

# **Plastics piping systems for non-pressure underground drainage and sewerage - Polyethylene (PE) - Part 1: Specifications for pipes, fittings and the system**

Plastics piping systems for non-pressure underground drainage and sewerage - Polyethylene (PE) - Part 1: Specifications for pipes, fittings and the system

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12666-1:2006 sisaldab Euroopa standardi EN 12666-1:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 27.02.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12666-1:2006 consists of the English text of the European standard EN 12666-1:2005.</p> <p>This document is endorsed on 27.02.2006 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><b>Käsitlusala:</b></p> <p>This Part of prEN 12666 specifies the requirements for pipes, fittings and the system of polyethylene (PE) piping systems intended to be used for non-pressure underground drainage and sewerage outside the building structure (application area code "U"), and non-pressure underground drainage and sewerage for both buried in the ground within the building structure (application area code "D") and outside the building structure.</p>	<p><b>Scope:</b></p> <p>This Part of prEN 12666 specifies the requirements for pipes, fittings and the system of polyethylene (PE) piping systems intended to be used for non-pressure underground drainage and sewerage outside the building structure (application area code "U"), and non-pressure underground drainage and sewerage for both buried in the ground within the building structure (application area code "D") and outside the building structure.</p>
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**ICS** 23.040.01, 91.140.80, 93.030

**Võtmesõnad:** drainage, measurement, operating requirements, pipe fittings, pipelines, pipes : tubes, proper, quality, sealing rings, sewerage, sewers, single branches, specification (approval), specifications, tolerances, tolerances (measurement), underground, water practice

ICS 23.040.01; 91.140.80; 93.030

English Version

**Plastics piping systems for non-pressure underground drainage  
and sewerage - Polyethylene (PE) - Part 1: Specifications for  
pipes, fittings and the system**

Systèmes de canalisations en plastique pour les  
branchements et collecteurs d'assainissement enterrés  
sans pression - Polyéthylène (PE) - Partie 1: Spécifications  
pour les tubes, les raccords et le système

Kunststoff-Rohrleitungssysteme für erdverlegte  
Abwasserkanäle und -leitungen - Polyethylen (PE) - Teil 1:  
Anforderungen an Rohre, Formstücke und das  
Rohrleitungssystem

This European Standard was approved by CEN on 24 November 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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



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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard (EN 12666-1:2005) 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 2006, and conflicting national standards shall be withdrawn at the latest by December 2007.

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 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 12666 consists of the following parts, under the general title *Plastics piping systems for non-pressure underground drainage and sewerage - Polyethylene (PE)*

- *Part 1: Specifications for pipes, fittings and the system (this European Standard)*
- *Part 2: Guidance for the assessment of conformity (intended to be published as CEN/Technical Specification)*
- *Part 3: Guidance for installation (intended to be published as CEN/Technical Specification)*

For pipes and fittings which have conformed to the relevant national standard before June 2006, as shown by the manufacturer or by a certification body, the national standard may continue to be applied until June 2008.

NOTE The actual dates will be given in the final text of the standard.

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

## 1 Scope

This Part of EN 12666 specifies the requirements for pipes, fittings and the system of polyethylene (PE) piping systems intended to be used for

- non-pressure underground drainage and sewerage outside the building structure (application area code "U"), and
- non-pressure underground drainage and sewerage for both buried in the ground within the building structure (application area code "D") and outside the building structure.

This is reflected in the marking of products by "U" and "UD".

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

This European Standard covers a range of nominal sizes, a range of pipe series/stiffness classes and gives recommendations concerning colours.

NOTE 1 It is the responsibility of the purchaser or specifier to make the appropriate selection from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

In conjunction with CEN/TS 12666-2 <sup>[1]</sup> it is applicable to PE pipes and fittings, their joints and to joints with components of other plastics and non-plastics materials intended to be used for buried piping systems for non-pressure drainage and sewerage.

This European Standard is applicable to PE pipes with or without an integral socket.

The fittings can be manufactured by injection-moulding or be fabricated from pipes and/or mouldings.

This European Standard is applicable to PE pipes and fittings for the following types of joints:

- elastomeric ring seal joints;
- butt fused joints;
- electrofusion joints;
- mechanical joints.

NOTE 2 Requirements and limiting values for application area code "D" are given in Tables 3, 6 and Table 12.

NOTE 3 Pipes, fittings and other components conforming to any of the plastics product standards listed in the bibliography may be used with pipes and fittings conforming to this European Standard, provided they conform to the requirements for joint dimensions given in Clause 6 and to the requirements of Table 8 and Table 12.

## 2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 681-1, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 2: Thermoplastic elastomers*

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

EN 921:1994, *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant temperature*

EN 1055:1996, *Plastics piping systems — Thermoplastics piping systems for soil and waste discharge inside buildings — Test method for resistance to elevated temperature cycling*

EN 1277:2003, *Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test method for leaktightness of elastomeric sealing ring type joints*

EN 1401-1, *Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: Specifications for pipes, fittings and the system*

EN 1519-1:1999, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polyethylene (PE) — Part 1: Specifications for pipes, fittings and the system*

EN 1989, *Thermoplastics piping systems — Joints for buried non-pressure sewerage applications — Test method for long-term sealing performance of joints with thermoplastic elastomer (TPE) seals by estimating the sealing pressure*

EN 12061, *Plastics piping systems — Thermoplastics fittings — Test method for impact resistance*

EN 12256, *Plastics piping systems — Thermoplastics fittings — Test method for mechanical strength or flexibility of fabricated fittings*

EN ISO 472:2001, *Plastics — Vocabulary (ISO 472:1999)*

EN ISO 580:2005, *Plastics piping and ducting systems - Injection-moulded thermoplastics fittings - Methods for visually assessing the effects of heating (ISO 580:2005)*

EN ISO 1043-1:2005, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1:2005)*

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 2505:2005, *Thermoplastics pipes - Longitudinal reversion - Test method and parameters (ISO 2505:2005)*

EN ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126:2005)*

EN ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2004)*

EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:1994)*

### **3 Terms, definitions, symbols and abbreviations**

#### **3.1 Terms and definitions**

For the purposes of this European Standard, the terms and definitions given in EN ISO 472:2001, EN ISO 1043-1:2001 and the following apply.