



SLOVENSKI STANDARD

oSIST prEN 13138-3:2012

01-maj-2012

Plavajoči pripomočki za učenje plavanja - 3. del: Varnostne zahteve in preskusne metode za plavajoče sedeže, ki se oblečejo

Buoyant aids for swimming instruction - Part 3: Safety requirements and test methods for swim seats to be worn

Auftriebshilfen für das Schwimmenlernen - Teil 3: Sicherheitstechnische Anforderungen und Prüfverfahren für Schwimmsitze, die am Körper getragen werden

Aides à la flottabilité pour l'apprentissage de la natation - Partie 3: Exigences de sécurité et méthodes d'essai pour les sièges flottants devant être portés

Ta slovenski standard je istoveten z: prEN 13138-3

ICS:

13.340.70	Rešilni jopiči, vzgonska pomagala in plavajoči pripomočki	Lifejackets, buoyancy aids and floating devices
-----------	-----------------------------------------------------------	-------------------------------------------------

oSIST prEN 13138-3:2012

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 13138-3

March 2012

ICS 13.340.70; 97.220.40

Will supersede EN 13138-3:2007

English Version

Buoyant aids for swimming instruction - Part 3: Safety requirements and test methods for swim seats to be worn

Aides à la flottabilité pour l'apprentissage de la natation -
Partie 3: Exigences de sécurité et méthodes d'essai pour
les sièges flottants devant être portés

Auftriebshilfen für das Schwimmenlernen - Teil 3:
Sicherheitstechnische Anforderungen und Prüfverfahren für
Schwimmsitze, die am Körper getragen werden

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 162.

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, Romania, 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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	4
Introduction	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Classification.....	8
4.1 General.....	8
4.2 Categorisation.....	8
5 Safety requirements	9
5.1 General.....	9
5.2 Design	9
5.2.1 Avoidance of similarities to aquatic toys	9
5.2.2 Edges, corners and points.....	10
5.2.3 Buckles, zippers and other fixings	10
5.2.4 Small parts.....	10
5.2.5 Valves and stoppers.....	10
5.3 Sizing	10
5.4 Materials	11
5.4.1 Thread.....	11
5.4.2 Resistance to puncturing.....	11
5.4.3 Resistance of foam and other inherent buoyant material to water absorption	11
5.4.4 Resistance of foam and other inherent buoyant materials to compression	11
5.4.5 Migration of certain elements.....	11
5.4.6 Resistance to chlorinated salt water	11
5.4.7 Material used for markings	11
5.4.8 Resistance of the markings to perspiration.....	11
5.4.9 Adhesion of markings	12
5.5 Strength	12
5.5.1 Strength of entire seat.....	12
5.5.2 Seam strength and durability of inflatable devices.....	12
5.6 In-water performance	12
5.6.1 Residual buoyancy	12
5.6.2 Fit and positioning.....	12
5.6.3 In-water behaviour, static stability.....	12
5.6.4 In-water behaviour, static stability, capsizing under extreme condition (option 1 to 3).....	12
5.6.5 Escape from the swim seat (body entrapment, <i>leg / foot</i> entanglement)	13
5.6.6 In-water behaviour, static stability retention of function	13
6 Test methods.....	13
6.1 Enhanced conditioning	13
6.2 Test apparatus and procedure	14
7 Warnings and markings	14
7.1 General.....	14
7.2 Warnings and markings on the product.....	14
7.3 Information supplied by the manufacturer	15
7.3.1 Instructions for use	15
7.4 Consumer information at the point of sale	15
Annex A (normative) Test manikins I to III.....	17

Annex B (normative) Test methods for swim seats	21
Annex C (normative) Procedures for testing resistance of markings to saliva	27
Annex D (normative) Procedures for testing efficiency of non-return valves of inflatable devices	28
Annex E (normative) Security of the pressure release of buckles	29
Annex F (normative) Procedures for testing non-objectively measurable features like donning, adjustability, retention of function, edges, corners and points by panel assessment	30
Annex G (normative) Test procedures for seam strength and durability of inflatable devices	33
Annex H (normative) Test procedures for determining the puncture resistance of inflatable devices	34
Annex I (normative) Test procedure for size of leg holes	35
Annex J (informative) Significant technical changes between this document and the previous edition EN 13138-3:2007	36
Bibliography	38

Figures

Figure 1 — Recommended layout of the product information label	16
Figure A.1 — Dimensions	18
Figure A.2 — calibration of centre of gravity	20
Figure B.1 — Positioning of manikin when testing static and dynamic stability	21
Figure B.2 — Force application and tipping angle at self righting test	22
Figure B.3 — Test board for escape test	24
Figure B.4 — Test board installation inside pool	25
Figure B.5 — Strength of entire seat assembly	26
Figure E.1 — Example of test method for buckles security	29
Figure I.1 — Torso probe	35

Foreword

This document (prEN 13138-3:2012) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13138-3:2007.

Annex J provides details of significant technical changes between this European Standard and the previous edition EN 13138-3:2007.

This European Standard is one of a series consisting of three standards dealing with buoyant devices for swimming instructions for the various stages of the learning process:

- *Part 1: Safety requirements and test methods for buoyant aids to be worn*
- *Part 2: Safety requirements and test methods for buoyant aids to be held*
- *Part 3: Safety requirements and test methods for swim seats to be worn*

iteh STANDARD PREVIEW
(standards.iteh.ai)

Introduction

SIST EN 13138-3:2015

<https://standards.iteh.ai/catalog/standards/sist/3296eb32-fcc2-47ee-9213->

The entire process of learning to swim is considered to include two stages: 015

- getting familiar with the water environment and movements in it;
- acquiring skills in standard swimming strokes.

Buoyant devices for swimming instructions (in brief: swimming device(s)) are intended to assist users (in particular children) to learn to swim. The design and purpose of the devices are related to the above stages.

Swimming devices are intended to give the user positive buoyancy in the water whilst maintaining the correct body position for swimming. However, it should not be assumed that standard conformity of the devices will by itself eliminate the risk of drowning as this depends also on the behaviour of the user and any supervision.

Although this European Standard sets performance requirements to ensure that swimming devices perform appropriately, it is essential that the devices are used correctly and under constant and close supervision. It is important to ensure that they are securely fitted to the appropriate size of user and that when correctly fitted, they cannot become displaced. Swim seats however shall allow immediate escape in case of capsizing. Therefore the use of these devices is recommended to be restricted to water out of standing depth of the user.

The highest degree of protection against drowning can only be achieved by using lifejackets. It is essential that there is a clear distinction between devices intended to preserve life and those which are intended only to assist buoyancy for the user when learning to swim. As swimming devices are not life preservers, they should only be used in swimming pools and other situations free from current, tides and waves.

The bulk storage of some types of swimming devices could, under certain conditions, result in a potential fire hazard. The perceived risk of such a hazard was evaluated against the actual risk to the user from materials

treated with certain known toxic fire retardant chemicals. However, the fire hazard is less of a problem to the user than the risk associated with the swimming devices being put in the mouth, especially by children. For this reason, flammability requirements are not included in this European Standard.

For the above reasons and to differentiate these devices from aquatic toys, advisory safety measures, including marking, warning notices and user instructions are included in this standard.

The range both of the design and function of swimming devices varies considerably and for this reason, the standard for swimming devices has been prepared in three parts, namely devices that are intended to allow the user to become familiar with water (passive user), devices that are worn (active user) and those devices that are held by the user to improve swimming strokes.

Part 1 of this European Standard is only for devices that are securely attached to the body (class B devices = for an active user). They are intended to introduce the user to the range of swimming strokes.

Part 2 of this European Standard is for devices that are held either in the hands or by the body (class C devices = for an active user) and are intended to assist with improving specific elements of the swimming stroke. For adult beginners or more advanced users they can also be used for further stages of the process to learn to swim.

Part 3 of this European Standard deals only with swim seats to assist children up to 36 months in their first attempts to learn to swim (i.e. to get familiar with the „in-water-environment“ and moving through it). The child is positioned inside the buoyant structure, which provides buoyancy and lateral support to the body, thereby keeping the child's head above water level (class A devices = for a passive user).

Swim seats allow young children to experience the water environment and being moved through it. Movements of lower limbs and arms are possible. The use of swim seats does however not replicate any form of a correct swimming stroke.

Swim seats complying with this standard provide a stable, floating position for a child sitting in the swimseat and avoids entrapment in case of capsizing. Children in swim seats do however require very close parental supervision. Overload beyond specified body weight, breaking waves and violent external forces are remaining risks that can cause capsizing. Use of these devices in water that is of the child's standing depth will increase the risk of capsizing and will hinder or block the escape from the seat in case of emergency.

Buoyant swimming aids shall be only a class A or a class B or a class C device.

1 Scope

This European Standard specifies safety requirements for design, sizing, materials, strength and in-water performance as well as provisions for marking and the information supplied by the manufacturer for swim seats. It also specifies the relevant test methods. This standard is not applicable to products covered by EN 13138-1 and -2.

This part of EN 13138 covers class A buoyancy devices in which children are seated. These devices are only intended for children aged up to 36 months with a body mass less than or equal to 18 kg.

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 71-1, *Safety of toys – Part 1: Mechanical and physical properties.*

EN 71-3, *Safety of toys – Part 3: Migration of certain elements.*

EN 15649-1:2010, *Floating leisure articles for use on and in the water – Part 1: Classification, materials, general requirements and test methods.*

EN 20105-A02, *Textiles – Tests for colour fastness – Part A02: Grey scale for assessing change in colour (ISO 105-A02).*

EN ISO 105-E03:2010, *Textiles – Tests for colour fastness – Part E03: Colour fastness to chlorinated water (swimming-pool water) (ISO 105-E03:2010).*

EN ISO 105-E04, *Textiles – Tests for colour fastness – Part E04: Colour fastness to perspiration (ISO 105-E04).*

EN ISO 105-X12, *Textiles – Tests for colour fastness – Part X12: Colour fastness to rubbing (ISO 105-X12).*

EN ISO 3696:1995, *Water for analytical laboratory use – Specification and test methods (ISO 3696:1987).*

EN ISO 12402-7:2006, *Personal flotation devices – Part 7: Materials and components - Safety requirements and test methods (ISO 12402-7:2006).*

EN ISO 12402-9:2006, *Personal flotation devices – Part 9: Test methods (ISO 12402-9:2006).*

3 Terms and definitions

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

3.1 buoyancy
resultant upthrust of a swimming device when totally submerged in fresh water with its uppermost part just below the water surface

3.2 inherent buoyancy
upthrust provided by material which is less dense than water or by sealed chambers that are not inflatable and are filled with air or gas

3.3**buoyant swimming device**

garment or device which when worn or held correctly will provide the buoyancy required to become familiar with movement through the water, assist with learning to swim or to improve swimming strokes

3.4**minimum buoyancy**

least buoyancy required by the standard

3.5**original buoyancy**

buoyancy provided by the complete device when first tested

3.6**class A device**

buoyant device in which the child is in contact with the water positioned inside the buoyant structure. This device is intended to allow the user to become familiar with the water environment.

Note 1 to entry: The device will keep the passive user in a stable floating position so that the base of the chin is at or above the surface of the water

3.7**class B device**

buoyant swimming device intended to be worn, to be securely attached to the body and to introduce the active user to the range of swimming strokes

3.8**class C device**

device intended to be held either in the hands or, by the body and to assist with swimming strokes and/or improving specific elements of the strokes.

3.9**device to be worn**

device having either inherent buoyancy or may be inflated to provide buoyancy and which is securely attached to the body in such a way that it cannot be accidentally removed and so as to provide the user with positive buoyancy

3.10**device to be held**

device held either in the hands or by the body and provides buoyancy whilst it is being held by the user

3.11**conditioning**

process to which the complete device shall be submitted and comprising a number of cycles, to simulate the conditions to which the device is likely to be subjected in normal use and storage.

Note 1 to entry: The conditioning process includes immersion in chlorinated swimming pool water and storage in cold and hot conditions

3.12**component**

sub group of the entire device which contributes to either buoyancy, function or safety

3.13**swim seat**

buoyant device intended to introduce the user to the aquatic environment and to build water confidence as a pre-requisite to learning to swim. Swim seats provide safety for the user but do not guarantee protection against drowning.

prEN 13138-3:2012 (E)

Note 1 to entry: Swim seats are learning aids and should not be mistaken with aquatic toys as defined in EN 71-1.

3.14**swim seat system**

all integrated components (parts) of a swim seat which contribute to stable floating conditions and to safety during normal use or after an emergency capsizing

3.15**escape**

complete separation between the test dummy and the swim seat in case of a deliberate capsizing of the swim seat or swim seat system

3.16**assessment panel**

group of three people who are appointed by an accredited and notified test house, all of whom are experienced in assessing buoyant swimming devices

3.17**kick board**

buoyant device designed to be held in the hands or by the arms in order to support the body in the water to assist the user to improve swimming strokes

4 Classification**4.1 General**

Buoyant swimming devices shall be classified according to Table 1:

Table 1 — Classification of buoyant devices

Class	Description
A	Device in which the child is positioned inside the buoyant structure and is in contact with the water. This device is intended to allow the user to become familiar with the water environment and movement through it. The device will keep the passive user in a stable floating position so that the base of the chin is at or above the surface of the water.
B	Buoyant swimming device intended to be worn, to be securely attached to the body and to introduce the user to the range of swimming strokes.
C	Device intended to be held in the hands or by the body to assist with swimming strokes.

4.2 Categorisation

The requirements given in Table 2 were chosen to ensure compliance between swim seat sizes and manikin in all relevant test procedures.

Table 2 — Values for categorisation

Age years	Mass (equivalent to age) ^a	Manikin
≤ 1	≤ 11 kg	I
> 1 to 2	> 11 kg to 15 kg	II
> 2 to 3	> 15 kg to 18 kg	III

5 Safety requirements

5.1 General

Construction of a buoyant swimming device shall be such that it corresponds in terms of design, dimensions, safety, strength and durability for its intended use. The requirements set out were chosen to ensure compliance with these considerations.

Where buoyant swimming devices are provided in several components, the requirements apply to all components. These components shall be permanently attached to the swim seat or form an integral, functional part of it in the same way that the entire swim seat cannot be used without all components.

Where buoyancy is not inherent, devices shall have a residual buoyancy and shall be tested for safety using the dummy test to ensure that the airway is always kept clear of the water. A device may be only class A or class B or class C.

NOTE When choosing a material for the device, consideration should be given to the eventual disposal of the device having regard to any possible impact on the environment.

5.2 Design

5.2.1 Avoidance of similarities to aquatic toys

5.2.1.1 Shape

Design and appearance of swim seats shall not evoke the impression of being an aquatic toy.

Inflatable buoyancy chambers or buoyancy chambers filled by air or inherently buoyant material shall be limited in number and volume to the functional needs of providing sufficient buoyancy and safety. There shall be no toy elements or above water level structures like e.g. animal imitations, car or boat structures or other elements evoking the character of an aquatic toy and no wind catching structures e.g. canopy or sun-shade.

5.2.1.2 Colour and Decorations

These products shall be manufactured in bright colours that are in contrast to the water surface so as to be visible at all times when in use. Wholly transparent or materials in any shade of undecorated blue in the visible areas are not acceptable. Warnings etc. (see 7.2) shall be printed in contrasting colours to the background on which they are printed.

prEN 13138-3:2012 (E)

NOTE For safety reasons and to assist in supervising children when in the water, the visible areas of these products when being used must be clearly visible from the water's edge or the poolside when the water is crowded, moving or may not be clear.

5.2.1.3 Special features

Special features or equipment like handles etc shall not impair the safety of the device. Requirements given in 5.6, in water behaviour, shall be met with and without detachable equipment.

5.2.2 Edges, corners and points

Buoyant swimming devices shall be of a design such that they cannot cause harm to the user. Edges and corners of hard and rigid materials shall be chamfered or rounded.

Round edges or corners shall have a minimum radius of 1 mm and where a chamfer is part of the design, it shall be of $(45 \pm 5)^\circ$ and at least 1 mm in width. There shall be no barbs or other sharp points or features. Testing shall be by measurement and tactile assessment in accordance with Annex F.

5.2.3 Buckles, zippers and other fixings

If buckles, zippers or other detachable fastening devices are used as parts of the entire device in order to attach the device to the body or in order to connect functional parts or components they shall require at least two simultaneous or sequential actions for their release or opening in order to prevent unintended opening or where one single action can be applied and relies on pressure for release, it shall be necessary to apply a force of at least 50 N.

Testing shall be in accordance with Annex E. Verification shall be executed by the assessment panel according to Annex F in the context of the relevant opening/closing system.

5.2.4 Small parts

Attached small parts shall withstand a pull of (90 ± 2) N in the direction most likely to cause failure without becoming detached from the device. Parts which can become detached shall not fit wholly into the small parts cylinder, testing of which shall be in accordance with EN 71-1.

5.2.5 Valves and stoppers

Inflatable devices shall be fitted with non-return valves. Stoppers shall be connected to the body of the valve. The protrusion of the valve, and stopper shall not catch a test chain when tested in accordance with paragraph 5.5 of EN 15649-1:2010.

The non-return valve shall ensure that, with an opened stopper, inflatable devices when tested in accordance with Annex D shall after a period of 2 min retain at least 75 % of their original buoyancy.

Testing shall be by inspection and measurement in accordance with the procedures in 5.5.9 of EN ISO 12402-9:2006.

5.3 Sizing

Sizing of swim seats shall be in accordance with the range of body weights and age groups as specified in Table 2. The size of the device shall be indicated on the product (see clause 7) and by marking the relevant box(es) according to Figure 1 by ticking in a [✓]. The size of the leg holes, when tested in accordance with Annex I, shall not allow the probe to pass through.

5.4 Materials

5.4.1 Thread

To sew load bearing components, only threads manufactured from synthetic materials whose properties correspond to polyester or polyamide fibres shall be used.

5.4.2 Resistance to puncturing

Where buoyant swimming devices incorporate air filled buoyancy chambers, the chambers shall remain airtight when tested in accordance with the procedures given in Annex H.

5.4.3 Resistance of foam and other inherent buoyant material to water absorption

When tested in accordance with the procedures given in 5.5.5 of EN ISO 12402-9:2006, the material sample shall lose no more than 10 % of its original buoyancy. The materials shall be tested using a new and conditioned sample of the inherent buoyant material.

5.4.4 Resistance of foam and other inherent buoyant materials to compression

Buoyant swimming devices manufactured from foam or other inherently buoyant materials shall be capable of withstanding compression and other movements in normal use without sustaining permanent loss of buoyancy. When tested in accordance with 4.8 of EN ISO 12402-7:2006, a new and conditioned sample of the buoyant material not used in other tests shall not lose more than 10 % of its buoyancy.

5.4.5 Migration of certain elements

Swimming devices shall conform to the requirements given in EN 71-3. A new and unconditioned complete device shall be tested.

5.4.6 Resistance to chlorinated salt water

After the complete enhanced conditioning according to the procedures in 6.1, the entire deflated device shall be tested for change in colour and damage. The change in colour shall be tested according to EN 20105-A02 and shall be 3 or better on the grey scale. Inflatable devices, after being dried, shall be orally inflated to their maximum volume and inspected for air leakage. All devices shall be inspected for damage or deterioration.

5.4.7 Material used for markings

5.4.7.1 General

The tests described in 5.4.7.2 to 5.4.7.4 shall not apply where the markings are debossed onto or moulded into the device.

5.4.7.2 Resistance of the markings to saliva

When tested in accordance with the procedures in Annex C, the change in colour of the markings on the grey scale shall be 3 or better when assessed according to EN 20105-A02.

5.4.8 Resistance of the markings to perspiration

When tested in accordance with EN ISO 105-E04 the change of colour of the markings on the grey scale shall be 3 or better when assessed according to EN 20105-A02.