
Cevni sistemi iz polimernih materialov za oskrbo s plinastimi gorivi - Polietilen (PE) - 4. del: Ventili

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 4: Armaturen

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Systemes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 4: Robinets

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Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves

Systèmes de canalisations en plastique pour la distribution
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This European Standard was approved by CEN on 1 November 2002.

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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 Management Centre has the same status as the official versions.

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EN 1555-4:2002 (E)

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Foreword

This document EN 1555-4:2002 has been prepared by Technical Committee CEN /TC 155, "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by June 2003, and conflicting national standards shall be withdrawn at the latest by December 2004.

It has been prepared in liaison with Technical Committee CEN/TC 234 "Gas supply".

This standard is a part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work undertaken in ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1555 consists of the following parts, under the general title *Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE)*:

— Part 1: General

— Part 2: Pipes

— Part 3: Fittings

— Part 4: Valves (this standard)

— Part 5: Fitness for purpose of the system

— Part 7: Guidance for assessment of conformity (to be published as CEN/TS).

NOTE The document dealing with recommended practice for installation which was initially submitted for CEN enquiry as prEN 1555-6 was withdrawn when EN 12007-2:2000^[1], prepared by CEN/TC 234 Gas supply, was published with the title "Gas supply systems - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)".

This document includes a Bibliography.

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

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EN 1555-4:2002 (E)**Introduction**

The System Standard, of which this is Part 4, specifies the requirements for a piping system and its components made from polyethylene (PE) and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for material and components, other than valves, are specified in EN 1555-1, EN 1555-2 and EN 1555-3. Characteristics for fitness for purpose are covered in EN 1555-5. PrCEN/TS 1555-7^[2] gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2^[1] prepared by CEN/TC 234.

This part of EN 1555 covers the characteristics of valves.

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1 Scope

This part of EN 1555 specifies the characteristics of valves made from polyethylene (PE) for piping systems in the field of the supply of gaseous fuels.

NOTE Valves made from other material than polyethylene designed for the supply of gaseous fuels conforming to the relevant standards are permitted to be used in PE piping system according to EN 1555 provided they have relevant PE connection for butt fusion or electrofusion ends (see EN 1555-3).

It also specifies the test parameters for the test methods referred to in this standard.

In conjunction with the other parts of EN 1555, it is applicable to PE valves, their joints and to joints with components of PE and other materials intended to be used under the following conditions:

- a) a maximum operating pressure, MOP, up to and including 10 bar ¹⁾ ;
- b) an operating temperature of 20 °C as reference temperature;

NOTE 1 For other operating temperatures, derating coefficients should be used, see EN 1555-5.

- c) an operating temperature between -20 °C and +40 °C.

EN 1555 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

NOTE 2 It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

It is applicable to bi-directional valves with spigot end or electrofusion socket intended to be fused with PE pipes conforming to EN 1555-2 without any fittings or with PE fittings conforming to EN 1555-3.

This part of EN 1555 covers valves with a nominal size DN/OD ≤ 225.

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2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 682, *Elastomeric Seals - Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids.*

EN 728, *Plastics piping and ducting systems — Polyolefin pipes and fittings — Determination of oxidation induction time.*

EN 744, *Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock method.*

EN 917, *Plastics piping systems - Thermoplastics valves - Test methods for resistance to internal pressure and leaktightness.*

EN 1555-1:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General.*

EN 1555-2:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes.*

EN 1555-3:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings.*

¹⁾ 1 bar = 0.1 MPa

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EN 1555-5:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system.*

EN 1680, *Plastics piping systems - Valves for polyethylene (PE) piping systems - Test method for leaktightness under and after bending applied to the operating mechanisms.*

EN 1704, *Plastics piping systems - Thermoplastics valves - Test method for the integrity of a valve after temperature cycling under bending.*

EN 1705, *Plastics piping systems - Thermoplastics valves - Test method for the integrity of a valve after an external blow.*

EN 12100, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to bending between supports.*

EN 12117, *Plastics piping systems — Fittings, valves and ancillaries — Determination of gaseous flow rate/pressure drop relationships.*

EN 12119, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to thermal cycling.*

EN 28233, *Thermoplastic valves — Torque — Test method (ISO 8233:1988).*

EN ISO 1133, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:1997).*

prEN ISO 3126, *Plastics piping systems - Plastics piping components - Measurement and determination of dimensions (ISO/DIS 3126:1999).*

ISO 5208, *Industrial valves - Pressure testing of valves.*

ISO 10933, *Polyethylene (PE) valves for gas distribution systems.*

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3 Terms and definitions, symbols and abbreviations

For the purposes of this European Standard, the terms and definitions, symbols and abbreviations given in EN 1555-1:2002 apply, together with the following.

3.1**external leaktightness**

tightness of a valve body enveloping the space containing the gas, with respect to the atmosphere

3.2**internal leaktightness**

tightness between the inlet and the outlet of the valve, obtained by closing the operating mechanism

3.3**leaktightness test**

test for both of the following characteristics:

- a) the internal leaktightness of a valve's closing seat when closed and pressurized from either side
- b) the external leaktightness of a valve when half open

3.4**initiating torque**

torque required to initiate movement of the obturator

3.5**running torque**

torque required to achieve full opening or closing of the valve at maximum allowable operating pressure

3.6**leakage**

emission of gas through a valve body, or any component of a valve

3.7**valve body**

main part of a valve which contains the obturating device (rotating member, the seat, the packing seals and the operating stop), as applicable and provides the ends for connection to the PE pipe/fittings

3.8**operating cap**

part of a valve for connection with the operating key which allows the opening and the closing of the valve

4 Material**4.1 Compound**

The compound from which the valve body, with spigot end or electrofusion socket is made shall conform to EN 1555-1.

4.2 Material for non-polyethylene parts**4.2.1 General**

All components shall conform to the relevant EN standard(s). Alternative standards may be applied in cases where the suitable EN standard(s) do not exist. In all cases fitness for purpose of the components shall be demonstrated.

The materials and the constituent elements used in making the valve (including rubber, greases and any metal parts as may be used) shall be as resistant to the external and internal environments as the other elements of the piping system and shall have a life expectancy under the following conditions at least equal to that of the PE pipes conforming to EN 1555-2:2002 with which they are intended to be used:

- a) during storage;
- b) under the effect of the gas conveyed therein;
- c) with respect to the service environment and operating conditions.

The requirements for the level of material performance of non-polyethylene parts shall be at least as stringent as that of the compound for the piping system.

Valve materials in contact with the PE pipe shall not adversely affect pipe performance or initiate stress cracking.

Metal valve bodies for PE piping systems up to 10 bar shall conform to the relevant EN standard(s) where existing, or in their absence, to provisions acceptable in the country of use.

NOTE Standards covering metal valve bodies for the various types of valves are being developed by CEN/TC 69.

4.2.2 Metal parts

All metal parts susceptible to corrosion shall be adequately protected.

When dissimilar metallic materials are used which can be in contact with moisture, steps shall be taken to avoid the possibility of galvanic corrosion.

4.2.3 Elastomers

Elastomeric seals shall conform to EN 682.

Other sealing materials are permitted if suitable for gas service.