SLOVENSKI STANDARD
oSIST prEN 1555-4:2010

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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

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

Ta slovenski standard je istoveten z: **prEN 1555-4**

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83.140.30	Cevi, fitingi in ventili iz polimernih materialov	Plastics pipes, fittings and valves
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English Version

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

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

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

This draft European Standard is submitted to CEN members for second enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 1555-4:2010) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the second CEN Enquiry.

This document will supersede EN 1555-4:2002.

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

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* (CEN/TR).

NOTE EN 12007-2:2000 [1] prepared by CEN/TC 234 “Gas infrastructure” deals with the recommended practice for installation of plastics pipes system in accordance with EN 1555.

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 prEN 1555-1:2010, prEN 1555-2:2010 and prEN 1555-3:2010.

Characteristics for fitness for purpose are covered in prEN 1555-5:2010. CEN /TR 1555-7 [2] gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2:2000 [1] prepared by CEN /TC 234.

This part of EN 1555 covers the characteristics of valves.

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 1 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 Parts 1, 2, 3 and 5 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 2 For other operating temperatures, derating coefficients should be used, see prEN 1555-5:2010.

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 3 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 prEN 1555-2:2008 without any fittings or with PE fittings conforming to prEN 1555-3:2010.

This part of prEN 1555 covers valves for pipes with a nominal outside diameter $d_n \leq 315$ mm.

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

EN 736-1:1995, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-1:1997, *Valves — Terminology — Part 2: Definition of components of valves*

EN 744:1995, *Plastics piping and ducting systems — Thermoplastics pipes — Test method for resistance to external blows by the round-the-clock method*

prEN 1555-1:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

1) 1 bar = 0,1 MPa.

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

prEN 1555-3:2010, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*

prEN 1555-5:2010, *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 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4:2006)*

EN ISO 1133:2005, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:2005)*

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (ISO 3126:2003)*

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

ISO 11357-6:2008, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

3 Terms and definitions, symbols and abbreviations

For the purposes of this document, the terms and definitions, symbols and abbreviations given in prEN 1555-1:2010, EN 736-1, EN 736-2 and the following apply.

3.1
external leaktightness
leaktightness of the valve body enveloping the space containing the gas, with respect to the atmosphere

3.2
internal leaktightness
leaktightness between the inlet and the outlet of the valve, with the valve in the closed position

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 from a valve body, or any component of a valve

3.7
valve body
main part of a valve which contains the obturating device (closing element, the seat, the packing seals and the operating stop), as applicable and provides the terminal ends for connection to the PE pipe/fittings

3.8
operating device
part of a valve for connection with the operating key which allows the opening and the closing of the valve

3.9 Terms relating to design
3.9.1
full bore valve
valve with a flow section equal to or greater than 80 % of the section corresponding to the nominal inside diameter of the body end port

[EN 736-3:2008]

3.9.2
clearway valve
valve designed to have an unobstructed flow way, which allows for the passage of a theoretical sphere with a diameter that is not less than the nominal inside diameter of the body end port

[EN 736-3:2008]

3.9.3
reduced bore valve
valve with a flow section equal to or greater than 36 % of the section corresponding to the nominal inside diameter of the body end port and which does not correspond to the full bore valve

[EN 736-3:2008]

4 Material

4.1 PE compound

The compound from which the body of the valve, with spigot end or electrofusion socket is made shall be PE 80 and PE 100 only, and shall conform to prEN 1555-1:2010. The PE components of the valve can be made from virgin material conforming to prEN 1555-1:2010, only.

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 provided a fitness for purpose of the components shall be demonstrated.

The materials and the constituent elements used in making the valve (including elastomers, 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 prEN 1555-2:2010 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 PE compound for the piping system.

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

NOTE Metal valve bodies for PE piping systems up to 10 bars should conform to the relevant standard of CEN/TC 69 "Industrial valves".

4.2.2 Metal parts

All metal parts susceptible to corrosion shall be adequately protected, providing this is necessary for the durability and function of the system.

When dissimilar metallic materials are used which may 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 proven suitable for gas service.

4.2.4 Other materials

Greases or lubricants shall not exude onto fusion areas, and shall not affect the long-term performance of the PE valve or valve body.

Other materials conforming to 4.2.1 may be used provided that it is proven that the valves conform to this standard.