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Avlopp – Klassificering och tekniska egenskaper för renovering och reparation av avloppsledningar

Classification and characteristics of techniques for renovation, repair and replacement of drains and sewers

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Denna standard ersätter SS-EN 15885:2010, utgåva 1.

The European Standard EN 15885:2018 has the status of a Swedish Standard. This document contains the official version of EN 15885:2018.

This standard supersedes the SS-EN 15885:2010, edition 1.

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EUROPEAN STANDARD

EN 15885

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2018

ICS 93.030

Supersedes EN 15885:2010

English Version

Classification and characteristics of techniques for renovation, repair and replacement of drains and sewers

Classification et caractéristiques des techniques de rénovation, de réparation et de remplacement des réseaux d'évacuation et d'assainissement

Klassifizierung und Eigenschaften von Techniken für die Renovierung, Reparatur und Erneuerung von Abwasserkanälen und -leitungen

This European Standard was approved by CEN on 25 June 2018.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 15885:2018) has been prepared by Technical Committee CEN/TC 165 "Waste water 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 May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15885:2010.

The main changes with respect to EN 15885:2010 are:

- a) new Clause 6 "Classification of trenchless replacement techniques for drains and sewers " added;
- b) definitions adapted to EN ISO 11295:2017;
- c) Table 1 to Table 9 supplemented by features "Installation equipment", "Surface area" and "Excavation";
- d) images partly adapted to EN ISO 11295:2017;
- e) sequence of sub-clauses 5.7 and 5.8 exchanged;
- f) technique family "Repair with trowelled material" (previous sub-clause 6.4) renamed "Repair with trowelled or moulded material", and distinction between these techniques and Repair by injection clarified by extended text in new 7.2 and 7.4;
- g) editorial changes.

This document refers to existing EN product standards to the extent available for the techniques and materials covered.

It provides an overview of trenchless methods used for renovation and repair of drains and sewers, and for their replacement on the same line, regardless of the material used. In respect of sewer renovation and replacement techniques using plastics materials only, it reproduces definitions and other information (but no requirements) contained in EN ISO 11295. Due to their continuous development the most up-to-date information on these particular techniques may be contained in either this document or EN ISO 11295, whichever is the latest edition.

For management and control of rehabilitation activities in drains and sewers a European Standard EN 14654-2, *Management and control of operational activities in drain and sewer systems outside buildings — Part 2: Rehabilitation* is available.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This European Standard specifies a system for the classification of trenchless techniques for renovation, repair and replacement on the same line of drains and sewers outside buildings, operated under gravity or pressure, including pipes, connections and manholes. It defines and describes families of techniques and their different generic methods and materials used.

This European Standard does not apply for replacement by open trenching according to EN 1610 and trenchless construction and testing of drains and sewers as new construction off-the-line of the existing drain or sewer according to EN 12889.

This European Standard does not apply for the specification of requirements for specific products.

For each technique family it lists relevant existing standards, materials and applications and outlines characteristics including installation aspects, structural and hydraulic capabilities and site impact.

This standard does not apply to any work required on the existing pipe prior to renovation, repair or replacement.

This European Standard provides information needed to determine viable options and for identification of the optimal technique with regard to a given set of renovation, repair or replacement objectives.

NOTE It is the responsibility of the designer to choose and design the renovation, replacement and repair systems.

It does not specify the calculation methods to determine, for each viable technique, the required amount of material needed to secure the desired performance of the pipeline to be rehabilitated.

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 752, *Drain and sewer systems outside buildings — Sewer system management*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

3.1 rehabilitation

measures for restoring or upgrading the performance of existing pipeline systems, including *renovation* (3.2), *repair* (3.3) and *replacement* (3.4)

[SOURCE: EN ISO 11295:2017, 3.1.1, modified – term numbers adapted to numbering of EN 15885]

3.2

renovation

work incorporating all or part of the original fabric of the pipeline, by means of which its current performance is improved

[SOURCE: EN ISO 11295:2017, 3.1.2]

3.3

repair

rectification of local damage

[SOURCE: EN ISO 11295:2017, 3.1.3]

3.4

replacement

construction of a new pipeline, on or off the line of an existing pipeline, where the function of the new pipeline system incorporates that of the old

[SOURCE: EN ISO 11295:2017, 3.1.4]

3.5

technique family

grouping of *renovation* (3.2) or trenchless replacement techniques which are considered to have common characteristics for standardization purposes

[SOURCE: EN ISO 11295:2017, 3.2.1, modified – term numbers adapted to numbering of EN 15885]

3.6

lining

process of renovating an existing pipeline by introducing material on the inside

3.7

liner

lining pipe (3.8) after installation

[SOURCE: EN ISO 11295:2017, 3.2.3, modified – term numbers adapted to numbering of EN 15885]

3.8

lining pipe

pipe inserted for *renovation* (3.2) purposes

[SOURCE: EN ISO 11295:2017, 3.2.2, modified – term numbers adapted to numbering of EN 15885]

3.9

lining system

lining pipe (3.8) and all relevant fittings inserted into an existing pipeline for the purposes of *renovation* (3.2)

[SOURCE: EN ISO 11295:2017, 3.2.4, modified – term numbers adapted to numbering of EN 15885]

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3.10

lining with continuous pipes

lining with pipe made continuous prior to insertion, where the diameter of the *lining pipe* (3.8) remains unchanged

[SOURCE: EN ISO 11295:2017, 3.2.5, modified – term numbers adapted to numbering of EN 15885]

3.11

lining with close-fit pipes

lining with a continuous pipe (3.10) for which the cross-section is reduced to facilitate installation and reverted after installation to provide a close fit to the existing pipe

[SOURCE: EN ISO 11295:2017, 3.2.6, modified – term numbers adapted to numbering of EN 15885]

3.12

lining with cured-in-place pipes

lining with a flexible tube impregnated with a thermosetting resin, which produces a pipe after resin cure

[SOURCE: EN ISO 11295:2017, 3.2.7]

3.13

lining with discrete pipes

lining with short lengths of pipe which are jointed to form a continuous pipe one by one during insertion

[SOURCE: EN ISO 11295:2017, 3.2.8]

3.14

lining with spirally-wound pipes

lining with a profiled strip, spirally wound to form a continuous pipe after installation

[SOURCE: EN ISO 11295:2017, 3.2.10]

3.15

lining with a rigidly anchored plastics inner layer

lining with a single rigid annulus of structural cementitious grout formed between a plastics inner layer and the host pipe, where the plastics layer is permanently anchored in the grout

[SOURCE: EN ISO 11295:2017, 3.2.13]

3.16

lining with pipe segments

lining with prefabricated segments bonded to the existing pipe, which either have longitudinal joints and cover the whole of the pipe circumference, or cover only part of circumference

[SOURCE: EN ISO 11295:2017, 3.2.14]

3.17

lining with sprayed or cast-in-place material

lining by applying mineral (cement or silicate) or polymeric material, with or without reinforcement, directly onto the inside surface of the host pipe and/or manhole, by manual or mechanical (including robotic) means

3.18

non-stabilizing repair

repair where the materials applied have a sealing effect but do not enhance structural stability

3.19

pipe bursting

on-the-line *replacement* (3.4) method in which an existing pipe is broken by longitudinal splitting or brittle fracture, using a mechanically applied force from within, where the pipe fragments are forced into the surrounding ground and a new pipe of the same, smaller or larger diameter, is simultaneously pulled in

[SOURCE: EN ISO 11295:2017, 3.2.15, modified – term numbers adapted to numbering of EN 15885]

3.20

pipe removal

on-the-line *replacement* (3.4) method, in which the existing pipe is removed by *pipe eating* (3.21) or pipe extraction and a new pipe is installed

[SOURCE: EN ISO 11295:2017, 3.2.16, modified – term numbers adapted to numbering of EN 15885]

3.21

pipe eating

type of *pipe removal* (3.20), where the existing pipe is progressively broken up and removed along with an annulus of the ground immediately surrounding the existing pipe

[SOURCE: EN ISO 11295:2017, 3.2.17, modified – term numbers adapted to numbering of EN 15885]

3.22

stabilizing repair

repair where the materials applied have a sealing effect and can enhance structural stability

3.23

repair by injection

filling of voids in existing pipe and/or surrounding ground, for structural repair or to seal leaks, by injection of grout or resin over all or part of the perimeter of the sewer

Note 1 to entry: Three different methods can be distinguished:

- a) injection directly into a brickwork or masonry pipe structure;
- b) injection of the soil around the pipe;
- c) injection of a crack, joint or lateral connection, with or without the aid of a packer.

3.24

repair with trowelled or moulded material

filling of a damaged area which has been prepared by milling, by introducing a high-viscosity material without pressure and either smoothing it with a trowel or confining it within temporary formwork

3.25

repair with cured-in-place patch

repair by local lining with a flexible tube impregnated with a thermosetting resin which produces a short length of pipe after resin cure