SLOVENSKI STANDARD
SIST EN 1646-1:2000

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Leisure accommodation vehicles - Motor caravans - Part 1: Habitation requirements relating to health and safety

Leisure accommodation vehicles - Motor caravans - Part 1: Habitation requirements relating to health and safety

Bewohnbare Freizeitfahrzeuge - Motorcaravans - Teil 1: Anforderungen an den Wohnbereich hinsichtlich Gesundheit und Sicherheit

Véhicules habitables de loisirs - Autocaravanes - Partie 1: Exigences d'habitation relatives a la santé et a la sécurité

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Descriptors: motor caravans, safety requirements, accident prevention, specifications, design, equipment specifications, tests, appointments, water supply, thermal insulation, heating, ventilation, electrical installation, gas installation, fire protection, emergency exits, technical notices

English version

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This European Standard was approved by CEN on 1 July 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Contents

Foreword

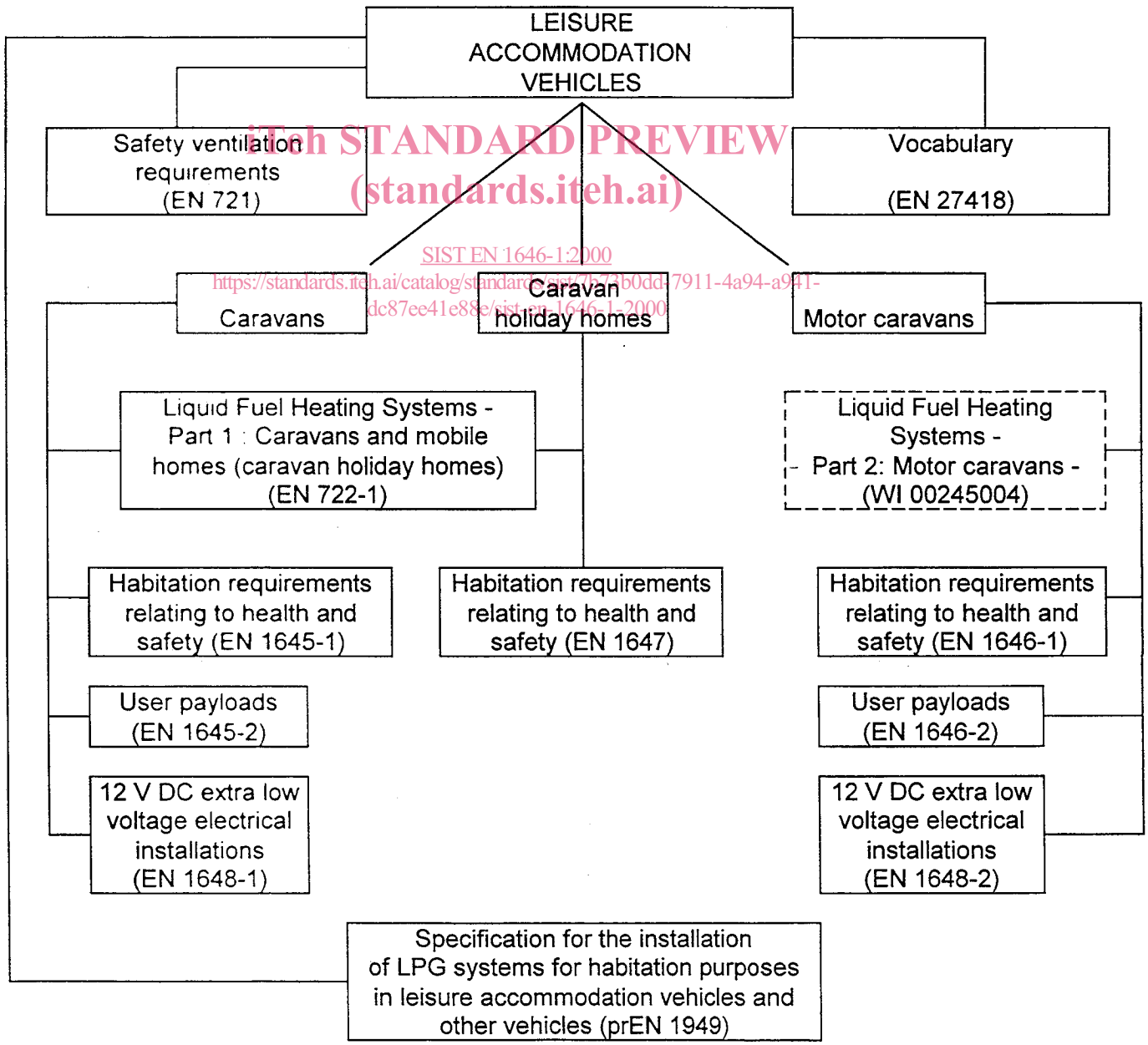
This European Standard has been prepared by Technical Committee CEN/TC 245 "Leisure accommodation vehicles", the secretariat of which is held by BSI.

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 January 1999, and conflicting national standards shall be withdrawn at the latest by January 1999.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is one of a series covering the habitation aspects of leisure accommodation vehicles.

The standard includes 12 normative annexes.



1 Scope

This European Standard specifies requirements intended to ensure the safety and health of persons when they use motor caravans for temporary or seasonal habitation.

It also specifies the corresponding test methods.

However, certain requirements of this standard do not apply to motor caravans where the overall length multiplied by the overall width does not exceed 12 m^2 plan area.

EN 1646-2 gives requirements relating to user payloads for motor caravans.

Requirements applicable to road safety are not included in the scope of this European Standard.

This European Standard is applicable exclusively to motor caravans as defined in EN 27418.

2 Normative references

This European Standard incorporates by dated or by 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.

EN 27418	Leisure accommodation vehicles - Vocabulary (ISO 7418: 1989)
EN 721	Leisure accommodation vehicles - Safety ventilation requirements
EN 1646-2	Leisure accommodation vehicles - Motor caravans - Part 2 : User payloads
EN 1648-2	Leisure accommodation vehicles - 12 V direct current extra low voltage electrical installations - Part 2 : Motor caravans
prEN 1949	Specification for the installation of LPG-systems for habitation purposes in leasure accommodation vehicles other vehicles
HD 384.7.708 S1	Electrical installations of buildings - Part 7 : Requirements for special installations or locations - Section 708 : Electrical installations in caravan parks and caravans
ISO 4649:1985	Rubber - Determination of abrasion resistance using a rotating cylindrical drum device

3 Definitions

For the purposes of this standard the definitions given in EN 27418 apply.

4 Testing

The tests described in annexes A to L are intended to verify that a motor caravan representative of a given model, including its fixtures and fittings, meets the requirements of this standard.

These tests are intended to simulate the most onerous conditions, for the relevant characteristics.

5 Design and construction

5.1 Occupancy

The manufacturer shall designate the occupancy as the number of berths provided, both standard berths and additional berths provided by the manufacturer and shall include it in the user's handbook and in his brochures. The occupancy is also necessary to determine the ventilation requirements (see EN 721).

5.2 Entrance steps

5.2.1 Heights

When the entrance height of the motor caravan, measured at maximum authorised mass, and standing on horizontal ground, exceeds 400 mm, the motor caravan shall either be fitted with entrance step, attachable or integral with the structure of the motor caravan, or a separate entrance step(s) shall be provided. An attachable entrance step may be retractable or folding.

The maximum rise of the first tread shall not exceed 400 mm. The rise of any other tread shall be 250 mm ± 50 mm.

It is recommended that all separate step(s) be attached to the motor caravan when in use to improve their stability.

It is recommended that the height of the steps be equal.

5.2.2 Minimum tread dimensions

The minimum tread dimensions shall be :

a) attachable or integral entrance steps : 150 mm going x 320 mm wide ;

b) separate steps : 270 mm going x 450 mm wide.

5.2.3 Strength

An entrance step and any fixing devices shall be capable of withstanding a force of 2 000 N applied to any surface area of 100 mm x 150 mm of the tread(s).

After application of this force for a period of 5 min, any permanent deformation caused shall not exceed 5 mm.
The strength of each step shall be tested in accordance with annex A.

5.2.4 Slip resistance test

5.2.4.1 Attachable or integral step

An attachable or integral step shall have a slip resistant surface.

The slip resistance shall be tested in accordance with annex B.

5.2.4.2 Separate entrance step

A separate entrance step shall have a slip resistant surface. The slip resistant surface shall be tested in accordance with annex B after having immobilised the feet or base of the step.

In addition a separate step shall remain stable when tested in accordance with annex C.

5.3 Doors

5.3.1 Dimensions

5.3.1.1 Motor caravans above 12 m^2 plan area

Each exterior door opening to the habitation area shall have a minimum clear height of 1 590 mm and a minimum clear width of 480 mm.

5.3.1.2 Motor caravans equal to or less than 12 m^2 plan area

The minimum clear height of any exterior door opening to the habitation area may be reduced to 1 140 mm with a width such that an opening free from obstruction of at least 0,65 m^2 is provided.

5.3.2 Securing doors

Each exterior door shall be fitted with a locking device capable of keeping it closed when subjected to all forces caused by movement of the motor caravan in normal traffic conditions.

Interior doors shall be capable of being kept in a fixed position, open or closed, in the above conditions.

5.3.3 Childproof locking systems

When an external door is fitted with a childproof lock, a notice shall be permanently fixed close to the lock. The notice shall read :

- "ensure that the childproof lock is not activated when the motor caravan is parked off the public highway".

6 Internal equipment

6.1 Bunks

6.1.1 Mattress and/or upholstery

Bunks shall be provided with mattresses or be upholstered.

6.1.2 Clearance

6.1.2.1 Motor caravans above 12 m^2 plan area

The clear width of a bunk shall be not less than 500 mm and the clear height over 2/3 of the surface of the bunk shall be not less than 500 mm when measured from the compressed surface of the mattress or upholstery in accordance with the test in annex D.

6.1.2.2 Motor caravans equal to or below 12 m^2 plan area

The clear height over half the surface area of the bunk shall be not less than 400 mm when measured from the compressed surface of the mattress or upholstery in accordance with the test in annex D.

6.1.3 Protection against falling out

6.1.3.1 General

Any bunk where the uncompressed upper surface of the mattress or upholstery is placed at a height of more than 1 000 mm from the floor, shall be protected on all sides to prevent the occupant from falling out.

All protections shall be secured against unintentional loosening.

6.1.3.2 Rigid protection

For rigid protection, the minimum height of the protection shall be at least 150 mm above the uncompressed upper surface of the mattress or upholstery. The protection shall be continuous except for a section of 300 mm to 500 mm to allow for means of access.

6.1.3.3 Protection by curtains or nets

Alternatively, the protection may be obtained by means of curtains or nets. The minimum height of the protection shall be at least 250 mm above the uncompressed upper surface of the mattress or upholstery. The protection shall be continuous except for a section of 300 mm to 500 mm to allow for means of access.

To allow access to the bunk, the curtains or nets on at least one side of the bunk may be detachable allowing an opening at least 500 mm wide.

The curtains or nets shall be capable of resisting a force of 100 N applied horizontally towards the outside of the bunk for 15 s to any point and this shall not result in any tearing or detaching.

The strength of the curtains or nets shall be tested in accordance with annex E.

6.1.4 Mechanical strength

A force of 1 000 N applied vertically downwards, for one 1 h, from the midpoint of each side member of any bunk where the upper surface of the compressed mattress or upholstery is placed at a height of more than 500 mm from the floor, shall neither cause permanent deformation of more than 5 mm of the frame of the bunk nor damage the fixing of the bunk to the structure of the motor caravan.

The mechanical strength shall be tested in accordance with annex F.

6.1.5 Security of folding bunks

If a bunk is designed to fold away it shall be secured against unintentional folding away.

In particular the frame of a folding upper bunk shall not become detached when a force of 125 N is applied vertically upwards.

The capacity of a folding upper bunk to withstand unintentional folding away shall be tested in accordance with annex G.

6.1.6 Access to upper bunks

A means of access to an upper bunk shall be provided, such as surfaces of furniture, footholes in a solid component, handles or a ladder which shall be fixed or be able to be attached to the bunk, in a safe manner.

The width of the treads between supports shall be at least 250 mm.

When a ladder is used, the upper surfaces of the treads shall be equally spaced within a tolerance of ± 12 mm, and the unobstructed distance between consecutive treads shall be 225 mm ± 25 mm.

When tested in accordance with annex H the ladder shall not move when subjected to a downward static load of 1 000 N and horizontal static load of 500 N, nor shall the ladder or its treads break or deflect permanently by more than 5 mm.

6.1.7 Protection against entrapment

When ready for use a bunk and its means of access shall not contain any open-ended tube, nor shall there be projections, holes, loose washers, speed fixing nuts or crevices on which clothing or any part of the body could become snagged or trapped. Tension springs in the base structure are excluded. All edges, corners and projecting parts that are accessible shall be free from burrs and sharp edges.

If the base of a bunk is not covered by permanently fixed upholstery, any gap in the base shall not permit the passage of the cone (see J.1) beyond the point at which the diameter of the cone is 75 mm, when measured in accordance with J.2.

Any other gap in the structure of the bunk itself, including any formed when the means of access is attached according to the manufacturer's instructions but excluding the space for access, shall permit the passage of the cone beyond the point at which the diameter of the cone is 60 mm but not beyond the point where the diameter is 75 mm, when tested in accordance with J.3.

When a gap cannot be tested because a constructional feature prevents proper positioning of the cone, the constructional feature may be removed to the extent necessary to allow the tests to be carried out.

6.2 Shelves and upper cupboards

Kitchen shelves and shelves and bases of upper cupboards shall be provided with means to prevent the contents from sliding out.

6.3 Cooking appliance

A cooking appliance shall be installed.

7 Drinking water supply storage and disposal of waste water (when provided)

7.1 Couplings for drinking water supply

Couplings for drinking water supply shall be accessible on the outside of a motor caravan. A sealing off cover, secured to the coupling or adjacent to it shall be supplied for each coupling.

7.2 Drinking water

7.2.1 Tanks

Water tanks, whether or not permanently fitted, shall be capable of being flushed and cleaned.

7.2.2 Materials

All materials in contact with drinking water shall be of food contact quality.

> NOTE: For materials made of plastics, attention is drawn to the requirements of Directive 90/128/EEC Commission directive of 23 February 1990 relating to plastics materials and articles intended to come into contact with foodstuffs.

7.2.3 Marking

Couplings for drinking water supply pipes shall be clearly identified in blue.

7.3 Waste water disposal tank

When a drinking water tank is fixed in the motor caravan, one (or more) waste water tank(s) of total capacity at least equal to 50 % of the drinking water tank capacity, shall be provided. Any waste water tank shall be fixed or movable and it shall be capable of being flushed and cleaned. If moveable, storage shall be provided.

7.4 Toilet waste disposal

7.4.1 Discharge systems

Discharge from a toilet shall be collected in a closed system and shall not be discharged into a waste water disposal system. Any fixed tank intended to receive discharge from a toilet shall be fitted with a level indicator or early warning device that will indicate to the user that the tank will require emptying after a further three or four uses.

7.4.2 Outlets and couplings from toilet holding tanks

The internal diameter of a coupling taking discharge from a toilet holding tank shall be a minimum of 70 mm. It shall have a bayonet type fitting to receive a 75 mm minimum internal diameter hose and a 1,5 m minimum length of such hose shall be provided.

These requirements do not apply to self-contained toilets or those equipped with macerators.

8 Appliances

8.1 Installation of appliances

Appliances shall be installed in accordance with the appliance manufacturer's instructions.

NOTE: It is essential that appliances are installed in accordance with European directives and standards in force for the corresponding appliance.

8.2 Restriction concerning supply or use of appliances

Portable appliances producing heat and non room-sealed heating appliances shall not be permitted or supplied with the motor caravan by the motor caravan manufacturer.

9 Heating

The heating of motor caravans shall be classified as follows :

a) grade 1 : There is no heating requirement for this grade.

b) grade 2 : An average temperature difference of at least 20 K between inside and outside temperatures shall be achieved when the outside temperature is 0 °C. This shall be tested in accordance with annex K.

c) grade 3 : An average temperature difference of at least 35 K between inside and outside temperatures shall be achieved when the outside temperature is - 15 °C. This shall be tested in accordance with annex K.