

**Üldnõuded komponentidele, mida  
kasutatakse isevoolusüsteemide  
äravoolutorudes, drenaazitorudes ja  
kanalisatsioonitorudes**

General requirements for components used in  
discharge pipes, drains and sewers for gravity  
systems

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 476:1999 sisaldab Euroopa standardi EN 476:1997 ingliskeelset teksti.	This Estonian standard EVS-EN 476:1999 consists of the English text of the European standard EN 476:1997.
Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.	This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

<b>Käsitlusala:</b> Käesolev Euroopa standard määrab kindlaks üldnõuded selliste komponentide kohta, nagu torud, liitmikud ja luugid koos nende vastavate ühendustega. Standard kehtib komponentide kohta, mis on ette nähtud kasutamiseks äravoolutorudes, drenaaëitorudes ja kanalisatsioonitorudes, mis funktsioneerivad iseveolsete süsteemidena, kus mistahes esineda võiva surve maksimaalväärtus on 40 kPa. Käesolev Euroopa standard esitab üldalused tootestandardite tegemiseks või läbivaatamiseks. Standard ei kehti toodete hindamise kohta.	<b>Scope:</b>
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ICS 93.030

**Võtmesõnad:** mõõtmed, märgistus, reovesi, sanitaar-profülaktilised meetmed, tehnilised nõuded, testimine, torustik, töomaduste hindamine, vee ärajuhtimine, veetorustikud, veevool, ühendus

ICS 13.060.30

Descriptors: Drains, sewers, components, requirements.

**English version**

**General requirements for components used  
in discharge pipes, drains and sewers  
for gravity systems**

Prescriptions générales pour les  
composants utilisés dans les réseaux  
d'évacuation, de branchement et  
d'assainissement à écoulement libre

Allgemeine Anforderungen an  
Bauteile für Abwasserkanäle  
und -leitungen für  
Schwerkraftentwässerungssysteme

This European Standard was approved by CEN on 1997-06-14.

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

The European Standards exist 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 Central Secretariat has the same status as the official versions.

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**CEN**

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

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## Foreword

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

This European Standard provides the basis for the preparation or revision of product standards for discharge pipes, drains and sewers operating as gravity systems (see clause 1 "Scope").

Components meeting the requirements of this European standard and in permanent or in temporary contact with water intended for human consumption, will not adversely affect the quality of that water. Therefore this standard does not contravene the EC-Council Directives 75/440, 79/869 and 80/778.

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 January 1998, and conflicting national standards shall be withdrawn at the latest by January 1998.

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

## 1 Scope

This European standard specifies general requirements for components such as pipes, fittings and manholes with their respective joints intended for use in discharge pipes, drains and sewers which operate as gravity systems where any pressure likely to occur is a maximum of 40 kPa.

This European standard provides the general basis for the preparation or revision of product standards. It is not applicable for the evaluation of products.

It is applicable as a reference for drawing up a product specification, if there is no product standard available.

This European standard includes marking, quality control and certification requirements.

This European standard comprises:

- Common requirements for all components;
- Specific requirements for discharge components for use inside buildings or attached to the external surfaces of buildings;
- Specific requirements for components for use in drain and sewer systems.

In product standards combinations of these requirements may be applied where appropriate, eg: for the components buried in ground inside the building structure.

This European standard covers components to be used in conveying in a satisfactory manner:

- domestic waste water;
- rainwater and surface water; and,
- other waste waters (e.g. industrial waste water) that will not damage the components.

This European standard applies to components of circular and other cross sections.

This European standard applies equally to components which are factory-made and to those constructed on site, where applicable.

## 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 standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN ISO 9001

Quality systems – Model for quality assurance in design, development, production, installation and servicing (ISO 9001 : 1994).

EN ISO 9002

Quality systems – Model for quality assurance in production, installation and servicing (ISO 9002 : 1994)



EN 45011

General criteria for certification bodies operating product certification

EN 45012

General criteria for certification bodies operating quality system certification

ISO 48

Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)

### 3 Definitions, symbols and abbreviations

For the purposes of this standard the following definitions apply:

**3.1 external diameter OD:** Mean external diameter of the pipe barrel at any cross section. For pipes with external profiles on the barrels, the external diameter is the maximum diameter when viewed in cross section.

**3.2 factory production control:** Surveillance mode in which a manufacturer performs its own surveillance on the result of its production according to a set of rules formally specified in quality assurance or quality management provision.

**3.3 flexible pipe:** Pipe, the load carrying capacity of which is limited by diametral deformation under load to the ultimate design criteria without breaking or overstressing.

**3.4 gravity system:** System where flow is caused by the force of gravity and where the pipe normally operates partially full.

**3.5 invert:** Lowest point of the internal surface of the barrel of a pipe or channel at any cross section.

**3.6 internal diameter ID:** Mean internal diameter of the pipe barrel at any cross section.

**3.7 joint:** Connection between the adjacent ends of two components including the means of sealing.

**3.8 nominal size DN:** Numerical designation of size of component, which is a convenient integer approximately equal to a manufacturing dimension in mm. This can apply to either the internal diameter (DN/ID) or the external diameter (DN/OD).

**3.9 pipe barrel:** Cylindrical part of the pipe with a uniform cross section excluding socket and spigot.

**3.10 proof load:** Specified test load which a component withstands where the related requirements of the product standard are met.

**3.11 quality control system:** Organizational structure, responsibilities, procedures, processes and resources for implementing quality management.

**3.12 rigid pipe:** Pipe, the load carrying capacity of which is limited by breaking or overstressing, without significant deformation of its cross section.

**3.13 ring stiffness:** Resistance of a pipe to diametral deflection in response to external loading applied along one diametric plane given as follows:

$$S = \frac{E I}{D_m^3}$$

where :

$S$  is the ring stiffness of the pipe in kilonewtons per square metre;

$E$  is the modulus of elasticity in flexure in the circumferential direction in kilonewtons per square metre;

$I$  is second moment of area of the pipe wall in the longitudinal direction, per unit length, in metres to the fourth power per metre;

$D_m$  is the diameter of the neutral axis of the pipe wall, in metres.

**3.14 semi-rigid pipe:** Pipe, the load carrying capacity of which is limited by diametral deformation or by breaking or overstressing.

**3.15 surface water:** Water drained from the surface of buildings, structures or the ground.

**3.16 ultimate load:** Load which causes failure as defined in product standards.