



SLOVENSKI STANDARD

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Oprema za plavalne bazene - 1. del: Splošne varnostne zahteve in preskusne metode za opremo, vgrajeno v javne plavalne bazene

Swimming pool equipment - Part 1: General safety requirements and test methods for equipment installed in pools for public use

Schwimmbadgeräte - Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren für in öffentlichen Schwimmbädern installierte Schwimmbadgeräte

Équipement de piscine - Partie 1 : Exigences générales de sécurité et méthodes d'essai pour les équipements installés dans des piscines à usage public

Ta slovenski standard je istoveten z: EN 13451-1:2020

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97.220.10 Športni objekti Sports facilities

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EUROPEAN STANDARD

EN 13451-1

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Swimming pool equipment - Part 1: General safety requirements and test methods for equipment installed in pools for public use

Équipement de piscine - Partie 1 : Exigences générales de sécurité et méthodes d'essai pour les équipements installés dans des piscines à usage public

Schwimmbadgeräte - Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren für in öffentlichen Schwimmbädern installierte Schwimmbadgeräte

This European Standard was approved by CEN on 1 September 2020.

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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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

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European foreword

This document (EN 13451-1:2020) has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational facilities and equipment", 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 May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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

This document supersedes EN 13451-1:2011+A1:2016.

Compared to EN 13451-1:2011+A1:2016 the following changes have been made:

- a) definition "swimming pool equipment" revised;
- b) term "public use" added;
- c) requirements for structural integrity specified;
- d) material selection, in particular steel, aligned with EUROCODE and former Annex F deleted;
- e) requirements for safety barriers revised;
- f) requirements for protrusions and their test methods revised;
- g) requirements for fittings specified;
- h) Annex E for the determination of the slip resistance of inclined surfaces revised;
- i) editorial revision of the standard.

EN 13451, *Swimming pool equipment*, consists of the following parts:

- *Part 1: General safety requirements and test methods for equipment installed in pools for public use;*
- *Part 2: Additional specific safety requirements and test methods for ladders, stepladders and handle bends;*
- *Part 3: Additional specific safety requirements and test methods for inlets and outlets and water/air based water leisure features installed in pools for public use;*
- *Part 4: Additional specific safety requirements and test methods for starting platforms;*
- *Part 5: Additional specific safety requirements and test methods for lane lines and dividing line;*
- *Part 6: Additional specific safety requirements and test methods for turning boards;*
- *Part 7: Additional specific safety requirements and test methods for water polo goals;*

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- *Part 10: Additional specific safety requirements and test methods for diving platforms, diving springboards and associated equipment;*
- *Part 11: Additional specific safety requirements and test methods for moveable pool floors and moveable bulkheads.*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: 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 the United Kingdom.

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Introduction

This document could also be applicable to other equipment installed in pools for public use not specified in Parts 2 to 11, provided the safety requirements are fulfilled.

There can be additional requirements for purposes such as competition swimming and advice should be sought from the governing body of the sport in question.

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EN 13451-1:2020 (E)**1 Scope**

This document specifies general safety requirements and test methods for equipment installed in swimming pools for public use as classified in EN 15288-1 and EN 15288-2.

Where specific standards exist, this general standard is not expected to be used alone.

Special care is expected to be taken in applying this general standard alone to equipment for which no product specific standard has yet been published.

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 1990, *Eurocode - Basis of structural design*

EN 1991-1-2, *Eurocode 1: Actions on structures - Part 1-2: General actions - Actions on structures exposed to fire*

EN 1991-1-3, *Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads*

EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*

EN 1991-1-5, *Eurocode 1: Actions on structures - Part 1-5: General actions - Thermal actions*

EN 1993-1-4, *Eurocode 3 - Design of steel structures - Part 1-4: General rules - Supplementary rules for stainless steels*

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EN 15288-1:2018, *Swimming pools for public use - Part 1: Safety requirements for design*

EN ISO 12100, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100)*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results - Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 5725-5, *Accuracy (trueness and precision) of measurement methods and results - Part 5: Alternative methods for the determination of the precision of a standard measurement method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15288-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

3.1**swimming pool equipment**

item in and/or around a pool basin, accessible by users of the swimming pool, designated:

- to operate the pool basin and its functionally adjoining areas; and/or
- to use the pool basin and its functionally adjoining areas

Note 1 to entry: These items can be part of the swimming pool technology (e.g. water inlets or outlets), to assist the users (e.g. ladders), or for competitive and training use (e.g. starting platforms), or for leisure (e.g. fountains).

3.2**crushing hazard**

place where parts of the equipment can move against each other, or against a fixed area so that persons, or parts of their body, can be crushed

[SOURCE: EN 1176-1:2017, 3.11]

3.3**shearing point**

place where part of the equipment can move past a fixed or other moving part, or past a fixed area so that persons, or parts of their body, can be cut

[SOURCE: EN 1176-1:2017, 3.12]

3.4**grip**

holding of the hand round the entire circumference of a support

Note 1 to entry: See Figure 1. <https://standards.iteh.ai/catalog/standards/sist/d98c121b-c487-4445-a704-017ab445ff65/sist-en-13451-1-2021>

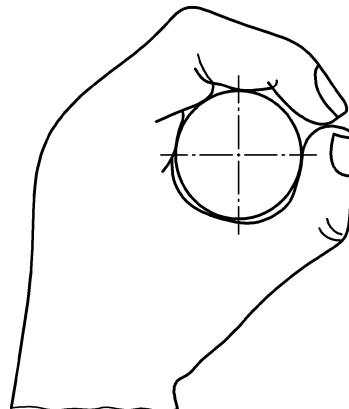


Figure 1 — Grip

[SOURCE: EN 1176-1:2017, 3.16]

EN 13451-1:2020 (E)**3.5****grasp**

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

Note 1 to entry: See Figure 2.

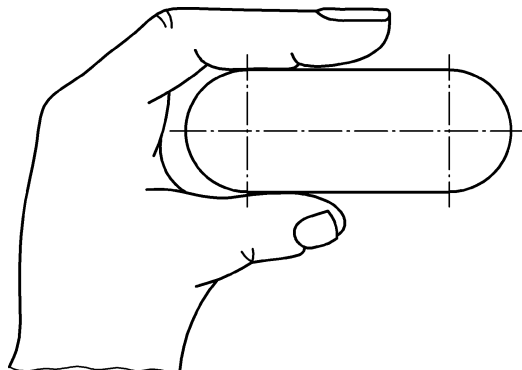


Figure 2 — Grasp

[SOURCE: EN 1176-1:2017, 3.17]

3.6**finger hold**

holding which is found with hand, at least with the finger head by hooking in

3.7**entrapment**

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

Note 1 to entry: Entrapment hazard can arise from situations where the body, its parts, etc. get trapped, but also from situations where the body of the user has no complete freedom to emerge from the water, e.g. when swimming underneath a stepladder.

3.8**edge**

line being formed by two surfaces of something solid which meet one another

3.9**corner**

point being formed by two or more edges which meet one another

3.10**minimum space**

smallest space required for the safe installation and use of the equipment

3.11**minimum zone for use**

minimum space required for anyone who could come into contact with equipment

3.12**protrusion**

object, or a portion of an object, that stands or protrudes in/into the minimum zone for use

Note 1 to entry: A protrusion typically has a width of < 200 mm and height of < 75 mm.

3.13**handrail**

rail intended to assist the user to balance

[SOURCE: EN 1176-1:2017, 3.22]

3.14**barrier**

means of segregation to prevent movement or access

3.15**safety barrier**

barrier designed to prevent users from falling over, through or beneath

3.16**slit**

small longitudinal opening with a width < 8 mm

3.17**grid**

component to cover an overflow channel or an opening, designed to allow the passage of water

3.18**public use**

use of an installation open to everyone or to a defined group of users, not designated solely for the owner's/proprietor's/operator's family and guests independently from paying an entrance fee

[SOURCE: EN 15288-1:2018, 3.5]

4 Safety requirements**4.1 Structural integrity****4.1.1 General**

Structural integrity, including stability, of the equipment shall be assessed for the reasonably foreseeable types of load they may be subjected to by one of the following:

- a) calculation, carried out in accordance with Annex A and Annex B;
- b) physical testing, in accordance with Annex C; or
- c) a combination of a) and b).

When calculations are carried out in accordance with Annex B, limit states as defined in B.1 shall not be exceeded at combinations of loads as given in B.2.

Each structure shall resist both the permanent and variable loads acting on equipment and parts of equipment.

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