

Táto norma obsahuje anglickú verziu európskej normy. This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/17

Obsahuje: EN 13451-1:2011+A1:2016

Oznámením tejto normy sa ruší STN EN 13451-1 (94 0402) z januára 2012

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 13451-1:2011+A1

October 2016

ICS 97.220.10

Supersedes EN 13451-1:2011

English Version

Swimming pool equipment - Part 1: General safety requirements and test methods

Équipement de piscine - Partie 1 : Exigences générales de sécurité et méthodes d'essai

Schwimmbadgeräte - Teil 1: Allgemeine sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 29 July 2011 and includes Amendment 1 approved by CEN on 13 June 2016.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Cont	Contents	
European foreword5		
1	Scope	7
2	Normative references	
3	Terms and definitions	
	Safety requirements	
4 4.1	Structural integrity	
4.1 4.1.1	General	
4.1.2	Materials	
4.2	Minimum space	
4.3	Handrails, barriers, safety barriers	
4.3.1	Handrails	
4.3.2	Barriers	
4.3.3	Safety barriers	
4.3.4	Grip	
4.3.5	Grasp	
4.3.6	Finger hold	
4.4	Surfaces	
4.4.1	Surface finishing	
4.4.2	Surface materials	
4.5	Protrusions	
4.6	Edges and corners	
4.7	Entrapment, crushing and shearing points	
4.7.1	General	
4.7.2	Permissible openings	
4.7.3	Protections and grids	
4.7.4	Moving parts	
4.7.5	Slits	
4.7.6	Entrapment of hair	
4.8	Slip resistance	
4.9	Fittings	
4.10	Removable protection devices	
4.11	Alteration of existing equipment	
_	9	
5	Test methods	
5.1 5.2	General	
5.2	Test report	1/
6	Instruction and information	18
6.1	Installation	18
6.2	Technical operation	18
6.3	Inspection and maintenance	18
7	Marking	19
Annes	A (normative) Loads	20
A.1	Permanent loads	
A.1.1	General	

A.1.2	Self weight	
A.1.3	Prestressing loads	20
A.2	Variable loads	20
A.2.1	General	20
A.2.2	User loads	20
A.2.3	Snow loads	23
A.2.4	Wind loads	
A.2.5	Temperature loads	
A.2.6	Specific loads	
A.3	Number of users on the equipment	
A.3.1	General	
A.3.2	Number of users on a point	
A.3.2 A.3.3	Number of users on line type elements	
A.3.4		
A.3.4	Number of users on an area	24
Annex	x B (normative) Method of calculation of structural integrity	25
B.1	General principles	
B.1.1	Limit state	
B.1.2	Ultimate limit state	
B.1.3	Serviceability limit state	
B.2	Load combinations for static analysis	
	· ·	
	x C (normative) Physical testing of structural integrity	
C.1	Pass/fail criteria	
C.1.1	Test method	27
C.1.2	Compliance	27
C.1.3	Failure	27
C.2	Test load for equipment	27
C.2.1	Load combinations for testing	
C.2.2	Safety factor for test on identical series	
C.2.3	Safety factor for test on a unique product	
C.3	Load application	
C.3.1	General	
C.3.2	Point loads	
C.3.3	Line loads	
C.3.4	Area loads	
C.3.4	Alea loaus	
Annex	x D (normative) Methods of test for entrapment	29
D.1	Head and neck entrapment	29
D.1.1	Apparatus	29
D.1.2	Test method	30
D.2	Finger and toe entrapment	
D.2.1	Apparatus	
D.2.2	Test method	
D.3	Foot and hand entrapment	
D.3.1	Apparatus	
D.3.2	Test method	
	E (normative) Testing of slip resistance	
E.1	Principle	
E.2	Testing person	
E.3	Test rig	
E.4	Test liquid	32
E.5	Test specimen	32
E.6	Test method	33

EN 13451-1:2011+A1:2016 (E)

E.7	Evaluation	. 33
E.8	Classification	. 33
E.9	Test report	. 33
Annex	F (normative) Use of stainless steel with load bearing functions in the swimming pool	
	atmosphere	. 35
F.1	General	. 35
F.2	Indoor swimming pools with disinfection with chlorine	. 35
F.2.1	General	
F.2.2	Components without the possibility of regular cleaning	. 35
	Components with the possibility of regular cleaning	
F.3	Outdoor swimming pools with disinfection with chlorine	
F.4	Coatings and paintings	
Bibliog	graphy	. 37
-		

European foreword

This document (EN 13451-1:2011+A1:2016) 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 April 2017, and conflicting national standards shall be withdrawn at the latest by April 2017.

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 includes Amendment 1 approved by CEN on 13 June 2016.

This document supersedes A EN 13451-1:2011 A.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{\mathbb{A}}$ $\boxed{\mathbb{A}}$.

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

- Part 1: General safety requirements and test methods;
- 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;
- Part 4: Additional specific safety requirements and test methods for starting platforms;
- Part 5: Additional specific safety requirements and test methods for lane lines;
- 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;
- 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.

This standard may also be applicable to other equipment not specified, 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.

EN 13451-1:2011+A1:2016 (E)

- (A) In relation to EN 13451-1:2001 the following main amendments have been made:
- a) scope modified in accordance with EN 15288-1 and EN 15288-2;
- b) normative references have been updated: CEN/TS 16165 was added and EN 12503-1, -5 and -6 were deleted;
- c) the test failure requirements for the structural integrity was modified (see 4.1.1);
- d) definition pool/swimming pool deleted;
- e) requirements for materials (see 4.1.2) added;
- f) requirements for barriers (see 4.3) added;
- g) requirements for suctions deleted and will be moved to EN 13451-3;
- h) requirements for entrapment, crushing and shearing points (see 4.7) added;
- i) requirements for the test report (see 5.2) modified;
- j) values of total vertical user load (see Table A.1) modified;
- k) only two test probes for the test methods of head and neck entrapment (see Annex D);
- l) Annex F was deleted and the reference to CEN/TS 16165 was added instead;
- m) Steel 1.4571 was corrected. (A1

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, 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.

1 Scope

This European Standard specifies general safety requirements and test methods for equipment used in classified swimming pools as specified in EN 15288-1 and EN 15288-2.

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

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

2 Normative references

The following referenced documents are indispensable for the application 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 10088-1, Stainless steels — Part 1: List of stainless steels

EN 10088-2, Stainless steels — Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes

 A_1 deleted text A_1

EN 15288-1, Swimming pools — Part 1: Safety requirements for design

 A_1

CEN/TS 16165, Determination of slip resistance of pedestrian surfaces — Methods of evaluation [A]

 A_1

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN