

INTERNATIONAL STANDARD

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Small craft — Portable fuel systems for outboard motors

*Navires de plaisance — Installations à carburant portatives pour moteurs
hors-bord*



Foreword

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International Standard ISO 13591 was prepared by Technical Committee ISO/TC 188, *Small craft*.

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Small craft — Portable fuel systems for outboard motors

1 Scope

This International Standard specifies requirements for the design, materials and testing of portable fuel systems with a rated capacity of 27 l or less for carrying and storage of flammable liquids used for outboard motors installed on small craft with up to 24 m length of hull.

It does not apply to pressurized fuel systems.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1817:—¹⁾, *Rubber, vulcanized — Determination of the effect of liquids*.

ISO 8469:1994, *Small craft — Non-fire-resistant fuel hoses*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 flammable liquid: Liquid with flash point less than 60 °C (closed cup test) and a Reid vapour pressure below 280 kPa (absolute) at 38 °C.

3.2 portable fuel tank: Tank for carrying and storing flammable liquids with a capacity of 27 l or less which is intended to form part of a portable fuel system.

3.3 portable fuel system: System consisting of portable fuel tanks with filler caps and vents, fuel connectors, fuel lines and related accessories intended to be connected to fuel systems on outboard motors.

4 General requirements

4.1 Portable fuel tanks shall be designed to permit convenient handling, securing on board the craft and removal for refilling outside the craft.

NOTE — Hereafter portable fuel tanks are referred to as tanks.

¹⁾ To be published. (Revision of ISO 1817:1985)

4.2 The total volume of the tank shall be such that in normal filling position an expansion space of at least 5 % of the rated capacity at 20 °C shall be provided. The filler opening shall be positioned such that the expansion space cannot be filled when the tank is in its normal filling position.

4.3 An automatically or manually closable vent shall be incorporated in portable fuel systems.

4.4 On tanks used for unleaded petrol, the inner diameter of the filler neck shall be minimum 21,5 mm and maximum 23,5 mm. On tanks used for other fuels the inner diameter of the filler neck shall be greater than 30 mm.

4.5 All tank openings shall be above the fuel liquid level when the tank is in normal operation or storage positions and shall have liquid- and vapour-tight closures.

4.6 The tank shall be designed so that it can be carried with one hand.

4.7 The shape of the tank shall discourage stacking.

4.8 Materials used in portable fuel systems shall be arranged to minimize galvanic corrosion encountered in normal marine service.

4.9 Plastic and elastomeric materials shall contain a UV-inhibitor.

4.10 The colour of the tank shall be red.

4.11 The tank shall be marked with a symbol indicating the fuel for which the system is designed.

4.12 Solder with a melting point lower than 450 °C shall not be used in the construction of metal tanks.

5 Performance requirements

5.1 General tests

5.1.1 Stability test

Fill a tank, complete with fittings, etc., to its nominal capacity with the fuel intended to be used. Place the tank in its normal operating position on a flat surface which is inclined at an angle of 35° from the horizontal and which gives enough friction to prevent sliding. Rotate the tank over 360° at 15° intervals.

If the tank has a storage position which is different from its operating position, the test shall be repeated with the tank in the storage position, but with the plane inclined 20° from the horizontal.

Evaluation:

The tank shall not tip over in any position.

5.1.2 Carrying handle test

Prepare three tanks according to figure 1. Fill each tank to nominal capacity with water and secure closures.

Leave a minimum of 75 mm slack in the wire rope. Allow each tank to drop freely once.

Evaluation:

After the drop test, each tank shall be pressure tested with air at an internal pressure of 35 kPa. None of the tanks shall leak.