SLOVENSKI STANDARD
oSIST prEN 1508:2024

01-julij-2024

Oskrba z vodo - Zahteve za sistem in sestavne dele vodnega zbiralnika

Water supply - Requirements for systems and components for the storage of water

Wasserversorgung - Anforderungen an Systeme und Bestandteile der Wasserspeicherung

Alimentation en eau - Prescriptions pour les systèmes et les composants pour le stockage de l'eau

Ta slovenski standard je istoveten z: **prEN 1508**

ICS:

91.140.60	Sistemi za oskrbo z vodo	Water supply systems
93.025	Zunanji sistemi za prevajanje vode	External water conveyance systems

oSIST prEN 1508:2024 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 1508

May 2024

ICS 13.060.20

Will supersede EN 1508:1998

English Version

Water supply - Requirements for systems and components for the storage of water

Alimentation en eau - Prescriptions pour les systèmes et les composants pour le stockage de l'eau

Wasserversorgung - Anforderungen an Systeme und Bestandteile der Wasserspeicherung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

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, Türkiye 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

This document (prEN 1508:2024) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1508:1998.

prEN 1508:2024 includes the following significant technical changes with respect to EN 1508:1998:

— improvements related to the long-term resilience and security of drinking water storage and demand management;

— clarification of terms used to describe different types of pumped or gravity fed reservoirs;

— improved and updated figures;

— addressing innovations in ventilation and air control;

— new Clause A.8 added, giving guidance on the selection of ventilation systems;

— new Clause A.9 added, showing a typical inspection checklist.

Introduction

In specifying the requirements of this document, due regard has been taken of the importance of a reliable and safe supply of water for human consumption as well as for the purpose of trade, industry, agriculture and firefighting.

This document is written for the designer, owner, operator and contractor.

The contractor can be the builder or be performing maintenance, cleaning and inspection.

The widely varying water supply legislative requirements, populations, social and climatic conditions across Europe have also been taken into account.

1 Scope

This document specifies and gives guidance on:

— general requirements for storage of water outside consumers' buildings, including service reservoirs for potable water and reservoirs containing water not for human consumption at intake works or within treatment works, excluding those that are part of the treatment process;

— design;

— general requirements for product standards;

— requirements for, quality control and auditing, testing and commissioning;

— operational requirements;

— requirements for inspection, rehabilitation and repair.

The requirements of this document are applicable to:

— the design and construction of new reservoirs;

— the extension and modification of existing reservoirs;

— significant rehabilitation of existing reservoirs.

NOTE 1 It is not intended that existing reservoirs are altered to comply with this document, provided that there are no significant detrimental effects on water quality.

NOTE 2 This document does not apply to reservoirs formed by the building of dams or the use of lakes for water storage purposes.

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 805:2000, *Water supply — Requirements for systems and components outside buildings*

EN 1992-1-1, *Eurocode 2 — Design of concrete structures — Part 1-1: General rules and rules for buildings, bridges and civil engineering structures*

EN 15975-1, *Security of drinking water supply — Guidelines for risk and crisis management — Part 1: Crisis management*

EN 15975-2, *Security of drinking water supply — Guidelines for risk and crisis management — Part 2: Risk management*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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
air tightness
characteristic quality of the structure that prevents the passage of air through the structure in other ways than the intended route

3.2
capacity
volume of the compartment(s) that can be used for the operation of a reservoir

3.3
equalisation volume
volume used to equalize the incoming water flow to the outgoing water flow of the reservoir during day and night

3.4
emergency volume
volume for demands during emergency situations

Note 1 to entry: Examples of emergencies are breaks of water mains, pump failures, water treatment plant interruptions, etc.

3.5
firefighting volume
volume for water demand for firefighting

3.6
dead volume
volume which cannot be used because it is below the level of the entrance to the outlet pipe or is below the minimum acceptable hydraulic gradient

3.7
compartment
self-contained part of a reservoir which has separate inlet, outlet, overflow and washout arrangements, and can be operated independently from other compartments of the same reservoir

Note 1 to entry: See Figures 1 and 2.

3.8
control building
self-contained part of a reservoir used to accommodate the main valves, pumps, controls and monitoring equipment and which can provide the means of access to the water compartment(s)

3.9
critical point
point in the water distribution network whose minimum allowable pressure determines the location and elevation of the service reservoir

3.10
designer
person responsible for establishing, with the purchaser or water company, the basic criteria to be used for the design, construction, commissioning and operation of the reservoir

3.11
rehabilitation
work necessary to upgrade or improve a reservoir

3.12
repair
work necessary to remedy a defect and restore a reservoir to satisfactory operation

3.13
reservoir
storage facility for water

Note 1 to entry: Examples for reservoirs are artificial lakes and natural lakes whose outlet has been dammed to control the water level.

3.14
service reservoir
covered storage facility for potable water which includes water compartment(s), control building, operation equipment and access arrangements, providing reserve supplies and pressure stability, and balancing demand fluctuations

Note 1 to entry: See Figure 1.

Note 2 to entry: Service reservoirs can be operated with or without pumping stations.

Note 3 to entry: In English literature and in common practice the term tank is also used.

3.15
ground service reservoir

service reservoir whose bottom of the water volume is at or near ground level

3.16
buried service reservoir
service reservoir whose top of the water volume is at or near ground level

3.17
water demand
estimated quantity of water required per unit of time

3.18
water tightness
characteristic quality of the structure that prevents the passage of water through the structure in excess of any permitted quantity

3.19
water tower
reservoir constructed with the compartment(s) above ground level with an elevation sufficient to provide water by gravity to the supply area

Note 1 to entry: In the literature and in common practice, the terms elevated tank and elevated service reservoir are also used.

4 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

CFD computerized fluid dynamics

WSA water supply area

5 General requirements

5.1 General

5.1.1 General

This document is written principally for application to service reservoirs. In the case of other reservoirs, the designer or operator will determine which parts of this document shall apply, for example disinfection is not always required for reservoirs containing water not for human consumption.

5.1.2 Functions

The purpose of service reservoirs is to store the necessary amount of water required for water supply in the area concerned. To achieve this their functions, include:

a) to equalize the difference between water intake and output and to cover peaks in demand;

b) to maintain the required pressure in the water distribution systems;

c) to keep stocks in reserve in case of plant malfunctions and interruptions in the water distribution systems;

d) to provide water for firefighting, taking into account local requirements.

See also A.1.

5.1.3 Decision criteria and system configuration

Important decision criteria are:

a) security of supply and water quality;

b) overall cost of construction, operation and maintenance;

c) integration into the water supply system;

d) town and landscape planning;

e) system resilience, for example multiple compartments to enable inspection and maintenance without interruption of services;

f) pipework constraints, for example separate inlets and outlets or common pipework.

The above-mentioned criteria can be achieved by elevated service reservoirs, water towers or by low level service reservoirs with pumping systems. Service reservoirs can be designed as buried, partially buried or above ground structures.

The construction of an elevated service reservoir is advisable if suitable high ground is available.

The construction of a water tower may be considered where the necessary ground elevation at a suitable point near the supply area is not available for an elevated service reservoir.

A pumping station with a low-level service reservoir is a viable option if measures have been taken to ensure continuity of power supply.

Service reservoirs are mainly constructed from reinforced, pre-cast or pre-stressed concrete. They may also be constructed using steel, glass fibre reinforced plastic or other materials that fulfil the requirements of this document.

See also A.2.

5.2 Functional requirements

5.2.1 Functional requirements - water quality

5.2.1.1 General

Service reservoirs shall be designed, constructed and operated to prevent contamination or other chemical, physical and biological changes that are detrimental to the water quality.

NOTE Service reservoirs and their components are subject to European, national and local laws, regulations, directives, standards and technical approvals, in particular concerning water quality.

5.2.1.2 Materials

Materials which meet test requirements as specified in relevant product standards and codes and will not cause the stored water to deteriorate shall be used in the structure of the water compartments and on the surfaces in contact with the stored water.

Concrete and cement mortars generally satisfy this requirement, but special care shall be taken if additives are used. In order to facilitate subsequent cleaning and to avoid bacterial growth internal surfaces shall be as smooth and pore-free as possible.

This can be achieved by high quality concrete finishes including form work liners or by the application of suitable coatings or linings. It shall be verified that materials such as applied coatings do not increase microbial growth, release of chemical contaminants or break down.

All metallic parts to be installed within the compartments shall be protected, stainless steel is recommended.

The designer should consider materials and the chemical properties of water being stored and be durable against chemical attack (e.g. soft water).

5.2.1.3 Water circulation

Stagnant zones shall be minimized. This can be achieved by suitable design of the physical shape of the water compartments and the arrangement of inlet and outlet pipework for the particular storage capacity. The capacity of a service reservoir shall not be larger than the sum of the equalization volume, the emergency volume and the firefighting volume. Any larger volume will lead to higher risk for stagnant zones and longer retention time in the service reservoir.