BS EN 295-6:2013

BSI Standards Publication

Vitrified clay pipes systems for drain and sewers

Part 6: Requirements for components of manholes and inspection chambers

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 295-6:2013. It supersedes BS EN 295-6:1996 and, together with BS EN 295-1:2013, BS EN 295-2:2013, BS EN 295-4:2013, BS EN 295-5:2013, and BS EN 295-7:2013, it supersedes BS EN 295-10:2005, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/505, Wastewater engineering.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2013.

ISBN 978 0 580 70651 6

ICS 23.040.50; 91.140.80; 93.030

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2013.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 295-6

February 2013

ICS 93.030

Supersedes EN 295-10:2005, EN 295-6:1995

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.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 295-6:2013: E

Contents

Page

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.

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.

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^{+1}_{0} min and the water needed to maintain the level shall not be greater than 0,04 l/m^2 of internal surface area. The pressure shall be (50 ± 2) kPa for manholes and

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 decision[1)].

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).

5.2 Durability

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.

7.2 Joints

All pipeline joint components supplied as separate components shall be marked to identify the manufacturer and the joint system.

8 Evaluation of conformity

8.1 General

Products manufactured to this standard shall be subjected to evaluation of conformity procedures as follows:

a) initial type testing; and

b) factory production control by the manufacturer, including product assessment.

8.2 Initial type testing

Vitrified clay manhole and inspection chamber components shall be subjected to initial type testing and type testing according to EN 295-2:2013, 5.2, to show conformity with this European Standard.

8.3 Factory production control (FPC)

Vitrified clay manhole and inspection chamber components shall be subjected to factory production control according to relevant sub-clauses and tables of EN 295-2:2013, 5.3, to ensure that the declared performance of each stated characteristic is maintained.

Annex A
(informative)

Examples of manholes and inspection chambers

A.1 Manhole

Figure A.1 shows an example of a manhole according to this standard also using other components.

Key

1 cover slab (reinforced concrete, not covered by this standard)
2 chamber ring
3 benching (not covered by this standard)
4 socket for connecting pipe
5 channel
6 manhole bottom section
7 reducing slab (e.g. reinforced concrete not covered by this standard)
8 concrete (not covered by this standard)
9 circular vitrified clay base plate

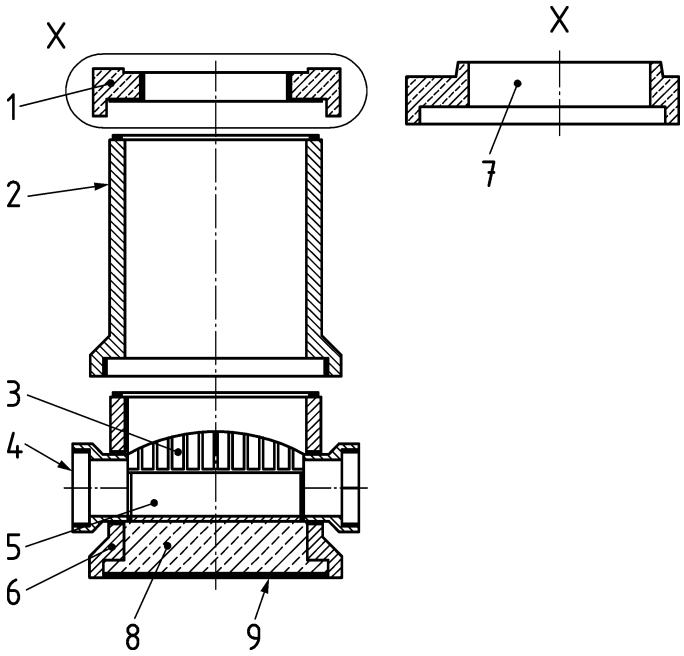
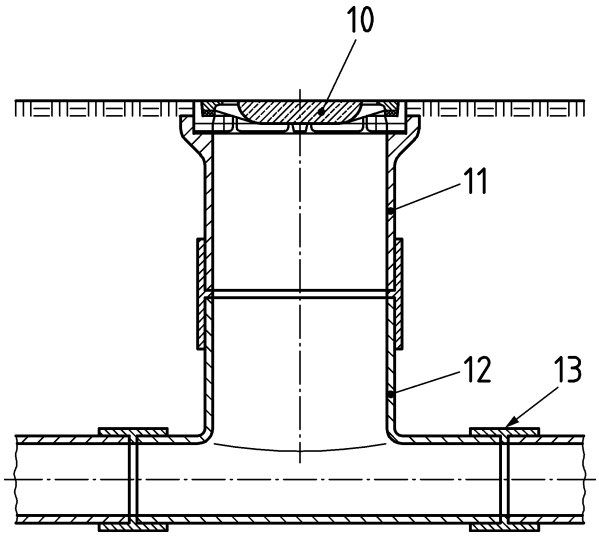


Figure A.1— Example of manhole construction

A.2 Inspection chamber

Figure A.2 shows examples of vitrified clay components used to form an inspection chamber.



Key

10 cover/grating and frame (not covered by this standard)

11 raising piece

12 base unit

13 coupling

Figure A.2 — Example of inspection chamber

Annex B
(informative)

Manhole stability

Stability against earth and groundwater loading, flotation and traffic loads should be demonstrated, if necessary with the aid of static calculation. The material characteristics should be taken from EN 295-1:2013. For vitrified clay manholes in accordance with this standard, evidence of performance by means of a generic static calculation is sufficient for manhole depths up to 10 m (except in loading cases involving flotation) for manholes installed according to the manufacturers' instructions.

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of the EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under the mandate M/118 "Wastewater engineering products", as amended, given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the construction products covered by this annex for the intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

This annex establishes the conditions for the CE marking of the construction products for the uses indicated in Table ZA.1 and shows the relevant clauses applicable.

The scope of this annex is defined by Table ZA.1 and it is the same as in Clause 1.

Table ZA.1 — Relevant clauses and intended uses for vitrified clay manholes and inspection chambers

Construction products: Components of vitrified clay manholes and inspection chambers

Intended uses: For vitrified clay manholes and inspection chambers for buried drain or 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.

Essential characteristics	Requirement clauses in this standard	Levels and/or classes	Notes
Reaction to fire [a]	5.1	A1 to F	A1 classified without need for testing (CWT)
Mechanical resistance, as:			
– Crushing strength	4.6	–	tested according to EN 295-3:2012, Clause 7; expressed as value (in kN/m)
Dimensional tolerances, as:			
— Height	4.3	–	measured according to the requirement clause against the declared nominal value; expressed as “Pass” or “Fail”
— Joint system of chamber rings and inspection chamber raising pieces	4.12		measured according to the requirement clause against the value for the declared system; expressed as “Pass” or “Fail”
— Joint system of pipeline connections with their crushing strength or class number	4.2.2		
— Angle of curvature and radius of channel bends	4.4		measured according to the requirement clause against the declared nominal value; expressed as “Pass” or “Fail”
— Branch angle of channel junctions	4.5		measured according to the requirement clause against the declared nominal value; expressed as “Pass” or “Fail”
Opening size, as:			
— Internal diameter	4.2		measured according to the requirement clause against the declared nominal value; expressed as “Pass” or “Fail”
Watertightness, as:			
— Watertightness of manholes and inspection chambers	4.11	–	tested according to EN 295-3:2012, Clause 26; expressed as “Pass” or “Fail”
Release of dangerous substances	5.3	–	see 5.3
Durability of crushing strength, against:			
— Chemical resistance	4.1 and 4.10	-	tested according to EN 295-3:2012, Clause 13, and expressed in % loss
Durability of tightness, against:			
— Chemical and physical resistance to effluents	EN 295-1:2013. 6.5		tested according to EN 295-3:2012, Clause 23, and expressed as "Pass" or "Fail"
— Thermal cycling stability	EN 295-1:2013. 6.6		tested according to EN 295-3:2012, 24.1, and expressed as "Pass" or "Fail"
— Long term stability	EN 295-1:2013. 6.7		tested according to EN 295-3:2012, 24.2, and expressed as "Pass" or "Fail"

[a] Of the constituent material, i.e. vitrified clay.

The requirement on a certain characteristic is not applicable in those Member States (MSs) where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products on the market of these MSs are not obliged to determine nor declare the performance of their products with regards to this characteristic and the option "No performance determined" (NPD) in the information accompanying the CE marking (see ZA.3) may be used.

ZA.2 Procedures for the attestation of conformity of vitrified clay manholes and inspection chambers

ZA.2.1 Systems of attestation of conformity

The system of attestation of conformity of components of vitrified clay manholes and inspection chambers indicated in Table ZA.1, in accordance with the Decision of the Commission 97/464/EC of 1997-06-27 (*see OJEU L 198 of 1997-07-25*), as amended by 2004/663/EC of 2004-09-20 (*see OJEU L 302 of 2004-09-29*), as given in Annex 3 of the mandate M/118 “Wastewater engineering products”, is shown in Table ZA.2 for the indicated intended use.

Table ZA.2 — Systems of attestation of conformity

Products	Intended uses	Level(s) or class(es)	Attestation of conformity systems
manholes and inspection chambers	To be used on carriageways, parking areas, hard shoulders and outside buildings	–	4
	For use(s) when subject to regulations on reaction to fire	A1*, A2*, B*, C* A1**, A2**, B**, C**, D, E (A1 to E)***, F	1 3 4
System 1: See Directive 89/106/EEC, Annex III.2.(i), without audit testing of samples. System 3: See Directive 89/106/EEC, Annex III.2.(ii), second possibility. System 4: See Directive 89/106/EEC, Annex III.2.(ii), third possibility.			
* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material). ** Products/materials not covered by footnote (*). *** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC).			

NOTE 1 Components of manholes and inspection chambers are considered to fall within the scope of the decision.

NOTE 2 The attestation of conformity systems 1 and 3 with regard to installations of the products in areas subject to reaction to fire regulations as given in Table ZA.2 is not applicable because the material used for these products is deemed to satisfy requirements on the material not contributing to fire and which allows the reaction to fire performance of these products to be declared under system 4 (Class A1 without the need of testing).

The attestation of conformity of the products in Table ZA.1 shall be based on the evaluation of conformity procedures indicated in Table ZA.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3 — Assignment of evaluation of conformity tasks for vitrified clay manholes and inspection chambers under system 4

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	8.3
	Initial type testing by the manufacturer	All characteristics of Table ZA.1 relevant for the intended use	8.2

ZA.2.2 EC declaration of conformity

When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity (i.e. EC declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking;

NOTE 2 Where some of the information required for the declaration is already given in the CE marking, it does not need to be repeated.

— provisions to which the product conforms (i.e. Annex ZA of this European Standard) and a reference to the ITT report(s) and factory production control records (if appropriate);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The above mentioned declaration shall be presented in the language or languages accepted in the Member State in which the product is intended to be used.

ZA.3 CE marking

ZA.3.1 General

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol shall be in accordance with Directive 93/68/EEC and the accompanying information shall be shown as indicated in ZA.3.2 and ZA.3.3.

ZA.3.2 CE marking on the product

The following information shall be affixed together with the CE marking symbol on each product:

a) manufacturer's name or identifying mark;

b) last two digits of the year in which the marking was affixed;

c) reference to this European Standard;

NOTE Pipes can be used as chamber rings and raising pieces. If vitrified clay pipes are used for chamber rings and raising pieces, they can be marked according to EN 295-1.

d) description of the product as:

   1) nominal size(s),

   2) joint system(s);

e) performance of the following characteristic as listed in Table ZA.1:

   1) crushing strength (F_N).

Figure ZA.1 gives an example of the CE marking to be given on the product (*e.g. chamber ring)*.

CE	*CE conformity marking symbol given in Directive 93/68/EEC*
AnyCo Ltd 13	*Name or identifying mark of the manufacturer* *Last two digits of the year in which the marking was affixed*
EN 295-6 DN 1200/C – 150/G	*No. of European Standard* *Description of the product*
FN 120	*Information on essential characteristics*

Figure ZA.1 — Example of CE marking on the product for a chamber ring

ZA.3.3 CE marking in the accompanying documents

In addition to the CE marking on the product, the following information shall be given together with the CE marking symbol in the commercial documents (e.g. delivery note), accompanying the products:

a) name or identifying mark and the registered address of the manufacturer;

b) last two digits of the year in which the marking was affixed;

c) reference to the European Standard and its year of publication (EN 295-6:2013 or EN 295-1:2013);

d) description of the product as:

   1) name of product,

   2) nominal size(s),

3) joint system(s);

e) performance of the following characteristics, listed in Table ZA.1, which are to be declared for the relevant intended uses and, where relevant, expressed as “Pass” for the pass/fail requirements (where necessary), or “NPD“ (i.e. No performance determined), namely for:

1) reaction to fire expressed as A1;

2) mechanical resistance as crushing strength (F_N) in kN/m;

3) dimensional tolerances and opening size: internal diameter, height of chamber ring or raising piece, angle of curvature and radius of channel bends and branch angles of channel junctions and joint system(s) of chamber ring, raising piece or pipe connection, expressed as "Pass", where applicable;

4) watertightness of assembled components of manholes and inspection chambers;

5) release of dangerous substances, see 5.3;

6) durability

i) of crushing strength against chemical resistance,

ii) of tightness against chemical and physical resistance to effluent, thermal cycling stability, long term thermal stability.

The “No performance determined” (NPD) option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State(s) of destination.

Figure ZA.2 gives an example of the CE marking to be given in the commercial documents accompanying the products (*e.g. chamber section)*.

CE		*CE conformity marking symbol given in Directive 93/68/EEC*
AnyCo Ltd, (*P.O. Box 21, B-1050)* 13		*Name or identifying mark and registered address of the manufacturer.* *Last two digits of the year in which the marking was affixed*
EN 295-6:2013 Vitrified clay chamber ring for manholes for drains and sewers buried in ground DN 1200/C – 150/G		*No. of European Standard and date of its publication* *Description of the product and its intended use and* *Designation of the product*
Reaction to fire, as class	A1	*Information on mandated essential characteristics*
Crushing strength (FN)	120 kN/m	
Opening size, as		
— Internal diameter (1170 mm)	Pass	
Dimensional tolerances, as:		
— Height (2 m)	Pass	
— Joint system of chamber ring		
Watertightness	Pass	
Release of dangerous substances	NPD	
Durability of crushing strength, against		
— Chemical resistance	0,15 % loss	
Durability of tightness, against		
— Chemical and physical resistance to effluent	Pass	
— Thermal cycling stability	Pass	
— Long term thermal stability	Pass	

Figure ZA.2 — Example of CE marking in the accompanying documents

Bibliography

[1] EN 752:2008, *Drain and sewer systems outside buildings*

[2] EN 295-4:2013, *Vitrified clay pipes systems for drain and sewers — Part 6: Requirements for components of manholes and inspection chambers*

[3] EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™