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Floating leisure articles for use on and in the water —

Part 3: Additional specific safety requirements and test methods for Class A devices

Articles de loisirs flottants à utiliser sur ou dans l'eau —
Partie 3: Exigences de sécurité et méthodes d'essai complémentaire propre aux dispositifs de Classe A

Reference number
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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

ISO 25649-3 was prepared by the European Committee Standardization (CEN) Technical Committee CEN/TC 136, *Sports, playground and other recreational facilities and equipment*, in collaboration with ISO Technical Committee TC 83, *Sports and other recreational facilities and equipment*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

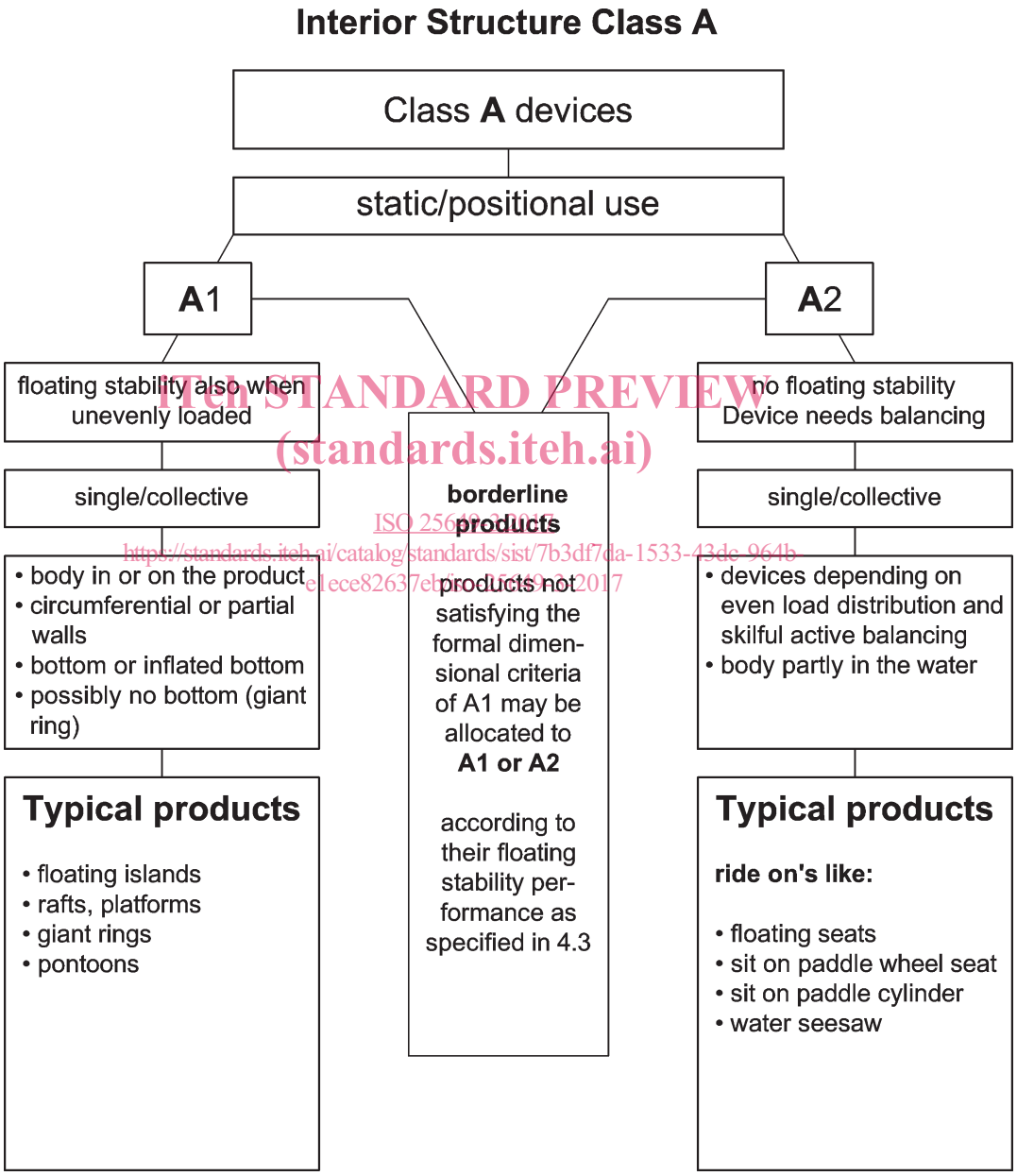
A list of all the parts in the ISO 25649-series can be found on the ISO website.

Introduction

According to the nature and the intended use of the products dealt with in this document the technical requirements are focused on space per person, floating stability matters and residual buoyancy in case of an emergency.

It needs to be taken into account that some of the products provide dual or multiple use features.

Comprehensive consumer information requirements complete the requirement profile of the document and include basic purchase information on whether a product provides floating stability or needs to be balanced by the user.



Risk assessment for this document is shown in Table 1.

Table 1 — Introductory risk analysis

Class	Typical products	Place of usage	Function; range of usage; target/age group	Type of movement / propulsion	Position of user regarding equipment and elevation above water	Predictable misuse	Partial risk related to water environment	Final risk	1.1 Protection aims; 1.2 Related standard/regulation
A1	Floating inflatable islands; recreational raft; platform/ pontoon, etc.	Sea shore, close to shore; lakes; smoothly running rivers; public/ private pools; ponds	Relaxing, resting on the water; sunbathing; basis for bathing and swimming/ playing; device providing high level of floating stability; single and collective use; all age groups, swimmers	Static use within limited area; little action; movement by pushing through swimming strokes only; no mechanical means of propulsion	On or in (side walls) the device, laying, sitting, no direct body fit; grab handles might exist but resting does not depend on gripping/ balancing; no dangerous height of fall	Dangerous distance from the bank/ shore; use in currents and/ or dangerous offshore winds; use by non-swimmers; fall over board; no diving platform!	Unnoticed drifting to open waters; falling asleep and consequently extreme sunburn, etc.; capsizing; skin irritation due to long duration of skin contact/ dangerous substances in contact with skin; climbing back?; hypothermia; cold shock	DROWNING	Floating stability; minimum buoyancy; residual buoyancy; space, safety handles/lines; anchorage; warning notes, labelling, swimmers only, age restriction according to ISO 6185-1, ISO 6185-2 and ISO 6185-3
A2	Large buoyant structures	Sea shore/ close to shore, lakes, public/ private pools; ponds	Action, playing in the water; balancing children; collective and single use; all age groups, swimmers	Drifting; propulsion only by swimming strokes or third party	On the device; loose fit via handles; no dangerous height	Use by non-swimmers; use In current, canal, lack of supervision	Drifting away in open waters due to wind and/or current; devices provokes use in deep; used by non-swimmers; falling into deep water		Labelling, residual buoyancy, grab handles, supervision; warnings
A1/A2	Air mattress for use in water; floatable pool loungers; floating seating structures; giant rings/ tubes	Sea shore close to the shore; lakes, public/ private pools; ponds sea	Resting on the water; observation of under water environment; play; mainly single use; floating stability depends on design; all age groups, swimmers	Normally no mechanical means of propulsion but possible; drifting or propulsion by swimming strokes; seats might be equipped with pedals (wheel propulsion)	On/in the device; device is clung on; device is held; mainly a near horizontal posture sitting; no relevant elevation above water level	See A1/A2	See A1/A2		See A1/A2 No rule is known to provide technical substance

Floating leisure articles for use on and in the water —

Part 3:
Additional specific safety requirements and test methods for Class A devices

1 Scope

This document is applicable for CLASS A classified floating leisure articles for use on and in water according to ISO 25649-1 regardless whether the buoyancy is achieved by inflation or inherent buoyant material.

This document is to be applied with ISO 25649-1 and ISO 25649-2.

NOTE 1 Typical products forming Class A (see Annex A):

— "Floating Islands" in near round or square shaped forms decorated with palm tree, sun shade, etc. high superstructure;

— large floats/rafts in various forms from round to square;

— large floating tubes, giant tubes (inflatable or inherently buoyant);

— floating arm chairs, seats and sun beds;

— air mattresses for use on the water;

— recreational rafts/floating platforms/pontoons.

NOTE 2 Typical places for application:

— pools;

— protected areas of lakes, ponds;

— protected area 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 25649-1:2017, *Floating leisure articles for use on and in the water — Part 1: Classification, materials, general requirements and test methods*

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

3 Terms and definitions

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

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

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
residual buoyancy
provision of remaining buoyancy in case of a defect of any buoyancy chamber

3.2
floating stability
no user action required to maintain safe floating

Note 1 to entry: One or several users can be safely on or in the device even if the weight is not evenly distributed.

Note 2 to entry: In accordance with intended use.

3.3
device to be balanced by the user
user action required to create safe floating

Note 1 to entry: In accordance with intended use.

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 any part or feature of the floating device

3.5
available area
area on or inside a floating article which can be used unrestrictedly for user accommodation when taking the intended posture(s)

3.6
multiple use product
any product intended to be used for more than one purpose for examples (jumping, resting, climbing, etc.)

3.7
inherent buoyant material
non-crosslinked (closed-cell) foam or other materials enclosed in (a) sealed compartment(s) in the hull which have a specific weight less than water

Note 1 to entry: Inflatables made from inherent buoyant material are considered a buoyant structure (hull) achieving all or parts of its intended shape and buoyancy resulting from soft foam, hard foam or sealed chambers filled with air, gas or granules.

4 Safety requirements and test methods

4.1 General

Construction of a floating leisure article shall be such that it corresponds in terms of design, dimensions, safety, strength and durability for its intended use. The requirements set out in this standard were chosen to ensure compliance with these considerations. If inflatable floating leisure articles shall provide buoyancy in several components then requirements apply to all components. Floating leisure articles shall provide residual buoyancy if one air chamber fails. This residual buoyancy shall maintain the safety of the device even if its function is lost. The following safety requirements are therefore related to:

— design;

— sizing;

— materials;

— strength;

— performance;

— information.

In individual cases, due to the unpredictability, valency and indeterminability of existing and future concrete products, a corresponding choice shall be made.

Design and appearance of floating leisure articles shall not change the intended primary function of these floating leisure articles nor introduce a toy play value.

4.2 Design, sizing, admissible number of users and maximum load capacity

4.2.1 General

Devices shall be marked according to their size and/or number of permitted users and maximum load capacity.

4.2.2 Sizing

4.2.2.1 Requirements

If a specific size/body weight correlation between user and device is relevant, the marking shall be in accordance with the range of body weights. The size/body weights of the user shall be indicated on the product by completing the relevant boxes of the appropriate safety information symbol "User's body weight range" as specified in ISO 25649-2.

4.2.2.2 Test method

Check for correct marking and completion.

4.2.3 A1-products, space per person and admissible number of users

4.2.3.1 Requirements

A1-products shall be labelled with regard to the intended posture — lying/sitting — of the user(s) and the maximum permissible number of users. The minimum space for a user in lying posture shall correspond to a flexible template (adult/child) the dimensions of which are specified in ISO 25649-1:2017, A.1.1. The minimum space for a sitting user shall correspond to the template (adult/child) as specified in ISO 25649-1:2017, A.1.2. In cases of combined use (sitting and lying), the template for a lying person shall be applied to determine the available area.

Templates may exceed the outer circumference of the device to a total amount of 30 %. This amount is divided in 15 % of template length for the head area and 15 % of template length for the leg area (see shaded area of templates in ISO 25649-1:2017, Annex A). The angle between centre line of the template and tangential of a possible back rest, board wall, etc. shall be greater than 60° (see Figure 1).

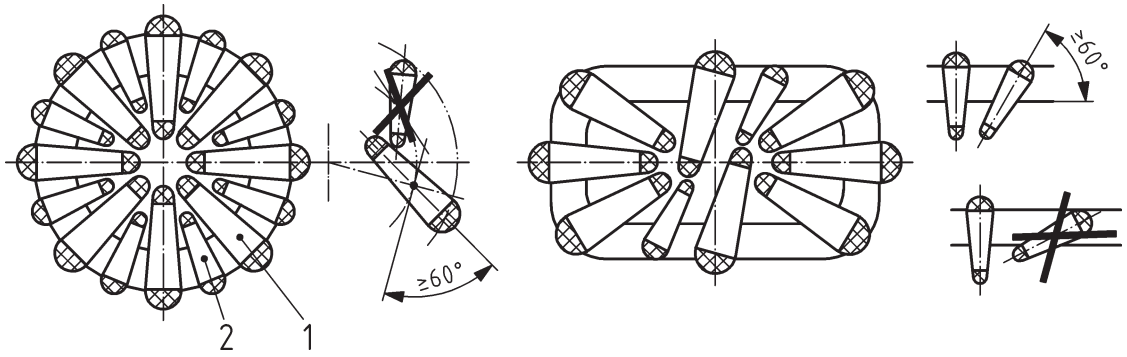
The total amount of users determined by the templates shall not contradict to the load capacity and floating stability of the device.

Space requirement using templates is not applicable for ride-on devices where distinct upright seats and/or seating positions are imposed by the device.

4.2.3.2 Test method

Testing shall be done by applying the relevant templates as specified in ISO 25649-1:2017, A.1 and shown in Figure 1. Templates shall be stretched out over the area available to the user without overlapping.

Templates may be arranged to optimize the amount of users and the mix of adults and children without contradicting to the load capacity of the device. Blank areas of templates shall be completely inside the outer circumference. Check by visual inspection for appropriate labelling in accordance with safety information symbols “Number of users, adult/children” and/or “Maximum load capacity” as specified in ISO 25649-2.



a) A1, “Big raft”: 3,8 m in diameter/4,8 m × 2,8 m

b) A1, “Small raft”: 2,5 m in diameter/3 m × 2 m

Key

1 template space per person, adult

2 template Space per person, child

Figure 1 — Available space per person, determination of number of users

4.2.4 A2-products, space per person and admissible number of users

4.2.4.1 Requirements

A-2 products shall provide distinct seat(s) or sitting areas or recognizable space where the user is to be positioned in the intended posture. Seats, etc. of ride-on devices shall be equipped with at least one grab handle for each permissible user.

If the device implies sitting in line of more than one user, the sitting space for each user shall be at least a length of:

— Child = 30 cm if the legs hang down;

— Child = 60 cm if the thighs follow the seat surface.

— Adult = 35 cm if the legs hang down;

— Adult = 70 cm if the thighs follow the seat surface.

4.2.4.2 Test method

Visual inspection and measurement.

4.3 In water performance

4.3.1 Amount of buoyancy and stable floating position

4.3.1.1 Requirements

All devices (A1, A2) shall provide sufficient buoyancy and adequate buoyancy distribution to bear the weight of the intended number of users. Floating devices shall float stable with all test subjects placed on the intended position and posture on the device. The design supporting area shall not be flooded, not applicable if the product is designed to provide a supporting area which is intentionally under water.

Floating leisure articles claiming to provide floating stability (A1) shall additionally meet the test as specified in 4.3.2.2.2. When loaded with the maximum/minimum number of passengers, the device shall maintain the stable floating position as defined in ISO 25649-1:2017, 3.13.

The capability of stable floating performance or the need for balancing shall be marked on the packaging via the relevant pair-safety information symbol “Device provides floating stability” and “Device requires balancing” as specified in ISO 25649-2.

4.3.1.2 Test method

The maximum number of test subjects according to manufacturer's declaration (adults, children) shall be placed within the available area with no part of the body outside the product in a way as shown in Figure 2. If a device is classified for more than one user, the array of all test subjects shall be done by applying the determined postures and positions in a way most likely to cause failure.

If there are distinct sitting/lying positions provided by the device tests subject shall be positioned on this/these place(s) in a way most likely to cause failure.

If a floating article deviates from the shown types a) to h) test positions and postures as shown in Figure 2 shall be applied in consideration of the foreseeable uneven load distribution.

The basic posture of test subjects shall be in accordance with manufacturers declaration (lying/sitting) and in detail in accordance with ISO 25649-1:2017, 5.5.5. If a device allows for several postures, the one most likely to cause failure shall be chosen from the standardised range.

The test shall be repeated with the minimum and maximum load applicable (one child test subject or one adult test subject) if the intended floating position depends by design, e.g. teeter-totter, on a distinct balanced weight distribution in pairs or other even-numbered groups of users.

Floating arm chairs, loungers with arm rests, etc. shall be tested so that the test subject(s) is positioned on the determined seat/sitting area but at the utmost side of the seat's sitting area (left or right hand side) as provided by the seat. The test subject shall then lean to the arm rest (side barrier) until this structural part bears the relevant portion of the entire load of the body. Then the outer arm shall be stretched out as to reach for something outside the seat. If the seat is equipped with a paddle wheel propulsion feet shall be positioned on the pedals.

Check whether the device stays in a safe floating position. Verification by assessment panel.

Arm chairs, etc. that do not meet this requirement shall be classified as “Balancing needed” according to the safety information symbols “Device provides floating stability” and “Device requires balancing” specified in ISO 25649-2 because they provide floating stability only under the condition of symmetric load distribution. Drawings are to show position and posture of one test person. Multiple seaters are dealt with according to the specifications in 5.2.