BSI Standards Publication

Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)

Part 1: General requirements and performance characteristics

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National foreword

This British Standard is the UK implementation of EN 13476-1:2018. It supersedes BS EN 13476-1:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/1, Plastics piping for non-pressure applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

The responsible UK committee gives the following advice concerning the scope and contents of EN 13476-1:2018.

- Attention is drawn to the scope of this standard, which, together with BS EN 13476-2:2018 and BS EN 13476-3:2018, is applicable to structured-wall plastic piping systems made of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) or polyethylene (PE) with any additives needed to facilitate the manufacture of components conforming to this standard.

- Multilayer composite pipes with an intermediate layer of metal; reinforced pipes; and pipes made of polymers other than PVC-U, PP or PE are not covered by the scope of this standard. The test methods and performance criteria are not applicable to these types of pipe.

- **Recycled material:** The use of recycled or reprocessed materials is encouraged in the UK. However, their use should be strictly in accordance with this standard.

- **Interchangeability:** This standard does not guarantee interchangeability between manufacturers. It is strongly advised that users specify the bore series of pipes (DN/ID) as specified in BS EN 13476-2:2018 and BS EN 13476-3:2018 to maximize the hydraulic performance of these products.

- **Initial ring stiffness:** The BS EN 13476 series specifies four nominal ring stiffness classes (SN): SN2, SN4, SN8 and SN16.

  — DN ≤500: SN4, SN8 or SN16;

  — DN >500: SN2, SN4, SN8 or SN16.

  From the viewpoint of installation, SN4 and SN8 are the traditionally recommended classes used in the UK for water company adopted sewers and are to be used if the system is to be installed in accordance with BS EN 752:2017 or BS EN 1610:2015 to achieve the intended resistance to long-term deformation. If use of the SN2 class of pipe or fittings is intended, the installation should first be subject to a structural design soil load / traffic load calculation and the installation technique modified to suit the results of that calculation. The appropriate calculation method is given in the National Annex NA to BS EN 1295-1. The short-term *E* modulus for the material should be taken from Table A.1 of BS EN 13476-1:2018. The long-term value of *E* should be taken as the short-term value divided by the creep ratio. The creep ratio is derived from the tests specified in the 'Mechanical characteristics' section of BS EN 13476-2:2018 or BS EN 13476-3:2018 as appropriate.

- **Impact:** Annex G of BS EN 13476-2:2018 and BS EN 13476-3:2018 details an impact resistance test at 23°C. This is the preferred test in the UK. Annex H therefore becomes informative in the UK.

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ICS 93.030; 23.040.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2018.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD EN 13476-1

NORME EUROPÉENNE

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English Version

Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1:General requirements and performance characteristics

Systèmes de canalisations en plastique pour les branchements et les collecteurs d'assainissements sans pression enterrés - Systèmes de canalisations à parois structurées en poly(chlorure de vinyle) non plastifié (PVC-U), polypropylène (PP) et polyéthylène (PE) - Partie 1: Exigences générales et caractéristiques de performance

Kunststoff-Rohrleitungssysteme für erdverlegte drucklose Abwasserkanäle und -leitungen - Rohrleitungssysteme mit profilierter Wandung aus weichmacherfreiem Polyvinylchlorid (PVC-U), Polypropylen (PP) und Polyethylen (PE) - Teil 1: Allgemeine Anforderungen und Leistungsmerkmale

This European Standard was approved by CEN on 8 February 2018.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 13476-1:2018: E

Contents

European foreword

This document (EN 13476-1:2018) 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 October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13476-1:2007.

The main changes with respect to the previous edition are listed below:

a) updating of references in Clause 2, Table 2 and Bibliography;

b) deletion of Note 3 (Scope);

c) definition fabricated fitting changed (3.1.1.3);

d) clarification requirements sealing ring (4.4);

e) extension of nominal sizes range (Table 1, Table 2);

f) substitute “DURABILITY” Table 2;

g) new reference for hydraulic roughness (A.5);

h) text updated and new reference (Annex B);

i) adhesives PVC-U added (4.6);

j) saddle branches deleted (8.1);

k) updated with new CEN template (entire document).

This standard is a part of a System Standard for plastics piping systems of particular materials for specified applications. 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 general standards on functional requirements and on recommended practice for installation.

EN 13476 consists of the following parts under the general title “Plastics piping systems for non-pressure underground drainage and sewerage — Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)”:

— *Part 1: General requirements and performance characteristics (this standard);*

— *Part 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A;*

— *Part 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B;*

— *Part 4: Assessment of conformity.*

National standards specifically for pipes and fittings for the transport of surface water are not considered to be conflicting with this standard and may thus be allowed to coexist.

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

Introduction

Due to the variety in materials, pipe constructions, application areas and classes, several combinations are possible.

The purchaser or specifier may select between these possibilities by designating the pipe and fitting he or she prefers to use for each case, as described in Annex C "Designation of pipes and corresponding fittings", taking into account any particular requirements and relevant national regulations and installation practices or codes.

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Plastics piping systems for non-pressure underground drainage and sewerage - Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) —

Part 1:
General requirements and performance characteristics

1 Scope

This European Standard, together with EN 13476-2 and EN 13476-3, specifies the definitions and general requirements for pipes, fittings and the system based on unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) structured-wall piping systems that are to be used for non-pressure underground drainage and sewerage systems.

This standard is applicable to:

a) structured-wall pipes and fittings, which are to be used buried in the ground outside a building structure only; reflected by the marking of products by “U”;

b) structured-wall pipes and fittings, which are to be used buried in ground both outside (application area code “U”) and within a building structure (application area code “D”); reflected in the marking of products by “UD”.

In conjunction with EN 13476-2 and EN 13476-3, it is applicable to structured-wall pipes and fittings with or without an integral socket with elastomeric ring seal joints, as well as welded and fused joints.

This part specifies general aspects and gives guidance concerning a national selection of requirement levels and classes where part 2 and part 3 of this standard provide options.

EN 13476-2 and EN 13476-3 specify material characteristics, dimensions and tolerances, test methods, test parameters and requirements for pipes with smooth internal and external surfaces, Type A, and pipes with smooth internal and profiled external surfaces, Type B.

This standard, together with EN 13476-2 and EN 13476-3, covers a range of pipe and fitting sizes, materials, pipe constructions, stiffness classes and tolerance classes and offers recommendations concerning colours.

NOTE 1 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.

NOTE 2 Pipes, fittings and other components conforming to any plastic product standards referred to in Clause 2 can be used with pipes and fittings conforming to this standard, when they conform to the requirements for joint dimensions given in part 2 and part 3 of this standard and to the performance requirements given in Clause 9.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.