
Cevni sistemi iz polimernih materialov, podzemni in nadzemni, za tlačne vodovode splošne namembnosti, odvodnjavanje in kanalizacijo – Polietilen (PE) - 1. del: Splošno

Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage - Polyethylene (PE) - Part 1: General

Kunststoff-Rohrleitungssysteme für erd- und oberirdisch verlegte Druckrohrleitungen für Brauchwasser, Entwässerung und Abwasser - Polyethylen (PE) - Teil 1: Allgemeines
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Systemes de canalisations en plastique pour les applications générales de transport d'eau, de branchement et de collecteurs d'assainissement, enterrés sous pression - Polyéthylène (PE) - Partie 1: Généralités
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EUROPEAN STANDARD
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**Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage
- Polyethylene (PE) - Part 1: General**

Systèmes de canalisations en plastique pour les applications générales de transport d'eau, de branchement et de collecteurs d'assainissement, enterrés sous pression
- Polyéthylène (PE) - Partie 1: Généralités

Kunststoff-Rohrleitungssysteme für erd- und oberirdisch verlegte Druckrohrleitungen für Brauchwasser, Entwässerung und Abwasser - Polyethylen (PE) - Teil 1: Allgemeines

This European Standard was approved by CEN on 14 November 2002.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 13244-1:2002) 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.

For components which have conformed to the relevant national standard before December 2002, as shown by the manufacturer or by a certification body, the national standard may continue to be applied until the December 2004.

This European 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 being 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 standards on general functional requirements and standards on recommended practice for installation.

EN 13244 consists of the following Parts, under the general title *Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage — 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 the assessment of conformity (to be published as a CEN/TS)

NOTE It was decided not to publish a Part 6: Recommended practice for installation. Instead, existing national practices would be applicable.

This Part of EN 13244 includes the following:

- Annex A (informative): Pressure reduction coefficients;
- Bibliography.

System Standards for piping systems of other plastics materials used for the conveyance of water, drainage and sewerage under pressure include the following:

prEN 14364, *Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting (GRP) plastics based on polyester resin (UP)*.

EN 1456, *Plastics piping systems for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U)*.

EN 13244-1:2002 (E)

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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Introduction

EN 13244, of which this is Part 1, specifies the requirements for a piping system and its components when made from polyethylene (PE). It is intended to be used for buried and above-ground pressure systems for water for general purposes, drainage and sewerage, including vacuum systems.

Requirements and test methods for components of the piping system are specified in EN 13244-2, EN 13244-3 and EN 13244-4. Characteristics for fitness for purpose are covered in EN 13244-5. prCEN/TS 13244-7 gives guidance for the assessment of conformity.

This Part of EN 13244 covers the general aspects of the plastics piping system.

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EN 13244-1:2002 (E)**1 Scope**

This Part of EN 13244 specifies the general aspects of polyethylene (PE) piping systems intended for buried and above-ground pressure systems for water for general purposes, drainage and sewerage. It is also applicable for vacuum sewer systems.

NOTE 1 Water for general purposes is not intended for human consumption and components conforming to this standard should not be used in systems conveying water for human consumption. For PE components intended for the conveyance of water intended for human consumption and raw water prior to treatment, see EN 12201.

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

In conjunction with other Parts of EN 13244 (see Foreword), it is applicable to PE pipes, fittings, valves, their joints and to joints with components of other materials intended to be used under the following conditions:

- buried in the ground;
- sea outfalls;
- laid in water;
- above-ground, including pipes suspended below bridges;
- a maximum operating pressure, MOP, up to and including 25 bar¹⁾;
- an operating temperature of 20 °C as a reference temperature.

NOTE 2 For applications operating at constant temperatures greater than 20 °C and up to 40 °C, see annex A.

EN 13244 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 guidance or 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 1056, *Plastics piping and ducting systems – Plastics pipes and fittings – Method for exposure to direct (natural) weathering.*

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.*

¹⁾ 1 bar = 10⁵ N/m².

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

EN 13244-2, *Plastics piping systems for buried and above-ground pressure systems for water for general purposes, drainage and sewerage — Polyethylene (PE) — Part 2: Pipes.*

EN ISO 1133:1999, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:1997).*

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

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

EN ISO 13479:1997, *Polyolefine 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 3:1973, *Preferred numbers — Series of preferred numbers.*

ISO 472:1988, *Plastics — Vocabulary.*

ISO 760:1998, *Determination of water — Karl Fischer method (General method).*

ISO 1043-1:1997, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics.*

ISO 1183:1987, *Plastics — Methods for determining the density and relative density of non-cellular plastics.*

ISO 6964:1986, *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 13477:1997, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test).*

ISO 13953:2001, *Polyethylene (PE) pipes and fittings — Determination of the tensile strength and failure mode of test pieces from a butt-fused joint.*

ISO 18553:2002, *Method for the assessment of the degree of pigment or carbon black dispersion in polyolefin pipes, fittings and compounds.*

3 Definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions in ISO 3:1973, ISO 472:1988 and ISO 1043-1:1997 together with the following apply.

NOTE The symbols d_e , e , e_{\min} and e_{\max} in EN 13244 are equivalent to d_{ey} , e_y , $e_{y,\min}$ and $e_{y,\max}$ respectively in ISO 11922-1^[1].