SLOVENSKI STANDARD

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Oskrba s plinom - Plinovod za stavbe - Najviġji delovni tlak do vkljuļ no 5 bar - Funkcionalna priporoļ ila

Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations

Gasversorgung - Gasleitungsanlagen für Gebäude - Maximal zulässiger Betriebsdruck kleiner oder gleich 5 bar - Funktionale Empfehlungen

Alimentation en gaz - Tuyauteries de gaz pour les bâtiments - Pression maximale de service inférieure ou égale a 5 bar - Recommandations fonctionnelles

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ICS:

91.140.40 Sistemi za oskrbo s plinom Gas supply systems

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 1775

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English Version

Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations

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This European Standard was approved by CEN on 30 June 2007.

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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 Management Centre has the same status as the official versions.

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Contents

Foreword

This document (EN 1775:2007) 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of an identical text or by endorsement, at the latest by February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.

This document supersedes EN 1775:1998.

The CEN/TC 234 functional standards specify the common appropriate principles and the recognised practices concerning design, construction, operation and maintenance, all for the safety and integrity of gas supply systems, taking the form of general recommendations and/or requirements.

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

Introduction

This functional standard is to be used as a reference standard in codes of practice in CEN member countries. These codes of practice also need to take account of regulations made by the municipal, regional or national authorities in each country to design and construct gas installations for buildings.

At the time this standard was prepared, new pipe materials and jointing techniques were being developed or are already authorized for use in some member countries. Any requirements additional to the requirements of this standard put in place in member countries shall be identified in CEN/TR 13737. It is important to ensure that designers and installation operatives are trained in the correct methods of application for each system as prepared by its supplier/manufacturer.

This standard contains general recommendations for the safety of persons, animals and property and the protection of their environment.

The recommendations in this standard are intended to be applied by competent persons who have suitable knowledge and experience.

This standard does not consider contractual agreements, qualifications or authorizations imposed by gas distribution system operators, LPG suppliers or public authorities upon companies who design, construct or work on gas installations.

1 Scope

1.1 This standard specifies general recommendations for the design, construction, testing, commissioning, operation and maintenance of installation pipework; pipework between the delivery point of the gas and the inlet connection to the gas appliance.

This standard specifies common basic principles for gas installation pipework.

Users of this European standard need to be aware that more detailed national standards and/or codes of practice may exist in the CEN member countries.

This 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, national legislation/regulation takes precedence as illustrated in CEN /TR 13737.

NOTE 1 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.

This standard applies to:

— gas installations in residential, commercial and public access building having a maximum operating pressure (MOP) less than or equal to 5 bar;

— industrial gas installations having a maximum operating pressure (MOP) less than or equal to 0,5 bar.

NOTE 2 For industrial gas installations having a MOP above 0,5 bar, or installations having a MOP above 5 bar, see prEN 15001-1.

This standard is applicable to new installation pipework as well as to replacements of, or extensions to, existing installation pipework.

This standard does not contain detailed recommendations relating to the laying of buried pipework.

NOTE 3 For more information on buried pipework, see EN 12007-1, EN 12007-2 and EN 12007-3.

NOTE 4 For more information on gas pressure regulating installations, see EN 12279.

NOTE 5 For more information on gas metering systems, see EN 1776.

1.2 This standard is applicable to installation pipework supplied from gas distribution systems and from liquefied petroleum gases (LPG) storage vessels.

Excluded are:

— single appliance LPG installations without fixed pipework, achieved by a flexible appliance connector from an adjacent LPG storage cylinder.

— LPG storage vessels.

1.3 In this standard the term 'gas' refers to combustible gases, which are gaseous at 15 °C and 1 013,25 mbar. These gases, odorized for safety reasons, are commonly referred to as manufactured gas, natural gas or liquefied petroleum gases (LPG). They are also referred to as first, second or third family gases (see EN 437).

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

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

EN 437, *Test gases — Test pressures — Appliance categories*

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

EN 751-3, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 3: Unsintered PFTE tapes*

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254-4, *Copper and copper alloys — Plumbing fittings — Part 4: Fittings combining other end connections with capillary or compression ends*

EN 1762, *Rubber hoses and hose assemblies for liquefied petroleum gas LPG (liquid or gaseous phase) and natural gas up to 25 bar (2,5 Mpa) — Specification*

prEN 1763, *Flexible rubber and plastics hoses, tubing, coupling tails and assemblies for use with propane and butane in the vapour phase — Requirements*

EN 10226-1, *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 10226-2, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

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

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

EN 14800, *Corrugated safety metal hose assemblies for the connection of domestic appliances using gaseous fuels*

3 Terms and definitions

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

3.1 Definitions relating to pressures

3.1.1
design pressure
pressure on which design calculations are based

3.1.2
operating pressure (OP)
pressure which occurs within the pipework under normal operating conditions

3.1.3
maximum operating pressure (MOP)
maximum pressure at that pipework can be operated under normal operating conditions

3.1.4
maximum incidental pressure (MIP)
maximum pressure that pipework can experience during a short time, limited by the safety devices

3.1.5
tightness test pressure (TTP)
pressure applied to pipework during tightness testing

3.1.6
strength test pressure (STP)
pressure applied to pipework during strength testing

3.2 Definitions relating to the gas installation

3.2.1
pipework
assembly of pipes and fittings

NOTE Fittings include, for example, means of isolation, valves, regulators, meters.

3.2.2
point of delivery
point of a gas network where the gas is transferred to the user

NOTE 1 This can be at a means of isolation (e.g. at the outlet of a LPG storage vessel) or at a meter connection.

NOTE 2 For this standard, the point of delivery is typically nominated by the distribution system operator and may be defined in National Regulations or Codes of Practice.

3.2.3
installation pipework
pipework downstream of the point of delivery, terminating at the appliance inlet connection

NOTE This pipework is normally the property of the customer.

3.2.4
pliable corrugated tubing
corrugated tubing capable of being easily bent by hand a limited number of times, which can be covered with a tubular outer sheath by the manufacturer at the time of production

3.2.5
service line
pipework from the main to the delivery point of the gas into the installation pipework

3.2.6
riser
section of vertical installation pipework that is taller than one floor of a building

3.2.7
lateral
section of generally horizontal installation pipework

3.2.8
ventilated space
space where the air is continuously changed by natural or mechanical means

3.2.9
duct
space specifically designed and constructed for the passage of building services

EXAMPLE Building services include gas pipework, water systems, power and telecommunication cables.

3.2.10
equipotential bond
means of ensuring that metallic gas pipework and other metallic parts of the building are at the same electrical potential

NOTE For safety reasons, this equipotential bonding is connected to the ground.

3.2.11
residential building
building which contains one or more dwelling areas but excludes areas principally intended for professional activities and locations accessible to the public

3.2.12
public access building
building principally containing areas where the public can be admitted.

EXAMPLE Such a building can be a school, hospital, movie theatre, railway station or a shop.

NOTE The public may not be given access to all parts of the building (e.g. operating theatres of a hospital, etc.).

3.2.13
commercial building
building containing, with the exception of industrial production plants, only areas reserved for professional activities

EXAMPLE Such a building can be an office block or a repair workshop.

3.2.14
high rise building
building in which the height from the floor of the highest occupied level to ground level is:

— for a residential building greater than 50 m;

— other buildings greater than 30 m

NOTE The design considerations relate to the use of the building and the vertical height of the sections of pipework.

3.3 Definitions relating to means of isolation

3.3.1
means of isolation
device intended to interrupt the gas flow in pipework

EXAMPLE This device can be a manually operable valve.

3.3.2
appliance means of isolation
means of isolation intended to isolate an appliance

3.4 Definitions relating to jointing methods

3.4.1
joint
means of connecting elements of a gas installation

3.4.2
threaded joint
joint in which gas tightness is achieved by metal to metal contact within threads with the assistance of a sealant

3.4.3
mechanical joint
joint in which gas tightness is achieved by compression with or without a seal and which can be disassembled and reassembled.

NOTE A compression joint is a mechanical joint which is not normally intended to be disassembled and reassembled.

3.4.4 Definitions for pressed joints
3.4.4.1
pressed joint
joint in which tightness is achieved by using an appropriate tool for either compressing a fitting to form the joint or expanding a pipe to enable forming the joint

NOTE Such a joint cannot be disassembled and reused.

3.4.4.2
pressed joint for copper pipe
pressed joint whose jointing is carried out by a radial deformation of the end of a fitting body onto a tube and whose sealing is carried out by an elastomeric o-ring.

NOTE 1 Some designs can incorporate an additional device to aid retention.

NOTE 2 The press tool includes a press machine and a set of jaws or collars

3.4.4.3
pressed joint for multilayer or PEX pipe
pressed joint whose jointing is carried out by the insertion of a fitting body fitting inside a tube end followed by the mechanical compression of the tube onto the fitting body.

NOTE This jointing method can be achieved either by expansion followed by the radial compression of the tube onto the fitting body thanks to the memory effect of PEX materials or, by the axial or radial pressing of a sleeve onto the external wall of the tube. Sealing can require the use of elastomeric o-rings.

3.4.5
electrofusion joint
joint formed between polyethylene components using fittings which have an integrated electric heating element

3.4.6
butt fusion joint
joint formed between polyethylene components where the two pipe ends are heated and brought together to be fused directly without using a separate fitting or filler material

3.5 Definitions relating to fittings

3.5.1
regulator
device that reduces the gas pressure to a set value and maintains it within prescribed limits

3.5.2
meter
device for measuring a volume of gas or a quantity of energy

3.5.3
flexible appliance connector
element of flexible pipework to be fitted between the end of the fixed pipework and the appliance inlet connection

3.5.4
insulating joint
fitting installed to electrically interrupt one section of pipework from another

3.5.5
sleeve
protective pipe through which a gas pipe passes

3.5.6
siphon
receptacle connected to the lowest part of a section of pipework in which liquids are collected for removal

3.5.7
reverse flow protection system
security device which activates when reverse flow of gases occurs

3.5.8
vent pipe
pipe connected to a safety or control device to release gas to a safe location

3.6 Definitions relating to tests

3.6.1
strength test
specific procedure to verify that the pipework meets the requirements for mechanical strength

3.6.2
tightness test
specific procedure to verify that the pipework meets the requirements for tightness

3.6.3
fitness test
simple test to verify that gas can be admitted or re-admitted to the pipework

NOTE This test is normally carried out at operating pressure by appropriate means (rotation of a meter dial, leak detection fluid, measuring apparatus, etc.).

3.6.4
leak detection fluid
specially formulated fluid and foaming product that gives a clear indication that a leak exists when applied to a element of pressurized pipework

3.7 Definitions relating to commissioning, operation and maintenance

3.7.1
admission of gas
operation of replacing the air or inert gas contained in pipework with distributed gas

3.7.2
purging
operation of safely removing gas (normally air or inert gas) from pipework and replacing it with distributed gas, or the reverse process

3.7.3
commissioning
activities performed to put a gas installation into operation

3.7.4
competent person
person who is trained, experienced and approved to perform activities relating to gas supply systems or installation pipework

NOTE Means of approval, if any, will be determined within each country

3.7.5
authorized person
competent person who is appointed to fulfil a given task on pipework