

SLOVENSKI STANDARD

SIST EN 295-6:2013

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Nadomešča:

SIST EN 295-10:2005

SIST EN 295-6:1996

Keramični cevni sistemi za odvod odpadne vode in kanalizacijo - 6. del: Zahteve za vstopne in revizijske jaške

Vitrified clay pipes systems for drain and sewers - Part 6: Requirements for components of manholes and inspection chambers

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Steinzeugrohrsysteme für Abwasserleitungen und -kanäle - Teil 6: Anforderungen an Bauteile für Einsteig- und Inspektionsschächte

[SIST EN 295-6:2013](#)

Systèmes de tuyaux et accessoires en grès pour les réseaux de branchement et d'assainissement - Partie 6: Prescriptions pour les éléments pour regards en grès

Ta slovenski standard je istoveten z: EN 295-6:2013

ICS:

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91.140.80	Drenažni sistemi	Drainage systems
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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EUROPEAN STANDARD
NORME EUROPÉENNE
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ICS 93.030

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English Version

Vitrified clay pipes systems for drain and sewers - Part 6: Requirements for components of manholes and inspection chambers

Systèmes de tuyaux en grès vitrifié pour les collecteurs
d'assainissement et les branchements - Partie 6:
Exigences applicables aux composants de regards et de
boîtes d'inspection ou de branchement

Steinzeugrohrsysteme für Abwasserleitungen und -kanäle -
Teil 6: Anforderungen an Bauteile für Einsteig- und
Inspektionsschächte

This European Standard was approved by CEN on 1 December 2012.

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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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements for components for manholes and inspection chambers	6
4.1 Materials, manufacture, water absorption and appearance	6
4.1.1 Vitrified clay	6
4.1.2 Rubber sealing material	6
4.1.3 Polyurethane sealing materials	6
4.1.4 Polypropylene couplings	6
4.1.5 Materials of other components	6
4.2 Internal diameter	6
4.2.1 Chamber rings and raising pieces	6
4.2.2 Pipeline connections	6
4.3 Height	6
4.4 Angle of curvature and radius of channel bends	7
4.5 Branch angles of channel junctions	7
4.6 Crushing strength (F_N)	7
4.7 Bending tensile strength	7
4.8 Bond strength of adhesive used for fixing fired clay parts together	7
4.9 Fatigue strength under cyclic load	7
4.10 Chemical resistance	7
4.11 Water tightness of assembled components	7
4.12 Joint systems	8
5 Common requirements for manholes and inspection chambers	8
5.1 Reaction to fire	8
5.2 Durability	8
5.3 Dangerous substances	8
6 Designation	9
7 Marking	9
7.1 Manhole and inspection chamber components	9
7.2 Joints	10
8 Evaluation of conformity	10
8.1 General	10
8.2 Initial type testing	10
8.3 Factory production control (FPC)	10
Annex A (informative) Examples of manholes and inspection chambers	11
A.1 Manhole	11
A.2 Inspection chamber	11
Annex B (informative) Manhole stability	13
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU	
Construction Products Directive	14
ZA.1 Scope and relevant characteristics	14
ZA.2.1 Systems of attestation of conformity	16
ZA.2.2 EC declaration of conformity	17
ZA.3 CE marking	17

ZA.3.1 General	17
ZA.3.2 CE marking on the product.....	18
ZA.3.3 CE marking in the accompanying documents	18
Bibliography.....	21

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[SIST EN 295-6:2013](https://standards.iteh.ai/catalog/standards/sist/d75450d8-a63b-4e7d-941c-38b65a38f822/sist-en-295-6-2013)

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EN 295-6:2013 (E)**Foreword**

This document (EN 295-6:2013) has been prepared by Technical Committee CEN/TC 165 "Wastewater engineering", the secretariat of which is held by DIN.

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 August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

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.

This document supersedes EN 295-6:1995 and together with EN 295-1:2013, EN 295-2:2013, EN 295-4:2013, EN 295-5:2013 and EN 295-7:2013 it supersedes EN 295-10:2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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

— reaction to fire added;

— Annex ZA added;

— editorially revised.

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The standard series EN 295 "Vitrified clay pipe systems for drains and sewers" consists of the following parts:

— *Part 1: Requirements for pipes, fittings and joints*

— *Part 2: Evaluation of conformity and sampling*

— *Part 3: Test methods*

— *Part 4: Requirements for adaptors, connectors and flexible couplings*

— *Part 5: Requirements for perforated pipes and fittings*

— *Part 6: Requirements for components of manholes and inspection chambers* (the present document)

— *Part 7: Requirements for pipes and joints for pipe jacking*

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard applies for components for vitrified clay manholes and inspection chambers for buried drain and sewer systems for the conveyance of wastewater (including domestic wastewater, surface water and rainwater) under gravity and periodic hydraulic surcharge or under continuous low head of pressure.

It specifies different strength classes and heights of sections. It also specifies the requirements for components used for joints, systems of joint dimensions and the materials rubber, polyurethane and polypropylene used for joints.

NOTE 1 The specifiers/purchasers can select the components for vitrified clay manholes and inspection chambers according to their requirements.

This standard does not apply to manhole tops and cover slabs.

NOTE 2 Corresponding provisions for the evaluation of conformity (ITT and FPC) and sampling and those for the test methods are further specified in EN 295-2 and EN 295-3, respectively.

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.

EN 295-1:2013, *Vitrified clay pipe systems for drains and sewers — Part 1: Requirements for pipes, fittings and joints*

EN 295-2:2013, *Vitrified clay pipes systems for drain and sewers — Part 6: Requirements for components of manholes and inspection chambers*

EN 295-3:2012, *Vitrified clay pipe systems for drains and sewers — Part 3: Test methods*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 295-1:2013, and the following apply.

3.1

manhole

chamber with a removable cover constructed on a drain or sewer to permit entry by personnel

[SOURCE: EN 752:2008, 3.41]

Note 1 to entry: An example of a vitrified clay manhole is given in Figure A.1.

EN 295-6:2013 (E)

3.2 inspection chamber
 chamber with a removable cover constructed on a drain or sewer that permits the introduction of cleaning and inspection equipment from surface level, but does not provide access for personnel

[SOURCE: EN 752:2008, 3.34]

Note 1 to entry: Examples of vitrified clay inspection chambers are given in Figure A.2.

4 Requirements for components for manholes and inspection chambers**4.1 Materials, manufacture, water absorption and appearance****4.1.1 Vitrified clay**

For material, manufacture, water absorption and appearance, all vitrified clay elements of manholes and inspection chambers shall be in accordance with EN 295-1:2013, 5.1.

4.1.2 Rubber sealing material

Rubber sealing materials shall comply with EN 681-1.

4.1.3 Polyurethane sealing materials

Polyurethane sealing elements shall be in accordance with EN 681-4.

4.1.4 Polypropylene couplings

Polypropylene couplings shall be in accordance with EN 295-1:2013, 6.1.3.

4.1.5 Materials of other components

Components of other materials which are used with vitrified clay manholes and inspection chambers shall comply with the relevant European Standard, European Technical Approval or the manufacturers' declared specification, as applicable, which shall also include requirements for long term behaviour.

4.2 Internal diameter**4.2.1 Chamber rings and raising pieces**

The internal diameter of chamber rings and raising pieces shall be in accordance with EN 295-1:2013, 5.2.

4.2.2 Pipeline connections

The internal diameter of pipeline connections from or to manholes shall be in accordance with EN 295-1:2013, 5.2.

4.3 Height

The nominal height of chamber rings and raising pieces shall be as specified by the manufacturer. The preferred heights are 250, 500, 750, 1 000 and 2 000 mm. The limits of tolerance on this height, measured to the nearest whole mm, shall be from -1 % to +4 %, or ± 10 mm, whichever is the larger.

4.4 Angle of curvature and radius of channel bends

The tolerance on the angle of curvature and radius of channel bends incorporated into manhole bases shall be in accordance with EN 295-1:2013, 5.7.

4.5 Branch angles of channel junctions

The tolerance at the branch angles of channel junctions incorporated into manhole bases shall be in accordance with EN 295-1:2013, 5.8.

4.6 Crushing strength (F_N)

The crushing strength (F_N) of chamber rings and raising pieces shall be in accordance with EN 295-1:2013, 5.9.

NOTE 1 Where components have been manufactured according to EN 295-1:2013, they do not need to be retested.

NOTE 2 For structural performance see Annex B.

4.7 Bending tensile strength

If it is required to determine the crushing strength where whole chamber rings and raising pieces are not available, for example after failure in use, a bending tensile strength test, in accordance with EN 295-3:2012, Clause 8, can be carried out on broken chamber rings and raising pieces.

The crushing strength shall be calculated from the mean bending tensile strength of at least ten test pieces.

4.8 Bond strength of adhesive used for fixing fired clay parts together

The bond strength of the adhesive used for fixing fired clay parts together shall be in accordance with EN 295-1:2013, 5.12.

4.9 Fatigue strength under cyclic load

Where the resistance to fatigue under cyclic loads is required, it shall be demonstrated by testing in accordance with EN 295-3:2012, Clause 11, when test pieces shall not fail.

NOTE For chamber rings or raising pieces, vitrified clay pipes in accordance with EN 295-1 are typically used.

4.10 Chemical resistance

When tested in accordance with EN 295-3:2012, Clause 13, the loss of material from the test piece shall be declared.

NOTE 1 Under normal conditions of use, vitrified clay pipes are considered to be resistant to chemical attack and expected to show typical values of loss of material between 0,1 % and 0,25 %.

NOTE 2 For chamber rings or raising pieces vitrified clay pipes in accordance with EN 295-1 are typically used.

4.11 Water tightness of assembled components

When subjected to the test conditions specified in EN 295-3:2012, Clause 26, assembled components manholes and inspection chambers joined by the means specified in 4.12 shall show no visible leakage of water from the body or joints after a time period of 15_0^{+1} min and the water needed to maintain the level shall not be greater than $0,04 \text{ l/m}^2$ of internal surface area. The pressure shall be $(50 \pm 2) \text{ kPa}$ for manholes and

EN 295-6:2013 (E)

inspection chambers up to 5 m in depth. Where required for deeper manholes, the test pressure shall be equivalent to depth and the appropriate sections shall be marked accordingly.

4.12 Joint systems

Chamber rings and raising pieces can be joined by means of dimensional jointing systems in accordance with EN 295-1:2013, 6.4 or by adaptors as specified in EN 295-4:2013.

5 Common requirements for manholes and inspection chambers**5.1 Reaction to fire**

Where the use of vitrified clay manholes or inspection chambers is subject to national regulatory requirements on reaction to fire, their reaction to fire performance shall be declared. Vitrified clay manholes or inspection chambers with their joints in use are classified as Class A1 without the need for testing (CWT) in accordance with the relevant Commission decision¹⁾.

NOTE 1 Vitrified clay, as a homogeneously distributed material for these products, is considered as material of known and stable performance with respect to the reaction to fire performance as it does not consist of any organic material and consequently does not contribute to the fire. Under this condition it may be considered as the Class A1 material.

NOTE 2 The class of reaction to fire performance of vitrified clay manholes and inspection chambers with their joints is regarded as the class for the constituent material (i.e. vitrified clay).

Conversely, where use of this product is not subject to national regulatory requirements on reaction to fire, either the Class A1 (see above) or Class F (see Note 3) may be declared.

NOTE 3 Class F according to EN 13501-1 is equivalent to "No Performance Determined" (NPD).

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5.2 Durability

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Vitrified clay manholes and inspection chambers for drains and sewers are products of known and stable performance for defined end use applications with respect to their established durability for which experience has been accumulated over a long period of time. Durability of crushing strength is ensured by meeting the requirements of 4.10.

Durability of tightness is ensured by meeting the requirements of EN 295-1:2013, 6.5, 6.6 and 6.7.

5.3 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonised test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction web site on EUROPA accessed through: <http://ec.europa.eu/enterprise/construction/cpd-ds/>.

1) See Decision of the Commission 96/603/EC of 1996-10-04 (see OJEU L 267 of 1996-10-19), as twice amended by 2000/605/EC of 2000-09-26 (see OJEU L 258 of 2000-10-12) and by 2003/424/EC of 2003-06-06 (see OJEU L 144 of 2003-06-12).

6 Designation

Where required for specification and documentation purposes, the following designation shall be used for manholes and inspection chambers:

- Block 1: Name of product (e.g. inspection chamber, manhole ring, raising piece or other jointable component);
- Block 2: Standard number (EN 295-6);
- Block 3: Individual item block:
 - Block 3.1: Nominal size of inspection chamber, manhole ring, raising piece or other jointable component and dimensional jointing system (e.g. DN 1200/C),
 - Block 3.2: Nominal size of pipeline connections and dimensional joint systems (e.g. 150/G).

Example of the designation of a vitrified clay manhole rings according to EN 295-6 with a nominal size of DN 1200, joint system C with a DN 150 connection with joint system G:

EXAMPLE Manhole ring — EN 295-6 — DN 1200/C — 150/G

7 Marking

7.1 Manhole and inspection chamber components

Vitrified clay manholes and inspection chamber components shall be marked with the following as applicable:

- EN 295-6 or EN 295-1 (if clay pipes are used as manhole components);
- manufacturers identification;
- date of manufacturing;
- nominal size (DN) of manhole or inspection chamber;
- nominal size (DN) of pipeline connection components;
- joint system of manhole and inspection chamber sections;
- joint system of pipeline connections with their crushing strength or class number;
- crushing strength of manhole and inspection chamber components, FN, in kN/m;
- design depth if greater than 5 m.

Marking shall be indelible and wherever practicable impressed before firing.

NOTE 1 Because the marking is impressed before firing wherever practical, the marking of crushing strength is carried out as "FN" for better legibility instead of the symbol " F_N ", as used in the standard.

NOTE 2 Where CE marking covers some of the marking requirements of this clause, such requirements need not be repeated here.