



SLOVENSKI STANDARD

kSIST prEN 1594:2008

01-oktober-2008

Sistemi oskrbe s plinom - Cevovodni sistemi za najvišji delovni tlak nad 16 bar - Funkcionalne zahteve

Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements

Gasversorgungssysteme - Rohrleitungen für einen maximal zulässigen Betriebsdruck über 16 bar - Funktionale Anforderungen

Systèmes d'alimentation en gaz - Canalisations pour pression maximale de service supérieure à 16 bar - Prescriptions fonctionnelles

Ta slovenski standard je istoveten z: prEN 1594

ICS:

23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general
75.200	U] ^{ æÁ æÁ ææž ^} b } æe^ Æ æe ç æO [ã ç [á [ç/æ : ^{ ^ b \ ^* æ ã æ	Petroleum products and natural gas handling equipment

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en,fr,de

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Full standard:
<https://standards.iteh.ai/catalog/standards/sist/a3dc3ec7-509f-471d-82ba-f6e872a70fe/sist-en-1594-2009>

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English Version

Gas supply systems - Pipelines for maximum operating pressure over 16 bar - Functional requirements

Systèmes d'alimentation en gaz - Canalisations pour
pression maximale de service supérieure à 16 bar -
Prescriptions fonctionnelles

Gasversorgungssysteme - Rohrleitungen mit einem
maximal zulässigen Betriebsdruck über 16 bar -
Funktionale Anforderungen

This draft European Standard is submitted to CEN members for unique acceptance procedure. 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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Foreword

This document (prEN 1594:2008) 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 Unique Acceptance Procedure.

This document will supersede EN 1594:2000.

There is a complete suite of functional standards prepared by CEN/TC 234 "Gas Supply" 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.

A list of the relevant functional standards prepared by CEN/TC 234 is included in Clause 2 and Annex A of this document.

CEN/TC 234 will continue its work updating this European Standard to the latest developments at regular intervals.

In preparing this European 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 recognised standards of gas engineering and the specific requirements imposed by the legal structures of the member countries.

This European Standard has been prepared under mandate M/017 given to CEN by the Commission of the European Communities and the European Free Trade Association.

Introduction

This European Standard describes the general functional requirements for gas supply through pipe systems and covers the pressure range greater than 16 bar maximum operating pressure (MOP) for steel systems. It gives normative and informative references for safe and secure gas supply systems. It applies to their design, construction, operation and the related aspects of safety, environment and public health, all in order to provide a safe and secure supply of gas.

The requirements of this European Standard are based on safe gas engineering practice under conditions normally encountered in the gas industry. Requirements for all unusual conditions cannot be specifically provided for, nor are all engineering and construction details prescribed.

Existing industrial safety regulations applying to work areas, safety devices and safe work practices are not intended to be supplanted by this European Standard.

Managers with responsibilities for the design, construction and operation of gas supply systems should have regard to the guidance given in this European Standard and to other relevant standards. It is the responsibility of these managers and engineers to apply these functional requirements, supplemented with other proven good practice to the particular circumstances of each gas supply system.

The designer, constructor or operator of pipeline systems is cautioned that this European Standard is not a design handbook or code of practice. Additional national or company standards describing the details are needed. These detailed standards should be in line with the basic principles of this European Standard.

In preparing this European Standard it was recognized that the suite of relevant European Standards is incomplete. Reference may be made where appropriate to international, national or other standards until relevant European Standards are available.

1 Scope

This European Standard is applicable to pipelines with a maximum operating pressure (MOP) over 16 bar for the carriage of processed, non-toxic and non-corrosive natural gas according to EN ISO 13686 in onland gas supply systems, where:

- the pipeline elements are made of unalloyed or low-alloyed carbon steel;
- the pipeline elements are joined by welds, flanges or mechanical couplings;
- the pipeline is not located within commercial or industrial premises as an integral part of the industrial process on these premises except for any pipelines and facilities supplying such premises;
- the design temperature of the system is between -40 °C and 120 °C inclusive;

The standard apply to onshore pipeline systems from the point where the pipeline first crosses what is normally accepted as battery limit between on and offshore, e.g.:

- first isolation valve;
- the base of steep sea shelf;
- above the high water/low water mark onto mainland;
- an island.

The pipeline standard also applies to a pipeline system with a starting point onshore, also when parts of the pipeline system on the mainland subsequently cross fjords, lakes etc.

This European Standard does not apply to existing pipelines, in use prior to the publication of this European Standard, nor to modifications to existing pipelines.

Gas supply systems covered by this European Standard begin after the gas producer's metering station. The functional demarcation of the pipeline system within a plant area will be determined from case to case. Generally speaking, this will be directly after the first isolating valve of the installation.

This standard also describes the mechanical requirements for pipework in stations with a maximum operating pressure greater than 16 bar. Welding requirements are described in a special application standard on welding for gas supply systems EN 12732. Functional requirements for stations are given in:

EN 1776, *Gas supply systems - Natural gas measuring stations - Functional requirements*

EN 1918-5, *Gas supply systems - Underground gas storage - Part 5: Functional recommendations for surface facilities*

EN 12186, *Gas supply systems - Gas pressure regulating stations for transmission and distribution - Functional requirements*

EN 12583, *Gas supply systems - Compressor stations - Functional requirements*

This European Standard specifies common basic principles for gas supply systems. Users of this European Standard should be aware that there may exist more detailed national standards and codes of practice 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 principles.

In the event of conflicts in terms of more restrictive requirements in the national legislation/regulation with the requirements of this European Standard, the national legislation/regulation shall take precedence.

Reference is made in this European Standard to relevant European and other recognized standards for products used to construct and operate gas supply systems.

A schematic representation of pipelines for gas transmission is given in Figure 1.

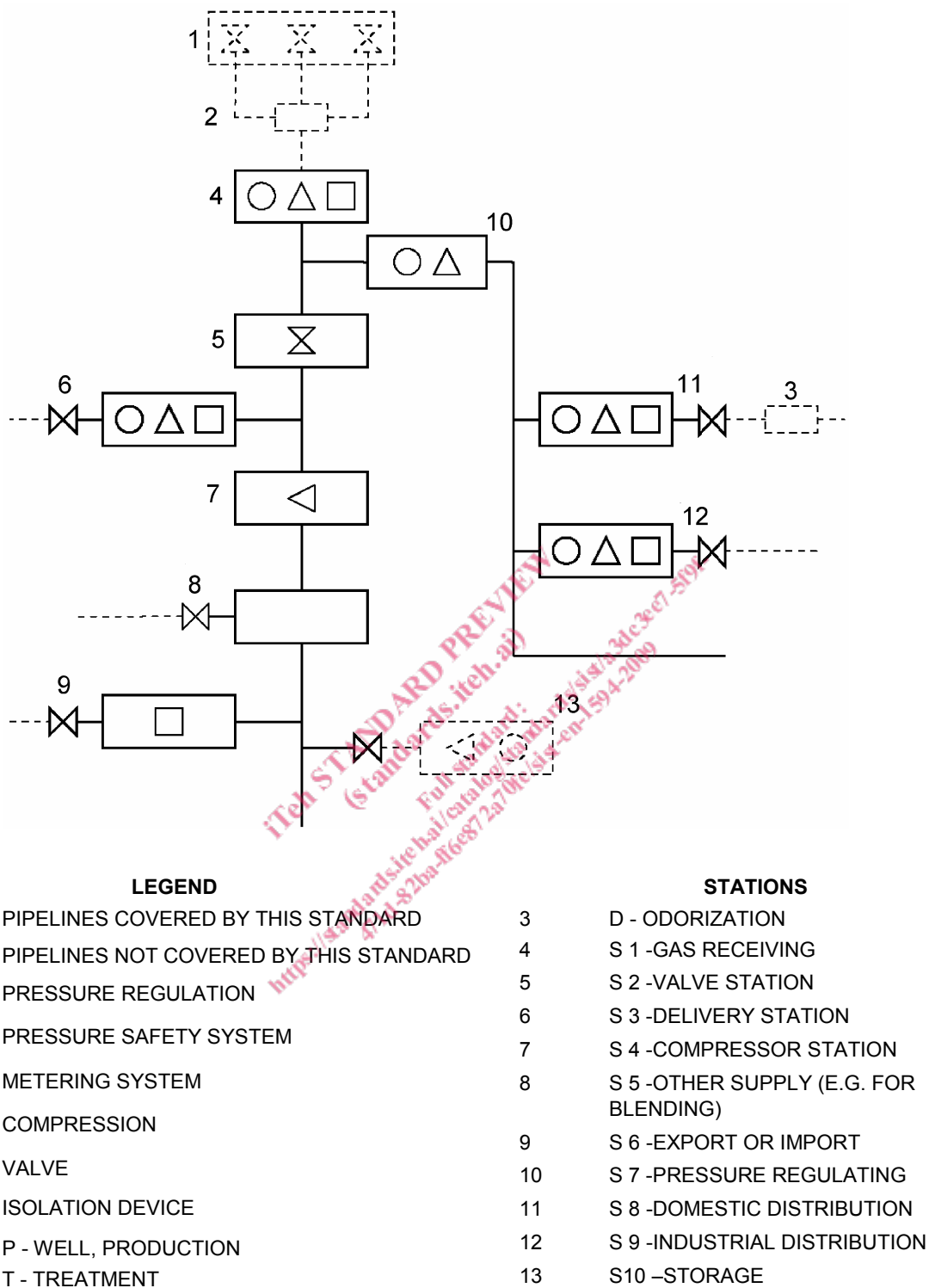


Figure 1 — Schematic representation of pipelines for gas supply over 16 bar

2 Normative references

The following referenced documents are indispensable for the application 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 1515-3, *Flanges and their joints - Bolting - Part 3: Classification of bolt materials for steel flanges, class designated*

EN 1759-1, *Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 1: Steel flanges, NPS 1/2 to 24*

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

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

EN 10208-2, *Steel pipes for pipelines for combustible fluids - Technical delivery conditions - Part 2: Pipes of requirement class B*

EN 10288, *Steel tubes and fittings for onshore and offshore pipelines - External two layer extruded polyethylene based coatings*

EN 10289, *Steel tubes and fittings for onshore and offshore pipelines - External liquid applied epoxy and epoxy-modified coatings*

EN 10290, *Steel tubes and fittings for onshore and offshore pipelines - External liquid applied polyurethane and polyurethane-modified coatings*

EN 10301, *Steel tubes and fittings for on and offshore pipelines - Internal coating for the reduction of friction for conveyance of non corrosive gas*

EN 12068, *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, *Gas supply systems - Gas pressure regulating stations for transmission and distribution - Functional requirements*

EN 12327, *Gas supply systems - Pressure testing, commissioning and decommissioning procedures - Functional requirements*

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

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

EN 12560-3, *Flanges and their joints - Gaskets for Class-designated flanges - Part 3: Non-metallic PTFE envelope gaskets*

EN 12560-4, *Flanges and their joints - Gaskets for Class-designated flanges - Part 4: Corrugated, flat or grooved metallic and filled metallic gaskets for use with steel flanges*

EN 12583, *Gas supply systems - Compressor stations - Functional requirements*

EN 12732, *Gas supply systems - Welding steel pipework - Functional requirements*

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

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EN 13445-3, *Unfired pressure vessels – Part 3: Design*

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

EN 14870-1 *Petroleum and natural gas industries - Induction bends, fittings and flanges for pipeline transportation systems - Part 1: Induction bends (ISO 15590-1:200,1 modified)*

EN 14870-2 *Petroleum and natural gas industries - Induction bends, fittings and flanges for pipeline transportation systems - Part 2: Fittings (ISO 15590-2:2003, modified)*

EN 14870-3 *Petroleum and natural gas industries - Induction bends, fittings and flanges for pipeline transportation systems - Part 3: Flanges (ISO 15590-3:2004, modified)*

3 Definitions, symbols and abbreviations

For the purposes of this document, the following definitions apply. Symbols used in formulae are defined where they occur.

3.1**casing**

protection by means of a construction around the pipeline in order to prevent external loads, or third party interference

3.2**commissioning**

activities required to pressurize pipework, stations, equipment and assemblies with gas and to put them into operation

3.3**control zone**

strip of land over which the pipeline operator has a right to control activities

3.4**decommissioning**

activities required to take out of service any pipework, station, equipment or assemblies filled with gas and to disconnect them from the system

3.5**design factor**

f_o

factor applied when calculating the wall thickness or pressure

3.6**design pressure**

DP

pressure on which design calculations are based

3.7**design temperature**

temperature on which design calculations are based

3.8**emergency**

situation which could affect the safe operation of the gas supply system and/or the safety of the surrounding area, requiring urgent action

3.9**gas**

gaseous fuel which is in gaseous state at a temperature of 15 °C under atmospheric pressure (1,013 25 bar absolute)

3.10**gas distribution system**

pipeline system including piping above and below ground and all other equipment necessary to supply the gas to the consumers

3.11**gas distributor**

private or public organization authorized to distribute gas to consumers through a gas distribution system

3.12**gas transmission**

activity intended to convey gas from one place to another through pipelines in order to supply gas to distribution systems or to industrial consumers

3.13**gas transportation system**

pipeline system including piping above and below ground and all other equipment necessary to supply the gas to the gas distribution systems and industrial consumers

3.14**golden weld**

golden weld is a weld on which a strength test is not performed

EXAMPLE The test sections tie-in welds and the test section-station tie-in welds are considered as "golden welds".

3.15**incident**

unexpected occurrence, which could lead to an emergency situation

NOTE This includes a leakage of gas or plant failure.

3.16**incidental pressure****IP**

pressure which occurs incidentally within a system at which a safety device becomes operative

3.17**inspection**

process of measuring, examining, testing, gauging or otherwise determining the status of items of the pipeline system, or installation and comparing it with the applicable requirements

3.18**installation**

equipment and facilities for the extraction, production, chemical treatment, measurement, control, storage, or off-take of the transported gas

3.19**installation temperature**

temperature arising from ambient or installation conditions during laying or during construction

3.20**maintenance**

combination of all technical and associated administrative actions intended to keep an item in, or restore it to, a state in which it can perform its required function