SLOVENSKI STANDARD
SIST EN 17176-1:2019

01-julij-2019

Cevni sistemi iz polimernih materialov za oskrbo z vodo in za podzemne in nadzemne sisteme odvodnjavanja, kanalizacije ter namakanja pod tlakom - Orientiran nemehčan polivinilklorid (PVC-O) - 1. del: Splošno

Plastics piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure - Oriented unplasticized poly(vinyl chloride) (PVC-O) - Part 1: General

Kunststoff-Rohrleitungssysteme für die Wasserversorgung und für erdverlegte und nicht erdverlegte Entwässerungs-, Abwasser- und Bewässerungsdruckleitungen - Orientiertes weichmacherfreies Polyvinylchlorid (PVC-O) - Teil 1: Allgemeines

Systèmes de canalisations en plastique pour l'alimentation en eau, les branchements et collecteurs d'assainissement et les systèmes d'irrigation sous pression, enterrés ou aériens - Poly(chlorure de vinyle) non plastifié orienté (PVC-O) - Partie 1 : Généralités

Ta slovenski standard je istoveten z: **EN 17176-1:2019**

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

SIST EN 17176-1:2019 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 17176-1

April 2019

ICS 23.040.20; 23.040.45

English Version

Plastics piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure - Oriented unplasticized poly(vinyl chloride) (PVC-O) - Part 1: General

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This European Standard was approved by CEN on 14 January 2019.

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

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

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Ref. No. EN 17176-1:2019 E

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European foreword

This document (EN 17176-1:2019) 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 2019 and conflicting national standards shall be withdrawn at the latest by October 2019.

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

EN 17176 consists of the following parts, under the general title *Plastics piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure — Oriented unplasticized poly(vinyl chloride) (PVC-O)*:

— *Part 1: General* (this document);

— *Part 2: Pipes*;

— *Part 3: Fittings* (Technical Specification);

— *Part 5: Fitness for purpose of the system*;

— *Part 7: Guidance for assessment of conformity* (in preparation).

For valves, see EN ISO 1452-4 [6].

Guidance for installation is given in ISO/TR 4191 [7].

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

The System Standard, of which this is Part 1, specifies the requirements for a piping system made from oriented unplasticized poly(vinyl chloride) (PVC-O) and its components. The piping system is intended to be used for water supply, pressurized drainage, sewerage, treated waste water and irrigation systems to be used underground or above ground where protected from direct sunlight.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the products covered by this part of EN 17176, the following is relevant:

a) This part of EN 17176 provides no information as to whether or not the products can be used without restriction.

b) Existing national regulations concerning the use and/or the characteristics of these products remain in force.

Requirements and test methods for PVC-O components are specified in EN 17176-2 and CEN/TS 17176-3:2018. For other components (not manufactured from PVC-O) reference is made to the following standards: EN ISO 1452-3 (PVC-U) and EN 12842 (Cast Iron). Characteristics for fitness of purpose (mainly for joints) are specified in EN 17176-5.

This part of EN 17176 specifies the general aspects and characteristics of materials.

1 Scope

This part of EN 17176 specifies the material characteristics of oriented unplasticized poly(vinyl chloride) (PVC-O) solid wall piping systems intended for water supply and for buried drainage, sewerage and irrigation under pressure or above-ground where protected from direct sunlight.

In conjunction with EN 17176-2, CEN/TS 17176-3 and EN ISO 1452-3, it is applicable to PVC-O pipes, PVC-O fittings, their joints and to joints with components of other plastics and non-plastics materials intended to be used for the following:

a) water mains and services lines;

b) conveyance of water for both outside and inside buildings;

c) drainage, sewerage and treated waste water under pressure;

d) irrigation under pressure.

Joints constructed of other materials will meet their own standards in addition to the fitness of purpose requirements specified in EN 17176-5.

It is applicable to piping systems intended for the supply of water with a maximum allowable operating pressure (PFA) up to and including 25 bar[1)]. The piping system according to this document is intended for the conveyance of cold water up to and including 45 °C and especially in those applications where special performance requirements are needed, such as impact loads and pressure fluctuations.

For temperatures between 25 °C and 45 °C, EN 17176-2:2018, Figure C.1 applies.

NOTE 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.

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 17176-2:2018, *Plastics piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure — Oriented unplasticized poly(vinyl chloride) (PVC-O) — Part 2: Pipes*

CEN/TS 17176-3, *Plastic piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure — Oriented unplasticized poly(vinyl chloride) (PVC-O) — Part 3: Fittings*

EN 17176-5, *Plastic piping systems for water supply and for buried and above ground drainage, sewerage and irrigation under pressure — Oriented unplasticized poly(vinyl chloride) (PVC-O) — Part 5: Fitness for purpose of the system*

EN ISO 472, *Plastics — Vocabulary (ISO 472)*

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

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1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm^2.

EN ISO 1452-2, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 2: Pipes (ISO 1452-2)*

EN ISO 1452-3, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 3: Fittings (ISO 1452-3)*

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

EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation (ISO 9080)*

EN ISO 6401, *Plastics — Poly(vinyl chloride) — Determination of residual vinyl chloride monomer — Gas-chromatographic method (ISO 6401)*

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

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)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 472 and 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 http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Wall construction definition

3.1.1
solid-wall
having smooth internal and external surface and the same homogeneous compound/formulation throughout the wall

3.2 Geometrical definitions

3.2.1
mean inside diameter of socket
d_{im}
arithmetical mean of inside diameters at the midpoint of the socket length according EN ISO 3126

3.2.2
mean outside diameter
d_{em}
value of the measurement of the outer circumference of a pipe or spigot end of a fitting in any cross-section, divided by π (≈ 3,142), rounded up to the nearest 0,1 mm

3.2.3
mean wall thickness
e_m
arithmetical mean of a number of measurements of the wall thickness, regularly spaced around the circumference and in the same cross-section of a component, including the measured minimum and the measured maximum values of the wall thickness in that cross-section

3.2.4
nominal diameter
d_n
specified diameter assigned to a nominal size

Note 1 to entry: According to EN ISO 1452-2, the nominal (outside) diameter of a thermoplastics pipe or a spigot, is equal to its minimum mean outside diameter, $d_{em,min}$.

Note 2 to entry: The nominal (inside) diameter of the socket of a fitting, pipe, valve or ancillary equipment is equal to the nominal (outside) diameter of the connecting pipe for which they are designed.

Note 3 to entry: The nominal diameter is expressed in millimetres.

3.2.5
nominal size DN
numerical designation of the size of a component, other than a component designated by thread size, which is a convenient round number approximately equal to the manufacturing dimension in millimetres (mm)

3.2.6
nominal size DN/ID
nominal size, related to the inside diameter

3.2.7
nominal size DN/OD
nominal size, related to the outside diameter

3.2.8
nominal wall thickness
e_n
numerical designation of the wall thickness of a component which is identical to the minimum permissible wall thickness at any point

Note 1 to entry: The wall thickness is expressed in millimetres.

3.2.9
out-of-roundness
ovality
difference between the measured maximum and the measured minimum outside diameter in the same cross-section of a pipe or spigot, or the difference between the measured maximum and the measured minimum inside diameter in the same cross-section of a socket

3.2.10
outside diameter at any point
d_e
value of the measurement of the outside diameter through its cross-section at any point of a pipe or spigot, rounded up to the nearest 0,1 mm