

SVENSK STANDARD

SS-EN 295-3:2012

Fastställt/Approved: 2012-01-16
Publicerad/Published: 2012-01-18
Utgåva/Edition: 2
Språk/Language: engelska/English
ICS: 23.040.50; 93.030

Avlopp – Rör och rördelar i glaserad lera – Del 3: Provningsmetoder

Vitrified clay pipe systems for drains and sewers – Part 3: Test methods

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Denna standard ersätter SS-EN 295-3, utgåva 1 och SS-EN 295-3/A1, utgåva 1.

The European Standard EN 295-3:2012 has the status of a Swedish Standard. This document contains the official version of EN 295-3:2012.

This standard supersedes the Swedish Standard SS-EN 295-3, edition 1 and SS-EN 295-3/A1, edition 1.

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Denna standard är framtagen av kommittén för Avloppsteknik, SIS/TK 198/AG 165.

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EUROPEAN STANDARD

EN 295-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2012

ICS 93.030

Supersedes EN 295-3:1991

English Version

Vitrified clay pipe systems for drains and sewers - Part 3: Test methods

Systèmes de tuyaux et accessoires en grès vitrifié pour les collecteurs et branchements - Partie 3: Méthodes d'essai

Steinzeugrohrsysteme für Abwasserleitungen und -kanäle - Teil 3: Prüfverfahren

This European Standard was approved by CEN on 19 November 2011.

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.

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

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Foreword

This document (EN 295-3:2012) has been prepared by Technical Committee CEN/TC "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 July 2012, and conflicting national standards shall be withdrawn at the latest by January 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 295-3:1991.

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

- a) test method for resistance to high pressure water jetting added;
- b) test method for water absorption added;
- c) test methods from the previous parts 4, 5, 6 and 7 have been included in this European Standard;
- d) 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;*
- *Part 7: Requirements for pipes and joints for pipe jacking.*

This European Standard takes into account the requirements of EN 476.

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, 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.

SS-EN 295-3:2012 (E)

1 Scope

This European Standard specifies requirements for testing of products manufactured from vitrified clay and other materials specified in the following standards:

- pipes, fittings and joints according to EN 295-1;
- adaptors, connectors and flexible couplings according to EN 295-4;
- perforated pipes and fittings according to EN 295-5;
- components of manholes and inspection chambers according to EN 295-6;
- pipes and joints for pipe jacking according to EN 295-7.

2 Normative references

The following referenced documents are indispensable for the application 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 295-1:2012, *Vitrified clay pipe systems for drains and sewers — Part 1: Requirements for pipes, fittings and joints*

EN 295-4:2012, *Vitrified clay pipe systems for drains and sewers — Part 4: Requirements for adaptors, connectors and flexible couplings*

EN 295-5:2012, *Vitrified clay pipe systems for drains and sewers — Part 5: Requirements for perforated pipes and fittings*

EN 295-6:2012, *Vitrified clay pipe systems for drains and sewers — Part 6: Requirements for components of manholes and inspection chambers*

EN 295-7:2012, *Vitrified clay pipe systems for drains and sewers — Part 7: Requirements for pipes and joints for pipe jacking*

EN ISO 527-2:1996, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994)*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868)*

EN ISO 1133:2005, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:2005)*

CEN/TR 14920:2005, *Jetting resistance of drain and sewer pipes — Moving jet test method*

3 Terms and definitions

For the purposes of this European Standard, the relevant terms and definitions specified in EN 295-1:2012, EN 295-4:2012, EN 295-5:2012, EN 295-6:2012 and EN 295-7:2012 apply.

4 Symbols and abbreviations

Symbol	Description
A	Outside diameter of the spigot moulding
a_M	Measurement from inside of pipe barrel to mid point of inside of socket fairing, in millimetres (continuity of invert test).
a_p	Width of top bearer, in millimetres (crushing strength test and bending tensile strength test).
B	Nominal length of external barrel of pipe unobstructed by socket shape and/or jointing configuration, in millimetres (crushing strength test).
B_t	Distance from the outside surface of the spigot moulding to the internal surface of the pipe at one point at which the outside diameter of the spigot moulding (A) was measured, in millimetres (continuity of invert test).
b	Specimen width, in millimetres (fatigue strength test).
C_t	Distance from the outside surface of the spigot moulding to the internal surface of the pipe at the opposite end to B_t of the diameter measured as the outside diameter of the spigot (A), in millimetres (continuity of invert test).
c	Concentration of solution, in moles per litre (chemical resistance tests).
c_i	Factor for the upper (0,4) or lower (0,1) limit of the load (fatigue strength test).
D	Inside diameter of the socket moulding
DN	Nominal size - a numerical designation of size which is a convenient round number equal to or approximately equal to the internal diameter, in millimetres (bending moment resistance test).
D_S	Deviation from straightness
d_1	Barrel internal diameter, in millimetres (bending tensile strength test).
E_t	Distance from the internal surface of the socket moulding to the internal surface of the pipe at one point at which the inside diameter of the socket moulding (D) was measured, in millimetres (continuity of invert test).
F_i	Force for upper and lower limit, in kilonewtons (fatigue strength test).
F_N	Crushing strength, in kilonewtons per metre.
F_t	Distance from the internal surface of the socket moulding to the internal surface of the pipe at the opposite end to E_t , of the diameter measured as the inside of the socket moulding (D), in millimetres (continuity of invert test)
G_m	Mean annular gap, in millimetres (continuity of invert test).
IRHD	International Rubber Hardness Degrees of bearing strips/facings, in degrees IRHD (crushing strength test).
k_s	Hydraulic roughness in millimetres
l_4	Centre line distance between supports, in millimetres (fatigue strength test).
L_N	Nominal length of the pipe
L_T	Test length
M	Bending moment resistance, in kilonewton metres (bending moment resistance test).
M_b	Bending moment, in Newton millimetres (bending tensile strength test).
M_p	Mean particle size, in millimetres (abrasion resistance test).