

English Version

Wastewater treatment plants - Part 11: General data required

Stations d'épuration - Partie 11: Informations
générales exigées

Kläranlagen - Teil 11: Erforderliche allgemeine
Angaben

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 165.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

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

Contents

Page

European foreword	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Symbols and abbreviations	6
5 Requirements.....	6
5.1 Contract strategy.....	6
5.2 Provision of loading data	7
5.2.1 General.....	7
5.2.2 Sewerage system	7
5.2.3 Population served.....	7
5.2.4 Significant trades and industries	7
5.2.5 Data from existing wastewater treatment plants	8
5.2.6 Design flows and loads.....	8
5.3 Effluent quality, requirements for the disposal of residues and sludge	9
5.3.1 Effluent quality	9
5.3.2 Requirements for storm water overflow discharge	9
5.3.3 Requirements for the residues from preliminary treatment	9
5.3.4 Requirements for sludge disposal	9
5.4 Site description.....	10
5.4.1 General.....	10
5.4.2 Plans (maps) of the site	10
5.4.3 Existing wastewater treatment plants	10
5.4.4 Ground geology, groundwater and climate	10
5.4.5 Special site constraints	10
5.5 Additional data required	11
5.6 Time schedule	12
5.7 Start-up and guarantee testing	12
5.7.1 Start-up.....	12
5.7.2 Guarantee testing.....	12
5.8 Operational cost information	13
5.9 Documents to be provided by a turn-key contractor or the consulting engineer	13
5.9.1 Complete documents	13
5.9.2 Design options.....	13
5.9.3 Proposed solution.....	13
5.10 Calculation and presentation of costs	14
5.10.1 Construction costs	14
5.10.2 Operational costs	14
5.10.3 Presentation of costs	15
Bibliography	16

European foreword

This document (prEN 12255-11:2021) has been prepared by Technical Committee CEN/TC 165 “Waste water engineering”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12255-11:2001.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

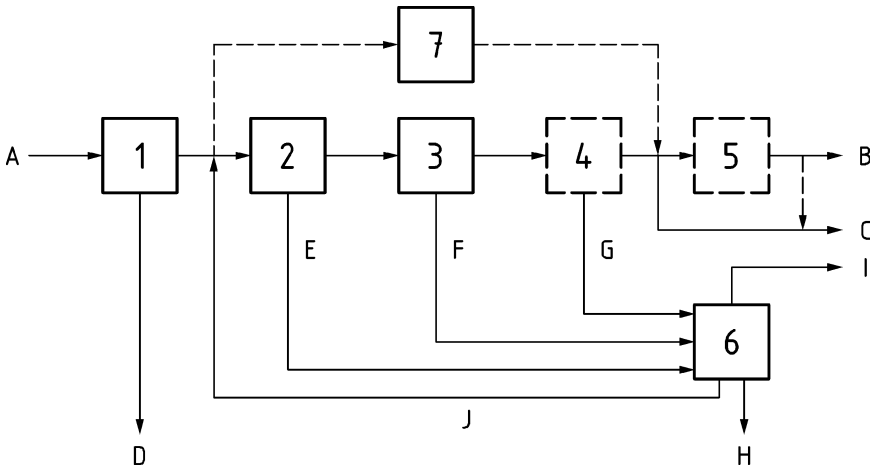
This is the eleventh part of the EN 12255 series prepared by Working Group CEN/TC 165/WG 40, relating to the general requirements and processes for treatment plants for a total number of inhabitants and population equivalents (PT) over 50.

The EN 12255 series with the generic title “Wastewater treatment plants” consists of the following parts:

- *Part 1: General construction principles*
- *Part 2: Storm management systems*
- *Part 3: Preliminary treatment*
- *Part 4: Primary settlement*
- *Part 5: Lagooning processes*
- *Part 6: Activated sludge processes*
- *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*
- *Part 14: Disinfection*
- *Part 15: Measurement of the oxygen transfer in clean water in activated sludge aeration tanks*
- *Part 16: Physical (mechanical) filtration*

Introduction

Differences in wastewater treatment throughout Europe have led to a variety of systems being developed. This document gives fundamental information about the systems; this document has not attempted to specify all available systems. A generic arrangement of wastewater treatment plants is illustrated below.



Key

- 1 preliminary treatment
- 2 primary treatment
- 3 secondary treatment
- 4 tertiary treatment
- 5 additional treatment (e.g. disinfection or removal of micropollutants)
- 6 sludge treatment
- 7 lagoons (as an alternative)
- A raw wastewater
- B effluent for re-use (e.g. irrigation)
- C discharged effluent
- D screenings and grit
- E primary sludge
- F secondary sludge
- G tertiary sludge
- H digested sludge
- I digester gas
- J returned water from dewatering

Figure 1 — Schematic diagram of wastewater treatment plants

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

NOTE For requirements on pumping installations at wastewater treatment plants see EN 752, *Drain and sewer systems outside buildings* and EN 16932, *Drain and sewer systems outside buildings — Pumping systems*:

- *Part 1: General requirements;*
- *Part 2: Positive pressure systems;*
- *Part 3: Vacuum systems.*

1 Scope

This document specifies data which is necessary for the planning, design, bidding, performance guarantees, construction, start-up and compliance testing of a wastewater treatment plant or parts of it. Differences in wastewater treatment throughout Europe have led to a variety of practices being developed. This document gives fundamental information about the practices; this document has not attempted to specify all available practices.

2 Normative references

There are no normative references in this document.

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 <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

relevant plant

new wastewater treatment plant; rebuild, upgrade or extension of an existing wastewater treatment plant or a part of a new or extended wastewater treatment plant (e.g. sludge handling facilities)

3.2

client

municipality, city or other organization which intends to build a wastewater treatment plant or parts thereof, or its representative

[SOURCE: EN 12255-1]

3.3

functional tender

tender document that contains the design loads, a description of the site where the relevant plant is to be erected, the relevant discharge limits and any additional requirements

3.4

sectional tender

separate tender documents prepared for different sections of work that may be constructed by different entities

Note 1 to entry: Examples of sections of work can include: earth work, concrete work, mechanical equipment, electrical installations, buildings etc.

3.5

consulting engineer

independent engineer or engineering company commissioned by the client designing a wastewater treatment plant or parts of it and/or supervising the construction

Note 1 to entry: The consulting engineer may assist the client with any work preparing all or part of the tender documents. The consulting engineer supervises the construction and checks the time schedule and costs. The consulting engineer has knowledge and experience in planning, design and operational aspects of wastewater treatment plants. In some countries a special certification may be required

3.6

turn-key contractor

builder who agrees to complete a facility so that it is ready for use when delivered to the other contracting party

Note 1 to entry: The turn-key contractor is typically a company which has knowledge and experience in planning, design, construction and operational aspects of wastewater treatment plants.

4 Symbols and abbreviations

COD	chemical oxygen demand
BOD ₅	biochemical oxygen demand in 5 days
TKN	total Kjeldahl nitrogen
NH ₄ -N	ammonium-nitrogen
NO ₃ -N	nitrate-nitrogen
COD/N	ratio of COD and nitrogen
COD/P	ratio of COD and phosphorus

5 Requirements

5.1 Contract strategy

The client may decide whether a functional tender or a sectional tender shall be prepared. The client may commission a consulting engineer to carry out one or more of the following:

- establish the design loads and data as described in 5.2;
- prepare the tender documents for a functional tender;
- design the plant and estimate the costs and prepare the tender documents for the sectional tender;
- inspect the construction in case of functional tendering;
- supervise and coordinate the construction in case of sectional tendering;
- evaluate the bids on the tenders and to propose which contractor or contractors (in case of sectional tendering) should be commissioned.