
Sistemi oskrbe s plinom – Plinovodi z delovnim tlakom, večjim od 0,5 bar, za industrijsko rabo in rabo v javnih prostorih - 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, commercial and non-domestic gas installations - Part 2: Detailed functional requirements for commissioning, operation and maintenance

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July 2004

ICS

English version

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

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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Foreword

This document (prEN 15001-2:2004) has been prepared by Technical Committee CEN/TC 234 "Gas supply", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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(s).

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.

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

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1 Scope

This European standard specifies detailed functional requirements for the commissioning, operation and maintenance of industrial gas installations operating above 0,5 bar and domestic or commercial gas installations above 5 bar. For non-industrial [domestic and commercial] gas installations up to 5 bar, EN 1775 applies.

This European standard also applies to gas installations up to 5 bar not within the scope of EN 1775 or other European standards, as well as to mixed installations [industrial and non-industrial].

The inlet connection to the appliance is normally the inlet isolation valve but can include the pipework downstream of this valve- if this pipework is not covered by the appliance standard, then this standard applies.

The requirements for design, materials, construction, inspection and testing of gas installations over 0,5 bar and domestic or commercial gas installations over 5 bar are given in part 1 (WI 00234026) of this standard.

In this standard the term 'gas' refers to combustible gases, which are gaseous at 15 °C and 1,013 mbar absolute pressure. These gases, are commonly referred to as manufactured gas, natural gas or liquid petroleum gases (LPG). They are also referred to as first, second or third family gases (see table 1 of EN 437: 1993).

LPG storage tanks (including all ancillaries fitted directly to the tanks) are excluded see prEN 14570. Also excluded are LPG installations and sections of LPG installations operating at vapour pressure.

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

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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.

WI 00234026, *Gas Supply Systems — Gas installation pipework with an operating pressure greater than 0,5 bar — Part 1: Detailed functional requirements for design, materials, construction, inspection and testing*

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

EN 60079-10:1996, *Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas.*

EN 60079-14:1996, *Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines).*

EN 60079-17:1997, *Electrical apparatus for explosive gas atmospheres - Part 17: Inspection and maintenance of electrical installations in hazardous areas (other than mines).*

3 Terms and definitions

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

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

design pressure (DP)

pressure at which the design calculations are based

3.1.3

operating pressure (OP)

pressure which occurs within pipework under normal operating conditions

3.1.4

maximum incidental pressure (MIP)

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

3.2 Definitions relating to the gas installation

3.2.1

pipework

assembly of components

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3.2.2

component

any item from which a gas supply system or installation is constructed. 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 of transfer of ownership of gas from the supplier to the user.

NOTE This can be at a means of isolation or at the meter outlet connection

3.2.4

user

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

NOTE Normally the user will be the site occupier or owner. Users have responsibility for work performed on their site, whether or not the work is performed directly for the user. This does not mean that they cannot take advice from an independent specialist.

3.2.5

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

3.2.6

ventilated space

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

3.2.7

duct

space specifically designed and constructed for the passage of building services

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

3.2.8

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 1: a manually operable valve

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3.4 Definitions relating to components

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3.4.1

regulator

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

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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 line

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

3.4.5

safety relief device

device designed to release 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

EXAMPLES 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

3.6 Definitions relating to commissioning, operation and maintenance

3.6.1

admission of gas

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

3.6.2

purging from gas

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

3.6.3

purging

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

3.6.4

commissioning

activities required to fill and to pressurise pipework, stations, equipment and assemblies with gas, to carry out tests, if required, and to put them into operation

3.6.5

decommissioning

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

3.6.6

competent person

person who is trained, experienced and approved to perform activities relating to gas pipework

NOTE Means of approval are determined within each country

3.6.7

hot tapping

procedure involving the safe use of heat, e.g. welding or fusion, to affix an attachment to a section of pipework containing gas at pressure

3.7 Definitions relating to pressure regulating and metering

3.7.1

gas pressure regulating and metering system

system comprising all equipment, together with inlet and outlet piping up to and including the isolating valves, which together performs the functions of pressure regulation, pressure safety and/or quantitative gas measurement, whether or not including pressure boosting and/or gas mixing facilities

4 General

4.1 Technical file

Part 1 of this standard requires that sufficient written information concerning its design, construction, examination, operation and maintenance is recorded in a technical file/operating manual. Any changes to the system that affect the information contained in the technical file shall be recorded in the technical file.

The technical file can contain the following information, which shall be updated:

- 1) a diagram of the installation pipework.
- 2) details of design standards used, evidence of testing of materials and components together with any Certificates issued by test bodies/manufacturers.
- 3) Design pressures and temperatures, maximum and minimum.
- 4) Flow rates and discharge capacities
- 5) Function and duty of protective controls
- 6) Corrosion allowances
- 7) Material wall thickness of pipes
- 8) Materials of construction
- 9) Welding standards and test procedures
- 10) Commissioning procedure
- 11) Testing and re-testing procedures
- 12) Purging procedures or methodology.
- 13) Setting of pressure regulators and safety devices.
- 14) Operating manual
- 15) Decommissioning and maintenance procedures including in-service inspections

4.2 Changes affecting an existing installation

Alterations or modifications to the installation including electrical equipment that change its original characteristics, purpose and/or type, shall be carried out in accordance with part 1 of this standard.

4.3 Quality system

The life of a gas installation can be divided into three phases:

- The design (see part 1 of this standard);
- The construction and testing (see part 1 of this standard);
- The operation and maintenance.

A quality system shall be applied to the operation and maintenance activities in accordance with this standard.

Reference may be made to the EN ISO 9000 series of standards or to equivalent quality system standards.

After the gas installation has been commissioned, a precisely defined programme of operation, maintenance and condition monitoring should maintain the integrity of the pipework.

4.4 Protection against hazards

4.4.1 Electrical installation

4.4.1.1 Installation in hazardous area

When an area has been classified as hazardous (see EN 60079-10), subsequent electrical installations shall comply with the EN 60079-14.

NOTE See Directive 1999/92/EC of the European Parliament and of the council of 16 December 1999 on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres (15th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC).

4.4.1.2 Gas detection systems

Pipework designed and constructed to part 1 of this standard and maintained to this standard is unlikely to leak during its service life. As such, the fitting of gas detection is not generally necessary.

However, where gas detection systems are specified, they shall not be considered as an alternative to good ventilation, they shall be maintained regularly and they shall comply with the requirements of EN 61779 part 1 to EN 61779 part 5.

The fitting of gas detection has no effect on the hazardous zone classification. (see EN 60079 –10).

4.5 Protection against adverse influences

Maintenance on gas pressure regulating and metering systems, gas pressure boosters/compressors or gas mixing systems shall ensure continued protection, where necessary, against adverse influences due to changes in the levels of corrosion, heat and vibration.

5 Inspection, testing and commissioning

5.1 Corrosion protection inspection

It shall be verified that all corrosion protection measures have been applied correctly and any cathodic protection system is operational in accordance with the manufacturers instructions.

Coatings on buried pipework shall be inspected and tested prior to backfilling of the trench, see part 1 of this standard.

5.2 Commissioning

5.2.1 General

The commissioning shall comprise at least the following items:

- verification that strength test has been completed;
- verification that tightness test has been completed, when verification is not available the test shall be performed in accordance with part 1 of this standard;