



SLOVENSKI STANDARD
oSIST prEN ISO 13590:2020
01-oktober-2020

**Mala plovila - Osebna plovila - Zahteve za konstrukcijo in inštalacijo sistema
(ISO/DIS 13590:2020)**

Small craft - Personal watercraft - Construction and system installation requirements
(ISO/DIS 13590:2020)

Kleine Wasserfahrzeuge - Wassermotorräder - Anforderungen an Konstruktion und
Einbau von Systemen (ISO/DIS 13590:2020)

Petits navires - Motos aquatiques - Exigences de construction et d'installation des
systèmes (ISO/DIS 13590:2020)

<https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-c01e4bd7a79a/osist-pr-en-iso-13590-2020>

Ta slovenski standard je istoveten z: prEN ISO 13590

ICS:

47.080

Čolni

Small craft

oSIST prEN ISO 13590:2020

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN ISO 13590:2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)

<https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020>

DRAFT INTERNATIONAL STANDARD

ISO/DIS 13590

ISO/TC 188

Secretariat: SIS

Voting begins on:
2020-07-29Voting terminates on:
2020-10-21

Small craft — Personal watercraft — Construction and system installation requirements

Petits navires — Motos aquatiques — Exigences de construction et d'installation des systèmes

ICS: 47.080

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 13590:2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)
<https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 13590:2020(E)

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 13590:2020
https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-
a01e4bd7a79a/osist-pren-iso-13590-2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Builder's plate	3
5 Watercraft Identification	3
6 Fuel system	3
6.1 General.....	3
6.2 Fuel tanks.....	4
6.2.1 Materials prohibited for fuel tanks.....	4
6.2.2 Cellular plastic used to encase metallic fuel tanks.....	4
6.2.3 Fuel level indication.....	4
6.2.4 Tank pressure limitation.....	4
6.2.5 Fill and vent openings.....	4
6.2.6 Fuel tank static-pressure test.....	5
6.2.7 Fuel tank shock test.....	5
6.3 Fuel tank installations.....	5
6.3.1 Non-encased metallic fuel tanks.....	5
6.3.2 Plastic-encased metallic fuel tanks.....	6
6.4 Fuel tank filling system.....	6
6.5 Fuel pumps.....	6
6.6 Fuel stop valves.....	6
6.7 Fuel filters and strainers.....	6
6.8 Spud, pipe and hose fitting.....	6
6.9 Clips, straps and hose clamps.....	6
6.10 Metallic fuel line.....	7
6.11 Plugs and fittings.....	7
6.12 Vent and fuel distribution hoses and connections.....	7
6.13 Grounding.....	7
6.14 Fire test.....	7
6.15 Fuel-hose specifications.....	8
6.15.1 General.....	8
6.15.2 Tensile strength and elongation.....	8
6.15.3 Dry heat resistance.....	8
6.15.4 Ozone resistance.....	8
6.15.5 Oil resistance.....	8
6.15.6 Burst test.....	8
6.15.7 Vacuum collapse test.....	9
6.15.8 Cold flexibility.....	9
6.15.9 Adhesion test (reinforced hose with cover).....	9
6.15.10 Fuel resistance.....	9
7 Electrical system	9
7.1 Exemptions.....	9
7.2 Conductor type, size and identification.....	10
7.3 Conductor support and protection.....	11
7.4 External ignition protection.....	11
7.5 Overcurrent protection.....	11
7.6 Conductor terminations.....	12
7.7 Batteries.....	13
7.8 Secondary circuits of ignition systems.....	14
8 Ventilation	14

ISO/DIS 13590:2020(E)

9	Hull structure test	15
9.1	Drop test.....	15
9.2	Testing.....	15
9.3	Passing or failing the test.....	15
10	Floatation test	15
10.1	General.....	15
10.2	Test conditions.....	15
10.3	Test procedure.....	15
10.4	Acceptance level.....	15
10.5	Floatation material.....	16
10.5.1	Introduction.....	16
10.5.2	Vapour test.....	16
10.5.3	Petrol test lasting 24 h.....	16
10.5.4	Petrol test lasting 30 days.....	16
10.5.5	Oil test lasting 24 h.....	16
10.5.6	Oil test lasting 30 days.....	16
10.5.7	Bilge cleaner test lasting 24 h.....	16
10.5.8	Bilge cleaner test lasting 30 days.....	17
11	Steering-system test	17
11.1	General.....	17
11.2	Axial force test.....	17
11.3	Tangential force test.....	17
11.4	Fatigue test.....	17
11.5	Impact test.....	17
11.5.1	Impact test 1.....	17
11.5.2	Impact test 2.....	17
12	Stability	18
13	Engine Cut-off device	19
14	Means of reboarding	19
15	Towing	19
16	Off throttle steering	19
17	Flooding	19
18	Owner's manual	19
Annex A (normative) Test conditions, procedures and performance requirements for evaluating the off throttle steering capabilities of personal watercraft		20
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive 2013/53/EU aimed to be covered		26
Bibliography		28

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN ISO 13590:2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)

[https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)

[a01e4bd7a79a/osist-pren-iso-13590-2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)

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).

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 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 188, *Small craft*.

This third edition cancels and replaces the second edition (ISO 13590:2003), which has been technically revised.

The main changes compared to the previous edition are as follows:

- used the single term “grounded” for both “earthed” and “grounded”;
- the grounding value in Clause 5.14 was corrected;
- clarified that outboard powered personal watercraft and jet powered surfboards are outside the scope of this standard;
- compared all values to SAE and industry standards;
- Annex A for Off-throttle steering requirements was added;
- requirements for carburettors were removed.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[oSIST prEN ISO 13590:2020](https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020)

<https://standards.iteh.ai/catalog/standards/sist/282fca0e-78e8-46dd-b819-a01e4bd7a79a/osist-pren-iso-13590-2020>

Small craft — Personal watercraft — Construction and system installation requirements

1 Scope

This document applies to personal watercraft as defined in 3.1, for the construction and installation of builder's plate, permanently installed petrol fuel systems, electrical systems, steering systems, ventilation, hull structure and floatation, stability, freeboard, mooring and towing, flooding, off-throttle steering and owner's manual.

Outboard powered personal watercraft or jet powered surfboards are outside the scope of this standard.

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 1402:2009, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 7326:2016, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 7840:2013, *Small craft — Fire-resistant fuel hoses*

ISO 8469:2013, *Small craft — Non-fire-resistant fuel hoses*

ISO 10087:2019, *Small craft — Craft identification — Coding system*

ISO 10133:2012, *Small craft — Electrical systems — Extra-low-voltage d.c. installations¹⁾*

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

ISO 12215-5:2019, *Small craft — Hull construction and scantlings — Part 5: Design pressures for monohulls, design stresses, scantlings determination*

ISO 13297:2014, *Small craft — Electrical systems — Alternating current installations*

ISO 14945:2004, *Small craft — Builder's plate*

ISO 15083:2020, *Small craft — Bilge-pumping systems*

ISO 15084:2003, *Small craft — Anchoring, mooring and towing — Strong points*

ASTM D1621-16, *Standard Test Method for Compressive Properties of Rigid Cellular Plastics*

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>

ISO/DIS 13590:2020(E)

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

3.1**personal watercraft**

watercraft intended for sports and leisure purposes of less than 4 m in hull length which uses a propulsion engine having a water jet pump as its primary source of propulsion and designed to be operated by a person or persons sitting, standing, or kneeling on, rather than within the confines of, a hull

3.2**fuel system**

entire assembly of the fuel fill, vent, tank and distribution components, including and not limited to pumps, valves, strainers, and filters

3.3**static floating position**

condition in which a personal watercraft floats in calm water, with each fuel tank filled to its rated capacity, but with no person or items of portable equipment on board

3.4**conduit**

any type of rigid plastic or metal piping or tubing which supports the conductors contained within

3.5**sheath**

material used as a continuous protective covering, such as electrical tape, moulded rubber, moulded plastic or flexible tubing, around one or more insulated conductors

3.6**open to the atmosphere**

space or compartment that has at least 0,34 m² of open area directly exposed to the atmosphere for each cubic metre of net compartment volume

3.7**engine compartment**

space where the engine is permanently installed

3.8**bilge**

area, excluding engine rooms, in the personal watercraft below a height of 100 mm measured from the lowest point in the personal watercraft, where liquid can collect when the personal watercraft is in its static floating position

3.9**engine compartment bilge**

space in the engine compartment or a connected compartment, below a height of 300 mm measured from the lowest point, where liquid can collect when the personal watercraft is in its static floating position

3.10**builder's plate**

label or plate to display basic user information related to the personal watercraft

3.11**handlebar**

mechanical means for applying manual steering effort into the helm, normally a horizontal configuration with hand grips at each end and the helm connected to the handle

3.12**helm**

mechanism, exclusive of handlebar or other means for manual application of a controlling force, by which the controlling force is fed into a personal watercraft steering-system

3.13**maximum recommended load**

maximum weight of persons and portable equipment that may be carried on the personal watercraft

3.14**ground (earth)****grounded (earthed)****grounding (earthing)**

connection, provided for safety purposes, that is established by a conducting connection with the common ground/earth (potential of the earth's surface)

3.15**craft****small craft**

recreational boat, and other watercraft using similar equipment, of up to 24 metres length of hull (Lh)

3.16**normal accumulation of bilge water**

minor amounts of water collecting in the bilge from spray, rain seepage and spillage that can be removed by bilge pumps. The height of the normal accumulation of bilge water is below the lowest part of the engine, or, measured at the top of the bilge pump inlet or the bilge pump automatic float switch

3.17**accessible**

capable of being reached for inspection, removal or maintenance without removal of permanent craft structure

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4 Builder's plate

The builder's plate shall comply with the technical requirements of ISO 14945:2004 with the following modifications:

- the maximum load shall be according to the manufacturer and,
- the maximum recommended number of persons shall be according to the manufacturer.

5 Watercraft Identification

All personal watercraft shall comply with ISO 10087:2019

6 Fuel system**6.1 General**

6.1.1 Each fuel system fitting, joint and connection shall be accessible.

6.1.2 The fuel system shall be designed not to leak liquid fuel into the watercraft when

- the personal watercraft is overturned through 180° of roll in either direction, or
- the personal watercraft is overturned through 90° of pitch in either direction.

6.1.3 The fuel system shall be designed not to leak liquid fuel into the personal watercraft when subjected to the greater of the following two values: 20 kPa or 1,5 times the highest hydrostatic pressure to which the component can be subjected in service

ISO/DIS 13590:2020(E)

6.1.4 The fuel system shall be designed to automatically stop the supply of fuel to the engine when the engine is not energized.

6.2 Fuel tanks**6.2.1 Materials prohibited for fuel tanks**

6.2.1.1 A fuel tank shall not be constructed of terneplate.

6.2.1.2 Unless it has an inorganic sacrificial galvanic coating on the inside and outside of the tank, a fuel tank shall not be constructed of black iron or steel.

6.2.1.3 A metallic fuel tank encased in cellular plastic or in fibre-reinforced plastic shall not be constructed from a ferrous alloy.

6.2.2 Cellular plastic used to encase metallic fuel tanks

6.2.2.1 Cellular plastic used to encase metallic fuel tanks shall not change volume by more than 5 % or dissolve after being immersed in any of the following liquids for 24 h at 29 °C:

- reference fuel B in accordance with ISO 1817:2015, Table A.1, or an equivalent fuel;
- reference oil No. 2 in accordance with ISO 1817:2015, A.2.1.2, or an equivalent fuel;
- 5 % solution of trisodium phosphate in water.

6.2.2.2 Cellular plastic used to encase metallic fuel tanks shall not absorb more than 55 g of water per 0,093 m² of cut surface.

6.2.2.3 Non-polyurethane cellular plastic used to encase metallic fuel tanks shall have a compressive strength of at least 400 kPa at 10 % deflection, when determined in accordance with ASTM D1621.

6.2.2.4 Polyurethane cellular plastic used to encase metallic fuel tanks shall have a density of at least 0,032 g/cm³.

6.2.3 Fuel level indication

A means shall be provided to check the fuel level, or a reserve fuel supply shall be provided.

6.2.4 Tank pressure limitation

With the personal watercraft in its static floating position, a fuel tank, when filled, shall have an air-expansion volume or be equipped with a system that prevents pressure in the tank from exceeding 80 % of the fuel tank design pressure.

6.2.5 Fill and vent openings

Fill and vent openings shall be at or above the liquid level when the tank is filled to its nominal capacity with the personal watercraft in its static floating position.

The vent-line termination or a gooseneck in the vent-line routing shall be arranged at sufficient height to prevent spillage of fuel through the vent line during filling under normal operating conditions of the personal craft