



SLOVENSKI STANDARD

SIST EN 295-6:1996

01-december-1996

Keramične cevi, fazonski kosi in spoji za odvod odpadne vode in kanalizacijo - 6. del: Zahteve za keramične vstopne jaške

Vitrified clay pipes and fittings and pipe joints for drains and sewers - Part 6: Requirements for vitrified clay manholes

Steinzeugrohre und Formstücke sowie Rohrverbindungen für Abwasserleitungen und -kanäle - Teil 6: Anforderungen für Steinzeugschächte

Tuyaux et accessoires en gres et assemblages de tuyaux pour les réseaux de branchement et d'assainissement - Partie 6: Prescriptions pour les regards en gres

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Ta slovenski standard je istoveten z: EN 295-6:1995

ICS:

23.040.50	Cevi in fitingi iz drugih materialov	Pipes and fittings of other materials
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

SIST EN 295-6:1996

en

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EUROPEAN STANDARD

EN 295-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1995

ICS 23.040.30; 23.040.50

Descriptors: sanitation , water removal, water pipelines, pipes: tubes, accessories, sandstone products, inspection openings, specifications, designation, marking

English version

**Vitrified clay pipes and fittings and pipe joints for
drains and sewers - Part 6: Requirements for
vitrified clay manholes**

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

Steinzeugrohre und Formstücke sowie
Rohrverbindungen für Abwasserleitungen und
-kanäle - Teil 6: Anforderungen für
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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Ref. No. EN 295-6:1995 E

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 165 "Waste water engineering" of which the secretariat is held by DIN.

The other parts of this Standard comprise:-

- Part 1: Requirements
- Part 2: Quality control and sampling
- Part 3: Test methods
- Part 4: Requirements for special fittings, adaptors and compatible accessories
- Part 5: Requirements for perforated vitrified clay pipes and fittings
- Part 7: Requirements for vitrified clay pipes and joints for pipe jacking.

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 April 1996, and conflicting national standards shall be withdrawn at the latest by April 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This Standard specifies the requirements for components for vitrified clay manholes and inspection shafts. These are for use with flexibly jointed vitrified clay pipes and fittings manufactured to EN 295-1 and where appropriate the components are specified to EN 295-1.

Where this standard provides for different systems of jointing, different heights, different strength classes and different channels, the specifiers/purchasers may select according to their requirements.

NOTE : Where reference is made to clauses in EN 295-1 : 1991, EN 295-2 : 1991 or EN 295-3 : 1991 this is clearly stated.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 295-1	1991	Vitrified clay pipes and fittings and joints for drains and sewers Part 1 : Requirements
EN 295-2	1991	Vitrified clay pipes and fittings and joints for drains and sewers Part 2 : Quality control and sampling
EN 295-3	1991	Vitrified clay pipes and fittings and joints for drains and sewers Part 3 : Test methods
EN 295-4	1991	Vitrified clay pipes and fittings and joints for drains and sewers Part 4 : Requirements for special fittings, adaptors and compatible accessories
ISO/DIS 4633	1986	Rubber seals - Joint rings for water supply, drainage and sewerage pipelines - Specification for materials

3 Definitions

For the purposes of this standard, the following definitions and those of EN 295-1 apply:

3.1 Vitrified clay manhole

A vertical construction from one or more circular vitrified clay components, and other components, constructed as part of a sewerage or drainage system by which personnel have access and equipment can be brought in.

Non circular cross-sections shall comply with the requirements of this standard.

3.2 Vitrified clay inspection shaft

A vertical construction from one or more circular vitrified clay components, and other components, constructed as part of a sewerage or drainage system by which equipment can be brought in.

Non circular cross-sections shall comply with the requirements of this standard.

4 Requirements

4.1 Materials and manufacture

4.1.1 Vitrified clay

All vitrified clay components of manholes and inspection shafts shall be in accordance with 2.1 of EN 295-1 : 1991.

4.1.2 Vulcanised rubber sealing materials

Vulcanised rubber sealing materials shall comply with ISO/DIS 4366 : 1986. Where vulcanised rubber sealing elements are permanently attached to vitrified clay components of manholes and inspection shafts they shall fulfil the additional requirement of 3.1.1 of EN 295-1 : 1991 when tested in accordance with clause 14 of EN 295-3 : 1991.

4.1.3 Polyurethane sealing materials

Polyurethane sealing materials shall comply with the requirements as specified in table 7 of EN 295-1 : 1991 when tested in accordance with clause 15 of EN 295-3 : 1991.

4.1.4 Polypropylene couplings

Polypropylene couplings used for pipeline connections into the manholes and inspection shafts shall meet the requirements of EN 295-1 as applicable.

4.1.5 Materials of other components

Components of other materials which are used with vitrified clay manholes and inspection shafts shall comply with - insofar as these are available - the relevant transposed European Standards, European Technical Approvals or the manufacturers' declared specifications, which shall also include requirements for long term behaviour.

4.1.6 Manufacture

Vitrified clay manholes and inspection shafts shall be free from such defects as would impair their function when in service.

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Visual defects, such as missing glaze, unevenness, creasings in the transition from pipe to socket and slight surface damage are acceptable, providing the impermeability, durability and flow characteristics of the manholes and inspection shafts are unaffected.

Vitrified clay components may be unglazed or glazed on the interior and/or exterior. When glazed they need not be glazed on the jointing surfaces of the spigots and sockets.

Vitrified clay components may be completed by fixing fired parts together.

Vitrified clay components may be surface treated after firing.

4.2 Minimum bore

4.2.1 Sections

The minimum permissible bore of sections shall be as specified in 2.2 of EN 295-1 : 1991.

4.2.2 Pipeline connections

Pipeline connections from or to manholes shall be as specified in 2.2 of EN 295-1 : 1991.

4.3 Height

The nominal height of manhole and inspection shaft sections shall be as specified by the manufacturer. The preferred heights of manhole section are 250, 500, 750, 1000, and 2000 mm. The limits of tolerance on this height shall be $\pm 1\%$ measured to the nearest whole mm with minimum limits of tolerance of ± 10 mm.

4.4 Angle of curvature and radius of channel bends

The tolerance on the angle of curvature and radius of channel bends incorporated into manholes shall be as specified in 2.7 of EN 295-1:1991.

4.5 Branch angles of channel junctions

The tolerance on the branch angles of channel junctions incorporated into manholes shall be as specified in 2.8 of EN 295-1:1991.

4.6 Crushing strength (FN)

When tested in accordance with Clause 4 of EN295-3:1991, the crushing strength (FN) of manhole and inspection shaft sections shall be as Class L in table 5 of EN 295-1:1991.

NOTE: For permanent structural performance see annex C.

4.7 Bending tensile strength

Where whole manhole and inspection shaft sections are not available a bending tensile strength test in accordance with 2.10 of EN 295-1:1991 may be carried out on broken manhole or inspection shaft sections to determine the crushing strength of a section.

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 as specified in 2.12 of EN 295-1:1991.

4.9 Fatigue strength under pulsating load

Vitrified clay manhole and inspection shaft sections are resistant to fatigue from pulsating loads. For special circumstances of application the resistance to fatigue may be verified by the use of the test procedure specified in clause 8 of EN 295-3:1991.

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4.10 Chemical resistance

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4.10.1 Vitrified clay manholes and inspection shafts

Vitrified clay manhole and inspection shaft components are resistant to chemical attack. For special circumstances of application the chemical resistance of vitrified clay manhole components may be determined by the use of the test procedure specified in clause 10 of EN 295-3:1991.

4.10.2 Other materials

Components of other materials which are used with vitrified clay manholes and inspection shafts shall comply with - insofar as these are available - the relevant transposed European Standards, European Technical Approvals or the manufacturers' declared specifications, which shall also include requirements for long term behaviour.

4.11 Water impermeability

When subjected to the test conditions specified in annex A manholes and inspection shafts shall not show visible leakage of water from the body or joints after a time period of 15 ± 0.1 min. The water addition needed to maintain the level shall not be greater than 0.07 l/m^2 of internal surface area per 15 minutes without leakage. The pressure shall be (50 ± 2) kPa for manholes and inspection shafts up to 5m in depth. Where required for deeper manholes the test pressure shall be proportional to depth and the appropriate sections shall be marked accordingly.

4.12 Infiltration

Two assembled manhole and inspection shaft sections shall be tested to an external water pressure of (50 ± 2) kPa for 15 ± 0.1 min and show no water passing to the interior of the sections.

4.13 Jointing systems of sections and pipeline connections

Manholes and inspection shafts sections should be jointed by means of dimensional jointing systems permitted in accordance with 3.6 of EN 295-1 : 1991 or by adaptors as specified in EN 295-4 : 1991.

5 Sampling

Sampling for vitrified clay manhole and inspection shaft components shall be in accordance with table 1 where applicable.

Sampling is specified in EN 295-2 : 1991 in which the specification clause numbers refer to EN 295-1 :1991. Table 1 gives the cross-reference between the relevant corresponding clauses of EN 295-6 and EN 295-1 :1991 and the applicable EN 295-2 : 1991 clause numbers.

Table 1 : Sampling

Requirement	Clause of EN 295-6 : 1995	Corresponding Clause of EN 295-1 : 1991	Sampling Clause of EN 295-2 : 1991
Vitrified clay	4.1.1	2.1	3.1
Rubber sealing materials	4.1.2	3.1.1	3.11
Polyurethane sealing materials	4.1.3	3.1.2	3.10
Minimum bore	4.2	2.2	3.5
Height	4.3	2.3	3.5
Angle of curvature and radius of channel bends	4.4	2.7	3.5
Branch angles of channel junctions	4.5	2.8	3.5
Crushing strength	4.6	2.9	3.2
Bending tensile strength	4.7	2.10	3.4
Bond strength of adhesive	4.8	2.12	3.7 or 3.8
Fatigue strength	4.9	2.13	3.4
Chemical resistance	4.10.1	2.15	3.4
Pipeline connections	4.13	3.6	3.2 or 3.12
Infiltration	4.12	-	3.13.3

6 Designation

The following shall be used for the designation of manholes and inspection shafts :

Block 1	Description
Block 2	EN 295-6
Block 3	Individual item block
Block 3.1	Nominal size of manhole or inspection shaft and dimensional jointing system
Block 3.2	Nominal size of pipeline connection and dimensional jointing system

Example MANHOLE EN295-6 - DN1200/G -150/G

