ICS 97.220.40 SLOVENSKÁ TECHNICKÁ NORMA Február 2025

STN	**Plávajúce výrobky na voľný čas na používanie na a vo vode Časť 4: Ďalšie špecifické bezpečnostné požiadavky a skúšobné metódy na prostriedky triedy B (ISO 25649-4: 2024)**	**STN EN ISO 25649-4** 94 0542

Floating leisure articles for use on and in the water - Part 4: Additional specific safety requirements and test methods for Class B devices (ISO 25649-4:2024)

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. 01/25

Obsahuje: EN ISO 25649-4:2024, ISO 25649-4:2024

Oznámením tejto normy sa ruší
STN EN ISO 25649-4 (94 0542) z apríla 2018

139997

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 25649-4

November 2024

ICS 97.220.40

Supersedes EN ISO 25649-4:2017

English Version

Floating leisure articles for use on and in the water - Part 4: Additional specific safety requirements and test methods for Class B devices (ISO 25649-4:2024)

Articles de loisirs flottants à utiliser sur ou dans l'eau - Partie 4: Exigences de sécurité et méthodes d'essai complémentaires propres aux dispositifs de Classe B (ISO 25649-4:2024)

Schwimmende Freizeitartikel zum Gebrauch auf und im Wasser - Teil 4: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Artikel der Klasse B (ISO 25649-4:2024)

This European Standard was approved by CEN on 2 November 2024.

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Ref. No. EN ISO 25649-4:2024 E

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European foreword

This document (EN ISO 25649-4:2024) has been prepared by Technical Committee ISO/TC 83 "Sports and other recreational facilities and equipment" in collaboration with 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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 ISO 25649-4:2017.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, 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 the United Kingdom.

Endorsement notice

The text of ISO 25649-4:2024 has been approved by CEN as EN ISO 25649-4:2024 without any modification.

Annex ZA
(informative)

Relationship between this European standard and the safety requirements of Directive 2001/95/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request Mandate **M/372 Floating leisure products for use on or in the water** to provide one voluntary means of conforming to the product safety requirements for floating leisure products for use on or in the water pursuant to **Directive 2001/95/EC** of the European Parliament and of the Council.

Once this standard is cited in the Official Journal of the European Union under that **Directive 2001/95/EC**, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety requirements set in the Directive and specified in the request M/372 and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Commission Decision No 2005/323/EC of 21/04/2005 implementing the General Product Safety Directive 2001/95/EC and Commission's standardization request M/372 for floating leisure articles for use on or in the water

Correspondence between this European Standard and the Safety Requirements of Commission Decision No 2005/323/EC implementing the Directive 2001/95/EC and specified in the request M/372	Clause(s)/subclause(s) of this EN ISO 25649-4	Remarks/Notes
C.1 Specific safety requirements		
C.1 (a) floating stability in accordance with the intended and foreseeable use;	4.4, 4.5	
C.1 (b) minimum buoyancy and, in case of inflatable articles, residual buoyancy after failure of one air chamber. Additionally retention of function where appropriate and in particular where collective use is intended or likely;	4.4, 4.5	
C.1 (d) easy escape in case of capsizing, avoidance of any other forms of entrapments or entanglement regarding parts of the human body	4.4.5, 4.5.4, A.5, A.7.5	
C.1 (e) means to facilitate re-embarkation in particular where collective use is intended as well as means of getting hold when in the water in an emergency;	N/A	
C.1 (f) presence of a reliable quick release for products moved (towed) at high speed;	N/A	

Correspondence between this European Standard and the Safety Requirements of Commission Decision No 2005/323/EC implementing the Directive 2001/95/EC and specified in the request M/372	Clause(s)/subclause(s) of this EN ISO 25649-4	Remarks/Notes
C.2 Warnings and information in respect of cautious use of the product		
C.2 (a) labelling regarding limitation of use:		
— Number of users	4.2	
— Total weight	4.2	
— Risks linked to wind	4.1, Clause 5	
— currents and tides	4.1, Clause 5	
— specifications on distance from shore	4.1, Clause 5	
— height	4.1, Clause 5	
— speed	4.1, Clause 5	
— interactions with other products and objects (safety distance)	4.1, Clause 5	
— foreseeable misuse	4.1, Clause 5	
C.2 (b) Warning “Attention: no protection against drowning. Swimmers only”	Clause 5	
C.2 (c) Use of adequate personal protective equipment (PEE) against drowning and for impact resistance.	Clause 5	
C.2 (d) Instruction of inflation and pressure conditions, maintenance, repair, storage and disposal (repeated use and aging process)	5.4	
C.2 (e) specific warnings for categories of consumers at risk when using product (children, non-swimmers, elderly, etc.)	5.2, 5.3, 5.4.2, 5.4.4	

WARNING 1 Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 Other Union legislation may be applicable to the products falling within the scope of this standard.

International Standard

ISO 25649-4

Floating leisure articles for use on and in the water —

Part 4: Additional specific safety requirements and test methods for Class B devices

Articles de loisirs flottants à utiliser sur ou dans l'eau —

Partie 4: Exigences de sécurité et méthodes d'essai complémentaires propres aux dispositifs de Classe B

Second edition
2024-10

Reference number
ISO 25649-4:2024(en)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO *[had/had not]* received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 136, *Sports, playground and other recreational facilities and equipment,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 25649-4:2017), which has been technically revised.

The main changes are as follows:

— update of the introduction;

— update of Clause 2;

— in Table 3, modifications of smallest interior dimensions for xx-large devices;

A list of all parts in the ISO 25649 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 General

Class B devices are marketed and used for activities in the water. Typically, they are characterized by a partly immersed position of the user inside the device, distinguishing them from other floating devices. The development of new products in this area is progressing. Beyond the classical swim seat rafts for more dynamic action on and in the water, different body postures and extended user groups have been developed. ISO 25649-4 aims at increased safety with regard to all foreseeable uses of Class B floating leisure articles.

This document does not apply to only one technically clearly determined product, but to a diverse group of products including two major design principles, B1 and B2, as laid down in the classification of Class B floating leisure articles (see Clause 4).

Figure 1 shows the distinction between Classes B1 and B2 products.

Class B1 includes products, e.g. swim seats for children older than 36 months, with an interior body holding system. In the case of very young users (non-swimmers 4-years-old and older) the body position can be such that the body is kept afloat and laterally supported by a surrounding inflatable structure. This structure provides a relatively tight fit between user and buoyant structure, creating a risk of entrapment in case of capsizing.

Class B1 products for children younger than 36 months are dealt with in EN 13138-3:2021.

Class B2 products do not provide this kind of support for the body of the user. Although they have a circumferential buoyant structure in common with Class B1 products – and thus a risk of entrapment if this fit becomes too tight – flotation of the user depends on his ability to hold himself by hands or body inside the very loosely surrounding buoyant structure.

Both classes of products include also adult use. Activities range from passive floating to actions such as wave surfing, tubing, balancing, swinging, etc. (See Figure 1). The devices are associated with the identified risks given in Table 1.

Since Class B products support the user's body in a partly and permanently immersed position, they do not need requirements for re-embarkation (unlike ISO 25649-3 devices). The degree of immersion can vary. In the case of a big floating ring, e.g. B1.1 and B2.2, the user can be immersed up to the chest or only the buttocks can be immersed. In the case of B1-products (e.g. swim seat), the human body is permanently immersed to a large degree.

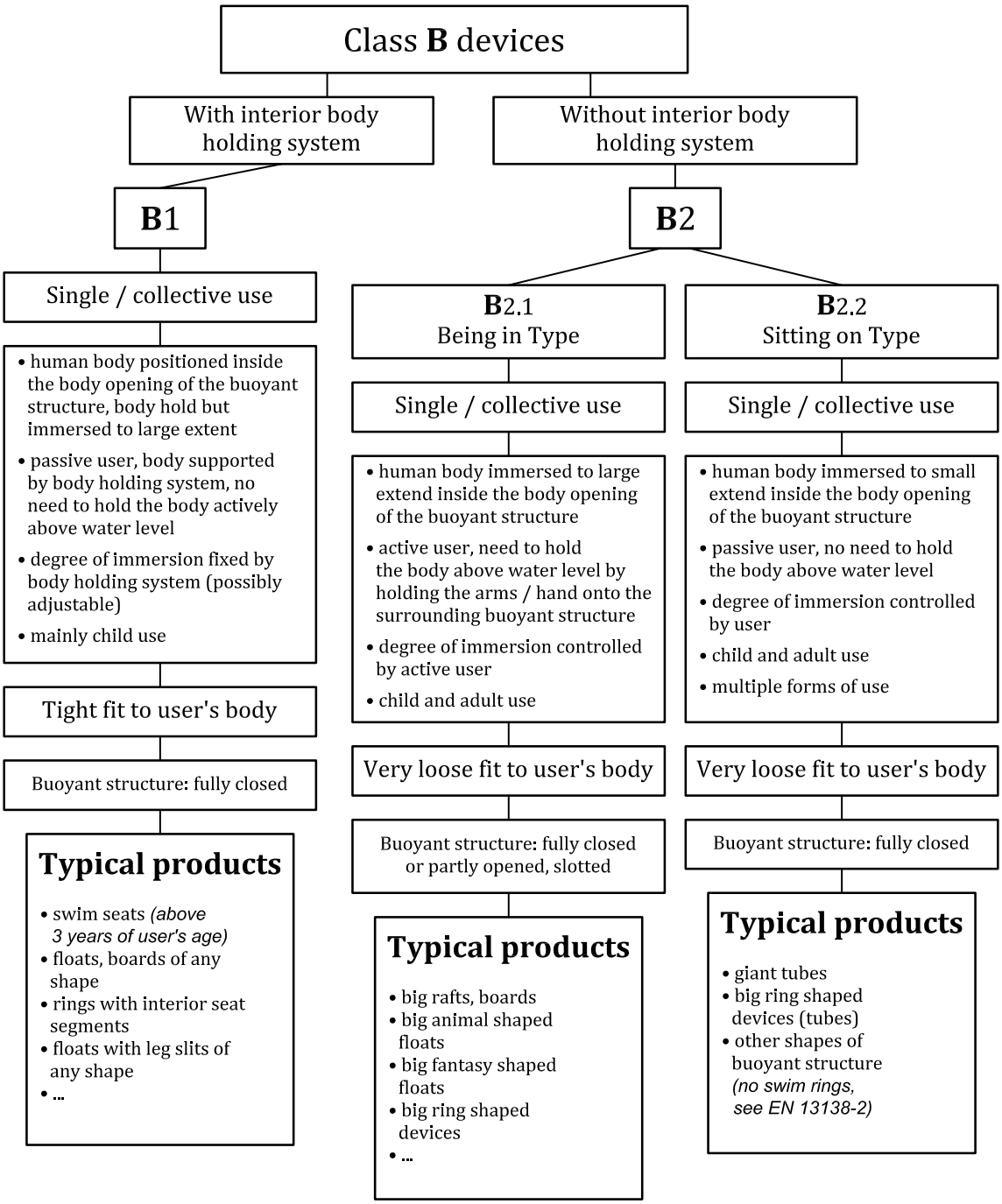
Dealing with a partly intentionally immersed human body leads to the question of loads to be applied for appropriate testing. For the purpose of this document, load resulting from the body weight is set with 75 % of the body weight of the heaviest foreseeable or specified user, even when in certain circumstances this immersed body weight may be reduced to roughly 10 %. In the case of devices on top of which the user can sit (e.g. big rings) the maximum body weight out of the stipulated user group is assessed as adequate.

0.2 Child testing

See Annex A and ISO 25649-1:2024, Clause 4, as alternatives. Class B products can be used by children from the age of 4 years. Some essential requirements ensuring safety in use and in dangerous situations which can occur – e.g. capsizing – cannot be simulated and verified via the application of forces or other instrumental procedures, but only by practical testing involving human test subjects or test manikins that sufficiently represent the envisaged user groups. Children testing increases the nearness to real-life situation but can lead to subjective results. An increased number of test cycles is an appropriate means to get an average result that makes the subjective test more objective. The use of test manikins reduces the nearness to real life situation but increases reproducibility of testing. The worst alternative is to eliminate certain requirements if they cannot be verified for the lack of either test manikins or human test subjects.

This document refers amongst others to children as test subjects. The anthropometric requirements related to these test subjects are based on children 5 years of age and 9 years of age with a body height of 126 cm and 149 cm and a body weight of 25 kg and 38 kg, respectively. Children of 14 years of age and above can be represented by the smallest adult female person representing the 5th percentile of the anthropometric range.

In order to provide in all cases an alternative to child testing, the anthropometric data of relevant manikins are specified for optional application in Annex A.



NOTE Rings and ring shaped tubes dealt with in this document are in no case swim rings as means to learn to swim (see EN 13138-2) but water leisure articles for hanging in or sitting on.

Figure 1 — Interior structure Class B devices

Table 1 — Introductory risk analysis

Class	Typical products	Place of use	Function; range of usage; target/ age group	Type of movement/ propulsion	Position of user in regard to the equipment, elevation above water	Predictable misuse	Partial risk related to water environment	Final risk	Protection aims standard/ regulation
B (B1, B2)	Floating structures with circumferential buoyancy chambers around user's body, body opening with (B1) or without (B2) interior body holding system, various body postures	Depending on age group and capability to swim: pool, close to shore, lake, pond	Children; adolescents; large variety with regard to age and use (max. 16 years to 18 years); no infants	Mainly drifting; propulsion only by swimming strokes; third party acting, moving by hand paddling, action in waves for adolescents	In-water position; main parts of body are below the water surface; no elevation above water level, sitting kneeling, standing, laying	Dangerous distance from bank/ shore; use in currents and/ or dangerous off-shore winds; use by non-swimmers (B2); capsizing (B1); wrong size allocation (user wedged-in device); lack of supervision	Capsizing, entrapment, entanglement; capsizing in combination with entrapment can lead to fatal accidents; drifting away through current or wind	DROWNING	Avoidance of entrapment or entanglement; floating stability; residual buoyancy; warning notes; easy escape in the case of capsizing; adult supervision; suitable sizing system

International Standard **ISO 25649-4:2024(en)**

Floating leisure articles for use on and in the water —

Part 4:
Additional specific safety requirements and test methods for Class B devices

1 Scope

This document specifies additional specific safety requirements and test methods for Class B floating leisure articles for use on and in the water regardless whether the buoyancy is achieved by inflation or inherent buoyant material.

This document is applicable for Class B floating leisure articles as specified in ISO 25649-1:2024, Table 1.

Class B devices provide a buoyant structure with one or more body openings into which the user is positioned partly immersed.

NOTE 1 Typical products in Class B (see Annex B):

— floating rafts with interior body holding system (“swim seats”) mostly in circular or square shape, fantasy shape for playing purposes;

— floating fantasy shaped structures with one or more openings to host a child’s body, with or without body holding system;

— floating with slits or openings to put legs through any shape;

— floating rings with interior seat segments inside the circular body opening.

NOTE 2 Typical places for application:

— pools;

— protected areas of lakes, ponds;

— protected areas of sea shore (no offshore winds, no currents).

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.

ISO 25649-1:2024, *Floating leisure articles for use on and in the water — Part 1: Classification, materials, general requirements and test methods*

ISO 25649-2:2024, *Floating leisure articles for use on or in the water — Part 2: Consumer information*

EN 13138-3:2021, *Buoyant aids for swimming instruction — Part 3: Safety requirements and test methods for swim seats into which a user is positioned*