

SLOVENSKI STANDARD

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Plastics piping systems for non-pressure underground drainage and sewerage - Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: Specifications for ancillary fittings including shallow inspection chambers

Plastics piping systems for non-pressure underground drainage and sewerage - Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: Specifications for ancillary fittings including shallow inspection chambers

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Kunststoff-Rohrleitungssysteme für erdverlegte drucklose Abwasserkanäle und -leitungen - Weichmacherfreies Polyvinylchlorid (PVC-U), Polypropylen (PP) und Polyethylen (PE) - Teil 1: Anforderungen an Schächte und Zubehörteile

Systemes de canalisations en plastique pour les branchements et les collecteurs d'assainissement enterrés sans pression - Poly(chlorure de vinyle) non plastifié (PVC-U), polypropylène (PP) et polyéthylène (PE) - Partie 1: Spécifications pour raccords auxiliaires y compris les boîtes de branchement

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Plastics piping systems for non-pressure underground drainage
and sewerage - Unplasticized poly(vinyl chloride) (PVC-U),
polypropylene (PP) and polyethylene (PE) - Part 1:
Specifications for ancillary fittings including shallow inspection
chambers

Systèmes de canalisations en plastique pour les
branchements et les collecteurs d'assainissement enterrés
sans pression - Poly(chlorure de vinyle) non plastifié (PVC-
U), polypropylène (PP) et polyéthylène (PE) - Partie 1:
Spécifications pour raccords auxiliaires y compris les
chambres d'inspection peu profondes

Kunststoff-Rohrleitungssysteme für erdverlegte drucklose
Abwasserkanäle und -leitungen - Weichmacherfreies
Polyvinylchlorid (PVC-U), Polypropylen (PP) und
Polyethylen (PE) - Teil 1: Anforderungen an Schächte und
Zubehörteile

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This European Standard was approved by CEN on 3 March 2003.

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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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EN 13598-1:2003 (E)

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Foreword

This document (EN 13598-1:2003) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This draft standard is a supplementary standard for System Standards 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 Organisation for Standardisation (ISO).

They are supported by separate standards on test methods and by European Standards for thermoplastic underground drainage and sewerage systems, 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.

This European Standard consists of the following parts under the general title "Plastics piping systems — Thermoplastic ancillary fittings for non-pressure underground drainage and sewerage — Unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE)":

- Part 1: Specification for ancillary fittings including shallow inspection chambers (the present standard)
- Part 2: Specification for thermoplastics manholes and deep inspection chambers (a specification is under preparation)
- Part 3: Guidance for the assessment of conformity (a Technical Specification is under preparation)

This European Standard includes a bibliography.

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 March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

EN 13598-1:2003 (E)**1 Scope**

This European Standard specifies the definitions and requirements for ancillary fittings of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP), and polyethylene (PE) intended to be used in non-pressure underground drainage and sewerage systems, conforming to EN 476:

- a) outside the building structure (application area code "U"), reflected in the marking of products by "U", and
- b) both buried in ground within the building structure (application area code "D") and outside the building structure (application area code "U"), reflected in the marking of products by "UD".

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

The ancillary fittings covered by this standard are the following:

- sealed access fittings;
- rodding point covers;
- rodding tees;
- mechanical saddles;
- inspection chambers for shallow non- roadway applications to a maximum depth of 1,25 m.

NOTE 1 Inspection chambers as defined in 6.1.3 of EN 476:1997 have a riser with a DN/ID less than 800 mm.

The fittings can be manufactured by various methods e.g. injection moulding, rotational moulding, spiral winding or fabricated from components made to other standards.

The jointing can be with:

- elastomeric ring seal joint;
- cemented joint for PVC-U;
- welded joint for PP and PE.

NOTE 2 Pipes, fittings and other components conforming to any of the plastics products standards listed in clause 2 can be used with ancillary fittings conforming to this standard, provided they conform to the requirements for joint dimensions given in clause 6 and to the requirements of Table 5.

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 295-3:1991, *Vitrified clay pipes and fittings and pipe joints for drains and sewers — Part 3: Test methods.*

EN 476:1997, *General requirements for components used in discharge pipes, drains and sewers for gravity systems.*

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

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

EN 681-3, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 3: Cellular materials of vulcanized rubber.*

EN 681-4, *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements.*

- 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 1253-1:2003, *Gullies for buildings — Part 1: Requirements.*
- EN 1253-2:1998, *Gullies for buildings — Part 2: Test methods.*
- EN 1277:1996, *Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test methods for leaktightness of elastomeric sealing ring type joints.*
- EN 1401-1:1998, *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 1852-1:1997, *Plastics piping systems for non-pressure underground drainage and sewerage — Polypropylene (PP) — Part 1: Specifications for pipes, fittings and the system.*
- EN 1989, *Thermoplastics piping and ducting systems — Joints for buried non pressure sewerage applications — Test method for long-term sealing performance of joints with thermoplastics elastomer (TPE) seals by estimating the sealing pressure.*
- EN 12256, *Plastics piping systems — Thermoplastics fittings — Test method for mechanical strength or flexibility of fabricated fittings.*
- prEN 12666-1:2001, *Plastics piping systems for non-pressure underground drainage and sewerage — Polyethylene (PE) — Part 1: Specifications for pipes, fittings and the system.*
- prEN 13476-1:2002, *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: Specifications for pipes, fittings and the system.*
- EN ISO 472:2001, *Plastics — Vocabulary (ISO 472:1999).*
- EN ISO 1043-1:2001, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1:2001).*
- EN ISO 3126 *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126:2003).*
- EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:1994).*

3 Terms, definitions, symbols and abbreviations

For the purposes of this standard, the following definitions, symbols and abbreviations and those given in EN 1401-1:1998, EN 1852-1:1997, prEN 12666-1:2001, prEN 13476-1:2002, EN ISO 472:2001 and EN ISO 1043-1:2001 apply.

3.1 Terms and definitions

3.1.1

sealed access fittings

fitting that permits entry into the system for rodding or inspection and that has a sealed cover

3.1.2

rodding point cover

fitting installed at ground level with a removable cover that permits the introduction of equipment for inspection and the clearance of blockages. The riser shafts connected to these fittings do not exceed 200 mm outside diameter and are not less than 100 mm inside diameter

3.1.3

rodding tee

fitting installed in a drainage or sewerage system that connects to a rodding point at ground level by means of a vertical shaft that permits the introduction of equipment for the clearance of blockages, and also equipment for the inspection of the connecting pipe work in one or more directions. The riser shafts connected to these fittings do not exceed 200 mm outside diameter and are not less than 100 mm inside diameter

EN 13598-1:2003 (E)**3.1.4****mechanical saddle**

fitting that enables a branch connection to be made to buried drainage/sewerage systems of larger diameter by cutting a hole in the larger pipe and is retained in position by mechanical means

3.1.5**inspection chamber – shallow**

drainage and sewerage fitting which is used for connecting drainage or sewerage installations and/or for changing the direction of drainage/sewerage runs. It has a maximum depth from invert of drain to top of riser of 1,25 m and terminates at ground level, thus permitting the introduction of cleaning, inspection and test equipment and the removal of debris. It does not provide access for personnel. The riser shafts connected to these fittings have a minimum outside diameter of 200 mm and have a maximum inside diameter of less than 800 mm

3.1.6**structured-wall ancillary fittings**

fittings which have an optimised design with regard to material usage to achieve the relevant performance requirements

3.2 Abbreviations

DN/ID : nominal size, inside diameter related

PVC-U : unplasticized poly(vinyl chloride)

PE : polyethylene

PP : polypropylene

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4 Material

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4.1 General

The material shall conform to EN 1401-1 (PVC-U), EN 1852-1 (PP), prEN 12666-1 (PE) or prEN 13476-1 as applicable.

4.1.1 Utilisation of materials

The use of manufacturers own rework material and external reprocessible and recyclable material and their dosing levels shall be as specified in the standards listed in 4.1.

NOTE An increased use of external reprocessible and recyclable materials is under study by CEN/TC 155.

4.1.2 Components from other standards

Plastics components, fabricated or otherwise, are permitted to be utilised as sub components of the final assembly provided that they have been manufactured in accordance with EN 1401-1, EN 1852-1, prEN 12666-1 or prEN 13476-1. Components of other than plastics materials should conform to relevant EN for these materials.

4.2 Sealing ring retaining components

It is permitted that sealing rings are retained using components made from materials other than the actual pipe or fitting PVC-U, PP or PE.

4.3 Sealing rings

The sealing ring material shall conform to EN 681-1, EN 681-2, EN 681-3 or EN 681-4 as applicable.

The sealing ring shall have no detrimental effects on the properties of the components and shall not cause the test assembly to fail the performance requirements given in clause 10.

4.4 Adhesives for PVC-U

The adhesive or solvent cement shall be as specified by the manufacturer of the ancillary fittings where appropriate. The adhesive shall have no detrimental effects on the components and shall not cause the test assembly to fail the performance requirements given in clause 10.

5 General characteristics

5.1 General

When viewed without magnification the following requirements apply:

- a) the internal and external surfaces of ancillary fittings shall be smooth, clean and free from grooving, blistering, visible impurities or pores and any other surface irregularity likely to prevent their conformity with this standard;
- b) ancillary fittings ends shall be cleanly cut and square with the axis of the ends and within any cutting zone recommended by the manufacturer.

5.2 Assemblies

Components of ancillary fitting assemblies can be a combination of two or more of the specified materials may be used for different components of the same fitting.

5.3 Colour

Ancillary fittings if manufactured in layers shall have their surface layers coloured throughout. The outside layer of ancillary fittings should preferably be black, orange-brown (approximately RAL 8023 ^[1]) or dusty grey (approximately RAL 7037 ^[1]). Other colours may be used.

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6 Geometrical characteristics

6.1 General

For the purpose of specifying dimensions the nominal diameter of ancillary fittings shall be that of the pipe which can be connected to its outlet except that in the case of mechanical saddles the size of the main pipe and branch connection shall be used. All dimensions shall be measured in accordance with EN ISO 3126. Geometrical characteristics supplementary to those specified in this standard shall be declared by the manufacturer but must conform to the minima specified in EN 476.

6.2 Dimensions

6.2.1 Design lengths

The design lengths shall be declared by the manufacturer. The requirements of bends including slipper bends formed in the base of pre-formed inspection chambers must conform to the requirements of EN 476.

NOTE The design lengths (Z-lengths) are intended to assist in the design of moulds and are not intended to be used for quality control purposes. ISO 265-1 ^[2] can be used as a guideline.

6.2.2 Preferred angles of bends and branches

The preferred angles of bends and branches should conform to 4.3.1 of EN 476:1997. Other angles are permitted.

6.2.3 Wall thicknesses of bodies and spigots

The wall thickness of ancillary fitting components including spigots for pipe connections shall not be less than those specified in EN 1401-1, EN 1852-1, prEN 12666-1 or prEN 13476-1 for a fitting or component of the same material and nominal diameter.