



# SLOVENSKI STANDARD

## SIST EN 1949:2004

01-januar-2004

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### Specifikacija za vgradnjo sistemov na UNP v bivalna počitniška vozila in druga cestna vozila

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

Festlegungen für die Installation von Flüssiggasanlagen in bewohnbaren Freizeitfahrzeugen und zu Wohnzwecken in anderen Straßenfahrzeugen

Spécifications pour les installations de systèmes GPL pour les besoins domestiques dans les véhicules habitables de loisirs et les autres véhicules routiers

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#### ICS:

43.100	Osebni avtomobili. Bivalne prikolice in lahke prikolice	Passenger cars. Caravans and light trailers
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EUROPEAN STANDARD  
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English version

## Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and in other road vehicles

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This European Standard was approved by CEN on 6 July 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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**EN 1949:2002 (E)****Foreword**

This document EN 1949:2002 has been prepared by Technical Committee CEN/TC 181 "Dedicated liquefied petroleum gas appliances", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2003, and conflicting national standards shall be withdrawn at the latest by February 2003.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

In this European Standard the annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## 1 Scope

This European Standard specifies the requirements for the installation of liquefied petroleum gas systems for habitation purposes in leisure accommodation vehicles and in other road vehicles. It details safety and health requirements on the selection of materials, components and appliances, on design considerations and soundness testing of installations and on the contents of the user's handbook.

This standard does not cover installations supplied from other than 3rd family gases (LPG), water connections or electrical power supplies to the appliance(s). Portable appliances, incorporating their own gas supply, are not considered part of the installation and are outside the scope of this standard. It does not include the installation of LPG appliances to be used for commercial purposes or for boats. Also, gas supply equipment and gas appliances separate from and external to the body of the vehicle are not considered by this standard.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 331, *Manually operated ball valves and closed bottom taper plug valves for gas installations for buildings.*

EN 732, *Specifications for dedicated liquefied petroleum gas appliances - Absorption refrigerators.*

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

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

EN 1057, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications.*

EN 12864:2001, *Low pressure, non adjustable regulators having a maximum outlet pressure of less than or equal to 200 mbar with a capacity of less than or equal to 4 kg/h, and their associated safety devices for butane, propane or their mixtures.*

EN ISO 3166-1, *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (ISO 3166-1:1997).*

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

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Designation, dimensions and tolerances.*

**EN 1949:2002 (E)****3 Terms and definitions**

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

**3.1****leisure accommodation vehicle**

unit of living accommodation for temporary or seasonal occupation that may meet requirements for construction and use of road vehicles

[prEN 13878:2000]

**3.2****caravan**

trailer leisure accommodation vehicle that meets requirements for construction and use of road vehicles

[prEN 13878:2000]

**3.3****motor caravan**

self-propelled leisure accommodation vehicle that meets requirements for construction and use of road vehicles. It contains at least seats and table, sleeping accommodation which may be converted from the seats, cooking facilities and storage facilities

[prEN 13878:2000]

**3.4****caravan holiday home**

transportable leisure accommodation vehicle that does not meet requirements for construction and use of road vehicles, that retains means for mobility and is for temporary or seasonal occupation

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[prEN 13878:2000]

**3.5****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. The principle components are propane, propene, butanes and butenes

NOTE LPG can be obtained as commercial butane, commercial propane or a mixture of the two.

**3.6****LPG appliance**

appliance that is designed for heating, cooking, lighting, refrigeration or hot water production, using LPG as its energy source

**3.7****LPG system**

assembly of an installation and its appliances

**3.8****liquefied petroleum gas installation**

Installation usually consisting of fuel container(s), pressure regulator(s), piping, hoses and shut-off devices, providing liquefied petroleum gas to appliances

**3.9****pressure regulation system**

a system incorporating one or more regulators to reduce the supply pressure of the system to the required working pressure for the appliance(s)



**3.10****room sealed appliance**

appliance that has the combustion system, including the air inlet and products outlet, isolated from any internal area

**3.11****open-flue appliance**

appliance designed to be connected to a flue via a draught diverter, its combustion air being drawn from the room or internal space in which it is installed

**3.12****closed-flue appliance**

appliance where the flue is closed from a room or internal space due to the absence of a draught diverter, flue break and any draught break within the flue

**3.13****flueless appliance**

appliance that discharges its products of combustion into the compartment in which it is installed

**3.14****flue**

duct designed to convey the products of combustion to the exterior of a vehicle

**3.15****flue terminal**

that part of the flue system through which the products of combustion are discharged to the outside (cowl)

**3.16****central heating system**

a system which consists of a central LPG heating appliance and a distribution system which does not form a direct part of the LPG installation

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**3.17****shut-off valve**

device to interrupt the flow of gas, having one inlet and one or more individually controlled outlets

**3.18****liquefied petroleum gas cylinder**

portable container for liquefied petroleum gas

[prEN 13878:2000]

**3.19****cylinder compartment**

space specially constructed to accommodate one or more liquefied petroleum gas cylinders

**3.20****flame supervision device**

device that has a sensing element, activated by the presence or absence of a flame, that causes the inlet of the LPG supply to a burner to be opened or closed

**3.21****pilot**

small burner that provides a continuously burning flame to ignite a main burner when required

**3.22****soundness**

absence of leakage greater than the specified limit

**EN 1949:2002 (E)****3.23****soft soldering**

soldering for which the lowest temperature of the melting range, after application, is less than 450°C

**3.24****fixed ventilation**

permanent measures that ensure the minimum provision of fresh air

**3.25****free area of ventilation**

total area of the apertures in a ventilator or grill

**3.26****ventilator**

device that allows the passage of air for the ventilation of a compartment

**3.27****low pressure hose**

pipeline of flexible, LPG resistant material for use at working pressure

**3.28****high pressure hose**

pipeline of reinforced flexible LPG resistant material for use at high pressure, normally supply pressure

**3.29****change-over valve**

device to allow selective use of interconnected liquefied petroleum gas cylinders

**3.30****thermostat**

automatic device to maintain a selected constant temperature

**3.31****users handbook**

document that provides information to the user of a leisure accommodation vehicle on its operation, maintenance, repair etc.

**3.32****working pressure**

pressure at the inlet of a LPG appliance while it is in operation

**3.33****readily accessible**

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

NOTE The key of a lock is not regarded as a tool.

**3.34****accessible**

item capable of being reached for inspection, removal or maintenance with or without the use of tools

**4 General requirements****4.1 Dynamic loads**

The LPG system shall be designed to withstand the dynamic loads during normal operation including movement of the vehicle and to fulfil the operational requirements of the appliances.

## 4.2 Soundness

### 4.2.1 Requirements

The LPG system shall fulfil the following soundness requirements if tested at a test pressure of 150 mbar with air. The decrease in pressure shall not exceed 10 mbar for a test volume of at least 700 cm<sup>3</sup>. If necessary, an additional test volume of 600 cm<sup>3</sup> should be used.

### 4.2.2 Test

The soundness may be tested with air using the following procedure, however this does not preclude other test methods. The pipework from the connection of the pressure regulating system to the closed taps of the appliances are tested with an overpressure of 150 mbar. After a period of 5 min, to allow for temperature equilibrium, the pressure is maintained for a further period of 5 min. Parts of the LPG system operating at pressures above working pressure, if any, are tested with an appropriate leak detection solution at operational pressure.

NOTE The LPG installation installer should issue a certificate for each leisure accommodation vehicle or other road vehicle stating the compliance with EN 1949.

## 5 Cylinder compartments

### 5.1 General

With the exception of 5.2 cylinder compartments shall be sealed against the habitational volume and shall have external access only. Any cylinder placement shall provide a minimum distance from any heat source as shown in Figure 1.

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