SLOVENSKI STANDARD
SIST EN 1646-1:2005

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Bivalna poļ itniġka vozila - Avtodomi - 1. del: Zdravstvene in varnostne zahteve za bivanje

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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This European Standard was approved by CEN on 14 October 2004.

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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.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Contents

Foreword

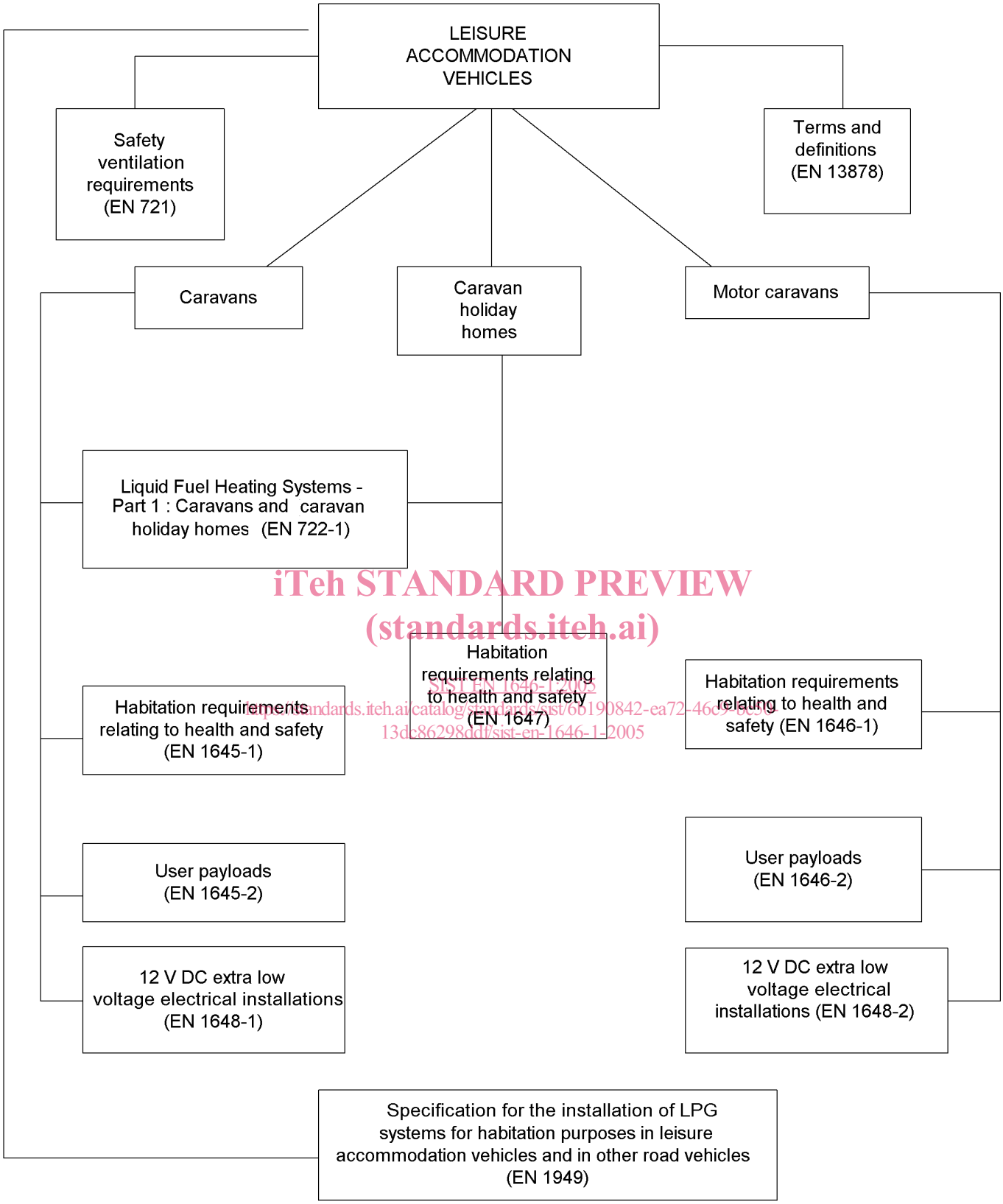
This document (EN 1646-1:2004) has been prepared by Technical Committee CEN/TC 245 “Leisure accommodation vehicles”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document supersedes EN 1646-1:1998.

This standard is one of a series covering the habitation aspects of leisure accommodation vehicles. The standard includes 11 normative Annexes.

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



1 Scope

This document 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 document.

This document is applicable exclusively to motor caravans as defined in EN 13878.

2 Normative references

The following referenced documents 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)

EN 3-7, *Portable fire extinguishers — Part 7: Characteristics, performance requirements and test methods.*

EN 721, *Leisure accommodation vehicles — Safety ventilation requirements.*

EN 1646-2, *Leisure accommodation vehicles — Motor caravans — Part 2: User payload.*

EN 1648-2, *Leisure accommodation vehicles — 12 V direct current extra low voltage electrical installations — Part 2: Motor caravans.*

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

EN 13878:2003, *Leisure accommodation vehicles — Terms and definitions.*

ISO 4649:1985, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device.*

IEC 60364.7.708, *Electrical installations of buildings — Part 7: requirements for special installations or locations — Section 708: electrical installations in caravan parks and caravans.*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13878:2003 apply.

4 Testing

The tests described in Annexes A to K 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, 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 to living area

5.2.1 Heights

When the entrance height of the motor caravan, measured at maximum technically permissible laden mass, and standing on horizontal ground, exceeds 400 mm, the motor caravan shall either be fitted with an 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 rise of the first tread shall not exceed 400 mm. The rise of any other tread shall not exceed 300 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 rise of the steps be equal.

5.2.2 Minimum tread dimensions

The minimum tread dimensions shall be:

attachable or integral entrance steps : 150 mm going × 320 mm wide;

separate steps : 270 mm going × 450 mm wide.

5.2.3 Mechanical 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 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 above12 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.

The measurements taken shall be clear from any protrusions or obstructions (for example fly screens, door catches, hinges, etc.), except for a radius in each corner of not more than 90 mm.

NOTE Verification of compliance can be achieved by passing rectangular test board with dimensions 1 590 mm by 480 mm, and with 90 mm radiuses corners, through the open doorway, parallel to the frame.

5.3.1.2 Motor caravans equal to or less than 12m^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.

The measurements taken shall be clear from any protrusions or obstructions (for example fly screens, door catches, hinges, etc.), except for a radius in each corner of not more than 90 mm.

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.

Upper bunks shall be provided with a label with the following wording:

"Not suitable for children under 6 years old without supervision".

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.

Where a rigid protection presents an apparent flexibility, its resistance shall be tested in accordance with Annex E.

A protection is considered as rigid if it is not bent more than 10 mm under a force of 100 N applied horizontally in the middle of the protection.

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 160 mm above the uncompressed upper surface of the mattress or upholstery, when the upper edge is loaded with 100 N in vertical direction downward.

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.

Means of emergency exit from the bunk shall be accessible from the upper surface of the bunk.

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, nor creating any gap larger than 60 mm at the lower edge of the protection.

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

Any gap created during the resistance test shall be measured in accordance with Annex I.

6.1.4 Mechanical strength

A force of 1 000 N applied vertically downwards, for 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.

A folding bunk shall not unintentionally move from its stored position. Both conditions will 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 ± 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.

Where it is unpractical to test the bunk ladder in the motor caravan, it is acceptable to test an identical configuration of the ladder, its method of fixing and its range of positions of use, outside the motor caravan according to Annex H.

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 not covered by the mattress shall not permit the passage of the cone (see I.1) beyond the point at which the diameter of the cone is 75 mm, when measured in accordance with I.2.

Any other gap or space within the structure of the bunk which is accessible from the upper surface of the bunk, including mattress where applicable, shall be between 12 mm and 25 mm or between 60 mm and 75 mm (tested in accordance with I.3) or equal to or larger than 200 mm.

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 cupboards

Kitchen shelves and bases of cupboards and shelves at more than 1 000 mm from the floor of the vehicle at the place of measurement shall be provided with means to prevent their contents from sliding off.

NOTE Work surfaces are not considered as shelves.

Protection shall be appropriate for the items likely to be stored in the cupboards. Where an up-stand or lip is used as the method of protection, then this should be a minimum height of 5 mm.

For areas designed to accommodate large and/or heavy items, see clause 14.

6.3 Cooking appliance

A cooking appliance shall be installed.

7 Drinking water supply storage and disposal of waste water

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 completely drained 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 Commission directive 90/128/EEC of 23 February 1990 relating to plastics materials and articles intended to come into contact with foodstuffs.

7.2.3 Marking

The drinking water filling points shall be clearly identified in black or 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, a storage area 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 toilets with removable toilet waste holding tanks.