

**Wastewater treatment plants - Part 16:
Physical (mechanical) filtration**

Wastewater treatment plants - Part 16: Physical
(mechanical) filtration

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12255-16:2005 sisaldab Euroopa standardi EN 12255-16:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 25.10.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12255-16:2005 consists of the English text of the European standard EN 12255-16:2005.</p> <p>This document is endorsed on 25.10.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala: This European Standard specifies design principles and performance requirements for tertiary clarification (receiving effluent from secondary treatment) by physical filtration plant at wastewater treatment plants serving more than 50 PT.</p>	<p>Scope: This European Standard specifies design principles and performance requirements for tertiary clarification (receiving effluent from secondary treatment) by physical filtration plant at wastewater treatment plants serving more than 50 PT.</p>
--	--

ICS 13.060.30

Võtmesõnad:

ICS 13.060.30

English Version

Wastewater treatment plants - Part 16: Physical (mechanical) filtration

Stations d'épuration - Partie 16: Filtration physique
(mécanique)

Kläranlagen - Teil 16: Abwasserfiltration

This European Standard was approved by CEN on 28 July 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	5
4.1 General	5
4.2 Process types	6
4.2.1 Granular media filters	6
4.2.2 Microstrainers and drum filters	6
5 Planning	6
6 Process design	7
6.1 Design parameters	7
6.2 Selection of filter media	7
6.2.1 General	7
6.2.2 Granular media filters	8
6.2.3 Microstrainers and drum filters	8
6.3 Cleaning systems	8
6.3.1 General	8
6.3.2 Granular media filters	9
6.3.3 Microstrainers and drum filters	9
6.4 Dimensions	9
6.4.1 General	9
6.4.2 Granular media filters	10
6.4.3 Microstrainers and drum filters	10
6.5 Flow distribution	10
6.5.1 General	10
6.5.2 Granular media filters	10
6.5.3 Microstrainers and drum filters	11
6.6 Construction principles	11
6.6.1 General	11
6.6.2 Granular media filters	11
6.6.3 Microstrainers and drum filters	11
6.7 Mechanical and electrical equipment	12
6.7.1 General	12
6.7.2 Granular media filters	12
6.7.3 Microstrainers and drum filters	12
6.8 Performance monitoring	12
6.9 Additional considerations	13
6.9.1 Maintenance	13
6.9.2 Protection of the equipment	13
6.10 Hazard protection	13
Bibliography	14

Foreword

This European Standard (EN 12255-16:2005) 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 March 2006, and conflicting national standards shall be withdrawn at the latest by March 2006.

It is the sixteenth part prepared by the Working Groups CEN/TC 165/WG 42 and 43 relating to the general requirements and processes for treatment plants for a total number of inhabitants and population equivalents (PT) over 50. EN 12255 with the generic title "Wastewater treatment plants" consists of the following Parts:

- Part 1: General construction principles
- Part 3: Preliminary treatment
- Part 4: Primary settlement
- Part 5: Lagooning processes
- Part 6: Activated sludge process
- Part 7: Biological fixed-film reactors
- Part 8: Sludge treatment and storage
- Part 9: Odour control and ventilation
- Part 10: Safety principles
- Part 11: General data required
- Part 12: Control and automation
- Part 13: Chemical treatment — Treatment of wastewater by precipitation/flocculation
- Part 14: Disinfection
- Part 15: Measurement of the oxygen transfer in clean water in aeration tanks of activated sludge plants
- Part 16: Physical (mechanical) filtration

NOTE For requirements on pumping installations at wastewater treatment plants, provided initially as Part 2 "Pumping installations for wastewater treatment plants", see EN 752-6 "Drain and sewer systems outside buildings — Part 6: Pumping installations.

The parts EN 12255-1, EN 12255-3 to EN 12255-8 and EN 12255-10 and EN 12255-11 were implemented together as a European package (Resolution BT 152/1998).

Differences in wastewater treatment throughout Europe have led to a variety of systems being developed. This European Standard gives fundamental information about the systems; this European Standard has not attempted to specify all available systems.

Detailed information additional to that contained in this European Standard may be obtained by referring to the bibliography.

The primary application is for wastewater treatment plants designed for the treatment of domestic and municipal wastewater.

Physical filtration plant include gravity filters (static-bed or moving-bed types) and sieves (microstrainers and drum filters).

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

1 Scope

This European Standard specifies design principles and performance requirements for tertiary clarification (receiving effluent from secondary treatment) by physical filtration plant at wastewater treatment plants serving more than 50 PT.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1085:1997, *Wastewater treatment — Vocabulary*

EN 12255-1, *Wastewater treatment plants — Part 1: General construction principles*

EN 12255-10, *Wastewater treatment plants — Part 10: Safety principles*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1085:1997 and the following apply.

3.1

granular media filter

bed of filter media which is submerged in either an upflow or downflow of effluent to remove solids within the bed

3.2

drum filter or microstrainer

cylindrical sieve or cloth filter which rotates about a horizontal axis and is partially-immersed in a horizontal flow of effluent to remove solids

4 Requirements

4.1 General

Physical filtration processes can include the following:

- granular media filters;
- sieves such as microstrainers and drum filters.

Filter processes are used to remove fine suspended solids from treated wastewater by mechanical filtration. Where aeration is involved, it is normally limited to air scouring to remove solids accumulation trapped by filtration. Physical filters may also be designed to remove phosphate.