
**Small craft, engine-driven — Field of
vision from helm position**

Petits navires à moteur — Champ de vision depuis le poste de pilotage

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 11591 was prepared by Technical Committee ISO/TC 188, *Small craft*.

This second edition cancels and replaces the first edition (ISO 11591:2000), which has been technically revised.

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Small craft, engine-driven — Field of vision from helm position

1 Scope

This International Standard specifies requirements for the field of vision from the helm position, forward and astern, in engine-driven small craft of up to 24 m length of hull.

It is not applicable to:

- tiller-steered craft (3.10) with maximum speed less than 10 knots;
- sailing craft (3.11).

NOTE Small engine driven craft can be operated in a manner and at certain speeds causing trim angles such that vision forward is temporarily obscured. This International Standard cannot assure that a craft can be operated without some temporary loss of vision from the helm position while operating at high trim angles during the transition from displacement to planing mode.

2 Normative references

The following referenced documents are indispensable for the application 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 3538:1997, *Road vehicles — Safety glazing materials — Test methods for optical properties*

ISO 7000:2004, *Graphical symbols for use on equipment — Index and synopsis*
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ISO 8666, *Small craft — Principal data*
[5152ba10839/iso-11591-2011](https://standards.iteh.ai/catalog/standards/sist/df0c9943-34aa-4aac-859c-5152ba10839/iso-11591-2011)

ISO 11192, *Small craft — Graphical symbols*

ISO 11592, *Small craft less than 8 m length of hull — Determination of maximum propulsion power rating*

3 Terms and definitions

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

3.1

high eye position

⟨helmsman in standing position⟩ position 1 730 mm above the surface on which the helmsman stands, 400 mm from the centre of the steering-wheel rim

See Figure 1.

3.2

high eye position

⟨helmsman in seated position⟩ position 840 mm above the intersection of the compressed seat and the seat back, 400 mm from the centre of the steering-wheel rim

See Figure 2.

**3.3
low eye position**

(helmsman in standing position) position 1 480 mm above the surface on which the helmsman stands, 400 mm from the centre of the steering-wheel rim

See Figure 1.

**3.4
low eye position**

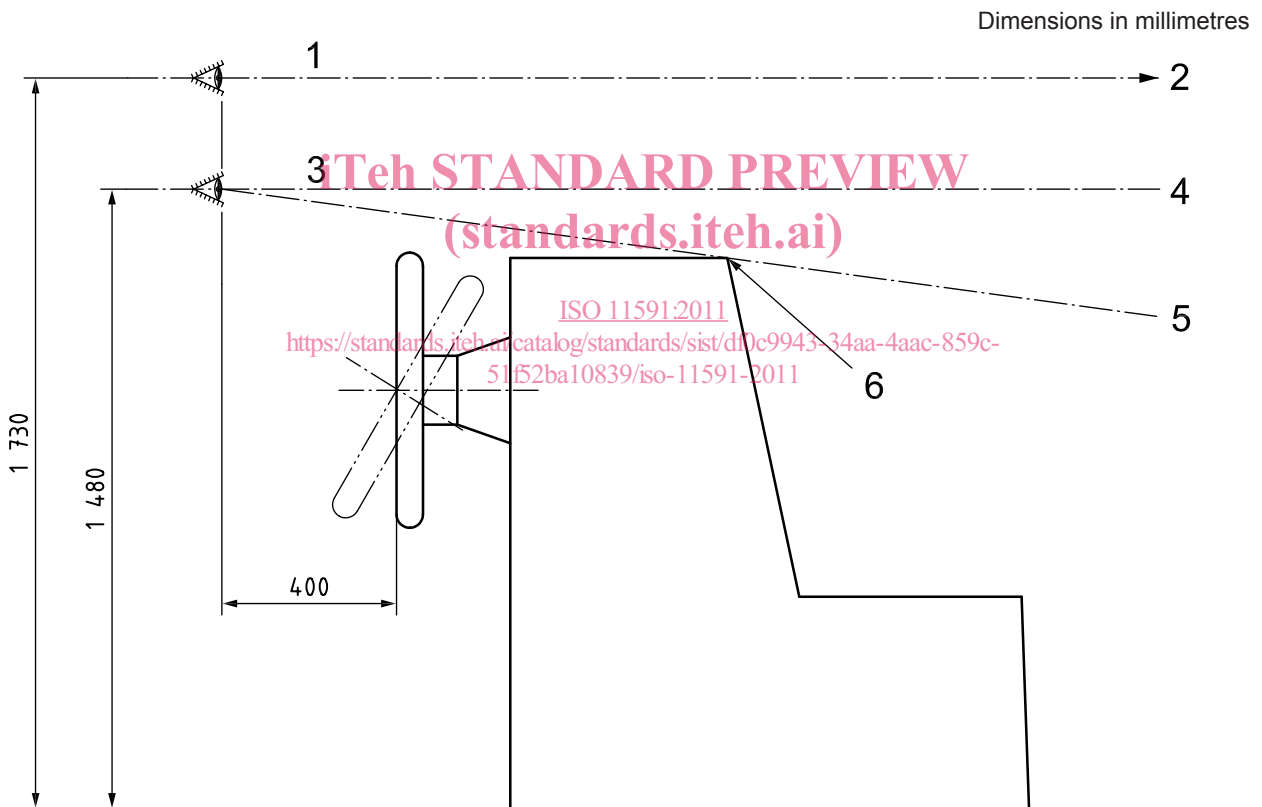
(helmsman in seated position) position 690 mm above the intersection of the compressed seat and the seat-back, 400 mm from the centre of the steering-wheel rim

See Figure 2.

**3.5
compressed seat bottom**

surface of the centre of the helm seat at the intersection of the seat-back and seat-bottom when compressed by a 25 mm diameter spherical object under a vertical load of 100 N

See Figure 2.

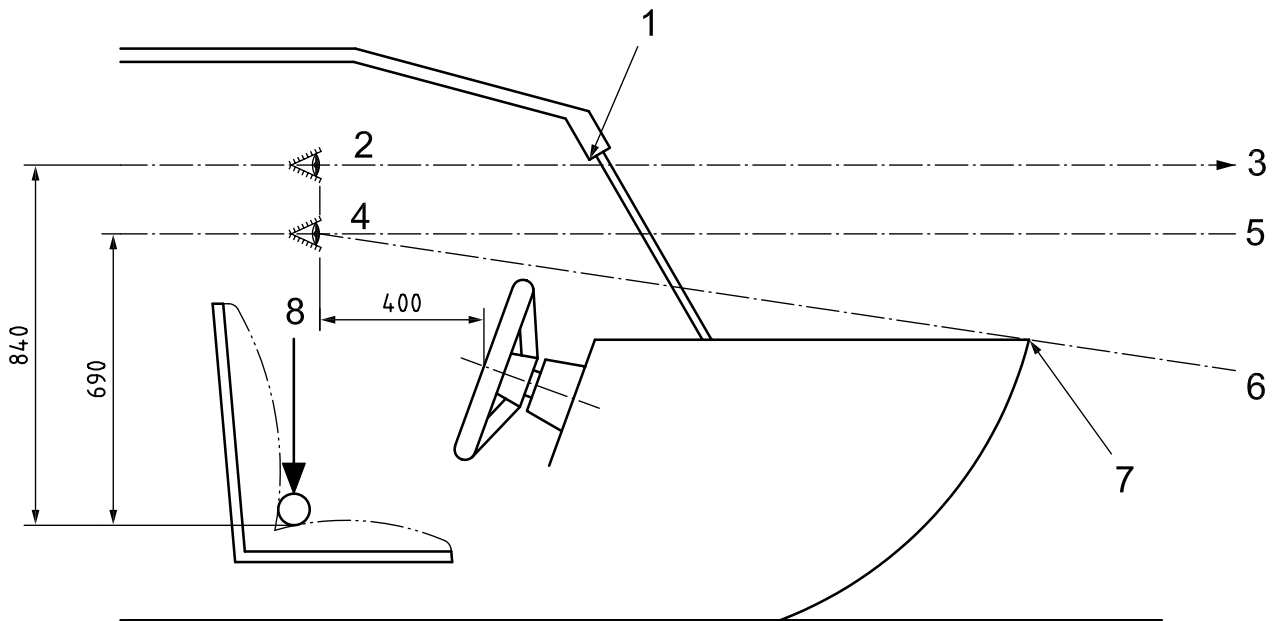


Key

- 1 high eye position
- 2 to horizon
- 3 low eye position
- 4 required vertical range of vision
- 5 lowest unobstructed line of vision
- 6 point of visual obstruction

Figure 1 — Eye positions and vertical range of vision — Helmsman in standing position

Dimensions in millimetres



Key

- 1 vision obstruction
- 2 high eye position
- 3 to horizon
- 4 low eye position
- 5 required vertical range of vision
- 6 lowest unobstructed line of vision
- 7 point of visual obstruction
- 8 seat compression (see 3.5)

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Figure 2 — Eye positions and vertical range of vision — Helmsman in seated position

3.6

theoretical keel

(craft without a clear intersection of bottom running surfaces at the longitudinal centreline) intersection of the lowest bottom surfaces of the craft projected horizontally to the longitudinal centreplane of the craft

See Figure 3.

3.7

level reference line

real or designated waterline of the craft determined for the operating conditions

3.8

vertical range of vision

range between the lowest unobstructed line of vision from the low eye position and the highest unobstructed line of vision from the high eye position

See Figures 1 and 2.

3.9

horizontal range of vision

range of vision through the horizontal arc formed from 112,5° on the starboard side to 90° on the port side of the craft

See Figure 4.

**3.10
tiller-steered craft**

craft steered from the stern position by outboard engine tiller or rudder with tiller arm directly attached

**3.11
sailing craft**

craft for which the primary means of propulsion is wind power, having $A_S > 0,07(m_{LDC})^{2/3}$ where A_S is the total profile area of all sails that may be set at one time when sailing close hauled, as defined in ISO 8666 and expressed in square metres

[ISO 12215-5:2008, definition 3.3]

**3.12
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

NOTE Adapted from ISO 12215-5:2008.

**3.13
planing craft**

craft whose maximum speed in flat water and m_{LDC} conditions, declared by its manufacturer, is such that

$$\frac{V}{\sqrt{L_{WL}}} \geq 5$$

NOTE 1 L_{WL} is the length of the waterline, craft at rest in m_{LDC} conditions, in metres, and V is the maximum speed in calm water declared by the manufacturer, with the craft in m_{LDC} conditions, in km/h.

NOTE 2 Adapted from ISO 12215-5:2008.

**3.14
displacement mode**

mode of running of a craft in the sea such that its mass is mainly supported by buoyancy forces

NOTE Adapted from ISO 12215-5:2008.

**3.15
displacement craft**

craft whose maximum speed in flat water and m_{LDC} conditions, declared by its manufacturer, is such that

$$\frac{V}{\sqrt{L_{WL}}} < 5$$

NOTE 1 L_{WL} and V are defined as in 3.13.

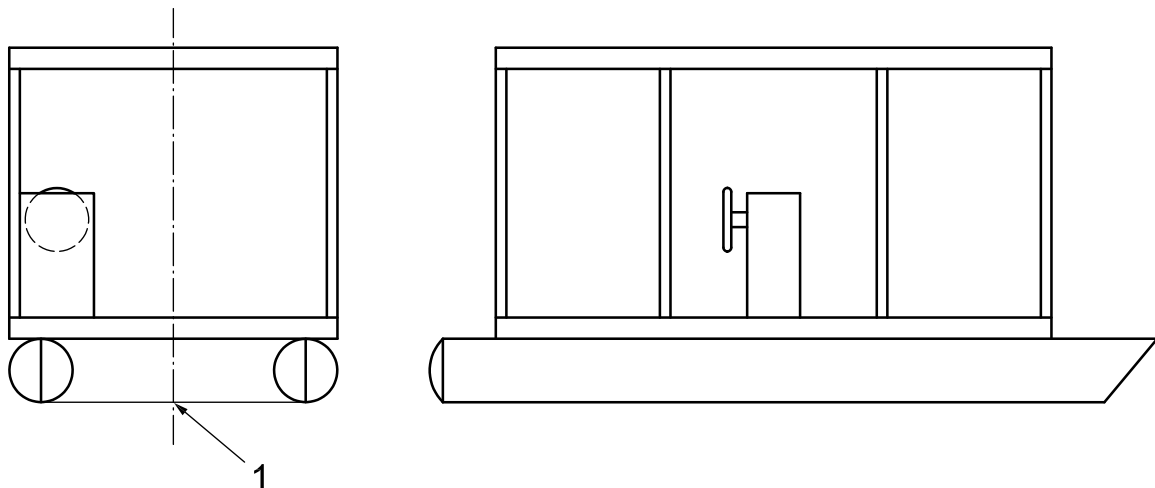
NOTE 2 Adapted from ISO 12215-5:2008.

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**Key**

- 1 theoretical keel (see 3.6)

Figure 3 — Multihull theoretical keel of a catamaran

4 General requirements

4.1 The helmsman's position shall permit the operator to have a field of vision as defined in Clause 5, when in the fully loaded ready-for-use condition (m_{LDC}) as specified in ISO 8666, during cruising, manoeuvring, docking or other extended operational modes.

4.2 All glazing through which vision from the helm station is maintained shall conform to the requirements of this International Standard and shall have at least 70% light transmission as measured in accordance with 5.1 in ISO 3538:1997.

4.3 For craft having more than one helm station, at least one helm station shall meet the vision requirements of this International Standard. Other helm stations that do not meet the requirements of this International Standard shall display a sign at these helm stations, in clear view of the operator, with the ISO symbol for warning (in accordance with ISO 11192 or symbol 0434 of ISO 7000:2004) and at least the following information in a language appropriate to the country of operation:

WARNING — Vision from this helm station is limited. Maintain a lookout as required.

4.4 Helm locations designed to be used from either standing or sitting positions shall meet the requirements of this International Standard from at least one of the positions.

4.5 Throttle and shift controls, as intended for use by the helmsman, shall be positioned within 0,7 m of the high eye position and shall enable the maintenance of at least the low eye position by the helmsman at all throttle settings. For craft designed to be operated from both the seated and standing position, the controls shall be located to meet these requirements from at least the seated position.

4.6 The requirements for low eye position can be met by a helmsman's seat with vertical height adjustment.

4.7 Permanent and removable tops and/or other structural parts and mounted instruments in the vicinity of the helmsman shall not obstruct forward vision as required by this International Standard.