
Cevni sistemi iz polimernih materialov, ki delujejo po težnostnem principu in so položeni v zemljo, za transport in shranjevanje vode, ki ni namenjena pitju - Vstopni in revizijski jaški ter cestni odtoki za meteorno vodo iz neplastificiranega poli(vinilklorida) (PVC-U), polipropilena (PP) in polietilena (PE) - 1. del: Specifikacije za odtoke meteorne vode in revizijske jaške

Plastics piping systems for non-pressure underground conveyance and storage of non-potable water - Manholes, inspection chambers and road gullies for storm water systems made of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: Specifications for storm water manholes and inspection chambers

Kunststoff-Rohrleitungssysteme für die drucklose unterirdische Entwässerung und Speicherung für Nicht-Trinkwasser - Einsteigschächte, Kontrollschächte und Straßenabläufe für Regenwasserabflusssysteme aus weichmacherfreiem Polyvinylchlorid (PVC U), Polypropylen (PP) und Polyethylen (PE) - Teil 1: Anforderungen für Regenwasserabfluss-Einsteig- und -Kontrollschächte

Systèmes de canalisations en plastique pour le transport et le stockage souterrains sans pression de l'eau non potable - Regards, boîtes d'inspection et de branchement et bouches d'égout pour les réseaux d'eaux pluviales en poly(chlorure de vinyle) non plastifié (PVC-U), en polypropylène (PP) et en polyéthylène (PE) - Partie 1 : Spécifications relatives aux regards et aux boîtes d'inspection et de branchement pour les eaux pluviales

Ta slovenski standard je istoveten z: prEN 17670-1

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN 17670-1:2021](https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021)

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 17670-1

May 2021

ICS 23.040.20; 93.030

English Version

Plastics piping systems for non-pressure underground conveyance and storage of non-potable water - Manholes, inspection chambers and road gullies for storm water systems made of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) - Part 1: Specifications for storm water manholes and inspection chambers)

Systèmes de canalisations en plastique pour le transport et le stockage souterrains sans pression de l'eau non potable - Regards, boîtes d'inspection et de branchement et bouches d'égout pour les réseaux d'eaux pluviales en poly(chlorure de vinyle) non plastifié (PVC-U), en polypropylène (PP) et en polyéthylène (PE) - Partie 1 : Spécifications relatives aux regards et aux boîtes d'inspection et de branchement pour les eaux pluviales

Kunststoff-Rohrleitungssysteme für die drucklose unterirdische Entwässerung und Speicherung für Nicht-Trinkwasser - Einsteigschächte, Kontrollschächte und Straßenabläufe für Regenwasserabflusssysteme aus weichmacherfreiem Polyvinylchlorid (PVC U), Polypropylen (PP) und Polyethylen (PE) - Teil 1: Anforderungen für Regenwasserabfluss-Einsteig- und -Kontrollschächte

STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN 17670-1:2021
<https://standards.cen.org/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021>

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	9
4 Symbols and abbreviations	15
4.1 Symbols	15
4.2 Abbreviations.....	15
5 Material	15
5.1 General.....	15
5.2 Compound/formulation for storm water bases	15
5.3 Compound/formulation for storm water risers.....	16
5.4 Compound/formulation for cones	17
5.5 Compound/formulation for telescopic adaptors.....	17
5.6 Use of reworked material and recyclates.....	18
5.7 Sealing ring retaining components	18
6 General characteristics	18
6.1 Appearance.....	18
6.2 Colour	18
7 Geometrical characteristics	18
7.1 General.....	18
7.2 Dimensions of SWMH and SWIC	19
7.2.1 SWMH	19
7.2.2 SWIC	19
7.3 Dimensions of base connections to pipework.....	19
7.4 Sand trap volume.....	19
7.5 Geometrical characteristics of steps and ladders	20
7.5.1 General	20
7.5.2 Steps	20
7.5.3 Permanently fixed ladders	21
7.5.4 Fixing provisions for ladders	21
8 Mechanical characteristics	21
9 Physical characteristics	23
9.1 Injection moulded components.....	23
9.2 Factory fabricated components.....	23

10 Performance requirements	24
10.1 General performance	24
10.2 Characterization of rotationally moulded product submitted for performance testing	25
11 Sealing rings	25
12 System performance related test methods and characteristics	26
13 Marking and additional documentation	26
13.1 Marking of storm water bases	26
13.2 Minimum marking of components other than storm water bases	28
13.3 Additional documentation.....	28
Annex A (normative) Test method for durability	29
A.1 General	29
A.2 Test procedure	29
A.3 Material characteristics	29
Annex B (normative) Test method for structural integrity of SWMH or SWIC bases	32
Annex C (normative) Test method for impact resistance of SWMH or SWIC bases	33
C.1 Test equipment	33
C.2 Test procedure	33
Annex D (normative) Utilization of reworked material and recyclates	34
Bibliography	37

[oSIST prEN 17670-1:2021](https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021)

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021>

prEN 17670-1:2021 (E)**European foreword**

This document (prEN 17670-1:2021) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document 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 Organization for Standardization (ISO).

They are supported by separate standards on test methods, to which references are made throughout the System Standard.

Product complying with this standard are intended for use in storm water systems.

This document does not cover pump chambers.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 17670 consists of the following parts under the general title *Plastics piping systems for non-pressure underground conveyance and storage of non-potable water — Manholes, inspection chambers and road gullies for storm water systems made of unplasticized polyvinyl chloride (PVC-U), polypropylene (PP) and polyethylene (PE)*:

- *Part 1: Specifications for storm water manholes and inspection chambers* (this document);
- *Part 2: Specifications for storm water road gullies* (under development);
- *Part 3: Assessment of conformity* (CEN/TS to be developed).

Introduction

The products covered by this standard are intended for use as part of storm (surface) water management systems such as:

- transport of storm/surface water;
- road drainage;
- land drainage;
- infiltration;
- attenuation and storage.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 17670-1:2021](https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021)

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98f1/osist-pren-17670-1-2021>

prEN 17670-1:2021 (E)**1 Scope**

This document specifies the definitions and requirements for unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP), polypropylene with mineral modifier (PP-MD) or polyethylene (PE) storm water manholes and storm water inspection chambers intended for non-pressure use only in storm water systems to a maximum depth of 6 m from ground level to the lowest point of the storm water manhole or inspection chamber.

NOTE 1 Products complying with EN 13598-2 can also be used for storm water systems dependent on the requirement of the storm water system.

Storm water manholes and inspection chambers complying with this document are intended to be used in pedestrian or vehicular traffic areas outside the building structure.

NOTE 2 Products complying with this document can also be used in non-traffic areas.

Storm water manholes and inspection chambers complying with this document are made from a prescribed set of components that are manufactured from unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP), polypropylene with mineral modifier (PP-MD) or polyethylene (PE) and assembled together.

Storm water manholes and inspection chambers complying with this document may be equipped with optional devices (e.g. removable sand or silt bucket, flow regulators, ventilation parts, etc.), however the performance of these optional devices is not covered within the scope of this document.

NOTE 3 Products complying with this standard can be installed in underground applications without additional static calculation.

NOTE 4 The complete storm water manhole or inspection chamber assembly can also include items which are not covered by this document (for example near surface or surface components).

NOTE 5 Storm water manholes and inspection chambers can be supplied with covers, frame covers and gratings complying with the relevant part of EN 124 [1].

Storm water manhole and inspection chamber components can be manufactured by various methods e.g. extrusion, injection moulding, rotational moulding, low-pressure moulding or fabricated.

NOTE 6 Storm water manholes and inspection chambers can be site assembled from different components, but can also be manufactured as a single unit.

NOTE 7 Storm water manholes and inspection chambers can be subject to national regulations and / or local provisions.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 124 (series), *Gully tops and manhole tops for vehicular and pedestrian areas*

EN 476, *General requirements for components used in drains and sewers*

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

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

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 1852-1, *Plastics piping systems for non-pressure underground drainage and sewerage — Polypropylene (PP) — Part 1: Specifications for pipes, fittings and the system*

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

EN 12666-1, *Plastics piping systems for non-pressure underground drainage and sewerage Polyethylene (PE) — Part 1: Specifications for pipes, fittings and the system*

EN 13101:2002, *Steps for underground man entry chambers — Requirements, marking, testing and evaluation of conformity*

EN 13476-2, *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 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A*

EN 13476-3, *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 3: Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B*

EN 13598-2, *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 manholes and inspection chambers*

EN 14396, *Fixed ladders for manholes*

EN 14758-1, *Plastics piping systems for non-pressure underground drainage and sewerage — Polypropylene with mineral modifiers (PP-MD) — Part 1: Specifications for pipes, fittings and the system*

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

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

EN ISO 1133-1:2011, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method (ISO 1133-1:2011)*

EN ISO 1158, *Plastics — Vinyl chloride homopolymers and copolymers — Determination of chlorine content (ISO 1158)*

prEN 17670-1:2021 (E)

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

EN ISO 1183-2, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method (ISO 1183-2)*

EN ISO 2507-1, *Thermoplastics pipes and fittings — Vicat softening temperature — Part 1: General test method (ISO 2507-1)*

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

EN ISO 3127, *Thermoplastics pipes — Determination of resistance to external blows — Round-the-clock method (ISO 3127)*

EN ISO 3451-1, *Plastics — Determination of ash — Part 1: General methods (ISO 3451-1)*

EN ISO 3451-5, *Plastics — Determination of ash — Part 5: Poly(vinyl chloride) (ISO 3451-5)*

EN ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6)*

EN ISO 13229, *Thermoplastics piping systems for non-pressure applications — Unplasticized poly(vinyl chloride) (PVC-U) pipes and fittings — Determination of the viscosity number and K-value (ISO 13229)*

(standards.iteh.ai)

EN ISO 13254, *Thermoplastics piping systems for non-pressure applications — Test method for watertightness (ISO 13254)*

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-1b7053892131/pr-en-17670-1-2021>

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-1b7053892131/pr-en-17670-1-2021>

EN ISO 13259, *Thermoplastics piping systems for underground non-pressure applications — Test method for leaktightness of elastomeric sealing ring type joints (ISO 13259)*

EN ISO 13263, *Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics fittings — Test method for impact strength (ISO 13263)*

ISO 13266, *Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics shafts or risers for inspection chambers and manholes — Determination of resistance against surface and traffic loading*

ISO 13267:2010 *Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics inspection chamber and manhole bases — Test methods for buckling resistance*

ISO 13268, *Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics shafts or risers for inspection chambers and manholes — Determination of ring stiffness*

3 Terms and definitions

For the purposes of this document, the terms, definitions and abbreviations given in EN ISO 1043-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

storm water

water resulting from precipitation, melted snow and ice draining from roofs, roads, footpaths and all other ground surround

[SOURCE: ISO 20670:2018, 3.72 modified]

3.2

storm water manhole (SWMH)

chamber with a removable cover having at least one inlet and one outlet, intended to be used as part of a storm water system to permit entry by personnel, with a storm water riser of 800 mm minimum inner diameter

Note 1 to entry: Figure 1 shows examples of storm water manholes

Note 2 to entry: See EN 476 for dimensions of non-circular manholes

Note 3 to entry: Storm water manholes may incorporate a sand trap or other additional features

Note 4 to entry: Storm water manholes are subject to national safety regulations and / or local provisions regarding man-entry limitations

3.3

storm water inspection chamber (SWIC)

chamber with a removable cover having at least one inlet and one outlet, intended to be used in a storm water system that permits the introduction of cleaning and inspection equipment from surface level, but does not provide access for personnel and which terminates at ground level with a storm water riser of 200 mm minimum outer diameter

Note 1 to entry: Figure 2 shows examples of storm water inspection chambers

Note 2 to entry: See EN 476 for dimensions of non-circular chambers

Note 3 to entry: Storm water inspection chambers may incorporate a sand trap or other additional features

3.4

storm water base

bottom part of a SWMH or SWIC

Note 1 to entry: In case of a one-piece SWMH or SWIC, for testing purposes, the storm water base component ends at a maximum distance of 500 mm measured from the lowest point of the internal surface of the SWMH or SWIC. Above 500 mm the section should be considered as a storm water riser and tested accordingly.

prEN 17670-1:2021 (E)

Note 2 to entry: A storm water base can include optional devices (not part of this document), provision for optional devices, and/or integrated feature such as a weir or sand trap.

Note 3 to entry: If bases with flow channels are used, it should be noted that this document does not have a requirement for flow channel deformation.

3.5**storm water riser**

component which is connected onto a storm water base and which defines the nominal size of the SWMH or SWIC

Note 1 to entry: The storm water riser can be supplied either as one or more separate items for site jointing to the storm water base, or integrated with the storm water base.

Note 2 to entry: In case of a one-piece SWMH or SWIC, for testing purposes the storm water riser component starts at a distance of minimum 500 mm measured from the lowest point of the internal surface of the SWMH or SWIC. Below 500 mm the section should be considered as a storm water base and tested accordingly.

3.6**storm water telescopic adaptor**

part of the assembly on top of the storm water riser or cone that allows adjustment of surface component or the near surface component

Note 1 to entry: Telescopic adaptors allow accommodation of settlement during lifetime and eliminate the transmission of vehicular loading down the storm water riser.

3.7**storm water cone**

adaptor allowing change in diameter, close to ground level

<https://standards.iteh.ai/catalog/standards/sist/ab88694d-2538-485c-9f8c-18e70b7c98fl/osist-pren-17670-1-2021>

3.8**storm water near-surface components**

components intended to spread vehicular loading directly to the soil and/or provide a seating for the cover and its frame

3.9**storm water assembly**

items collectively forming a SWMH or SWIC

Note 1 to entry: See typical examples in Figures 1 and 2.

3.10**maximum height of groundwater above the lowest point**

H_g

height of water column, measured from the lowest point of the internal surface of the SWMH or SWIC, that the SWMH or SWIC can withstand during use