



# SLOVENSKI STANDARD

## SIST EN 14504:2024

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### Plovila za celinske vode - Plavajoči privezi in pontonski mostovi na celinskih vodah - Zahteve, preskusi

Inland navigation vessels - Floating landing stages and floating bridges on inland waters - Requirements, tests

Fahrzeuge der Binnenschifffahrt - Schwimmende Anlegestellen und schwimmende Brücken auf Binnengewässern - Anforderungen, Prüfungen

Bateaux de navigation intérieure - Embarcadères flottants et appontements flottants sur des eaux intérieures - Exigences, essais

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[SIST EN 14504:2024](#)

#### **ICS:**

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## Inland navigation vessels - Floating landing stages and floating bridges on inland waters - Requirements, tests

Bateaux de navigation intérieure - Embarcadères flottants et appontements flottants sur des eaux intérieures - Exigences, essais

Fahrzeuge der Binnenschifffahrt - Schwimmende Anlegestellen und schwimmende Brücken auf Binnengewässern - Anforderungen, Prüfungen

This European Standard was approved by CEN on 23 September 2024.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## EN 14504:2024 (E)

### European foreword

This document (EN 14504:2024) has been prepared by Technical Committee CEN/TC 15 “Inland navigation vessels”, 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.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 will supersede EN 14504:2019.

EN 14504:2024 includes the following significant technical changes with respect to EN 14504:2019:

- definition for dolphins added;
- more detailed specification regarding the arrangement of climbing devices in 5.2.2 added;
- reference to EN 17210 regarding accessibility, added in 6.1 and for this the requirement for the slope angle in 6.2.3 deleted;
- Annex B “Additional requirements for floating landing stages for cargo shipping” added;
- Bibliography updated.

This document specifies safety requirements for floating landing stages and floating bridges on inland waters within the meaning of European Parliament and Council Directive (EU) 2016/1629 of 14 September 2016 laying down technical requirements for inland waterway vessels.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

## 1 Scope

This document specifies safety requirements for floating landing stages and floating bridges for use by passengers and crew.

Requirements for facilities for supply and waste disposals are not covered by this document.

This document is not applicable to:

- floating landing stages for motor vehicle traffic;
- floating landing stages for recreational craft and inland navigation craft that are not vessels, e.g. floating equipment;
- more severe requirements for floating landing stages used for the transshipment of dangerous goods;
- any gangway required between vessel and floating landing stage;
- specialized floating structures which are not used for passenger traffic or the berthing of vessels;
- floating landing stages and bridges with equipment for cargo handling.

## 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.

EN 711, *Inland navigation vessels — Railings for decks and side decks — Requirements, designs and types*

EN 790, *Inland navigation vessels — Stairs with inclination angles of 45° to 60° — Requirements, types*

<https://www.sist.org.uk/standards/EN/1492-4>, *Textile slings — Safety — Part 4: Lifting slings for general service made from natural and man-made fibre ropes*

EN 1990, *Eurocode — Basis of structural and geotechnical design*

EN 1991-1-4, *Eurocode 1: Actions on structures — Part 1-4: General actions — Wind actions*

EN 13056, *Inland navigation vessels — Stairs with inclination angles of 30° to < 45° — Requirements, types*

EN 13281, *Inland navigation vessels — Safety requirements for walkways and working places*

EN 13411-2, *Terminations for steel wire ropes — Safety — Part 2: Splicing of eyes for wire rope slings*

EN 13574, *Inland navigation vessels — Permanently installed climbing devices with a length not exceeding 5 m*

EN 14144, *Lifebuoy — Requirements, tests*

EN 14145,  *HOLDERS for lifebuoy*

EN 17210, *Accessibility and usability of the built environment — Functional requirements*

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EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN ISO 1140, *Fibre ropes — Polyamide — 3-, 4-, 8- and 12-strand ropes (ISO 1140)*

EN ISO 1346, *Fibre ropes — Polypropylene split film, monofilament and multifilament (PP2) and polypropylene high-tenacity multifilament (PP3) - 3-, 4-, 8- and 12-strand ropes (ISO 1346)*

EN ISO 14122 (all parts), *Safety of machinery — Permanent means of access to machinery (ISO 14122 (all parts))*

EN ISO 18422, *Ships and marine technology — Inland navigation vessels — Plate with instructions for rescue, resuscitation and first aid for drowning persons (ISO 18422)*

ISO 8793, *Steel wire ropes — Ferrule-secured eye terminations*

ISO 18421, *Ships and marine technology — Inland navigation vessels — Lifebuoy housings*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 1990 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****floating establishment**

floating construction used for the safe passage of persons on inland waters

Note 1 to entry: A floating establishment is either a floating landing stage or a floating bridge.

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**3.1.1****floating landing stage**

floating establishment used for berthing and mooring of vessels and for passenger traffic

**3.1.2****floating bridge**

floating establishment without berth, used solely for passenger traffic and not for berthing or mooring vessels

**3.2****floating body**

one or more fixed buoyancy bodies with a traffic area and/or a connecting bridge support

**3.3****buoyancy body**

body capable of floating that either

- consists of waterproof air chambers or
- is completely filled with a closed-pore material



**3.4****connecting bridge**

movable traffic area between floating body and shore

**3.5****anchorage for the floating establishment**

device by which the floating establishment is secured to its berth

**3.6****pier anchor**

hinged spacer (e.g. mooring arm) for transferring compressive and tensile forces

**3.7****freeboard**

distance between the plane of maximum draught (waterline) and a parallel plane passing through the lowest point of the upper edge of the buoyancy body

**3.8****residual freeboard**

distance between the plane of maximum draught (waterline) and a parallel plane passing through the lowest point of the upper edge of the buoyancy body in the event of leak

**3.9****safety distance**

distance between waterline and lowest point of buoyancy body with air chambers that is no longer watertight

**3.10****residual safety distance**

distance between the waterline and the lowest point of a buoyancy body with air chambers that is no longer watertight in the event of a leak

**3.11****maximum draught level**

draught of the floating establishment at the sum of the maximum actions

**3.12****dolphin**

permanent pile or bundle of piles with or without mooring system

[SOURCE: EN 14329:2004, 3.7 modified, "or without" has been added]

**4 General requirements****4.1 Components**

The floating establishment shall consist of floating body, connecting bridge and anchorage.

Additionally, a ramp may be necessary. Additional requirements for components of floating landing stages for cargo shipping are specified in Annex B.

**4.2 Strength**

The strength of the components of floating establishments shall be fixed taking into account the actions described in Annex A.

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The strength shall be tested as specified in 7.2.

**4.3 Buoyancy and stability****4.3.1 General**

In combination with the following proof of buoyancy and stability, for floating establishments the actions in accordance with Annex A shall have a partial safety coefficient of  $\gamma_F = 1,0$ .

**4.3.2 Intact stability**

At maximum draught level,

- a freeboard of at least 0,15 m,
- a safety distance of at least 0,30 m, and
- a heeling angle of no more than 10°

shall be maintained.

In addition, the metacentric height for floating establishments under option A (see 4.4) under impacts as per A.5 to A.7 and A.11 shall be at least 0,15 m. For these structures, heeling motions caused by the vessel's movement or by the mooring equipment as well as open areas of liquid, which occur during the operation of the floating establishment, shall also be taken into consideration.

Intact stability shall be tested as specified in 7.3.1.

**4.3.3 Damaged stability**

It shall be ensured that the floating establishment will neither sink nor capsize in the case, that one air chamber is damaged. In this case, a residual freeboard and a residual safety distance each of not less than 10 cm shall be maintained; if greater residual safety distances or residual freeboards are required by the specifics of the waterway, these shall be taken into account.

Free surfaces of liquids that can occur during operation shall also be taken into account.

If all buoyancy bodies are completely filled with a material according to 4.5.4, proof of leak stability may be omitted.

Damage stability shall be tested as specified in 7.3.2.

**4.4 Anchorages for floating establishments**

Floating establishments shall be anchored in their positions to prevent them from being torn loose or being displaced by currents, wind, waves, fluctuations in water level or the draught or wash of passing vessels or possible special loads. In the case of floating landing stages, the influence of berthing ships shall also be taken into consideration. The functioning capability of the anchoring of the floating establishment shall also be proven for the case that the floating body of the floating establishment springs a leak.

Anchorage for the floating establishment shall comply with one of the following two options:

- a) option A: the floating establishment shall be secured to the land by means of:
  - 1) chains;
  - 2) steel wire ropes;
  - 3) fibre ropes as per EN ISO 1140 or EN ISO 1346;

- 4) a pier anchor of appropriate strength and length; or
- 5) the connecting bridge.

The fastenings shall be secured against deliberate undoing. This requirement is met if it is not possible to undo the fastenings without the use of a tool.

End connections of steel wire ropes shall be designed as splicers according to EN 13411-2 or by means of aluminium ferrules according to ISO 8793. Textile slings of fibre ropes shall be designed according to EN 1492-4;

- b) option B: the floating establishment shall be attached to guides or dolphins in accordance with 4.5.3.

## 4.5 Structural requirements

### 4.5.1 General

The floating establishment shall be designed so that it can follow all changes in water level during operation.

### 4.5.2 Freeboard

Taking into account 4.3, for floating landing stages the height difference between the traffic areas of the floating body and the deck of the vessel shall be as small as possible for the berthing vessels expected.

For floating bridges the height of the traffic areas of the floating body shall be selected taking 4.3 into account, so that no waves enter the traffic areas under predictable wind and wave conditions.

### 4.5.3 Floating bodies

Floating bodies using option B (see 4.4) anchorages shall be fixed so that they cannot twist. The height of the guides or dolphins shall be sufficient dimensioned so that the floating body is not flooded at the maximum water level to be expected or the floating body shall be secured against floating away.

Floating bodies shall have one or more buoyancy bodies, which

- comprise a total of at least three watertight air chambers or
- are completely filled with a material according to 4.5.4.

It shall be possible to seal the openings in the air chambers so that they are waterproof.

### 4.5.4 Materials for filled buoyancy bodies

Materials used to fill the filled buoyancy body shall have closed pores.

The water absorption characteristics of the material shall be taken into consideration during proving.

For buoyancy elements made of expanded polystyrene according to EN 13163, water absorption characteristics according to EN ISO 16535 of a maximum of 5 % by volume are recommended.

These materials shall be resistant against external influences or protected against such influences.