SLOVENSKI STANDARD
SIST EN 17176-5:2019

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) - 5. del: Ustreznost sistema namenu

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 5: Fitness for purpose of the system

Kunststoff-Rohrleitungssysteme für die Wasserversorgung und für erdverlegte und nicht erdverlegte Entwässerungs-, Abwasser- und Bewässerungsdruckleitungen - Orientiertes weichmacherfreies Polyvinylchlorid (PVC-O) - Teil 5: Gebrauchstauglichkeit des Systems

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 5 : Aptitude à l'emploi du système

Ta slovenski standard je istoveten z: **EN 17176-5:2019**

ICS:

23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general
91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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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 5: Fitness for purpose of the system

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

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 17176-5:2019) 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of an identical text or by endorsement, at the latest by September 2019 and conflicting national standards shall be withdrawn at the latest by September 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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*;

— *Part 2: Pipes*;

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

— *Part 5: Fitness for purpose of the system* (this document);

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

For valves, see EN ISO 1452-4.

Guidance for installation is given in ISO/TR 4191 [3].

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 5, specifies the characteristics of the fitness for purpose 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. 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).

This part of EN 17176 specifies the characteristics of fitness for purpose of the plastics piping system composed of pipes, fittings, ancillaries and their joints.

1 Scope

This part of EN 17176 specifies the characteristics of the fitness for purpose of oriented unplasticized poly(vinyl chloride) (PVC-O) solid wall piping systems intended for water supply and for buried drainage, sewerage, treated waste water and irrigation under pressure or above-ground where protected from direct sunlight. It also specifies the test parameters for the test methods referred to in this document.

NOTE 1 This document is not intended for on-site testing of pipe systems.

In conjunction with EN 17176-1, 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 and sewerage under pressure;

d) irrigation under pressure.

Joints constructed of other materials shall meet their own standards in addition to the fitness of purpose requirements specified in this document.

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 17176-2:2019, Figure C.1 applies.

NOTE 2 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 12842:2012, *Ductile iron fittings for PVC-U or PE piping systems — Requirements and test methods*

EN 17176-1:2019, *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*

EN 17176-2:2019, *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*

1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm^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 1452-4, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 4: Valves (ISO 1452-4)*

EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with plastic pressure pipes — Test method for leaktightness under negative pressure, angular deflection and deformation (ISO 13844)*

EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with thermoplastic pressure pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845)*

EN ISO 13846, *Plastics piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure (ISO 13846)*

ISO 17885, *Plastics piping systems — Mechanical fittings for pressure piping systems — Specifications*

3 Terms and definitions

For the purposes of this document, the terms, definitions, symbols and abbreviated terms given in EN 17176-1 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

4 Fitness for purpose of joints and the system

4.1 Assemblies with non-end-load-bearing joints

The following types of assemblies of non-end-load-bearing joints shall fulfil the fitness for purpose requirements for the test methods specified in Table 1.

a) integrally socketed PVC-O pipe to pipe assemblies with elastomeric ring seal joints conforming to EN 17176-2;

b) PVC-O- and PVC-U fitting and pipe assemblies with elastomeric ring seal joints conforming to CEN/TS 17176-3 and EN 17176-2, respectively;

c) PVC-U valve and PVC-O pipe assemblies with elastomeric ring seal joints conforming to EN ISO 1452-4 and EN 17176-2, respectively;

d) metal fitting and PVC-O pipe assemblies with elastomeric ring seal joints;

e) metal valve and PVC-O pipe assemblies with elastomeric ring seal joints;

f) GRP or metal adaptor assemblies with elastomeric ring seal joints for PVC-O pipes and with flanged, threaded or other connections to pipes of different materials or to ancillary equipment, such as tapping saddles;

g) mechanical joint assemblies with PVC-O pipes.

The components of the assemblies of types b) to g) shall be assembled with PVC-O pipes of the corresponding nominal pressure (PN), conforming to EN 17176-2. The assembly instructions of the component manufacturer shall be followed.

Table 1 — Applicable test methods for non-end-load bearing joints

Type of test	Test method	non-end-load bearing joints
Short term positive pressure	See 5.1	Yes
Short term negative pressure	See 5.2	Yes
Long term positive pressure	See 5.3	Yes
Short term positive pressure and bending	See 5.4	No
Short term negative pressure and bending	See 5.5	No
Cyclic pressure	See 5.6	Only in case of cast iron fitting

4.2 Assemblies with end-load-bearing joints

The following types of assemblies with end-load-bearing joints shall fulfil the fitness for purpose requirements for the test methods specified in Table 2.

a) Integral socketed PVC-O pipe to pipe assemblies with solvent cement joints conforming to EN 17176-2;

b) PVC-O- and PVC-U fitting and pipe assemblies with solvent cement joints or special coupling assemblies conforming to EN 17176-2, CEN/TS 17176-3 respectively;

c) Flange assemblies with PVC-O pipes, adaptors and flanges conforming to CEN/TS 17176-3 or using GRP or metal flanges adapters conforming EN ISO 1452-3;

d) PVC-U valve and pipe assemblies with solvent cement joints conforming to EN ISO 1452-4 and EN 17176-2, respectively;

e) PVC-O or metal valve and PVC-O pipe assemblies with flanged joints conforming to EN ISO 1452-4 and EN 17176-2, respectively;

f) PVC-O or metal tapping saddles and PVC-O pipe assemblies with solvent cement or mechanical joints conforming to CEN/TS 17176-3 and EN 17176-2, respectively;

g) GRP or metal adaptor assemblies with solvent cement joints for PVC-O pipes and with threaded or other connections to pipes of different materials conforming to EN ISO 1452-3 or ISO 17885;

h) PVC-U or metal union and special coupling assemblies;

i) End-loadbearing double socket and PVC-O pipe assemblies with elastomeric ring seal joints (see CEN/TS 17176-3).

The components of the assemblies of types b) to i) shall be assembled with PVC-O pipes of the corresponding nominal pressure (PN), conforming to EN 17176-2. The assembly instructions of the component manufacturer shall be followed.