



International
Standard

ISO 25649-7

**Floating leisure articles for use on
and in the water —**

**Part 7:
Additional specific safety
requirements and test methods for
Class E devices**

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

*Partie 7: Exigences de sécurité et méthodes d'essai
complémentaires propres aux dispositifs de Classe E*

**Second edition
2024-10**



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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).

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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 25649-7:2017), which has been technically revised.

The main changes are as follows:

- update of [Clause 2](#);
- in [Clause 10](#), addition of requirement dedicated to specific supervision for categories of consumers at risk when using product (children, non-swimmers, elderly, etc.).

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

This document addresses aquatic toys smaller than 1,2 m and inflatable boats providing a buoyancy greater than 1 800 N (see [Figure 1](#) for Interior Structure Class E). It includes all kinds of boat propulsion and covers canoes and kayaks as well. The mostly combined safety and performance requirements deal with space per person, load capacity, floating stability, engine power and behaviour after loss of air pressure (failure of an air chamber).

Practical test runs prove the manoeuvrability of the boat under various conditions and the adequate motorization.

This document also addresses comprehensive consumer information related to selection before purchase and during use.

This document covers boats of customary construction and design with an overall length from 1,2 m (uninflated, flat) up to 1 800 N buoyancy. Such boats are mostly intended for recreational water activities and for the use by children. However, smaller tender boats such as those used on yachts also fall within this size range and small boats for specific applications (e.g. fishing boats) may also be included. Therefore, irrespective of the main group of users, powered boats and sail boats have also been taken into consideration.

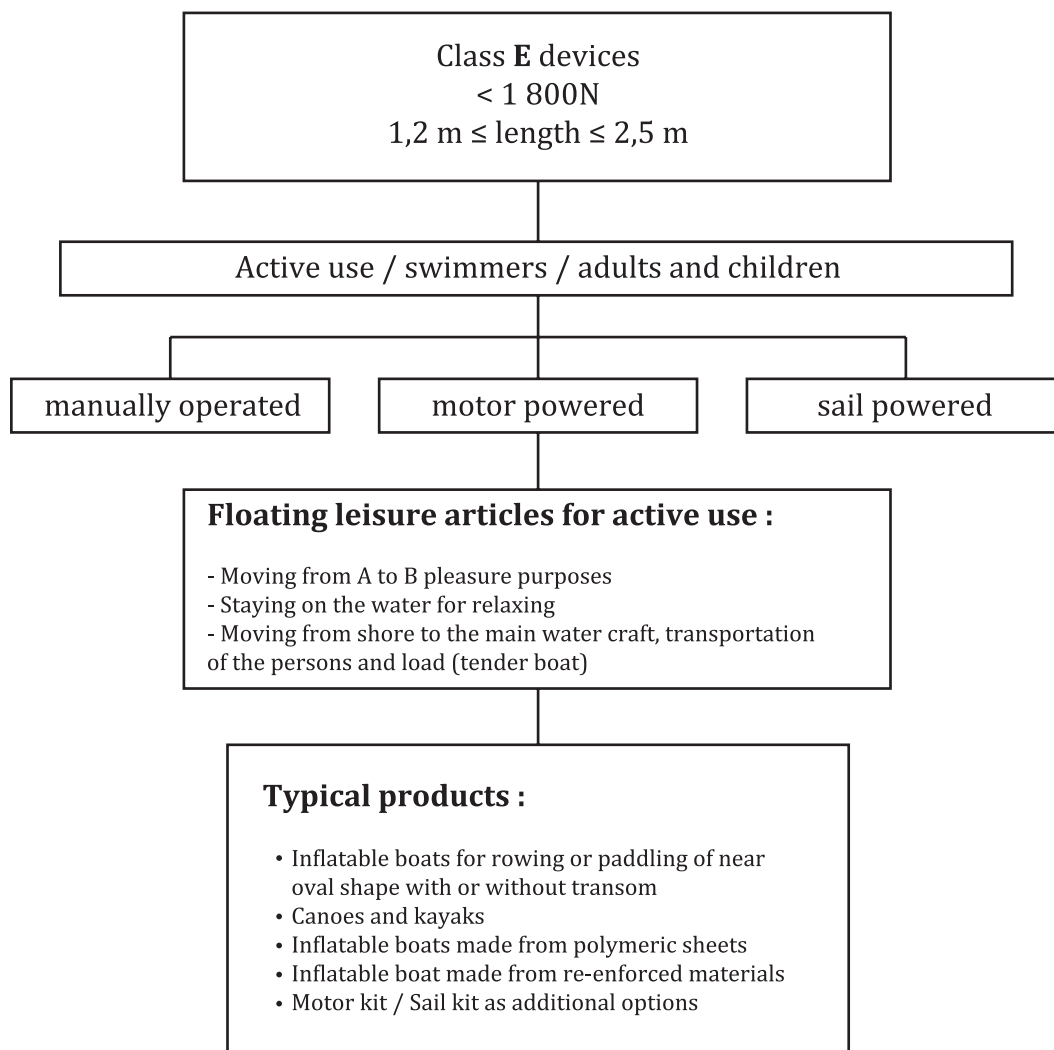


Figure 1 — Interior Structure Class E

For Class E devices examples see [Annex C](#), [D](#), [E](#) and [F](#).

The 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 in regard to the equipment, elevation above water	Predictable misuse	Partial risk related to water environment	Final risk	Protection aims standard/regulation
E	Adults and children's boats; rowing boats of near oval shape with or without transom; canoes, kayaks; tender boats to yachts	Pools; sea, shore or close to shore; rivers; lakes	Children, adults	Paddling, rowing, sail, engine Passive and active use by hand, drifting; third party (towing)	Inside the boat	Overload; use by non-swimmers; wave riding	Drifting away; capsizing; entrapment; lack of supervision in case of child use	DROWNING	This document closes the gap between the ISO 6185 series and the EN 71 series

Floating leisure articles for use on and in the water —

Part 7:

Additional specific safety requirements and test methods for Class E devices

1 Scope

This document specifies additional specific safety requirements and test methods for Class E 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 E floating leisure articles as specified in ISO 25649-1:2024, Table 1.

Class E devices are inflatable boats of a buoyancy of less than 1 800 N with a hull length of more than 1,2 m and less than 2,5 m.

Class E devices are intended for use in bathing areas or in protected and safe shore zones.

NOTE 1 Typical products forming Class E (see [Annex F](#)):

- inflatable boats for rowing or paddling of near oval shape with or without transom;
- canoes and kayaks;
- inflatable boats made from plastic sheets or from reinforced materials;
- motor kit/sail kit as additional option.

NOTE 2 Typical applications of Class E devices:

- moving from one place to another for pleasure purposes;
- staying on the water for relaxing;
- moving from shore to the main boat, transportation of persons and load (tender boat).

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 8665:2006, *Small craft — Marine propulsion reciprocating internal combustion engines — Power measurements and declarations*

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 and in the water — Part 2: Consumer information*

EN 837-1:1996, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

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

inflatable boat

buoyant structure (hull), achieving all or part of its intended shape and buoyancy by the medium of inflation and intended for the transportation of persons on the water

Note 1 to entry: Its design and shape confer the inflatable boat the capability of withstanding forces and movements arising from various sea conditions

Note 2 to entry: An inflatable boat is considered as an aquatic toy (toy in form of a boat) according to EN 71-1:2014+A1:2018, when:

- a) it is intended for use without any propelling means (oars, paddles, motor, sail) and these are also not to be fitted subsequently;
- b) its overall length is < 120 cm and the boat is additionally marked with the following warning note "Caution, to be used only in shallow water and under supervision".

3.3

tender

boat that serves as an auxiliary means in working around a bigger boat but mainly to commute from the boat to shore or other places nearby

Note 1 to entry: In this respect, tenders serve for-transport of crew and load. Tenders can be propelled by oars, and/or an outboard engine, and/or sails. For stowage reasons, tenders are often small in size but robust in material and construction.

3.4

leisure boat

boat that is used for recreation, slowly moving around on the water for relaxing, extended bathing and similar activities

Note 1 to entry: A leisure boat does not have the purpose of a working boat.

3.5

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 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.

3.6

inboard area

internal surface area defined by a vertical plane tangential to the innermost side of the buoyancy tube and perpendicular to the deck

3.7

inboard length

length of the cockpit, including the area below any spray cover, measured along the boat centreline between the innermost points of the bow and stern

3.8

load capacity

value stated by the manufacturer representing the maximum load on a buoyant structure under which a safe floating position is assured

3.9

usable inboard area

area, including the area below any spray cover, available for the users to access and remain during use

3.10

integrated transom

rear part of the boat's cockpit, normally made by a flat wooden board inseparably integrated in the boats hull on which the motor is clamped by clamp screws

3.11

motor mount transom

small board attached to the rear part of the boat via a tube frame, hull fittings and separate fixings for the purpose of clamping the motor to it

3.12

kayak

boat that is propelled by means of double paddle(s) and user(s) sitting in line in a mid-boat position

Note 1 to entry: The width/length ratio of kayaks is lower than 1/3. Kayaks can be equipped with sail and motor.

3.13

canoe

boat that is propelled by means of a single paddle(s) and where user(s) are kneeling or sitting at bow and rear of the boat

Note 1 to entry: The width/length ratio of canoes is higher than 1/3. Canoes can be equipped with sail and motor.

4 Materials

Boats shall meet the requirements set out in ISO 25649-1:2024, Clause 6.

All materials shall be selected by the manufacturer in accordance with the relevant requirements for shape, dimensions, maximum load, etc.

5 Construction and functional components of boats

5.1 Conditioning

All tests shall be performed at a temperature of $(20 \pm 3) ^\circ\text{C}$.

5.2 Hull integrity

5.2.1 Requirement

The materials and the method of construction used in the construction of a boat shall be compatible with that of the hull itself. Any load-bearing fittings attached to the boat shall not result in any impairment in air tightness or water integrity, when loaded as described in [5.2.2](#).