sup>10</sup>, *Explosive atmospheres - Part 14: Electrical installations design, selection and erection (IEC 60079-14:2013)*

EN 60529:1991<sup>11</sup>, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 898-1:2013<sup>12</sup>, *Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread - Technical Corrigendum 1 (ISO 898-1:2013)*

EN ISO 898-2:2012, *Mechanical properties of fasteners made of carbon steel and alloy steel - Part 2: Nuts with specified property classes - Coarse thread and fine pitch thread (ISO 898-2:2012)*

EN ISO 3183:2012, *Petroleum and natural gas industries - Steel pipe for pipeline transportation systems (ISO 3183:2012)*

EN ISO 3452-1:2013, *Non-destructive testing - Penetrant testing - Part 1: General principles (ISO 3452-1:2013, Corrected version 2014-05-01)*

EN ISO 3506-1:2009, *Mechanical properties of corrosion-resistant stainless steel fasteners - Part 1: Bolts, screws and studs (ISO 3506-1:2009)*

EN ISO 3506-2:2009, *Mechanical properties of corrosion-resistant stainless steel fasteners - Part 2: Nuts (ISO 3506-2:2009)*

EN ISO 4014:2011, *Hexagon head bolts - Product grades A and B (ISO 4014:2011)*

EN ISO 4017:2014, *Fasteners - Hexagon head screws - Product grades A and B (ISO 4017:2014)*

EN ISO 4032:2012, *Hexagon regular nuts (style 1) - Product grades A and B (ISO 4032:2012)*

EN ISO 4033:2012, *Hexagon high nuts (style 2) - Product grades A and B (ISO 4033:2012)*

EN ISO 5817:2014, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817:2014)*

EN ISO 9606-1:2013, *Qualification testing of welders - Fusion welding - Part 1: Steels (ISO 9606-1:2012 including Cor 1:2012)*

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<sup>9</sup> As impacted by EN 14382:2005+A1:2009/AC:2009.

<sup>10</sup> As impacted by EN 60079-14:2014/AC:2016.

<sup>11</sup> As impacted by EN 60529:1991/A1:2000, EN 60529:1991/A2:2013, EN 60529:1991/corrigendum May 1993 and EN 60529:1991/AC:2016-2.

<sup>12</sup> As impacted by EN ISO 898-1:2013/AC:2013.