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Inland navigation vessels — Work boats, ship's boats and lifeboats

National foreword

This British Standard is the UK implementation of EN 1914:2016. It supersedes BS EN 1914:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee SME/32, Ships and marine technology - Steering committee.

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Bateaux de navigation intérieure - Canots de travail, baleinières et canots de sauvetage

Fahrzeuge der Binnenschifffahrt - Arbeits-, Bei- und Rettungsboote

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European Foreword

This document (EN 1914:2016) 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of an identical text or by endorsement, at the latest by April 2017, and any conflicting national standards shall be withdrawn at the latest by April 2017.

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This document supersedes EN 1914:2009.

This standard was written up for ship's boats, for inland navigation vessels and maritime construction company work boats.

This standard specifies requirements for ship's boats covered in § 10.05 of the Rhine Vessel Inspection Order and in Article 10.05 of Annex II of Directive 2006/87/EC.

The following amendments have been made to EN 1914:2009:

a) firefighting and water rescue boats were removed from the scope;

b) specifications were added for handgrips/lifelines as a function of the freeboard height;

c) test provisions regarding motors were revised;

d) stability testing was changed.

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1 Scope

This European Standard applies to:

— ship's boats that shall be carried on inland navigation vessels according to Annex II of Directive 2006/87/EC;

— lifeboats if no special life-saving equipment (e.g. ADN) is specified for the area of use;

— work boats for the transport of a limited number of persons or smaller working loads in the construction site area and over comparatively short distances.

This standard does not apply to:

— recreational craft according to Directive 2013/53/EU;

— firefighting and water rescue boats.

2 Normative references

The following documents, which are cited in this document either in part or as a whole, 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.

EN 22768-1, *General tolerances – Part 1: Tolerances for Linear and Angular Dimensions without Individual Tolerance Indications (ISO 2768-1:1989)*

EN ISO 6185 (all parts), *Inflatable Boats (ISO 6185, all parts)*

ISO 20712-1, *Water safety signs and beach safety flags — Part 1: Specifications for water safety signs used in workplaces and public areas*

IMO Resolution MSC.61 (67), International code for application of fire test procedures[1)]

3 Terms and definitions

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

3.1.
boat
work boat, ship's boat or lifeboat used for transportation, rescue, recovery and work

3.2.
work boat
boat for the transportation of persons and working loads and for operational working tasks in construction site areas

1) Available for purchase from: IMO Maritime Knowledge Centre, 202 Lambeth Road, London SE1 7JW, United Kingdom, sales@imo.org.

3.3.
ship's boat
boat carried on an inland navigation vessel

3.4.
lifeboat
boat for the rescue and recovery of crew and passengers and rescue and recovery of third parties

3.5.
boat volume
V
water displacement to the lowest point at which water can enter the vessel

3.6.
permissible number of persons carried
maximum number of persons allowed in the boat

3.7.
reserve buoyancy
A_R
buoyancy of the unmanned flooded boat

3.8.
deadweight
TF
permissible mass that can be carried by the boat comprising persons, equipment, motor and working load

3.9.
freeboard
F_b
distance between the water surface and the lowest opening or top edge of the shell when loaded to the deadweight

3.10
residual freeboard
F_R
distance between the water surface and the lowest opening or upper edge of the shell when loaded during the stability test

3.11
rowlock
movable holding device for the oars

3.12
gunwale
upper edge of the side to which the rowlock is attached

4 Symbols

For the purposes of this European norm, the symbols and associated units shown in Table 1 shall apply.

Table 1 — Symbols

Symbol	Meaning	Unit of Measurement	Section
A_R	Reserve Buoyancy	kN	5.4
B	Overall Breadth	m	5.1
F_b	Freeboard	m	5.2
F_R	Residual Freeboard	m	5.5
H	Height measured at 0,5 *L* from lower edge of hull to upper edge of boat's side	m	5.1
L	Overall Length	m	5.1
TF	Deadweight	kg	5.1
V	Boat Volume	m^3	5.3

5 Safety requirements

5.1 Dimensions

General tolerances: ISO 2768 – c as described in EN 22768-1.

Boats are not expected to conform to the design illustrated in Figure 1, but the dimensions shall comply with Figure 1.

The main dimensions and the deadweight *TF* shall conform to the following ratios:

a) 3,5 m ≤ *L* ≤ 8 m

b) $\frac{L}{B}=\left(2{,}3+0{,}6\,\frac{L-3{,}5}{2}\right)\pm 0{,}2$

c) $\frac{B}{H}=2{,}5\pm 0{,}4$

d) $TF\geq 200\left(L-2\right)\ \mathrm{kg}$

The test shall be carried out as described in 8.2.1 and 8.2.2.

Examples of construction for boats with rigid hulls corresponding to these ratios are given in Table A.1 and Table A.2 in Annex A.

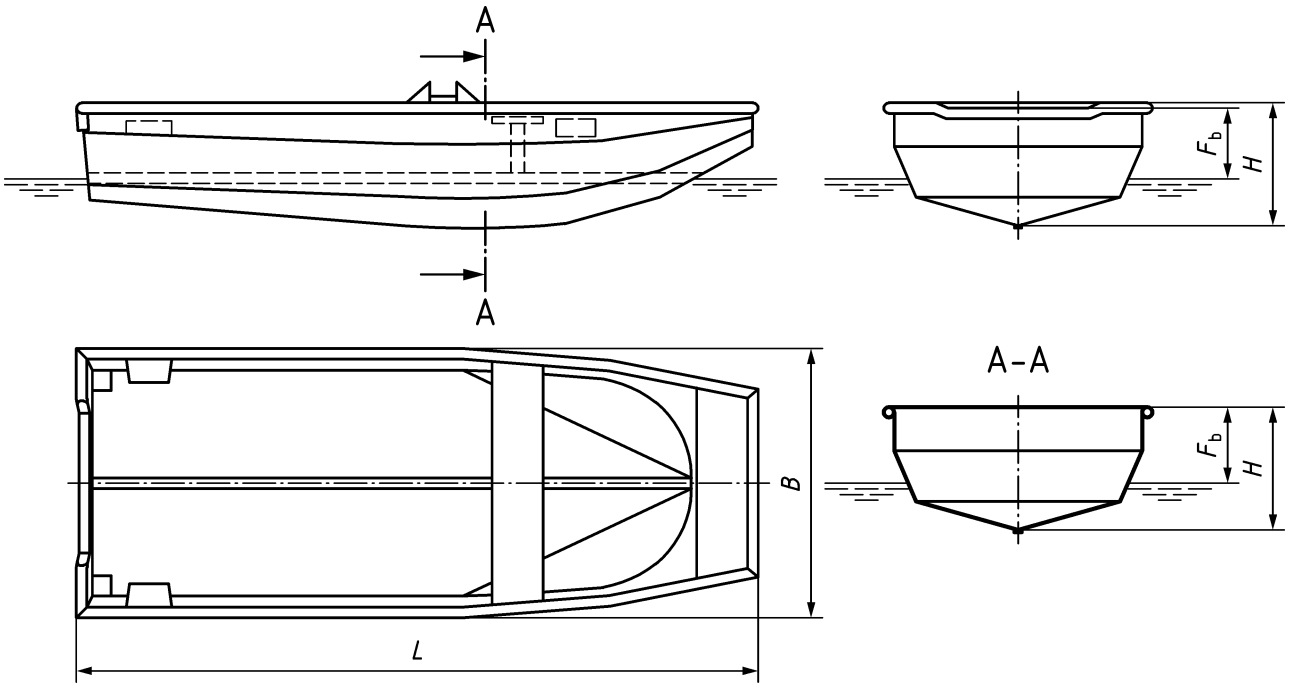

Figure 1 — Main dimensions

5.2 Freeboard

The freeboard F_b of the fully equipped boat loaded to its deadweight shall be at least 0,25 m.

The test shall be carried out as described in 8.2.1.

5.3 Boat volume

The boat volume V shall be determined by Simpson's rule or by another equivalent method and shall be at least 1,5 m^3 or the product of $L \times B \times H$ shall be not less than 2,7 m^3.

The test shall be carried out as described in 8.2.1.

5.4 Reserve buoyancy A_R

The buoyancy of the boat shall be ensured by buoyancy units. The reserve buoyancy A_R of the unmanned flooded boat shall be at least:

$$A_R \geq 0.3\ \text{kN/m}^3 \times L \times B \times H$$

The reserve buoyancy shall be distributed evenly throughout the boat.

The test shall be carried out as described in 8.2.1 and 8.3.

5.5 Stability

The stability is regarded as adequate if a residual freeboard of at least 0,1 m remains on a fully equipped boat under both test conditions according to 8.4.

5.6 Permissible number of persons

The permissible number of persons depends on the deadweight, boat volume and number of seats. Boats shall be provided with seats for at least three persons.

At least 0,4 m^3 of boat volume, 0,45 m seat width and 100 kg deadweight shall be provided for each person.

The lowest value is the decisive one.

The test shall be carried out as described in 8.2.3.

The depth of the seating area on benches, seats or buoyancy units shall be at least 0.45 m and on thwarts at least 0,25 m.

The permissible number of persons shall be selected so that safe operation of the boat is ensured and all manoeuvres can be carried out safely and in a proper manner.

The test shall be carried out as described in 8.2.1 and 8.6.

5.7 Drainage device

Boats shall be fitted with a drainage device made of corrosion-resistant material that can be quickly and securely closed at any time. The plug shall be permanently attached to the boat.

The drainage device shall be constructed in such a way that any unintentional operation is prevented.

The test shall be carried out as described in 8.2.1.

5.8 Buoyancy units

5.8.1 Hermetically-sealed buoyancy units

Buoyancy units shall be designed as parts of the boat construction enclosed on all sides. It shall not be possible to use as them as storage compartments. Longitudinal buoyancy units shall have transverse bulkheads or cells every *L*/3 at least.

Buoyancy units shall have a watertight inspection aperture that cannot be opened manually.

Inflatable boats shall have as many buoyancy units as it is necessary to meet the requirements as described in 5.4 and 5.5, even if any one of the buoyancy units fails.

The test shall be carried out as described in 8.2.1.

5.8.2 Buoyancy units filled with expanded materials

The expanded materials shall be of the closed-cell type and attached to the hull or accommodated in chambers, false bottoms or other spaces in the boat.

Expanded material shall not come into contact with fuel or UV light or shall be protected.

The test shall be carried out as described in 8.2.1 and 8.2.4.

5.9 Non-slip surfaces

The floor and deck surfaces, footholds and treads and shall be of non-slip design. The bottom of the boat or the covering on it shall enable persons to stand and walk on it safely and securely without slipping.

5.10 Gunwale

The boat shall be provided with lifelines all round if the top of the gunwale cannot be gripped or the freeboard of the empty boat is higher than 0,30 m.

The test shall be carried out as described in 8.2.1.

5.11 Performance characteristics

5.11.1 General

The performance characteristics shall be determined in still water.

5.11.2 Rowing

The boat shall be easy to row and manoeuvre. It shall keep a steady course and it shall not be deflected far from its course by wind or waves.

The rowlocks required for rowing shall be securely attached to the boat. Suitable secure standings and sitting areas shall be available with the required footrests.

The test shall be carried out as described in 8.6.

5.11.3 Additional requirements for boats with motor fitted

5.11.3.1 It shall be possible to describe a turning circle of not more than $3 \times L$ without giving rise to any stability-critical situations.

The test shall be carried out as described in 8.7.2.

5.11.3.2 In the Z-manoeuvre, no stability-critical situations or rocking motions shall result.

The test shall be carried out as described in 8.7.3.

5.11.3.3 No water shall ingress in the event of a sudden stop.

The test shall be carried out as described in 8.7.4.

5.11.3.4 It shall be possible to reverse in a steady course without the arch board dipping under the surface.

The test shall be carried out as described in 8.7.5.

5.11.4 Recovery

A person in the water shall be capable of being recovered by two people in the boat.

The test shall be carried out as described in 8.9.

5.12 Motor rating

5.12.1 Installation

The installation specifications of the motor manufacturers shall be adhered to.

5.12.2 Maximum motor rating

The maximum motor rating P_{max} measured in kW shall not exceed the following value:

$P_{max} = 10 \times L \times B - 33$

For jet-powered boats, the maximum motor rating may be increased by 30 %.

The test shall be carried out as described in 8.1 and 8.2.1.

5.12.3 Electric motors and starters

Voltages greater than 48 V are not permitted. Any risk of short-circuiting shall be excluded.

The test shall be carried out as described in 8.2.1.

5.13 Towing ring, mooring and heating devices

Towing ring, mooring and heating devices shall

— be recognizable as such or be identifiable by colour;

— have adequate strength.

The test shall be carried out as described in 8.2.1 and 8.8.1.

5.14 Additional requirements for inflatable boats

Inflatable boats shall be capable of being inflated and equipped from the storage condition to readiness for use by one person within 60 s.

The test shall be carried out as described in 8.2.1.

6 Materials

Materials shall be resistant to sea water and mineral oil or they shall be permanently protected and weather-proofed accordingly.

Materials shall be resistant to UV light and resistant to temperatures from – 20 °C to +70 °C.

Materials for the hull shall be flame-retardant (at least B 15 according to IMO Resolution MSC 61 (67)). In the case of fibreglass-reinforced plastics, proof is required both for the material and for the laminate assembly.

Materials for inflatable boats shall meet the requirements of EN ISO 6185 in accordance with their motor rating.

The test shall be carried out as described in 8.2.4.

7 Equipment

7.1 Basic equipment

A boat shall have at least the following equipment:

— two rowlocks for rowing;

— two oars;

— one towing ring;

— at least three attachment holes for lifting equipment;

— one bailer;

— one buoyant painter at least 5 m long and at least 12 mm in diameter.

The test shall be carried out as described in 8.2.1.

7.2 Additional equipment for boats with motor fitted

The motor accessories shall be approved by the motor manufacturer. There shall be at least:

— arch board/base;

— fuel tank and batteries with mounting.

If the fuel tank and batteries are accommodated in the boat, they shall be separated from each other in gas-tight compartments.

The test shall be carried out as described in 8.2.1.

It is recommended having a propeller guard to protect against the risk of injury in the event of a rescue.

7.3 Additional equipment for inflatable boats

Inflatable boats shall have at least the following additional equipment:

— mechanical inflation system, e.g. compressor or compressed air bottles and compressed gas cartridges;

— bellows of adequate size;

— pressure gauge;

— repair materials.

The test shall be carried out as described in 8.2.1.

7.4 Instructions for use

Instructions for use indicating at least stowage, readiness for use, operation, maintenance and regular tests shall be supplied by the manufacturer.

The test shall be carried out as described in 8.2.1.

8 Testing

8.1 General

The testing to ensure that the boats meet the safety requirements specified in this European Standard is carried out by visual examination, measurement and practical testing.

Where requirements for boats from another standard are specified in this European Standard, the test described in the other standard is applicable.

8.2 Verification of design data

8.2.1 Verification of the dimensions, the boat volume, the design and the equipment shall be by means of visual examination and measurement.

8.2.2 Verification of the deadweight shall be by uniform loading with weights in freshwater.

8.2.3 Verification of the permissible number of persons according to boat volume, deadweight and number of seats shall be by calculation.

8.2.4 The manufacturer shall provide certification to prove that the material properties comply with the requirements.

8.3 Verification of reserve buoyancy

Verification of the reserve buoyancy shall be by calculation or practical testing.

8.4 Verification of stability

Stability shall be verified as follows:

— Criterion 1:

  A person takes a seat in the place intended for the boatsman.

Then another person takes a seat on one side of the boat in whatever place is available given the design, next to the gunwale if possible. This procedure is continued on the same side of the boat until half of the number of people calculated according to 5.6 are on one side of the boat. The examiner will decide how to position the people. Every person, including additional weights carried, shall weigh 100 kg. All or some of the people may be simulated by 100 kg weights.

— Criterion 2:

The boat will first be loaded with a weight equivalent to the maximum deadweight minus the weight of half the permissible number of persons. Then the test as described in Criterion 1 will be conducted.

8.5 Practical test

The tests described in 8.6 and 8.7 shall be carried out by one person in freshwater with a fully equipped boat loaded up to the deadweight (simulated by sandbags, for example).

8.6 Trial without motor fitted

The boat shall be manoeuvred and propelled forward over 25 m in a maximum of 2 min. During this time, an assessment shall be made as to whether the boat is steady over its course and whether the arrangement of the seats and the equipment permits safe and easy operation over a lengthy period.

8.7 Trial with motor fitted

8.7.1 Motor rating

The tests shall be carried out at the maximum permissible motor rating.

8.7.2 Turning circle

The turning circle test shall be carried out at full speed turning to starboard and to port and:

a) the turning circle diameter shall not exceed 3 x L;

b) no stability-critical situation shall result;

c) the upper edge of the gunwale shall not immerse into the water.

8.7.3 Z-manoeuvre

In a Z-manoeuvre carried out at full speed over 200 m using full steering lock to each side, no stability-critical situations or rocking motions shall result.

8.7.4 Stopping test

In a stopping test, no water shall come into the boat when the ignition is cut.

8.7.5 Reversing

During reversing at approximately 2 km/h, the arch board shall not dip under the surface and the boat shall remain steady on course.

8.8 Strength test

8.8.1 General

The boat shall be tested with all its equipment (with the deadweight simulated by means of sandbags or weights).

No damage that would adversely affect the fitness for purpose shall occur during the tests.

8.8.2 Drop test

The boat shall be dropped three times from a height of 2 m on to the surface of the water, one drop with an even keel, one with a forward trim of 30 ° and one with an aft trim of 30 °.

8.8.3 Towing test

In a towing test with the towing ring being loaded by towing at 11 km/h or – for a motorized boat with motor fitted – with a "full astern" static bollard pull, the towing ring and its fastenings shall not show any signs of damage. For solid boats, proof of strength may also be provided by static calculation.

8.9 Recovery test

Suitability of the boat for recovering a person in the water shall be proven by having two persons in the boat dragging a dummy from the water into the boat.

9 Designation

Example of the designation of a boat according to this standard with permissible number of persons (3), overall length 3,5 m (3,5) and motor rating 4 kW (4):

Boat EN 1914 — 3 — 3,5 — 4

10 Marking

Boats shall have retro-reflecting strips at least 0,1 m wide x 1 m long on either side.

The boat shall have a warning sign giving instructions regarding the use of lifejackets according to ISO 20712-1.

Boats shall be marked with a weather-resistant, permanently-attached manufacturer's plate with at least the following information:

Table 2 — Required information on the manufacturer's plate

Information		motor not fitted	motor fitted
Permissible persons	number		
Deadweight	kg		
Weight with equipment	kg		
Permissible motor rating	kW	–	
Permissible weight of motor including full tank	kg	–	
Material			
Year of manufacture/series			
Manufacturer or supplier			
Mark of testing			

Annex A
(informative)

Examples and preferred dimensions for a boat with rigid hull

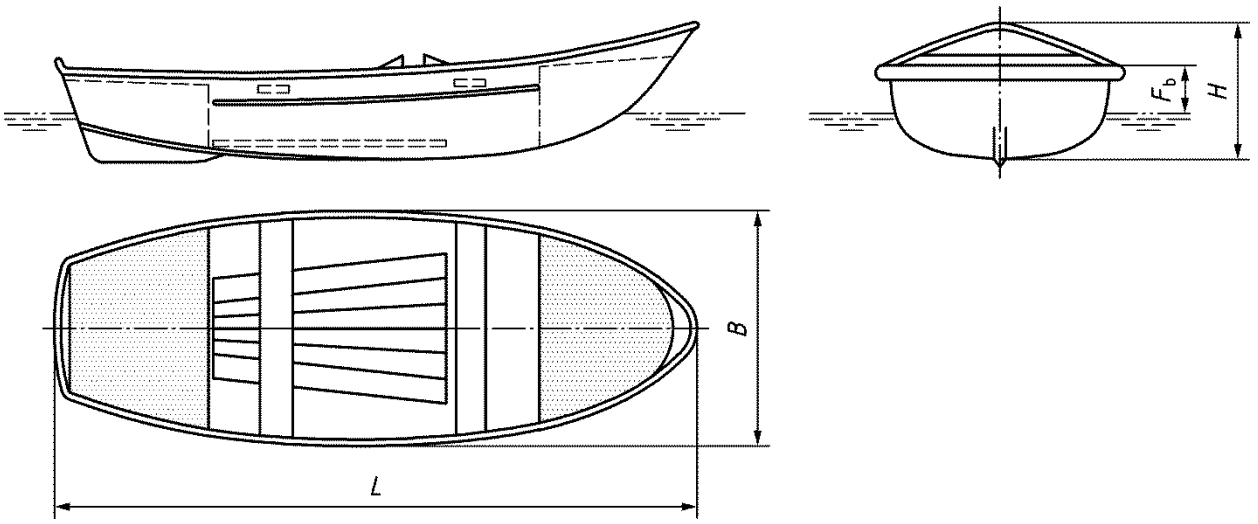

Figure A.1 — Example 1: Round-bottom boat

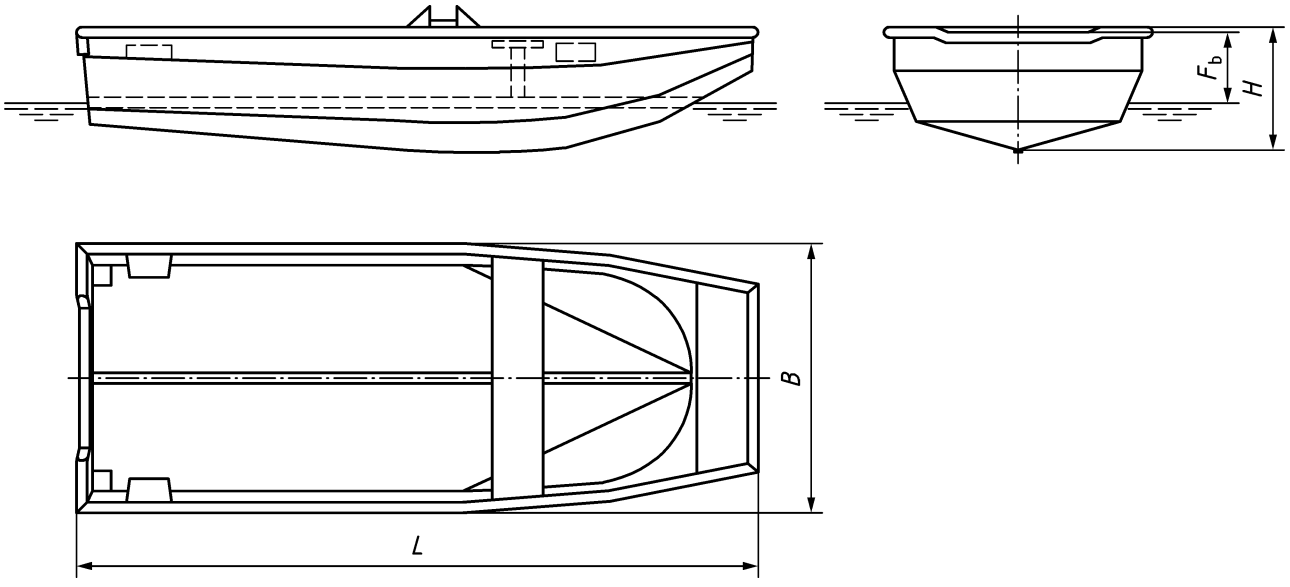

Figure A.2 — Example 2: V-bottom boat

Table A.1 — Preferred dimensions for boats

Permissible number of persons	L m		B m		H m		F_b m min.	TF kg min.
3	3,5		1,5		0,60		0,28	300
4	4,0		1,6		0,65		0,31	400
5	4,5	± 0,15	1,7	± 0,1	0,69	± 0,075	0,32	500
6	5,0		1,8		0,72		0,33	600
7	5,5		1,9		0,75		0,33	700

Bibliography

[1] EN ISO 8665, *Small craft — Marine propulsion reciprocating internal combustion engines —Power measurements and declarations (ISO 8665)*

[2] EN ISO 11592*, Small watercraft less than 8m length of hull — Determination of maximum propulsion power rating (ISO 11592)*

[3] Directive 2006/87/EC of the European Parliament and of the Council of 12 December 2006 laying down technical requirements for inland waterway vessels

[4] ADN European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways

[5] Directive 2013/53/EU of the European Parliament and of the Council of 20 November 2013 on recreational craft and personal watercraft

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