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**Small craft — Field of vision from the  
steering position**

*Petits navires — Champ de vision depuis le poste de pilotage*



Reference number  
ISO 11591:2020(E)

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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 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](http://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](http://www.iso.org/patents)).

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 188, *Small craft*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 464, *Small craft*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 11591:2019), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- all normative references have been dated.

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](http://www.iso.org/members.html).

# Small craft — Field of vision from the steering position

## 1 Scope

This document specifies requirements for the field of vision from the steering position, forward (horizontally and vertically) and astern, for small craft up to 24 m length of hull ( $L_H$ ) in accordance with ISO 8666:2016.

## 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 7010:2019, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 8666:2016, *Small craft — Principal data*

ISO 10240:2019, *Small craft — Owner's manual*

ISO 11192:2005, *Small craft — Graphical symbols*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

### 3.1

#### **steering position**

*steering area* (3.2) or *steering location* (3.3)

### 3.2

#### **steering area**

area on board a *sailing craft* (3.11) from which the *operator* (3.14) steers the craft

### 3.3

#### **steering location**

location on board a *power-driven craft* (3.12) or a *human-powered craft* (3.10) in which the *operator* (3.14) steers the craft and controls the propulsion

### 3.4

#### **main steering position**

*steering position* (3.1) as defined by the manufacturer and specified in the owner's manual that meets the field of vision requirements of this document

### 3.5

#### **high eye position**

<standing operator> eye position 1 730 mm above the surface on which the *operator* (3.14) stands, 400 mm from the centre of the steering wheel rim

**3.6**

**high eye position**

<seated operator> eye position 840 mm above the intersection of the compressed seat and the seat back, 400 mm from the centre of the steering wheel rim

**3.7**

**low eye position**

<standing operator> eye position 1 480 mm above the surface on which the *operator* (3.14) stands, 400 mm from the centre of the steering wheel rim

**3.8**

**low eye position**

<seated operator> eye position 690 mm above the intersection of the compressed seat and the seat-back, 400 mm from the centre of the steering wheel rim

**3.9**

**level reference line**

designated waterline of the craft determined for its operating conditions

**3.10**

**human-powered craft**

craft for which the primary means of propulsion is human power

**3.11**

**sailing craft**

craft for which the primary means of propulsion is wind power

**3.12**

**power-driven craft**

craft for which the primary means of propulsion is an engine

**3.13**

**planing mode**

mode of running of a craft in the sea such that its mass is significantly supported by forces coming from dynamic lift due to speed in the water

**3.14**

**operator**

person steering the craft

**3.15**

**normal condition of use**

mode with regards to speed and load in which a craft is typically operated

## **4 Requirements for all craft**

### **4.1 General requirements**

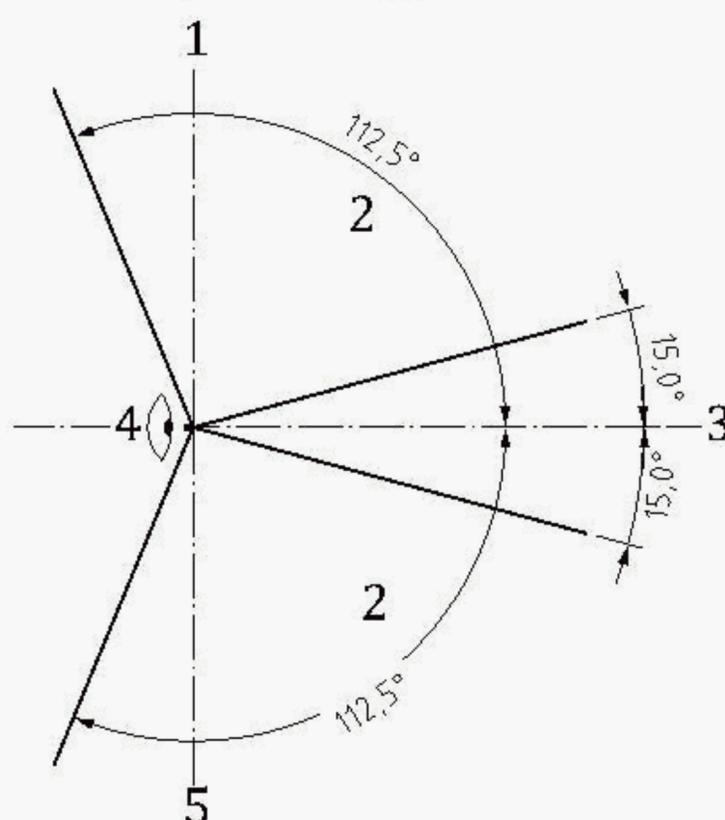
The following requirements shall be fulfilled under normal condition of use.

For craft having more than one steering position, at least one steering position shall meet the requirements of this document and be designated 'main steering position'. Other steering positions that do not meet the requirements of this document shall display a sign at these positions, in clear view of the operator, with the ISO symbol for warning in accordance with 19.1 of ISO 11192:2005 or symbol W001 of ISO 7010:2019 together with warning information (see [Clause 8](#)) in a language acceptable to the country of intended use.

## 4.2 Field of vision — Forward

### 4.2.1 Horizontal

**4.2.1.1** A field of vision from the eye position at the steering position shall be provided throughout a horizontal arc of at least  $112,5^\circ$  on the starboard side to  $112,5^\circ$  on the port side of the craft (see [Figure 1](#)). For port side, starboard side or centreline steering positions, these angles of vision to port and starboard are required without the operator leaving the steering position.



#### Key

- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 1 | port                                   | 4 | eye position at steering position |
| 2 | forward field of vision                | 5 | starboard                         |
| 3 | centre line of forward field of vision |   |                                   |

**Figure 1 — Field of vision, forward, horizontal**

**4.2.1.2** Permanent and removable obstructions to vision shall be such that clear vision from the eye position can be maintained with normal movement of the operator while maintaining control of the craft.

### 4.2.2 Vertical

**4.2.2.1** The vertical field of vision forward to the horizon and water surface shall be determined with the craft at an attitude established by the level reference line determined with the craft in the loaded condition ( $m_{LDC}$ ) in accordance with ISO 8666:2016.

**4.2.2.2** Obstructed vertical vision distance to the water surface in the horizontal field of vision from the stem or point of visual obstruction on the craft, as determined by the level reference line, shall not exceed four times the length of hull,  $L_{II}$ , defined in ISO 8666:2016, and in no case shall exceed 50 m.

## 4.3 Field of vision — Astern

If permanent obstructions to vision exist, astern unobstructed visibility shall be provided to the operator while maintaining control of the craft by:

- normal movement of the operator; or

- mirrors; or
- other means.

## **5 Additional requirements for human-powered craft**

### **5.1 General requirements**

If the operator of a human-powered craft kneels, sits or stands with his back to the course, it shall be ensured that the superstructure of the craft gives the operator enough room to turn around frequently into the direction of travel to comply with this document (see [Clause 4](#)).

## **6 Additional requirements for power-driven craft with steering wheel or equivalent fixed installed direction control**

### **6.1 General requirements**

A forward field of vision shall be provided directly in front of the operator's eye position throughout the vertical field of vision and extending to at least 15° on either side of a line forward from the eye position (see [Figure 1](#)) to the obstructed vision distance as specified in [4.2.2](#). This may be achieved with normal movement of the operator's head while maintaining control of the craft.

**6.1.1** The requirements for low eye position can be met by an operator's seat with vertical height adjustment.

**6.1.2** From the designated main steering position, standing or seated, the minimum vertical field of vision shall extend from the horizontal with respect to the relevant high eye position to the unobstructed line of vision from the relevant low eye position (see [Figures 2](#) and [3](#)), while ensuring the horizontal arc of vision specified in [4.2.1](#).

## **7 Additional requirements for sailing craft under sail or auxiliary power**

### **7.1 General requirements**

Fixed obstructions to vision shall be such that the field of vision requirements as defined in [Clause 4](#) during normal conditions of use can be maintained with normal movement of the operator in the main steering position.

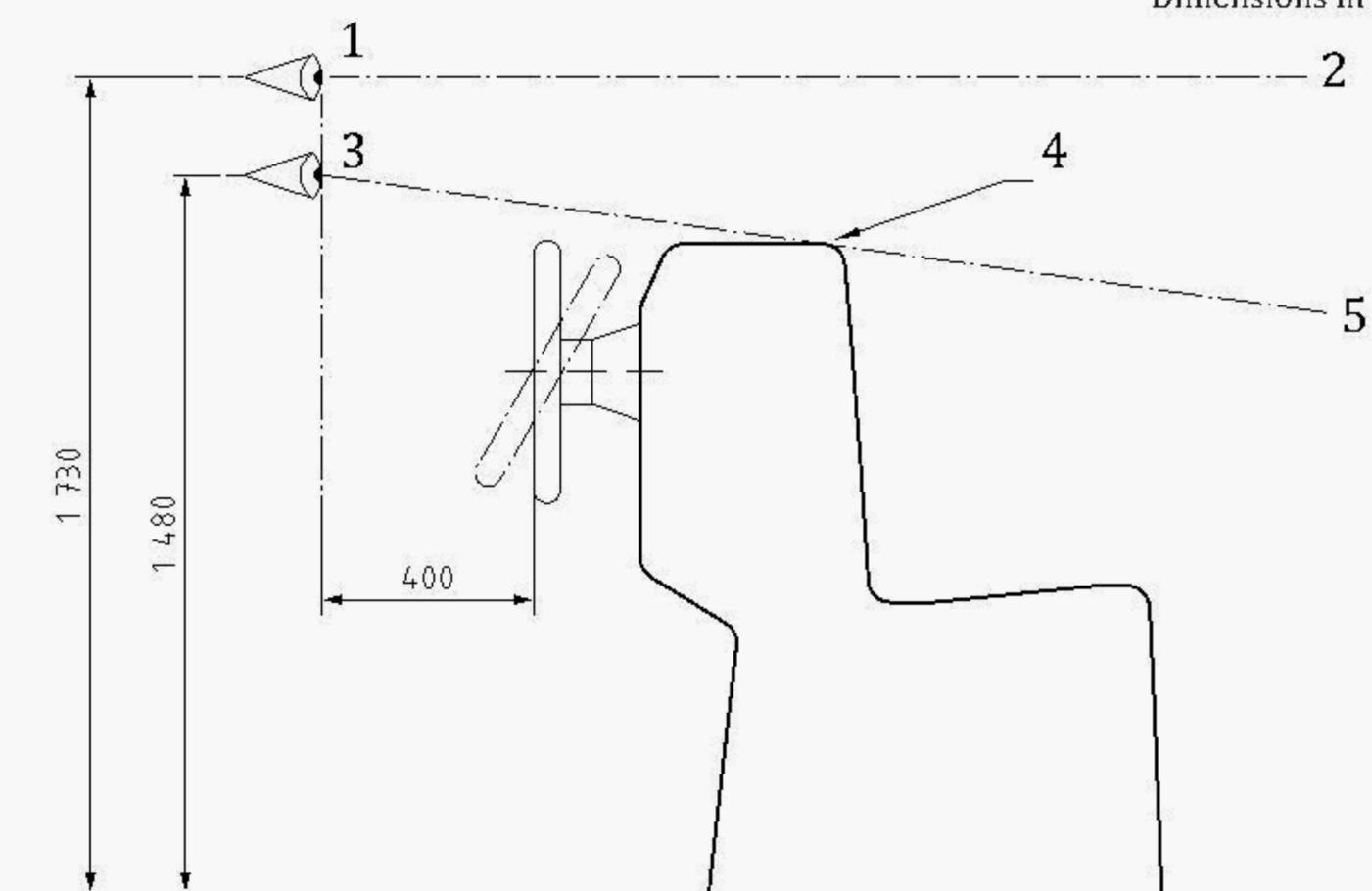
### **7.2 Sails**

Sails or parts thereof may be transparent in order to comply with [Clause 4](#).

### **7.3 Steering means**

Sailing craft shall be able to be steered by one or more wheels, tillers, or other steering means. Tillers may have one or more articulating extensions.

Dimensions in millimetres

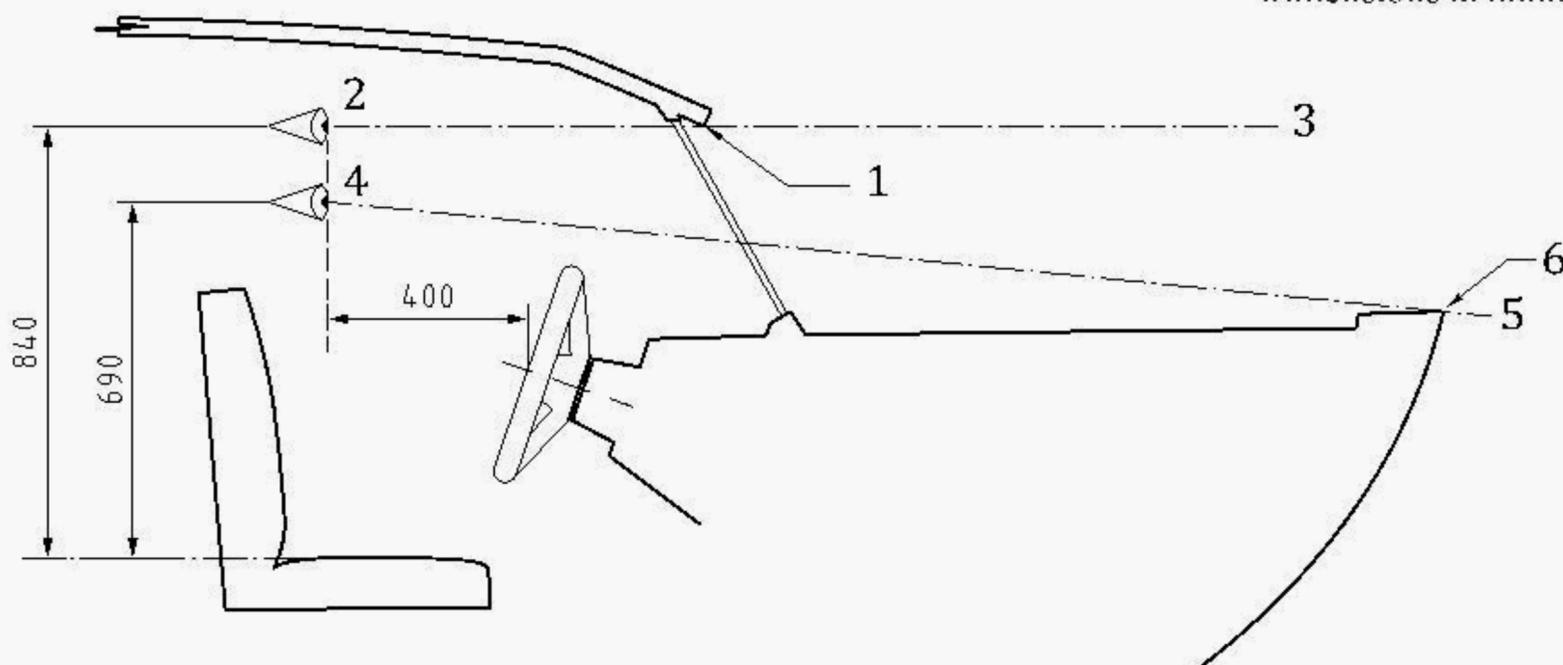


**Key**

- |   |                                 |   |                                    |
|---|---------------------------------|---|------------------------------------|
| 1 | high eye position               | 4 | point of visual obstruction        |
| 2 | horizontal in high eye position | 5 | lowest unobstructed line of vision |
| 3 | low eye position                |   |                                    |

**Figure 2 — Eye positions and vertical field of vision — Operator in standing position**

Dimensions in millimetres



**Key**

- |   |                                 |   |                                    |
|---|---------------------------------|---|------------------------------------|
| 1 | vision obstruction              | 4 | low eye position                   |
| 2 | high eye position               | 5 | lowest unobstructed line of vision |
| 3 | horizontal in high eye position | 6 | vision obstruction                 |

**Figure 3 — Eye positions and vertical field of vision — Operator in seated position**

## 8 Owner's manual

### 8.1 Human-powered craft

The owner's manual shall be in accordance with ISO 10240:2019 and shall include the following information.

- a) Operator vision from the steering location might be obstructed due to one or more of the following variable conditions:
  - 1) loading and load distribution;
  - 2) speed;
  - 3) sea conditions;
  - 4) reduced visibility (i.e. from rain, darkness and fog);
  - 5) persons or movable gear in the operator's field of vision.
- b) For craft with more than one steering location, those steering locations that do not meet the field of vision requirements shall display the following warning label where it can be seen by the operator:

**WARNING — Vision from this steering location is limited. Maintain a lookout as required.**
- c) For craft with more than one steering location, the main steering position shall be specified.
- d) For craft where the operator kneels, sits or stands with his back to the craft's course, the following warning label shall be displayed where it can be seen by the operator:

**WARNING — Vision from this steering location is limited. Maintain a lookout as required.**

### 8.2 Power-driven craft

The owner's manual shall be in accordance with ISO 10240:2019 and shall include the following information.

- a) Operator vision from the steering location might be obstructed by high trim angles of the craft and due to other factors caused by one or more of the following variable conditions:
  - 1) propulsion unit trim angles (on craft equipped with a power trim system on the propulsion unit);
  - 2) hull trim plane angles (on craft equipped with power operated trim planes or trim tabs on the transom);
  - 3) loading and load distribution;
  - 4) speed;
  - 5) rapid acceleration;
  - 6) transition from displacement to planing mode;
  - 7) sea conditions;
  - 8) reduced visibility (i.e. from rain, darkness and fog);
  - 9) interior lights;
  - 10) position of tops and curtains;

- 11) persons or movable gear in the operator's field of vision.
- b) For craft with more than one steering location, those steering locations that do not meet the field of vision requirements shall display the following warning label where it can be seen by the operator:  
**WARNING — Vision from this steering location is limited. Maintain a lookout as required.**
- c) For craft with more than one steering location, the main steering position shall be specified.

### 8.3 Sailing craft

The owner's manual shall be in accordance with ISO 10240:2019 and shall include the following information.

- a) Operator vision from the steering area might be obstructed due to one or more of the following variable conditions:
  - 1) loading and load distribution;
  - 2) speed;
  - 3) sea conditions;
  - 4) reduced visibility (i.e. from rain, darkness and fog);
  - 5) reduced visibility (i.e. from sail changes, hoisting);
  - 6) interior lights;
  - 7) position of tops and curtains;
  - 8) persons or movable gear in the operator's field of vision.

Where the steering area is provided with multiple steering means, care shall be taken when transferring from one steering means to another.

- b) For craft with more than one steering area, those steering areas that do not meet the field of vision requirements, shall display the following warning label where it can be seen by the operator:  
**WARNING — Vision from this steering area is limited. Maintain a lookout as required.**
- c) For craft with more than one steering area, the main steering position shall be specified.
- d) List of sails under which the requirements of this document cannot be met.

