



SLOVENSKI STANDARD
oSIST prEN ISO 8848:2019
01-september-2019

Mala plovila - Daljinski sistemi krmiljenja (ISO/DIS 8848:2019)

Small craft - Remote steering systems (ISO/DIS 8848:2019)

Kleine Wasserfahrzeuge - Steueranlagen (ISO/DIS 8848:2019)

Navires de plaisance - Appareils à gouverner commandés à distance (ISO/DIS 8848:2019)

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47.080	Čolni	Small craft

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Small craft — Remote steering systems

Navires de plaisance — Appareils à gouverner commandés à distance

ICS: 47.080

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ISO/CEN PARALLEL PROCESSING



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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).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document was prepared by Technical Committee ISO/TC 188, *Small Craft, SC 2, Engines and propulsion systems*.

This second edition of ISO 8848 cancels and replaces ISO 8848:1990, ISO 9775:1990 and ISO 15652:2003.

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

- consolidation of ISO 8848, ISO 9775, and ISO 15652 into this document;
- definitions are updated;
- requirements to meet current industry practices are updated;
- steering wheel requirements and tests are 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.

Introduction

This standard specifies design, construction and installation requirements for remote mechanical cable steering systems and the major components thereof, for outboard, inboard, sterndrive, and water jet drive small craft.

The standard defines requirements for steering systems that can be utilized in three distinct classes of steering systems for use on various types of craft:

- standard for small craft with single and twin installations of outboard engines of over 15 kW power, and all inboard engines, sterndrives, and water-jet drives;
- light duty for small craft with a single outboard engine of 15 kW to 40 kW power;
- mini-jet for small inboard jet craft weighing less than 1 000 kg, excluding personal watercraft.

Standard and light duty steering systems are mechanically interchangeable. A standard steering system may be used on a craft designed for a light duty system. However, a light duty steering system may not be used on a craft that requires a standard steering system. Mini-jet steering systems are mechanically differentiated from the previously mentioned systems and may only be used on mini-jet craft as defined in this standard.

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Small craft — Remote steering systems

1 Scope

This document specifies the minimum level of requirements for design, construction, and installation and test methods for remote mechanical cable steering systems, used for the following categories:

- push-pull cable steering systems for small craft with single and twin installations of outboard engines of over 15 kW power, and to the connection point to all inboard engines, sterndrives, and water-jet drives;
- steering systems for all small inboard jet craft weighing less than 1 000 kg, excluding personal watercraft.

This document does not address emergency means of steering the craft.

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 10240, *Small craft — Owner's manual*

ISO 10592, *Small craft — Hydraulic steering systems*

ISO 12217 (all parts), *Small craft — Stability and buoyancy assessment and categorization*

ISO 23411, *Small craft — Steering wheels*

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:

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

3.1

craft-mounted steering system

assembly including all components necessary to transmit remote manual effort to the end of the output ram and a means to secure an output ram guide tube to the craft

3.2

console

structure that contains the steering helm, shift and throttle controls, switches, and instruments for use in the operation of a craft

3.3

control element

steering wheel, handlebar or joystick

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3.4

control station

console and its operating and/or controlling components, the location in the craft from which active steering, shift and throttle control may be achieved

3.5

drag link (link rod or link arm)

device in a engine-mounted steering system by which the linear force of the output ram is transmitted to the engine steering arm

3.6

handlebar

mechanical means for applying manual steering effort to the helm in a horizontal configuration with hand grips at each end and the helm connected at the middle

3.7

helm

mechanism, exclusive of a steering wheel or other means for manual application of controlling force, by which controlling force is fed into a steering system cable or other force-transmission means

3.8

joystick

operator input device for the simultaneous control of thrust, steering and propulsion

3.9

mini jet craft

craft weighing less than 1 000 kg with an inboard engine powering a water-jet pump as its primary propulsion, designed to be operated with one or more persons within the confines of a hull

3.10

minimum retained system performance

system capability after test(s) such that at least 90 % of the steering arc normally available each side of the mid-position may be obtained by exertion of no more than 27 N·m of torque at the helm, through the steering wheel or other normal control

Note 1 to entry: This criteria does not define steering system performance while a craft is underway but is intended to provide quantitative limits for design and test purposes.

3.11

engine-mounted steering system

assembly including all components necessary to transmit remote manual effort to the end of the output ram which is affixed to an engine mounted steering tube and a drag-link supplied by the engine manufacturer

3.12

multiple engine installation

multiple engines, normally used simultaneously for a craft's main propulsion, controlled by a common steering system

3.13

steering system

assembly including all components necessary to transmit remote manual effort to the rudder, outboard engine, inboard, sterndrive or water-jet drive

3.14

two-cable steering system

two independent cables attached at the interface point(s) of the ram(s) and at the helm and driven by a common steering shaft; a system generally used to minimize steering backlash or lost motion

3.15**steering wheel**

mechanical means for applying manual steering effort to the helm, normally a circular configuration with a continuous loop at the distal end of support spokes with the helm connected at the rotational axis

3.16**steering wheel diameter**

the diameter of the circle formed by the outermost sections of the steering wheel, see Figure 6

3.17**steering wheel dish**

the distance between the two parallel planes formed by the aft rim surface and the forward hub surface of a steering wheel, see Figure 6

3.18**downflooding height**

smallest height above the waterline to any downflooding opening, apart from those excluded in ISO 12217 when the craft is upright in calm water and in the maximum load condition, measured to the critical downflooding point which might be within pipes or ducts inside the hull

Note 1 to entry: Downflooding height is expressed in metres.

3.19**craft****small craft**

recreational craft, and other watercraft using similar equipment, of up to 24 m length of hull (LH)

3.20**standard duty remote mechanical steering system**

remote mechanical steering system designed to the requirements of this standard for use on small craft with outboard engines (single and dual) 15kW and greater power, inboard engines, inboard engine sterndrives, and water-jet drives

3.21**light duty remote mechanical steering system**

remote mechanical steering system designed to the requirements of this standard for use on small craft with single outboard engines between 15 kW and 40 kW power that is permanently marked with a maximum power rating of 40 kW

3.22**mini-jet inboard jet craft remote mechanical steering system**

remote mechanical steering system designed to the requirements of this standard for use on small craft weighing less than 1 000 kg with inboard engines powering water-jet drives

4 Constructional requirements

4.1 When steering systems are factory-installed in the craft, the complete system shall be supplied. In outboard engine craft, the system shall be supplied complete to the interface point at the ram output end as shown in [Figure 1](#).