



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**



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Foreword

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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).

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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.

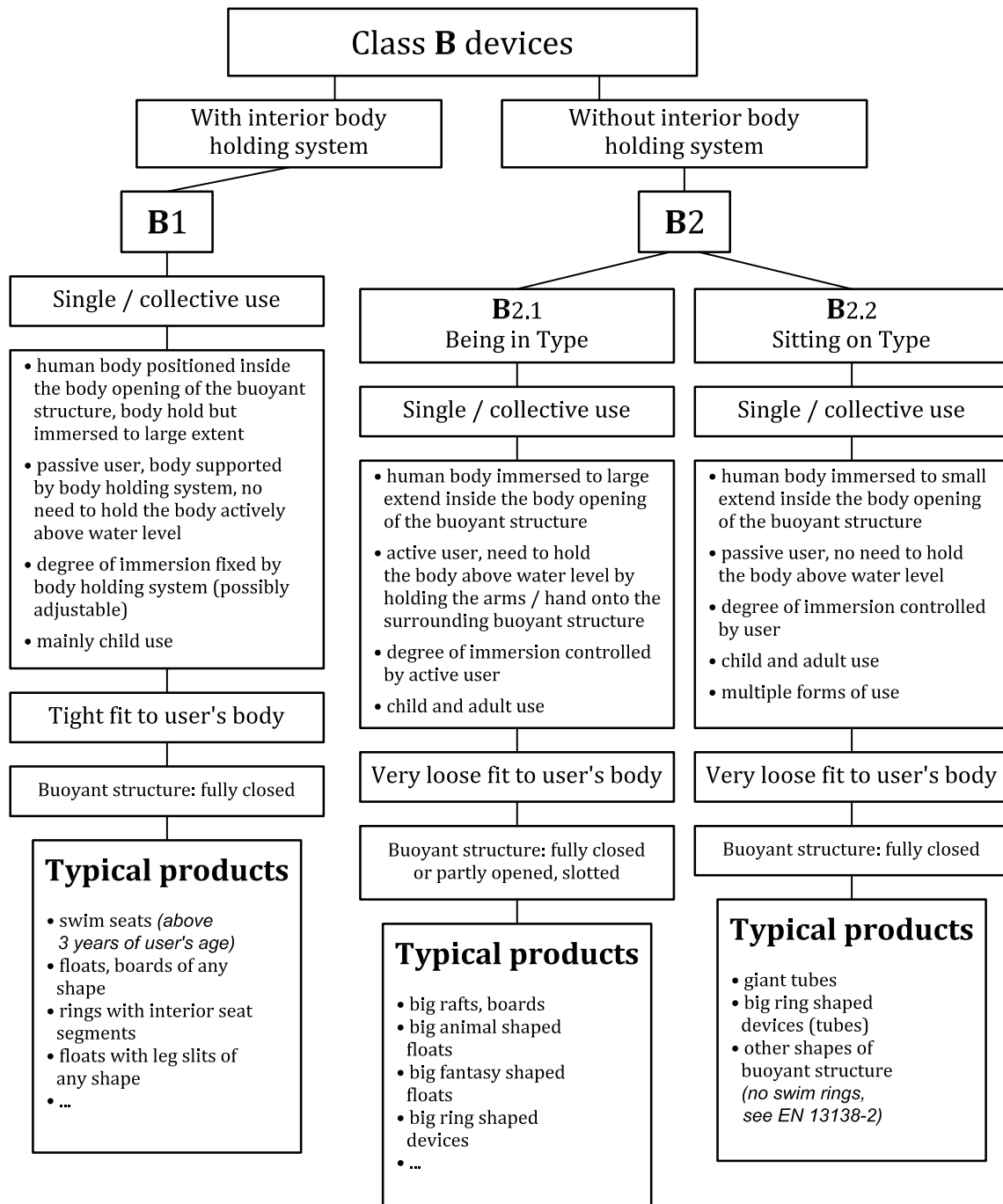
Dealing with a partly intentionally immersed human body leads to the question of loads to be applied for appropriate testing. For the purpose of this document, load resulting from the body weight is set with 75 % of the body weight of the heaviest foreseeable or specified user, even when in certain circumstances 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

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 25649-1:2024 and the following apply.

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

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

3.1

residual buoyancy

provision of remaining buoyancy in case of a defect of a buoyancy chamber

3.2

floating stability

capability of a non-moving buoyant structure to withstand internal and external forces that tend to capsize it and to maintain a stable floating position

Note 1 to entry: Internal forces leading to capsizing can result from uneven load distribution, external forces leading to capsizing can result from wind or waves.

3.3

device to be balanced by the user

product of which the upright floating depends on user's skill and sense to balance it

3.4

escape

easy and complete separation between the user and the device in case of capsizing of the device or system without hindrance through a part or feature of the floating device

3.5

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, which provides safety for the user but no guaranteed protection against drowning

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

[SOURCE: EN 13138-3:2021, 3.11]

3.6

body holding system

system that is constituted by any means inside the circumferential buoyant structure that supports the user's body

Note 1 to entry: Body holding systems enable users to stay in the partly immersed position without needing to hold themselves to not slip through the opening into the water. The body holding system can be designed to allow a sitting, kneeling, standing or lying posture. It can be integrated into the interior opening of the buoyant structure or added as a separable component.

3.7

inherent buoyant material

non-crosslinked (closed-cell) foam or other materials enclosed in (a) sealed compartment(s) in the hull that have a specific weight lower than 1 kg/dm³

Note 1 to entry: Floating leisure articles made from inherent buoyant material are considered buoyant structures (hull) achieving all or parts of their intended shape and buoyancy through soft foam, hard foam or sealed chambers filled with air, gas or granules.

4 Safety requirements and test methods

4.1 General

Construction of Class B devices shall be such that it corresponds, in terms of design, dimensions, safety, strength and durability to its intended use.

Where Class B devices are provided in several components, the requirements set out in ISO 25649-1:2024 shall be applied to all components. These components shall be permanently attached if they contribute indispensably to safety and performance.

With regard to general material and design requirements, Class B devices shall meet the requirements specified in ISO 25649-1:2024.

In individual cases, due to the unpredictability of future products, a corresponding choice shall be made.

Class B products shall be marked with the safety information markings, as specified in ISO 25649-2:2024, Clause 4.

4.2 Sizing

4.2.1 Sizing of B1 devices, fit to user's body and test probes

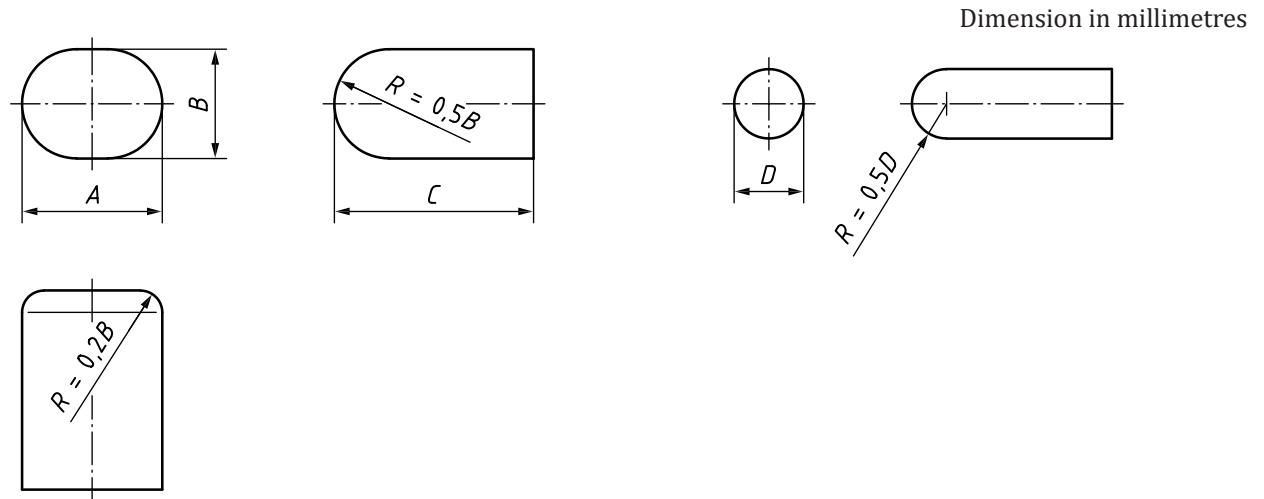
4.2.1.1 Requirements

The child's torso and thighs shall be represented by test probes representing the anthropometrically relevant 95th percentile, male body dimensions of the labelled age/weight group. The torso and thigh probes shall slip easily through the body or leg openings respectively (see [Figure 2](#)).

Sizing of Class B1 devices shall be in accordance with the range of body weights and age groups as specified in [Table 2](#) (for sizing safety information symbols see ISO 25649-2:2024).

Table 2 — Minimum dimensions for interior body openings

Body weight	Age range	Torso probe dimensions $A^a \times B^a \times C^a$	Thigh probe diameter D^a
kg	years	mm	mm
22 to 25	4 to 5	$260 \times 210 \times 400$	168 ^a (140 ^b)
28 to 34	6 to 8	$310 \times 240 \times 450$	192 ^a (160 ^b)
38 to 48	9 to 11	$330 \times 250 \times 500$	222 ^a (185 ^b)
54 to 61	12 to 13	$350 \times 260 \times 550$	264 ^a (220 ^b)
69 and above	14 and above	The 14 year-old child user may be represented by the human adult test subject 4 as specified in ISO 25649-1:2024, Table 2. ISO 25649-1:2024, Table 2 can be consulted for test subjects above 14 years of age (test persons 3 and 4).	
^a Anthropometric data, + 20 % safety margin (applicable test value).			
^b 95 th percentile, male, oldest child of age range.			



Key

- A, B, C torso probe dimensions (in mm)
- D thigh probe diameter (in mm)
- R radius (in mm)

Figure 2 — Test probes for torso and thighs

The material of the probe in [Figure 2](#) and [Figure 3](#) shall be a rigid material (e.g. wood or plastic).

The interior size of the device corresponds to the relevant body weight as specified in [Table 2](#). This size [designated user(s)] shall be labelled on the product and on the packaging by applying the following safety information symbols specified in ISO 25649-2:2024:

- “user’s body weight range” (Figure 24);
- “size designation for interior size” (Figure 33);
- “risk of getting entrapped if size is not appropriate” (Figure 10);
- “avoid entrapment, ensure loose fit” (Figure 26).

4.2.1.2 Test method

For the application of torso and leg probes, check whether the required safety information symbols have been applied by visual verification.

NOTE The body opening for users up to 14 years old are given in [Table 3](#) only to avoid body entrapment and provide space for action. As there is no longer need for body support, they can be seen as minimum dimensions for the biggest user of the range. Adult use can be provided for therapeutic purposes and other uses.

4.2.2 Sizing of B2.1 (being-in type) devices, loose fit to body

4.2.2.1 Requirements

The interior space of Class B2.1 devices shall be such that in any case the biggest designated user will still keep a very loose fit to his/her body and will in no case get entrapped by the surrounding buoyant structure (see also [4.5](#)).

Devices shall be labelled with the safety information symbols “user’s body weight range” and if appropriate with “maximum load capacity” for maximum load and body weight, in accordance with ISO 25649-2:2024, Figure 24 and Figure 27 respectively. Sizing shall be in accordance with [Table 3](#).

4.2.2.2 Test method

For the application of torso probes, verify visually whether the required safety information symbols have been applied.

4.2.3 Sizing of B2.2 (sitting-on type) devices, loose fit to the body

4.2.3.1 Requirements

The interior space of B2.2 devices is deemed to prevent the user from sagging in and thus trapping the body, if the following requirements are met.

- The interior space dimensions are in accordance with [Table 3](#) and labelled according to this document (See ISO 25649-2:2024, Figure 33 for safety information symbol “size designation for interior size”).
- Safety information symbols have been applied, as specified in ISO 25649-2:2024: “risk of getting entrapped if size is not appropriate” (Figure 10), “avoid entrapment ensure loose fit” (Figure 26) and “user’s body weight range” (Figure 23).
- Entrapment shall not be permitted. The sizing of devices shall be designed accordingly. The intended user shall be able to slip vertically through the opening and it shall not be able to become entrapped when sagging down into the opening from a “sitting-on” position.

If B2.2 devices are equipped with a bottom (sheet, mesh, etc.), ISO 25649-3:2024 applies.

Table 3 — Sizing for the inner opening of “being-in” (B2.1) and “sitting-on” (B2.2) devices

No.	Size	Smallest interior dimension mm	Max. body weight kg	Age category years
1	x-small	310 ^a (260)	25	Child, 4 to 5
2	Small	370 ^a (310)	34	Child, 6 to 8
3	Medium	370 ^a (330)	48	Child, 9 to 11
4	Large	400 ^a (348)	61	Child, 11 to 13
5	x-large	440 ^a (360)	69 to 100	Adult, 14 and older
6	xx-large	570 ^b	69 to 120	Adult, 14 and older
^a 95 th percentile, male × 1,2 = min. inner diameter (the dimensions are rounded and harmonized).				
^b Obese adult persons, biggest available clothing size, for more extreme body build warning shall be obeyed.				

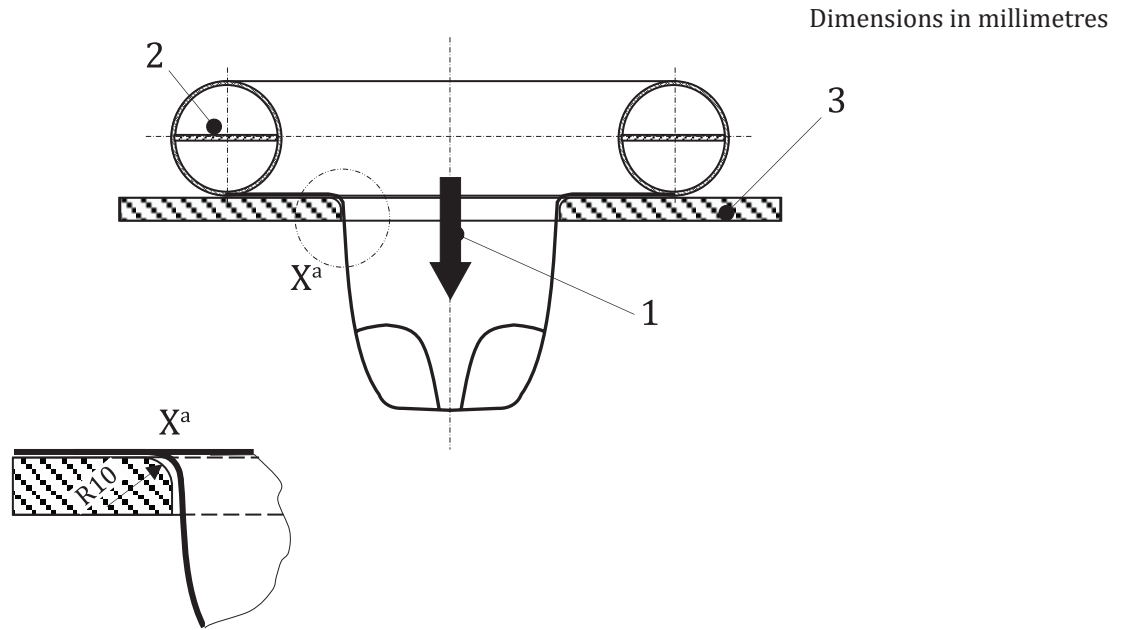
4.2.3.2 Test method

Measurement of inner width by test probes shall be in accordance with [Table 3](#).

4.3 Strength of entire device Class B1

4.3.1 Requirement

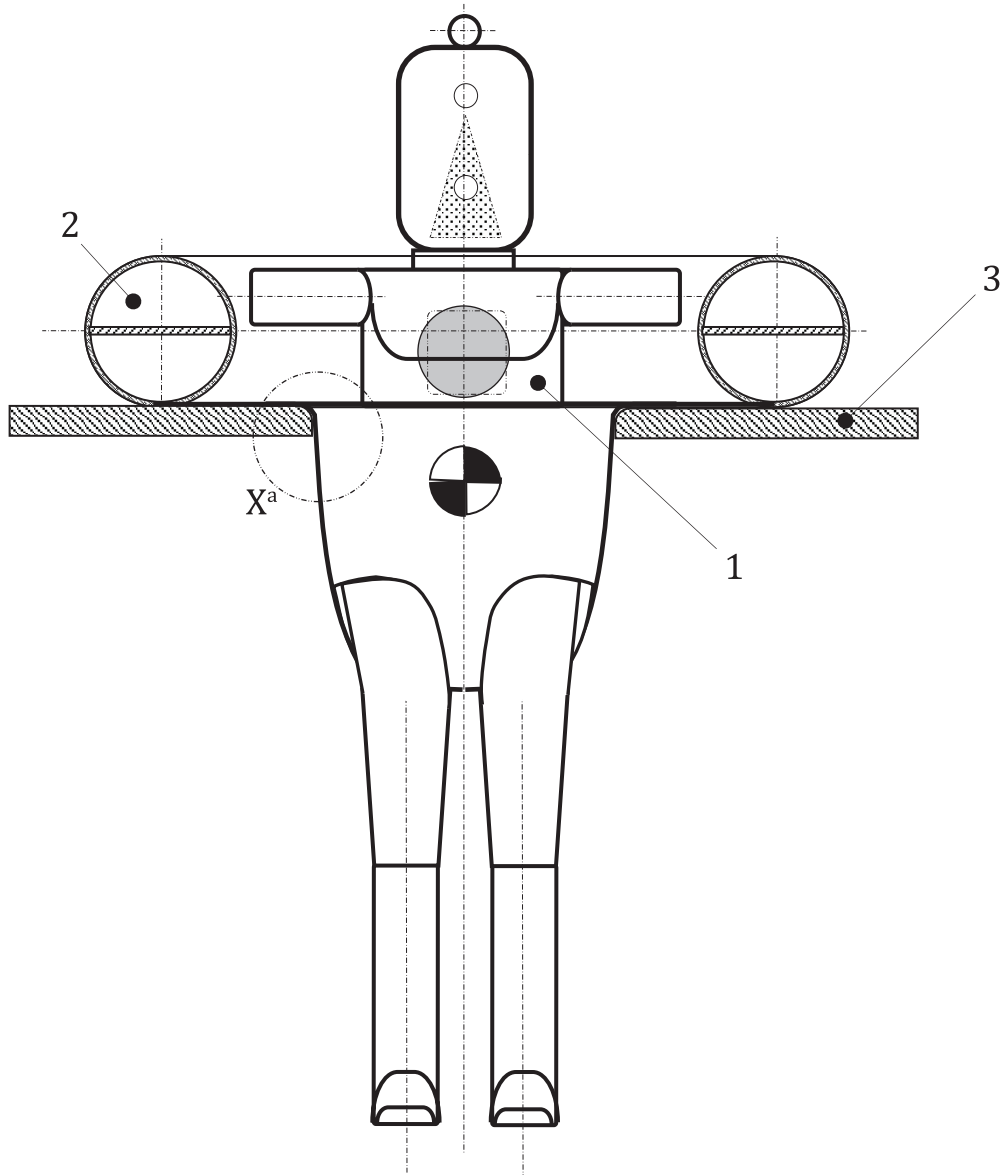
When tested in accordance with [4.3.2](#), no part or component of the Class B1 device, e.g. body holding system, straps, seat pants or their attachment to the buoyant structure (welding seams) shall break or show any deficiency compromising safety. Loads shall be applied according to [Figure 3](#) for the vertical force or according to [Figure 4](#) for the load application.



Key

- 1 load (body mass of max. designated user)
- 2 B1 device (swim seat)
- 3 test board, opening in compliance with the contour of B1 device to be tested
- ^a Radius of test board's upper edge.

Figure 3 — Class B1, strength of entire device, load application by single load



Key

- 1 load (test manikin according to max. designated user)
- 2 B1 device (swim seat)
- 3 test board, opening in compliance with the contour of B1 device to be tested
- ^a Radius of test board's upper edge (see [Figure 3](#)).

Figure 4 — Class B1, strength of entire device, test manikin application

4.3.2 Strength of entire device Class B1, test method

Place the device on an appropriate even surface in a way that the buoyancy structure is completely supported and the body holding system hangs freely downwards where applicable. Load the body holding system with a dead weight representing the body mass of the maximum user of the designated body weight range. Load duration: 10 min, ambient temperature 20 °C. Alternatively, the test manikins as specified EN 13138-3:2021, Annex A, may be applied as near to reality load where applicable.

4.4 In-water performance of Class B1 devices

4.4.1 In-water behaviour, static floating stability of Class B1 devices for children of 4 years old to 8 years old

4.4.1.1 Requirements

With the appropriate loading device in position as specified in [4.4.1.2](#), Class B1 products for children up to 5 years or up to 8 years of age shall not capsize when subjected to the test as specified in [4.4.1.2](#). Alternatively, the test manikins and test procedures as specified in EN 13138-3:2021, Annex B may apply for products for this age group.

4.4.1.2 Testing by load application (Class B1, mechanical testing)

4.4.1.2.1 General

Testing shall comprise the following test sequences.

- a) Device fully inflated and load applied asymmetrically inside the device (tangentially) at the inner wall or, in case of neighbouring chambers, at the inner wall of the outer buoyancy chamber at the place most likely to cause to failure (see [Figures 5](#) and [6](#)).
- b) Air chamber most likely to cause failure deflated (residual buoyancy), device loaded at the centre line of each body opening but at a distance d from centre point of the body opening. The load L shall represent 75 % of the body weight and the distance $d = 25$ % of the body width of the biggest allowable user of the stipulated age range. Body weights: see [Table 3](#); body sizes: according to symbol e in EN 13138-3:2021, Table A.1.

4.4.1.2.2 Test board(s)

Material: wood or similar rigid material.

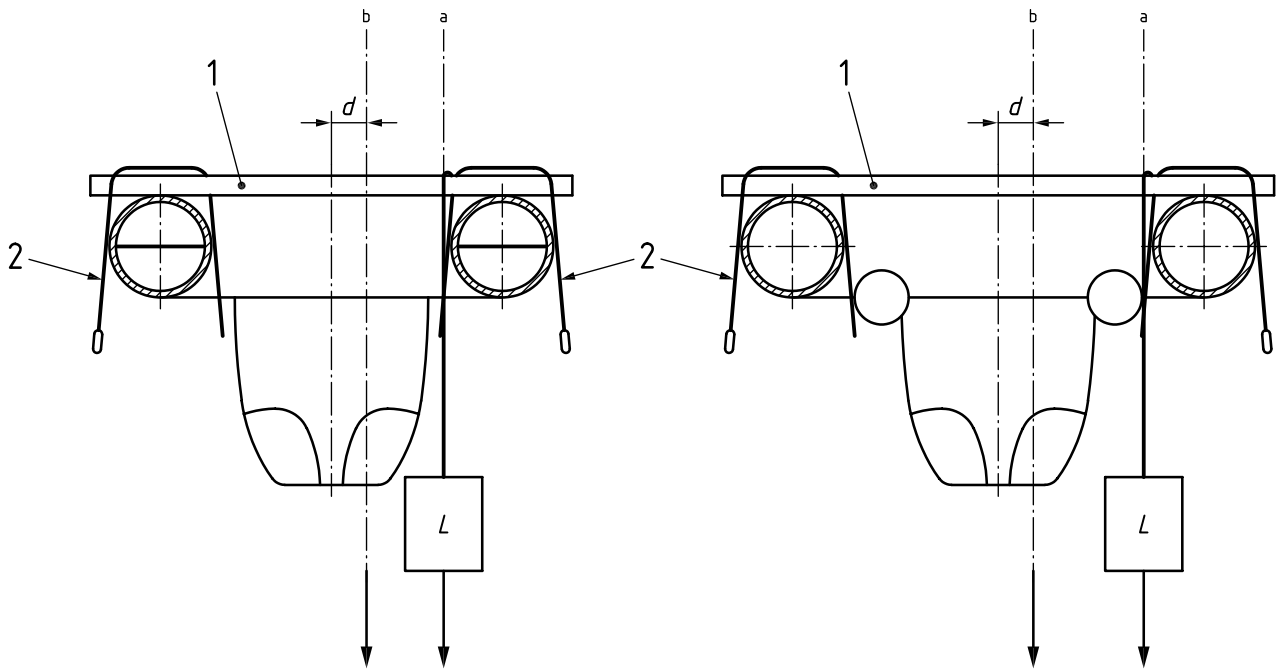
Dimensions: adjustable in length, fixed width of 200 mm, rounded edges.

Features: adjustable straps for attachment to buoyant device (including single and multiple user devices), means to attach a load (steel) by hanging it vertically on the board at any place.

4.4.1.2.3 Load application for Class B1 devices

The diversity of the product group makes complete anticipation of load configurations impossible. In cases where the load application board cannot be applied as shown in [Figure 5](#) and [Figure 6](#), a device and/or application ensuring the same effects shall be chosen. [Figures 5](#) and [6](#) show the load application for Class B1 single seaters.

EXAMPLE 1 Device for sitting posture as one possible embodiment of Class B1 products (mainly child use).

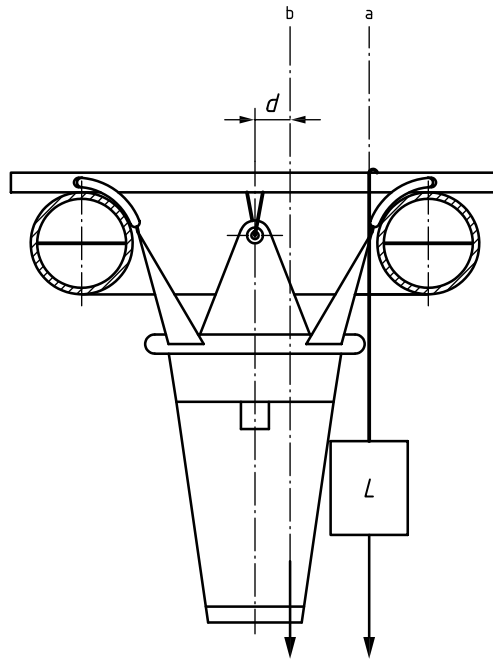


Key

- 1 test board
- 2 attachment strap
- L load, 75 % of body weight (steel)
- d distance from centre point on centre line
- a Load application when fully inflated.
- b Load application after failure of one air chamber.

Figure 5 — Test board and load application, Class B1 devices (example 1)

EXAMPLE 2 Device for standing posture as another possible embodiment of Class B1 products (children and adolescents use).



Key

- L load, 75 % of body weight
- d distance from centre point on centre line
- a Load application when fully inflated.
- b Load application after failure of one air chamber.

Figure 6 — Test board and load application, Class B1 devices (example 2)

4.4.2 In-water behaviour, static floating stability of Class B1 devices for children above 8 years of age (test panel of human test subjects, device fully inflated)

4.4.2.1 Requirements

When tested in accordance with 4.4.2.2, Class B1 devices shall keep the intended user(s) safely afloat with at least the head above water level without any needed intervention of the user (passive person). During test sequences [see 4.4.2.2, a), b), c)], including deliberate tilting, the device shall stay in or come back to a stable and safe floating position.

The use of children as human test subjects is critical. Therefore, testing of devices intended for children of 4 years of age to 7 years of age (25 kg to 30 kg) should be done by mechanical testing as specified in 4.4.1. Alternatively, the manikin test sequence as specified in Annex A can be applied. For children above 7 years (above 30 kg) human test subject testing is considered responsible. Testing should be performed by either using human test subjects in accordance with ISO 25649-1:2024, 5.5 and Table 2 or by applying the test manikins and test procedures as specified EN 13138-3:2021, Annex B.

4.4.2.2 Test method (human test subjects)

Select test subjects in accordance with ISO 25649-1:2024, 5.5. Embark test subject(s) representing the biggest person(s) of the designated range of users (see Table 3) in a way to simulate the most onerous load distribution in terms of number of users and their action, which can cause capsizing.

The test subjects/test staff shall undertake the following actions.

- a) Being in the device, checking the proper fit of the body on all crucial points. The test panel shall assess the fit of the device and that it is correct for the intended age group. Where a device is oversized or undersized and there is a risk of entrapment or unexpected abandonment, the device shall fail.

- b) Being in the device, the assessment panel shall determine that the device provides sufficient floatation for the user so that the face and mouth can be kept clear of the water when the user is passive and in calm water.
- c) Being in the intended position and leaning out from this position as far as possible with the hands reaching out to grab something on the water surface in the distance.
- d) Being in the device, device tilted by test staff to an angle of 60° from the horizontal and released.
- e) Being in the device, additional load of 10 kg at the most onerous place, representing an outside third party holding on to the device, attached to the point most likely to cause failure.

When children, as human test subjects under the age of 8 years, are used for in-water testing, the assessment panel shall ensure that there is adequate additional lifesaving support to ensure that a child is not placed at risk in the event of the failure of a device. In addition, the assessment panel shall show, before starting the test, that it has access to all applicable legal requirements relating to the use of children in a work-related environment and how these legal requirements are met.

Fit and safe floatation in calm water shall be visually inspected by assessment panel.

4.4.3 In-water behaviour, dynamic stability for Class B1 devices intended for children of 4 years to 7 years of age (30 kg)

4.4.3.1 Requirement

With the appropriate loads in position as specified in [Table 3](#) and [4.4.1.2](#), each Class B1 device shall not capsize. Alternatively, the test manikins and test procedures as specified in EN 13138-3:2021, Annex B may be applied.

4.4.3.2 Test method

Apply loads in accordance with the weight/age range of the product as required.

Alternatively, [Annex A](#) may be applied.

Assessment shall be by assessment panel.

4.4.4 Residual buoyancy and retention of function of Class B1 devices (children up to 7 years, 30 kg)

Class B1 of floating leisure articles for children of 3 years of age (36 months) to 7 years of age (single and collective use) shall at least provide a residual buoyancy that is sufficient to keep all permissible users in static stable floating conditions if the air chamber most likely to cause failure has been deflated. If the device is made up of several independent components, this requirement shall apply for each of them. This requirement is deemed to be met if the device meets the requirements concerning floating stability in [4.4.1.2.1](#).

Alternatively, [A.7.1](#) (but with the air chamber most likely to cause failure deflated) may apply. It shall be demonstrated that the test manikins shaded head area as specified in EN 13138-3:2021, Annex B, is kept clearly out of the water.

Assessment shall be by assessment panel.

4.4.5 Escape from the Class B1 device (body entrapment, leg or foot entanglement)

4.4.5.1 Requirements related the age group 4 years to 5 years

Class B1 devices for this age group shall meet the requirements concerning leg and foot entrapment or entanglement as set out in ISO 25649-1:2024.

4.4.5.2 Requirements related the age group above 6 years

B1 devices for this age group shall meet the requirements concerning leg and foot entrapment or entanglement as set out in ISO 25649-1:2024. Body entrapment is deemed to be avoided if the relevant requirements concerning sizing have been met [see [Table 3](#) and marking, see safety information symbols: “size designation for interior size” (Figure 33), “risk of getting entrapped if size is not appropriate” (Figure 10), “avoid entrapment, ensure loose fit” (Figure 26), “user’s body weight range” (Figure 24), in accordance with ISO 25649-2:2024].

4.5 In-water performance of Class B2 devices

4.5.1 In/water behaviour, static floating stability of Class B2 devices for children up to 7 years

4.5.1.1 Requirements

With the appropriate loading device in position as specified [4.5.1.2](#) Class B2 products for children up to 7 years of age shall not capsize when subjected to the test as specified in [4.5.1.2](#). Alternatively, the test manikins as specified in EN 13138-3:2021, Annex B, and test procedures as specified in [Annex A](#) (manikin testing) can be applied for products for this age group. Class B2 products that do not meet these requirements shall be labelled as devices to be balanced by the user(s) (see safety information symbol “device provides floating stability/device requires balancing” in ISO 25649-2:2024, Figure 32).

4.5.1.2 Testing by load application (Class B2, mechanical testing)

4.5.1.2.1 General

Testing shall comprise the following test sequences.

- a) Device fully inflated and load applied asymmetrically inside the device (tangentially) at the inner wall or, in case of neighbouring chambers, at the inner wall of the outer buoyancy chamber at the place most likely to cause to failure (see [Figure 7](#) to [Figure 9](#)).
- b) Air chamber most likely to cause failure deflated (residual buoyancy), device loaded at the centre line of each body opening but at a distance d from the centre point of the body opening. The load L shall represent 75 % of the body weight and the distance d shall represent 25 % of the body width of the biggest allowable user of the stipulated age range. Body weights: see [Table 3](#); body sizes: according to symbol e in EN 13138-3:2021, Table A.1.

4.5.1.2.2 Test board(s)

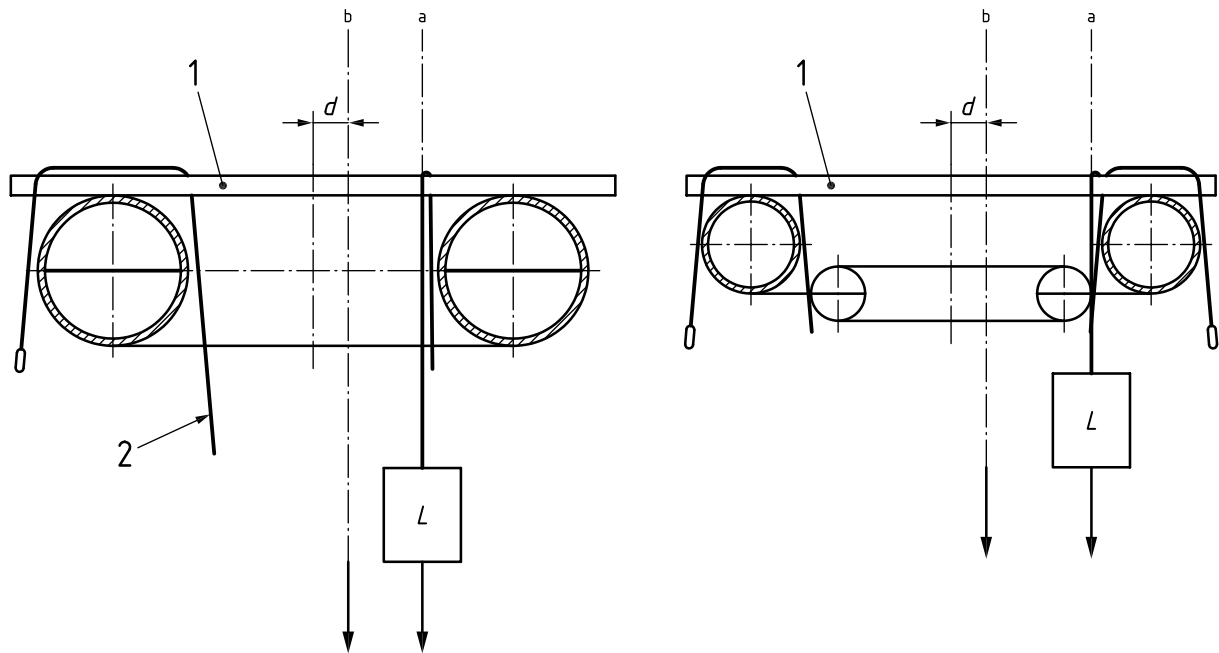
Material: wood or similar rigid material.

Dimensions: adjustable in length, fixed width of 200 mm, rounded edges.

Features: adjustable straps for attachment to buoyant device (including single and multiple user devices), means to attach a load (steel) by hanging it vertically on the board at any place.

4.5.1.2.3 Load application for Class B2 devices

EXAMPLE 1 Giant ring as one embodiment of Class B2 products (adolescent and adult use).

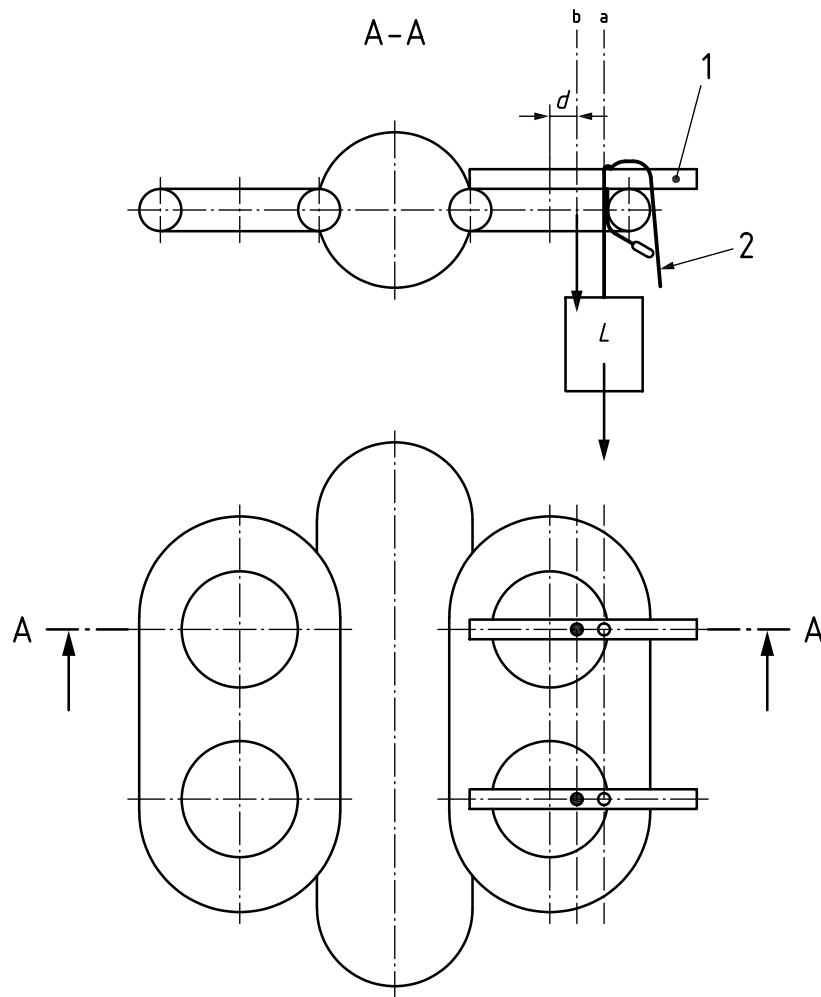


Key

- 1 test board
- 2 attachment strap
- L load, 75 % of body weight
- d distance from centre point on centre line
- a Load application when fully inflated.
- b Load application after failure of one air chamber.

Figure 7 — Test board and load application, Class B2 devices (example 1, ring)

EXAMPLE 2 Butterfly as another embodiment of Class B2 products (child use, multiple seater).

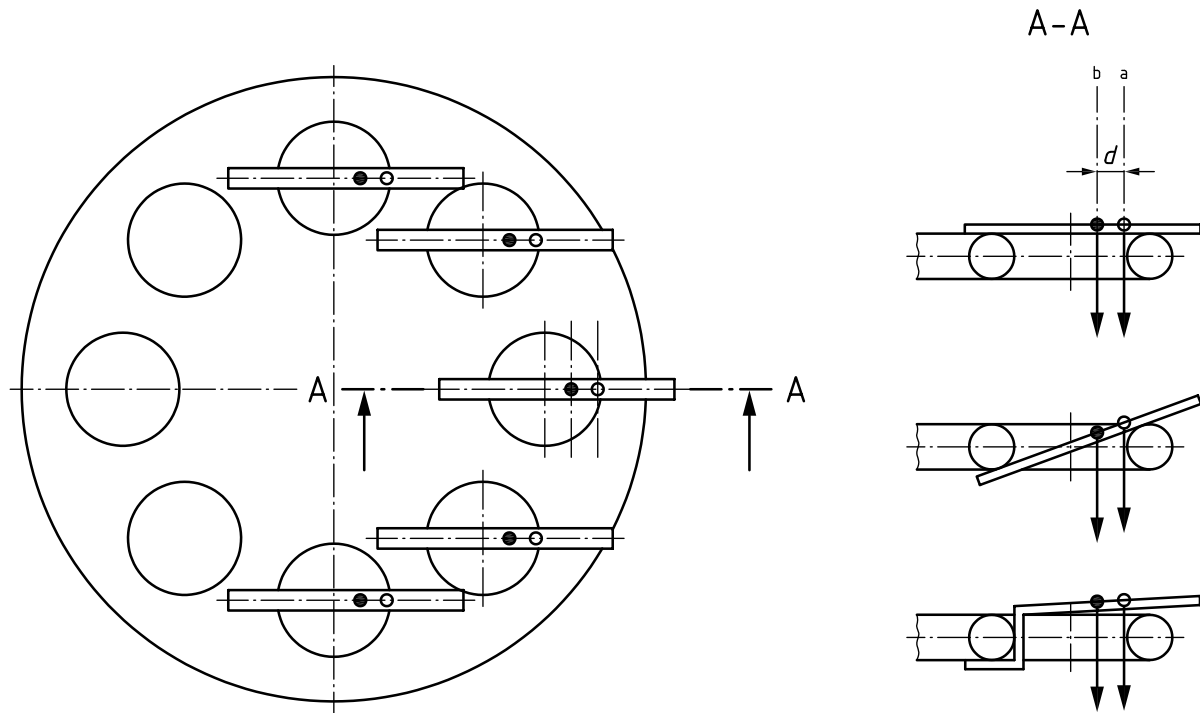


Key

- 1 test board
- 2 attachment strap
- L* load, 75 % of body weight
- d* distance from centre point on centre line
- ^a Load application when fully inflated.
- ^b Load application after failure of one air chamber.

Figure 8 — Test board and load application, Class B2 devices (example 2, butterfly)

EXAMPLE 3 Disk as a further embodiment of Class B2 products (child use, multiple seater).



Key

- d distance from centre point on centre line
- a Load application when fully inflated.
- b Load application after failure of one air chamber.

Figure 9 — Test boards and load application, Class B2 devices (example 3, disk)

4.5.2 In-water behaviour, static floating stability of Class B2 devices for children above 7 years of age (30 kg)

Class B2 devices related to this age group are exempted from floating stability requirements.

NOTE The typical use of Class B2 devices, related to this age group, presumes the ability to swim and therefore floating stability is not seen as a necessary safety feature.

4.5.3 Residual buoyancy and retention of function of Class B2 devices for children of 3 years (36 months) to 8 years (96 months) of age

4.5.3.1 Requirement

Class B2 floating articles for children of 3 years (36 months) to 8 years (96 months) of age (single and collective use) shall at least provide a residual buoyancy that is sufficient to keep all permissible users in static stable floating conditions if the air chamber most likely to cause failure has been deflated. If the device is made up by several independent components, this requirement shall apply for each of them.

4.5.3.2 Test method

Residual buoyancy of Class B2 devices shall meet requirement specified in [4.5.1.2.1 b\)](#) to ensure safe floating stability.

4.5.4 Escape from the Class B2 device (body entrapment, leg or foot entanglement)

Class B2 devices shall meet the requirements concerning leg and foot entrapment/entanglement as set out in ISO 25649-1:2024. Body entrapment is deemed to be avoided if the relevant requirements concerning sizing

(see [Table 3](#)) and marking have been met [see safety information symbols “size designation for interior size” (Figure 33), “risk of getting entrapped if size is not appropriate” (Figure 10), avoid entrapment, ensure loose fit” (Figure 26) and “user’s body weight range” (Figure 24) in ISO 25649-2:2024].

5 Consumer information

5.1 General

Consumer information on the packaging, on the product and by means of written instructions for use shall be in accordance with ISO 25649-2:2024.

5.2 Consumer information on the packaging (point of sale information)

Information on the packaging of Class B products shall:

- show a picture or dimensional correct drawing of the floating product inside;
- disclose via the appropriate safety information symbols any warning and restriction related to use and application;
- disclose via the appropriate safety information symbols the maximum number of users and the maximum load capacity.

5.3 Consumer information on the product (information related to safe use)

Consumer information on the product shall show via the appropriate safety information symbols all warnings and obligatory instructions related to the safe use of the product. Safety information symbols related to very serious risks shall be accompanied by the plain text version as specified in ISO 25649-2:2024.

Very serious risks for Class B products are:

- Attention! No protection against drowning!
- Swimmers only!

5.4 Consumer information by instructions for use (separate written information)

5.4.1 General

Instructions of use shall be in accordance with ISO 25649-2:2024.

5.4.2 Safety and product information

Instruction for use shall contain all information provided in [4.1](#), [5.1](#), [5.2](#) and [5.3](#). Warnings, obligatory instructions and all restrictions in use shall be explained in a way that they can be understood and perceived by the user. Safety information symbols shall be explained by their plain text version.

5.4.3 Assembly

Instructions shall enable the user to assemble the floating product correctly and ready for safe use.

5.4.4 Maintenance and repair

Instructions shall enable the user to maintain store and repair the floating product correctly.

6 Exclusions

The following sub-classes/products dealt with in this document are exempted from the general requirements included in ISO 25649-1:2024 and ISO 25649-2:2024:

- Floating leisure articles of Class B are excluded from ISO 25649-1:2024, 5.8;
- Floating leisure articles of Class B are excluded from ISO 25649-2:2024, 6.4 and they may display the safety information at a location starting within 200 mm from an inflation valve.

Annex A (informative)

Optional manikin testing for swim seats as one possible embodiment of Class B1 devices, requirements

A.1 General

Swim seats for children up to 3 years (36 months) are dealt with in EN 13138-3:2021. Swim seats are products for non-swimmers.

Anthropometric data from which manikin dimensions are developed is under continuous review. It is recommended to use a manikin representing age 5 years (60 months, 25 kg) and a manikin representing age 7 years (84 months, 30 kg) in order to cover the whole range below adult testing. As the range and diversity of products expands, additional manikins designed in accordance with contemporary specifications can become necessary.

Anthropometric data from which manikins 18 kg to 30 kg (4 years to 7 years) are given in EN 13138-3:2021, Annex A.

A.2 Fit and positioning

Class B1 devices, swim seats, shall be examined by the assessment panel for adequate fit and positioning of the user inside the device. When tested in accordance with [A.7.1](#), there shall be clear evidence that the device provides support to hold the passive user's body in a reasonable upright position. The user's body shall be represented by the appropriate manikin as specified by the manufacturer's weight/age declaration in accordance with the relevant Class B1 device as specified in [Table 3](#).

A.3 In-water behaviour, static stability

With the appropriate manikin according to EN 13138-3:2021, Annex A, in-position B1 swim seats shall not capsize when subjected to the test in calm water in accordance with [A.7.2](#). The mouth and nose air passages, marked by shaded head area in [Figure A.1](#) and [Figure A.2](#), shall always remain above water level.

A.4 In-water behaviour, static stability, capsizing under extreme condition (performance levels 1 and 2)

When deliberately tipped to an angle as specified in [Table A.1](#) the B1 swim seats shall meet the relevant requirement as specified in [Table A.1](#).

Table A.1 — Floating stability and escape, performance levels

Requirement	Performance level 1 (minimum requirement)	Performance level 2 (optional)
Floating stability, self-righting and hold of manikin Tilting to all four sides or tilting to the side most likely to cause failure	<ul style="list-style-type: none"> — self-righting after being tipped continuously up to an angle not to exceed 120° for the manikin or 85° for the device — test manikin not lost, shaded head area above water level after self-righting 	<ul style="list-style-type: none"> — self-righting after being tipped continuously up to an angle not to exceed 100° for the manikin or 80° for the device — test manikin not lost, shaded head area above water level after self-righting
Easy escape in case of complete capsizing	Complete escape when tested in accordance with EN 13138-3:2021, 5.6.5	Complete escape when tested in accordance with EN 13138-3:2021, 5.6.5
New safe floating position after escape outside or inside the device	No new safe floating position (manikin sinks to the ground)	New safe floating position outside swim seat with shaded head area above water level outside swim seat

A.5 Escape from the swim seat (body entrapment, leg or foot entanglement)

B1 swim seats shall be in accordance the relevant requirement specified in [Table A.1](#). There shall be no entrapment or entanglement of legs or feet or any other part of manikin's body.

A.6 In-water behaviour, static stability, retention of function

Class B1 devices (swim seats) shall retain their intended function and safety if the buoyancy chamber most likely to cause failure has been fully deflated.

Anthropometric data from which manikins 18 kg to 30 kg (4 years to 7 years) are given in EN 13138-3:2021, Annex A.

A.7 Test methods

A.7.1 Testing fit and positioning

- Fully inflate all air chambers of the device in accordance with manufacturer's instruction and place it on the water.
- Position manikin according to manufacturer's instruction.

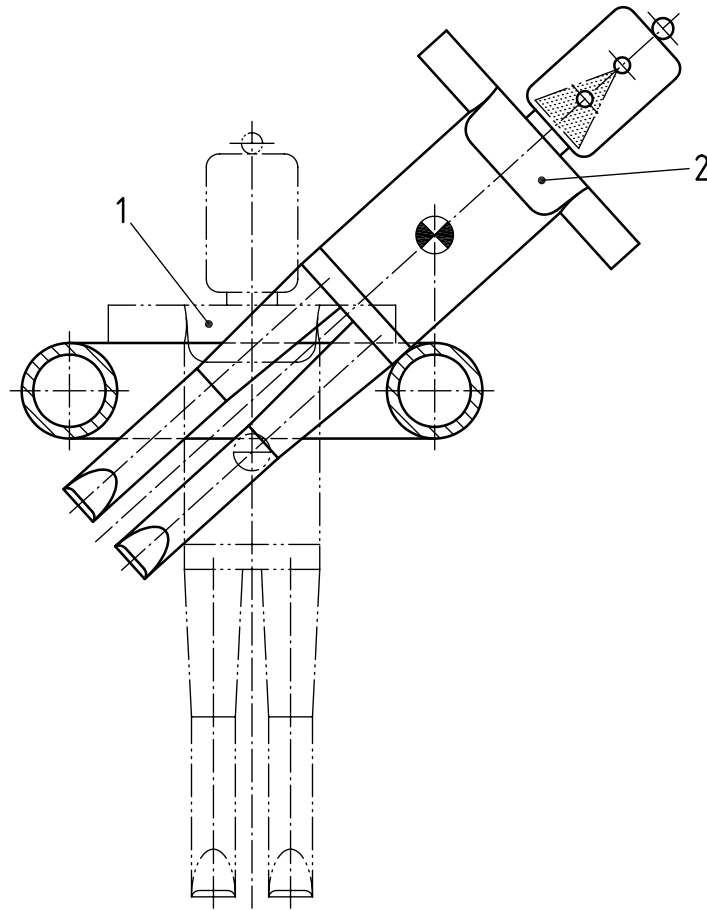
The assessment panel shall verify whether the manikin:

- can be positioned and is supported in a reasonable upright posture;
- is not wedged in the seat in a way likely to cause entrapment.

There can be cases where rigid structure of manikin can complicate test procedures. In such cases, the assessment panel will be required to make a decision on the performance of the device.

A.7.2 Testing static stability in calm water

Place the appropriate manikin according to EN 13138-3:2021, Annex B, inside the seat in the position as shown in [Figure A.1](#). The centre of the gravity of the manikin shall be collinear with the vertical axis of the outer buoyancy chamber. It can be necessary to secure the feet of the test manikin to prevent from falling out of the device. Check whether the seat does not capsize and whether the shaded head area remains above water level.



Key

- 1 intended position
- 2 position inside swim seat but most likely to cause failure

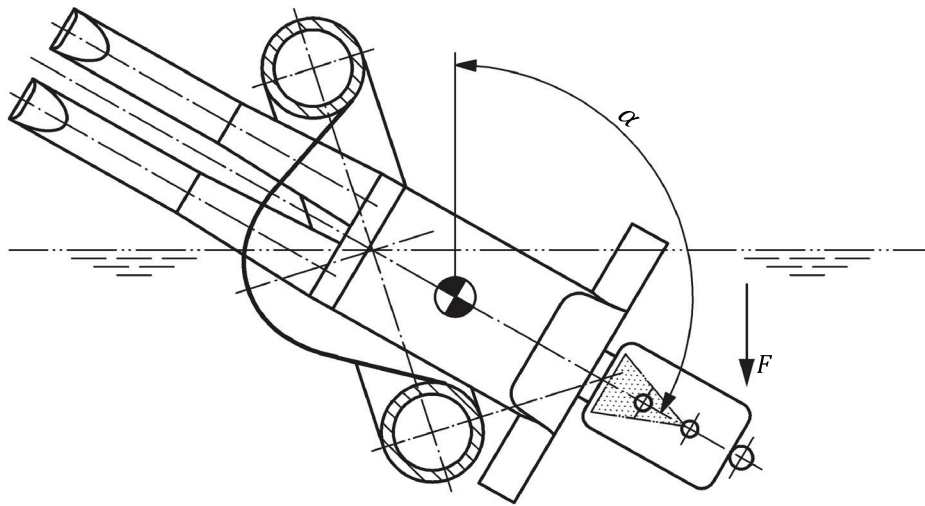
Figure A.1 — Positioning of manikin when testing static and dynamic stability

A.7.3 Testing dynamic stability

See EN 13138-3:2021, B.2.

A.7.4 Testing, performance level 1 (self-righting)

For the force application and tipping angle at self-righting test, see [Figure A.2](#).

**Key** α 120° F force application in kilonewtons (kN)**Figure A.2 — Force application and tipping angle at self-righting test**

Position B1 device in test pool with a min. water depth of 1,5 m.

- Position appropriate manikin as specified in EN 13138-3:2021, Annex A, in the intended position into B1 device.
- Tip the manikin deliberately by exerting a torque via force F until the centre line of manikin has reached the specified tilting angle. F shall be applied at the ring nut on the manikin's head by using one hand only in order to allow free movement of the manikin's body.
- Release force and check whether swim seat holds the manikin and self-rights back into a position keeping the manikin's shaded head area above water level.

NOTE The torque is meant to simulate extreme but foreseeable dynamic effects such as higher breaking waves, which can arise in open waters due to ship or boat traffic, or other external effects such as a third child acting on the swim seat.

A.7.5 Escape test**A.7.5.1 Performance level 1****A.7.5.1.1 User groups 3 years (36 months) to 7 years (84 months) of age**

Testing for this category of users shall be performed in accordance with EN 13138-3:2021, B.2.2.

A.7.5.1.2 User groups above 7 years (84 months) of age

The testing shall be performed as follows:

- Test according to [A.7.3](#).
- Capsize the B1 device deliberately by exerting a torque via force F until manikin slips off. F shall be applied on the ring nut at manikin's head by using one hand only in order to allow free movement of manikin's body.
- Check whether the manikin escapes from the device.

Tip the swim seat as described in [A.7.4](#) to angles more than 120° until complete and irreversible capsizing occurs. Check whether requirements set out in [Table A.1](#), performance level 1, are met.

A.7.5.2 Performance level 2

A.7.5.2.1 User groups 3 years (36 months) to 7 years (84 months) of age

Testing for this category of users shall be performed in accordance with EN 13138-3:2021, B.2.2. The relevant manikin shall be in accordance with EN 13138-3:2021, Annex A.

A.7.5.2.2 User groups above 7 years (84 months) of age

The testing shall be performed as follows:

- a) Test according to [A.7.3](#).
- b) Capsize the B1 device deliberately by exerting a torque via force F until manikin slips off. F shall be applied on the ring nut at manikin's head by using one hand only in order to allow free movement of manikin's body.
- c) Check whether the manikin escapes from the device and comes back to a new safe floating position.

Tip the swim seat as described in [A.7.4](#) to angles more than 120° until complete and irreversible capsizing occurs. Check whether requirements set out in [Table A.1](#), performance level 2, are met.

Annex B (informative)

Examples of products forming Class B

Examples of products forming Class B are shown in [Figure B.1](#) to [Figure B.4](#). All given figures represent products for users above 3 years (36 months) of age.

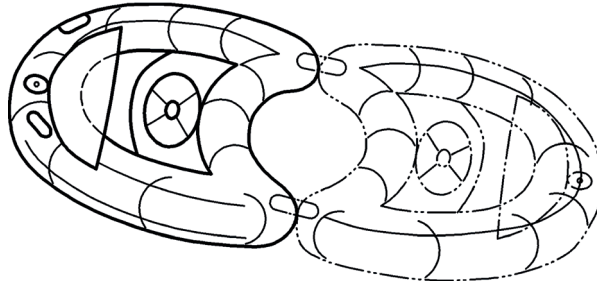


Figure B.1 — First example of typical product forming Class B.1

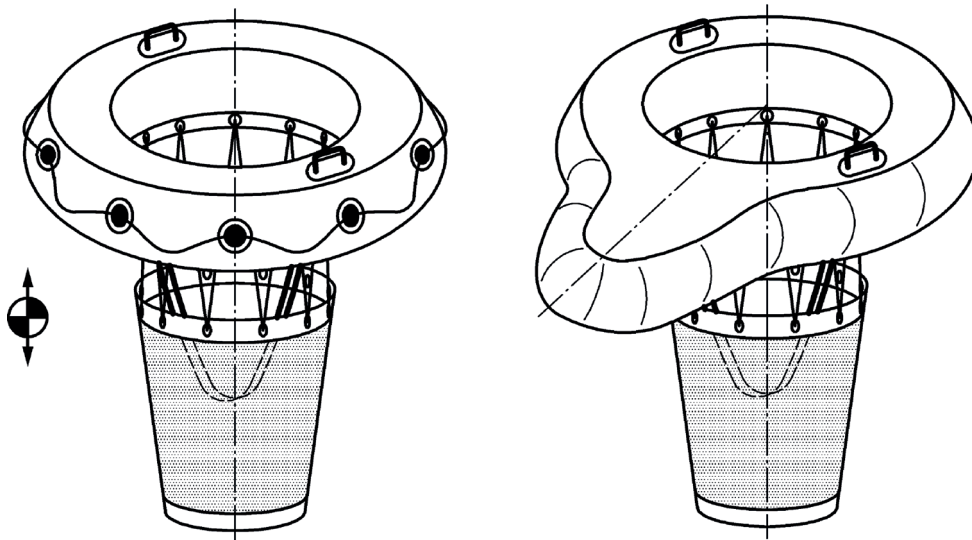


Figure B.2 — Second example of typical product forming Class B.1

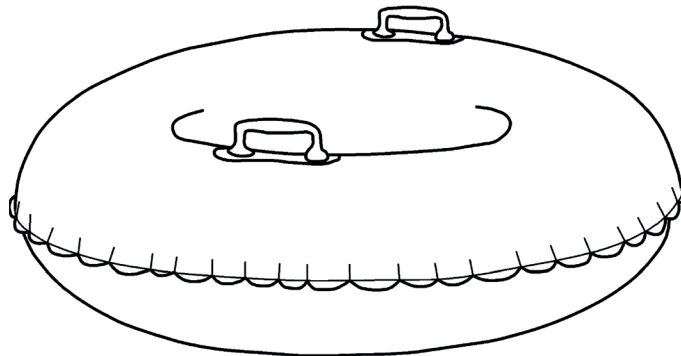


Figure B.3 — Example of typical product forming Class B.2.1

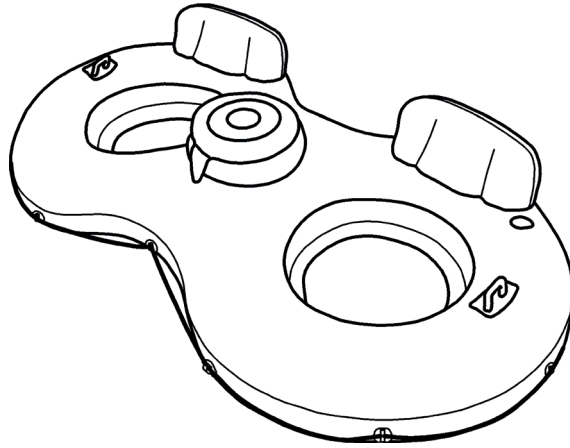


Figure B.4 — Example of typical product forming Class B.2.2

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- [1] DIN 33402-2, *Ergonomics — Human body dimensions — Part 2: Values*
- [2] EN 71-1, *Safety of toys — Part 1: Mechanical and physical properties*
- [3] EN 13138-1, *Buoyant aids for swimming instruction — Part 1: Safety requirements and test methods for buoyant aids to be worn*
- [4] EN 13138-2, *Buoyant aids for swimming instruction — Part 2: Safety requirements and test methods for buoyant aids to be held*



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