
Small craft — Liquefied petroleum gas (LPG) systems

*Petits navires — Installations alimentées en gaz de pétrole
liquéfiés (GPL)*



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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. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 188, *Small craft*.

This third edition cancels and replaces the second edition (ISO 10239:2008), which has been technically revised. The major technical changes include:

- suitable user and manufacturer checks of the LPG system tightness;
- specifying a suitable hose material;
- describing the information to be provided in the owner's manual;
- clarification on LPG powered fuel cells included or excluded from standard.

Introduction

This International Standard does not contain procedures for commissioning new LPG installations or system maintenance or upgrades. Competent persons responsible for commissioning LPG installations should use relevant national codes and procedures appropriate to the country concerned.

Small craft — Liquefied petroleum gas (LPG) systems

1 Scope

This International Standard covers the installation of permanently installed liquefied petroleum gas LPG systems and LPG burning appliances on small craft of up to 24 m length of hull.

It does not cover devices used for LPG-fuelled propulsion engines or LPG-driven generators.

This International Standard covers cooking appliances with internal LPG cartridges, with a capacity of 225 g or less (See [Annex D](#)).

It covers storage of all LPG cylinders but is not intended to regulate the technical requirements for such cylinders that are subject to national regulations

It does not contain procedures for commissioning the LPG installation.

NOTE New designs, materials and methods of assembly giving at least equivalent results can be considered to be complying with the requirements of this International Standard when approved by a relevant body.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 8434-1:2007, *Metallic tube connections for fluid power and general use — Part 1: 24 degree cone connectors*

ISO 8846, *Small craft — Electrical devices — Protection against ignition of surrounding flammable gases*

ISO 9094¹⁾, *Small craft — Fire protection*

ISO 10133, *Small craft — Electrical systems — Extra-low-voltage d.c. installations*

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

ISO 12217-1, *Small craft — Stability and buoyancy assessment and categorization — Part 1: Non-sailing boats of hull length greater than or equal to 6 m*

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

EN 751-2, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 2: Non-hardening jointing compounds*

EN 751-3, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 3: Unsintered PTFE tapes*

EN 1254-2, *Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for use with copper tubes*

EN 1949, *Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and in other road vehicles*

1) Under preparation.

EN 14291, *Foam producing solutions for leak detection on gas installations*

EN 15266, *Stainless steel pliable corrugated tubing kits in buildings for gas with an operating pressure up to 0,5 bar*

EN 16129:2013, *Pressure regulators, automatic change-over devices, having a maximum regulated pressure of 4 bar, with a maximum capacity of 150 kg / h, associated safety devices and adaptors for butane, propane, and their mixtures*

3 Terms and definitions

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

3.1 liquefied petroleum gas LPG

mixture of light hydrocarbons, gaseous under conditions of normal temperature and pressure, and maintained in the liquid state by increase of pressure or lowering of temperature

Note 1 to entry: The principal components are propane, propene, butanes or butenes.

Note 2 to entry: LPG can be obtained as commercial butane, commercial propane or a mixture of the two.

[SOURCE: EN 624:2011, 3.1.7 — modified with addition of Note 2 to entry]

3.2 permanently installed

securely fastened so that tools need to be used for removal

[SOURCE: ISO 10088:2013, definition 3.3]

3.3 cylinder housing

ventilated enclosure intended solely for storage of one or more LPG cylinders, pressure regulation device and safety devices, and located so that leakage flows to the outside

3.4 cylinder locker

enclosure which is vapour tight to the interior of the craft with a drain to the outside intended solely for storage of one or more LPG cylinders in a cockpit or recessed into the craft

3.5 LPG system

system consisting of an arrangement of cylinder(s), safety device(s), pressure regulation device(s), connection(s), valve(s), piping, tubing, hose, fitting(s) and devices intended to store, supply, monitor or control the flow of LPG up to and including the appliance

Note 1 to entry: The cylinders are replacement items and might or might not be supplied with the LPG system in the craft.

3.6 interior space

enclosed space that is surrounded by permanent boat structure and that is intended to remain dry during normal use

3.7 readily accessible

capable of being reached quickly and safely for maintenance or effective use under emergency conditions without the use of tools

[SOURCE: ISO 10088:2013, definition 3.2]