
Plavalni bazeni za domačo uporabo - 1. del: Splošne zahteve, vključno z varnostjo in preskusnimi metodami

Domestic swimming pools - Part 1: General requirements including safety and test methods

Schwimmbäder für private Nutzung - Teil 1: Allgemeine Anforderungen einschließlich sicherheitstechnischer Anforderungen und Prüfverfahren

Piscines privées à usage familial - Partie 1: Exigences générales, exigences de sécurité et méthodes d'essai

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**Domestic swimming pools - Part 1: General requirements
including safety and test methods**

Piscines privées à usage familial - Partie 1 : Exigences
générales et de sécurité et méthodes d'essai

Schwimmbäder für private Nutzung - Teil 1: Allgemeine
Anforderungen einschließlich sicherheitstechnischer
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 20 June 2015.

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.

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EN 16582-1:2015 (E)

European foreword

This document (EN 16582-1:2015) has been prepared by Technical Committee CEN/TC 402 "Domestic pools and spas", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2016 and conflicting national standards shall be withdrawn at the latest by February 2016.

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

This document is part of a series of standards dealing with domestic swimming pools which consists of:

- *Part 1: General requirements including safety and test methods;*
- *Part 2: Specific requirements including safety and test methods for inground pools;*
- *Part 3: Specific requirements including safety and test methods for aboveground pools.*

This European Standard has to be read in conjunction with local and national regulations if they exist.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This part of EN 16582 specifies requirements including safety and test methods that are generally applicable to domestic swimming pools. For specific types of pools these requirements are supplemented or modified by the requirements of specific standards which have been issued as additional parts of this European Standard.

As specific standards exist, this general standard should not be used alone.

The users of this standard could be either in a Business to consumer (B to C) relationship, such as constructors, installers, retailers, etc. or in a Business to business (B to B) relationship, such as manufacturers, suppliers, distributors, etc. Safe products are the basis of the consumers' safety and therefore, this European Standard should take into account the following topics:

- product safety and performance requirements;
- safe construction and installation,
- safe use, which could include information and red flags for consumers (e.g. "Don't leave your child unattended in the pool").

Special attention should also be paid to environmental aspects, according to CEN Guide 4 (e.g. minimizing water being wasted, etc.).

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EN 16582-1:2015 (E)

1 Scope

This European Standard specifies the general safety and quality requirements and test methods for domestic swimming pools. These requirements and test methods are applicable to inground, aboveground or recessed swimming pool structures, including their installation and means of access.

This standard does not apply to:

- pools for public use covered by EN 15288-1;
- spas for domestic or public use;
- paddling pools according to EN 71-8.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 350-2, *Durability of wood and wood-based products - Natural durability of solid wood - Part 2: Guide to natural durability and treatability of selected wood species of importance in Europe*

EN 351-1, *Durability of wood and wood-based products - Preservative-treated solid wood - Part 1: Classification of preservative penetration and retention*

EN 335, *Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products*

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EN 460, *Durability of wood and wood-based products - Natural durability of solid wood - Guide to the durability requirements for wood to be used in hazard classes*

EN 1990:2002, *Eurocode - Basis of structural design*

EN 13451-1:2011, *Swimming pool equipment - Part 1: General safety requirements and test methods*

EN 14843:2007, *Precast concrete products - Stairs*

HD 60364-7-702, *Low-voltage electrical installations - Part 7-702: Requirements for special installations or locations - Swimming pools and fountains*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods (ISO 1461)*

EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2)*

EN ISO 4628-3, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO 4628-3)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*

CEN/TS 16165, *Determination of slip resistance of pedestrian surfaces - Methods of evaluation*

ISO 20712-1, *Water safety signs and beach safety flags - Part 1: Specifications for water safety signs used in workplaces and public areas*

prEN 16713-3, *Domestic swimming pools - Water systems - Part 3: Treatment - Requirements*

3 Terms and definitions

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

3.1

basin

specific water tank where water-related activities are carried out

3.2

usage class 4 wood

situation where the wood or wood-based product is in contact with the ground or fresh water and therefore permanently exposed to wetting

3.3

point-of-purchase information

information given to consumer prior to purchase so that they can make informed choices

3.4

swimming pool kit

set of compatible and consistent elements of a swimming pool comprising of the pool or the structure, the means of access, the filtration and skimming system with hydraulic connections necessary for its operation, installation and commissioning manual, and the operating and maintenance manual

3.5

inground swimming pool kit

swimming pool kit, designed to be installed in the ground, with structural elements that ensure intrinsic resistance to internal and external pressures

3.6

aboveground swimming pool kit

swimming pool kit, designed to be placed on the ground or any suitable flat horizontal surface, with structural elements that ensures intrinsic resistance to internal pressures

3.7

recessed swimming pool kit

swimming pool kit, designed to be installed in the ground, in a masonry structure or equivalent that ensures resistance to internal and external pressures, if required

3.8

watertightness

degree to which water is prevented from leaking from the pool shell

3.9

liner

removable independent pocket, factory-made from flexible, expandable, plasticized poly(vinyl chloride) (PVC-P) membranes, capable of achieving a certain level of watertightness

Note 1 to entry: The liner contributes to the watertightness of a swimming pool in the same way as the parts to be sealed and the pipework.

EN 16582-1:2015 (E)**3.10****coping**

independent add-on feature, which forms the total or partial edge of a pool, on its periphery, on the upper part of the wall

Note 1 to entry: Add-on features with a width greater than or equal to 50 mm are considered as copings.

Note 2 to entry: On some swimming pools, the top coping also functions as the liner lock.

3.11**reinforced membrane**

composite made of various thermoplastic sheets, applied on a layer comprising a reinforcement

3.12**membrane**

sheet made of calendered or extruded, waterproof and gas-pervious, plasticized poly(vinyl chloride) (PVC-P), packaged in rolls, for use in the manufacture of swimming pool liners

3.13**operating and maintenance manual**

operating guide and common recommendations on use for safety and maintenance

3.14**installation and commissioning manual**

document indicating the various installation and commissioning operations

3.15**frame work**

all of the resistant parts that support and/or reinforce the wall in view of forming the peripheral structure

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3.16**tool**

hand held device that can be used to secure, perform or facilitate mechanical operations

Note 1 to entry: A screw driver, key or coin are considered as tools.

3.17**pool wall**

generally upright structure serving to enclose or divide water, or to protect an area

3.18**parts to be embedded**

equipment, fixed firmly into the surrounding structure, mainly in the pool that have the specific functions such as water circulation/filtration, lighting, counter-current swimming devices, sound system, air injection, alarm sensors, cameras, portholes, etc.

3.19**swimming pool (pool)**

artificial basin, where water is filtered being disinfected and retains continuous residual disinfection properties, renewed and recycled, as well as all of the equipment strictly necessary for its operation capable of achieving a certain level of watertightness

3.20**structure**

part, or assembly of parts, designed to support loads and provide a sufficient degree of rigidity

[SOURCE: EN 1990:2002, modified]

Note 1 to entry: The structure guarantees the stability and cohesion of a pool.

Note 2 to entry: The "coping" is considered only if it contributes to the strength of the structure.

3.21

effective volume of water

capacity of the pool tank guaranteed by the manufacturer and determined from the water depth recommended by the manufacturer

3.22

means of access

design feature to facilitate entry to and/or exit from the basin

3.23

tread

horizontal component or upper surface of a step

3.24

step

part of the stairs, or of a ladder, consisting of a tread and possibly a riser

[SOURCE: EN 14843:2007, modified]

3.25

platform

upper, horizontal tread, connecting the two legs of a ladder

3.26

ladder

structure used for entering and exiting the water, formed from rails connected by steps or treads, and/or platform(s)

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3.27

stair

succession of horizontal stages (steps or landings) which makes it possible to pass on foot to other levels

[SOURCE: EN 14843:2007, modified]

3.28

pool handrail

design feature to be gripped or grasped intended to assist the user to balance, to enter, to move around and/or to get out of the water

3.29

grip

holding of the hand around the entire circumference of a support

Note 1 to entry: See Figure 1.

Note 2 to entry: See Table 6.

[SOURCE: EN 1176-1:2008, 3.15, modified - Note to entry has been added.]

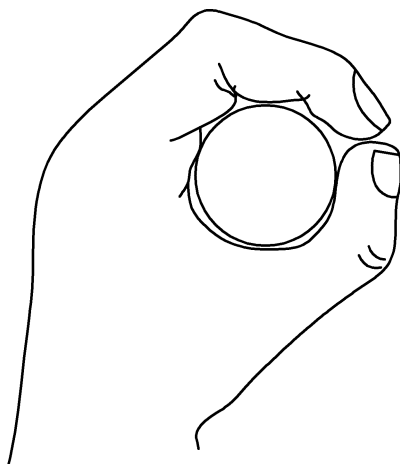


Figure 1 — Grip

3.30**grasp**

holding of the hand around part of the circumference of a support

Note 1 to entry: See Figure 2.

Note 2 to entry: See Table 6.

[SOURCE: EN 1176-1:2008, 3.16, modified – Note to entry has been added.]

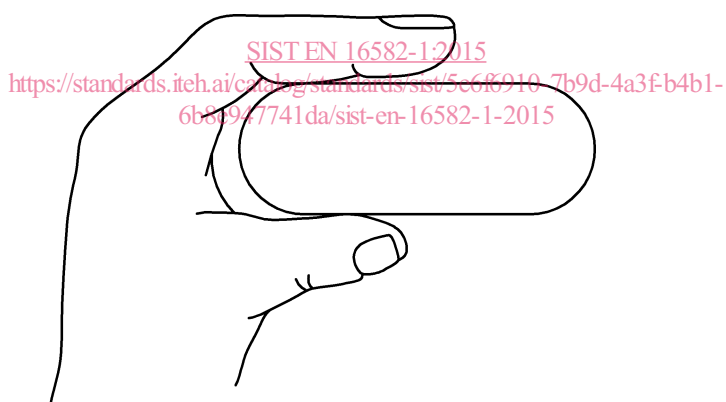


Figure 2 — Grasp

3.31**thermosetting polymer shell**

main element of the prefabricated swimming pool (generally a polyester shell), that is a homogeneous structure, which is watertight and whose function is to contain the water

3.32**entrapment**

hazard presented by the situation in which a body, or part of a body, or clothing can become trapped

Note 1 to entry: Entrapment is only considered where the user is not able to free himself/herself.

3.33**laminated polyester or composite materials**

polymeric materials jointly implemented to form a shell structure serving as pool, coating and watertightness

3.34**chemical barrier layer**

technical resin layer immediately under the aesthetic layer, reinforced or not

3.35**aesthetic layer (coating)**

surface in contact with water, generally a resin

Note 1 to entry: Its use is limited to pools whose temperature is lower or equal to 28 °C unless otherwise specified by the manufacturer.

3.36**aesthetic disorders**

staining, stain rings, discoloration due to an aggressive chemical water treatment product or physicochemical parameters of water

3.37**water treatment**

use of chemical products and / or processes associated with filtration ensuring clean and healthy water

Note 1 to entry: the water treatment ensures water quality suitable for swimming according to the series prEN 16713.

3.38**adult supervisor(s)**

parent or responsible adult appointed by a parent

3.39**deck**

fitted surface, contiguous to pool

Note 1 to entry: The loose ground (grass, sand, etc.) is not considered as part of the deck.

4 General requirements and test methods**4.1 General**

In use, installed according to the installation and commissioning manual, the swimming pool shall meet the requirements of this document.

If the pool structure includes any water system covered by the prEN 16713 series, the EN 16582 series shall be read in conjunction with the prEN 16713 series.

Assembled in accordance with the installation and commissioning manual, the electrical installation of any material related to the pool and its surrounding shall also comply with the requirements of HD 60364-7-702 or valid national requirements.

NOTE 1 HD 60364-7-702 applies only for fixed installations.

When a membrane is used as a watertight system, it is not mandatory to have a minimum thickness, however any relevant standards shall apply if they exist.

NOTE 2 For PVCP membrane, EN 15836-1 or EN 15836-2 could apply.

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NOTE 3 For composition requirements, the professionals' attention is drawn to the change in the regulations in particular concerning the possible risks inherent with the use of heavy metals.

All manufacturers are required to carry out, either internally or via a test laboratory, the tests mentioned in Clause 4 for each new or revised material process.

4.2 Tolerances

The indicated dimensions and measurements are given with a tolerance of $\pm 3\%$ (unless otherwise indicated).

4.3 Water leakage

Wherever possible, swimming pools should be built so that they are watertight, as leakage and other water losses may affect the building and surrounding properties.

The maximum leakage is specified in Table 1.

Once installed, the swimming pool shall be watertight according to one of the classes of Table 1 as stated in the point of sale information.

Table 1 — Watertightness classification

| Tightness Class | Maximum leakage |
|-----------------|--|
| W ₀ | litre per m ² per day or mm per day 0 |
| W ₁ | 1 |
| W ₂ | 2 |
| W ₃ | 3 |

The measurement of any water loss should be carried out over a period of 7 days.

The drop in water level excludes evaporation losses, bathing activity, the temperature and humidity throughout the test period (and in the case of outdoor pools, the degree of exposure of the site to wind and sunshine).

Once installed, the swimming pool pipework shall be watertight according to class W₀ of Table 1.

If applicable, the balance tank shall meet the minimum watertightness classification of the swimming pool.

4.4 Minimum performance requirements for structural materials**4.4.1 General**

The structural design and materials shall be in accordance with accepted structural engineering practices.

Any combination of different materials in direct contact with each other shall be compatible and not negatively affect each other's properties or structural integrity.

The requirements of this section do not apply to non-structural elements of the swimming pool, including, but not limited to, elements with solely decorative function. When the swimming pool water affects the resistance of the structural material, the requirements for water quality shall be stated and accompany the affected materials.

The parameters mentioned in document prEN 16713-3 shall be met. In addition, there shall be no influence on the water quality according to prEN 16713-3, if the material comes into contact with the pool water.

Selection of materials for the construction of the swimming pool shall be conducted under consideration of external influences, including but not limited to temperature, UV, chemicals (under normal conditions of use) etc., when appropriate, that may influence their structural integrity.

EXAMPLE Materials used for the pool construction and lining are given in Table 2 and Table 3.

Table 2

| Pool construction |
|---|
| PVC |
| PVC reinforced membrane (above ground pool) |
| Concrete |
| Styrofoam Formstone |
| GRP one piece pool |
| Composite construction |
| Polypropylene |
| Steel panels |
| Aluminium panels |
| Steel & Aluminium support frames |
| Stainless Steel |
| Glass (complete or min. one side / wall) |
| Wood |
| Brick wall construction (expanded polystyrene, ...) |

Table 3

| Pool lining |
|-------------------------|
| Concrete |
| Liner |
| Tiles |
| Coating |
| GRP |
| PVC |
| Stainless steel |
| Glass |
| Natural stone |
| Polypropylene (PP) |
| Painting |
| Mineral coat |
| PVC reinforced membrane |