

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General

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fuels - Polyethylene (PE) - Part 1: General

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1555-1:2003 sisaldab Euroopa standardi EN 1555-1:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.02.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1555-1:2003 consists of the English text of the European standard EN 1555-1:2002.</p> <p>This document is endorsed on 18.02.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This part of prEN 1555 specifies the general aspects of polyethylene (PE) piping systems in the field of the supply of gaseous fuels. It also specifies the test parameters for the test methods referred to in this standard</p>	<p>Scope: This part of prEN 1555 specifies the general aspects of polyethylene (PE) piping systems in the field of the supply of gaseous fuels. It also specifies the test parameters for the test methods referred to in this standard</p>
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ICS 01.040.23, 23.040.01, 91.140.40

Võtmesõnad: compressed gas equipment, definitions, fittings, gas supply, gas supply line, materials, pipelines, pipes, piping system, plastic pipes, polyethylene, pressure gas pipelines, testing, tubes, valves

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English version

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General

Systèmes de canalisations en plastique pour la distribution
de combustibles gazeux - Polyéthylène (PE) - Partie 1:
Généralités

Kunststoff-Rohrleitungssysteme für die Gasversorgung -
Polyethylen (PE) - Teil 1: Allgemeines

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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Foreword

This document EN 1555-1:2002 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* (this standard)
- *Part 2: Pipes*
- *Part 3: Fittings*
- *Part 4: Valves*
- *Part 5: Fitness for purpose of the system*
- *Part 7: Guidance for assessment of conformity* (to be published as an 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^[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.

Introduction

The System Standard, of which this is Part 1, 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 components of the piping system are specified in EN 1555-2, EN 1555-3 and EN 1555-4. Characteristics for fitness for purpose are covered in EN 1555-5. prCEN/TS 1555-7 gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2, prepared by CEN/TC 234.

This part of EN 1555 covers the general aspects of the plastics piping system.

1 Scope

This part of EN 1555 specifies the general aspects of polyethylene (PE) piping systems in the field of the supply of gaseous fuels.

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

In conjunction with the other parts of EN 1555 (see Foreword) it is applicable to PE pipes, fittings, and valves, their joints and to joints with components of 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.

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.

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

EN 921, *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant temperature.*

EN 1056, *Plastics piping and ducting systems — Plastics pipes and fittings — Method for exposure to direct (natural) weathering.*

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

EN 12099, *Plastics piping systems — Polyethylene piping materials and components — Determination of volatile content.*

EN 12107, *Plastics piping systems — Injection-moulded thermoplastics fittings, valves and ancillary equipment — Determination of the long-term hydrostatic strength of thermoplastics materials for injection moulding of piping components.*

EN 12118, *Plastics piping systems — Determination of moisture content in thermoplastics by coulometry.*

EN ISO 1043-1:2001, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics (ISO 1043-1:2001).*

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

EN ISO 1872-1, *Plastics — Polyethylene (PE) moulding and extrusion materials — Part 1: Designation system and basis for specifications (ISO 1872-1:1993).*

EN ISO 6259-1, *Thermoplastics pipes - Determination of tensile properties - Part 1: General test method (ISO 6259-1:1997).*

1) 1 bar = 0,1 MPa

EN ISO 12162, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient (ISO 12162:1995).*

EN ISO 13478, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full-scale test (FST) (ISO 13478:1997).*

EN ISO 13479, *Polyolefin pipes for the conveyance of fluids — Determination of resistance to crack propagation — Test method for slow crack growth on notched pipes (notch test) (ISO 13479:1997).*

ISO 472:1999, *Plastics — Vocabulary.*

ISO 1183, *Plastics — Methods for determining the density and relative density of non-cellular plastics.*

ISO 6259-3, *Thermoplastics pipes — Determination of tensile properties — Part 3: Polyolefin pipes.*

ISO 6964, *Polyolefin pipes and fittings — Determination of carbon black content by calcination and pyrolysis — Test method and basic specification.*

ISO/TR 9080:1992, *Thermoplastics pipes for the transport of fluids — Methods of extrapolation of hydrostatic stress rupture data to determine the long-term hydrostatic strength of thermoplastics pipe materials.*

ISO 11414:1996, *Plastics pipes and fittings - Preparation of polyethylene (PE) pipe/pipe or pipe/fitting test piece assemblies by butt fusion.*

ISO 13477, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test).*

ISO 13953, *Polyethylene(PE) pipes and fittings - Determination of the tensile strength and failure mode of test pieces from a butt-fused joint.*

ISO 18553, *Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds.*

3 Terms and definitions, symbols and abbreviations

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

3.1 Terms and definitions

In addition to the terms and definitions given below, the terms and definitions given in ISO 472:1999 and EN ISO 1043-1:2001 apply.

3.1.1 Geometrical definitions

3.1.1.1 Nominal size

3.1.1.1.1

nominal size DN

numerical designation of the size of a component, other than a component designated by thread size, which is a convenient round number, approximately equal to the manufacturing dimension in millimetres (mm)

3.1.1.1.2

nominal size DN/OD

nominal size, related to the outside diameter

3.1.1.2

nominal outside diameter (d_n)

specified outside diameter, in millimetres, assigned to a nominal size DN/OD

3.1.1.3

outside diameter (at any point) (d_o)

value of the measurement of the outside diameter through its cross-section at any point of the pipe, rounded to the next greater 0,1 mm