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## Camping tents — Requirements and test methods

*Tentes de camping — Exigences et méthodes d'essai*

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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 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 83, *Sports and other recreational facilities and equipment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 136, *Sports, playground and other recreational facilities and equipment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition cancels and replaces the fourth edition (ISO 5912:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- update of [Clause 3](#);
- revision of [6.1.1.1](#) on "Tear resistance, breaking strength, resistance to penetration by water and weatherability";
- amendment of the requirements for "Entrance/exit" ([6.1.5](#));
- revision of "Tubular components, holes and gaps" ([8.6.2](#));
- addition of "Material connection test" ([8.7](#));
- revision of "Instruction supplied by the manufacturer" ([10](#));
- addition of "Information at the point of sale" ([11.2](#));
- addition of "Example for the display of information at the point of sale" ([Annex C](#));
- editorial revision.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

### 0.1 General

This document has been substantially revised. The objective of the revision was to simplify it by deleting requirements and test methods which did not prove to be reproducible or which do not contribute to the safety and quality performance of camping tents. One of the deleted parameters was the stability performance. Stability was considered to be an important issue for the performance of a camping tent but there was no reproducible test method available when developing this document. Once a suitable test or simulated test is developed, this document will include more specific requirements.

For marquees and larger textile structures EN 15619 might be more relevant.

### 0.2 Environmental considerations

Every product affects the environment in the course of its lifecycle from raw material acquisition through production, distribution and use, to disposal. The environmental impacts are consequences of the consumption of energy and resources and the generation of waste as well as the emission of substances into air, water and soil. The magnitude of the environmental impacts during the various lifecycle changes depends on a number of choices made in the design of the product. These relate to aspects such as choice of materials, production methods, and the possibility of maintenance and recycling. Manufacturers and distributors of camping tents should consider the environmental impact of their product, for example by

- avoiding the use of environmentally harmful substances,
- selecting the best available technology and techniques to reduce consumption of energy and materials,
- considering use of recycled materials for product and packaging,
- encouraging responsible end of life disposal by the user including guidance on separation and identification of any recyclable components and packaging, or by
- using materials, components, and manufacturing facilities, who have declared documented environmental policies.

# Camping tents — Requirements and test methods

## 1 Scope

This document specifies the requirements on safety, performance and fitness for use of camping tents.

NOTE For caravan awnings, see ISO 8936.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-B04, *Textiles — Tests for colour fastness — Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test*

ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 811, *Textiles — Determination of resistance to water penetration — Hydrostatic pressure test*

ISO 2081, *Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel*

ISO 4675:2017, *Rubber- or plastics-coated fabrics — Low-temperature bend test*

ISO 6925, *Textile floor coverings — Burning behaviour — Tablet test at ambient temperature*

ISO 6941:2003, *Textile fabrics — Burning behaviour — Measurement of flame spread properties of vertically oriented specimens*

ISO 7152, *Camping tents and caravan awnings — Vocabulary and list of equivalent terms*

ISO 7771, *Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 13934-2, *Textiles — Tensile properties of fabrics — Part 2: Determination of maximum force using the grab method*

ISO 13937-2, *Textiles — Tear properties of fabrics — Part 2: Determination of tear force of trouser-shaped test specimens (Single tear method)*

ISO 23388, *Protective gloves against mechanical risks*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 7152 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **base area**

area limited by the outer tent walls, which contact the ground

Note 1 to entry: This area does include tents and canopies, but excludes area for guy lines, mud walls and snowskirts.

[SOURCE: ISO 7152:1997, 1.3.2, modified — Note 1 to entry has been added.]

### 3.2

#### **outer tent dimensions**

dimension of the smallest rectangular pitching space necessary for the camping tent excluding guy lines

### 3.3

#### **inner tent area**

part of the *base area* (3.1) designated for living and sleeping

### 3.4

#### **inner tent dimensions**

maximum length and the maximum width of the inner tent measured on the ground

### 3.5

#### **pitching dimensions**

dimension of the smallest rectangular pitching space necessary for the tent including guy lines

### 3.6

#### **sleeping capacity**

number of sleeping berths

### 3.7

#### **minimum usable weight**

weight of the camping tent including the inner and flysheet (where applicable) plus the minimum number of poles, pegs, and guy lines for the camping tent when erected

Note 1 to entry: Tent pole bags and peg bags do not need to be included.

### 3.8

#### **total weight**

weight of the camping tent as supplied including for example all poles, fabrics, pegs, bags, excluding packaging

### 3.9

#### **shear and squeeze point**

point at which the distance between two rigid accessible parts moving relative to each other is less than 18 mm and more than 7 mm in any position during movement

### 3.10

#### **accessible shear and squeeze point**

shear and *squeeze point* (3.9) to which access can be easily gained when the camping tent is in its intended configuration for use and for which unintentional contact is foreseeable

### 3.11

#### **automatic locking system**

mechanism which engages without guidance by the user and prevents unintended movement

### 3.12 sealed tent

camping tent that has either the groundsheet sewn to the flysheet to form a sealed enclosed area or a camping tent with a *snowskirt* (3.13)

Note 1 to entry: Camping tents with snowskirts are not normally sealed tents but there is the possibility of snow or sand building up on these snowskirts which can restrict air circulation creating a sealed tent.

Note 2 to entry: The use of a sealed tent can result in a build-up of harmful gases.

### 3.13 snowskirt

fabric attached to the lower edge of the tent flysheet which is usually designed to sit horizontally on the ground

Note 1 to entry: This can be covered with snow, or have rocks placed upon it, in order to secure the camping tent to the ground.

## 4 Classification

### 4.1 Categories of camping tents

#### 4.1.1 Camping tents cat. A (lightweight)

Camping tents having a total weight of  $\leq 2,5$  kg per sleeping berth.

#### 4.1.2 Camping tents cat. B

Camping tents having a total weight of  $> 2,5$  kg per sleeping berth.

### 4.2 Tent performance level

#### 4.2.1 Level 1

Camping tent designed for infrequent and short-term use. Although rain resistant, these tents should be used mainly in fair weather.

EXAMPLE Occasional summer weekend camping.

#### 4.2.2 Level 2

Camping tent designed for use in mainly moderate weather conditions. Suitable for use in poor (wet and windy) weather conditions, but not intended for extreme or mountain conditions.

#### 4.2.3 Level 3

Camping tent designed for use in all weather conditions.

EXAMPLE Mountaineering, expeditions, snow-loading or extended residential use.

## 5 Calculation of the sleeping capacity

### 5.1 General

The sleeping capacity is determined by using test area 1 for camping tents cat. A (see 5.2, Table 1 and Figure 1) and test area 2 for camping tents cat. B tents (see 5.3) and establishing how many times this test area can be fitted into the sleeping area without overlapping or deforming the fabric of the tent.

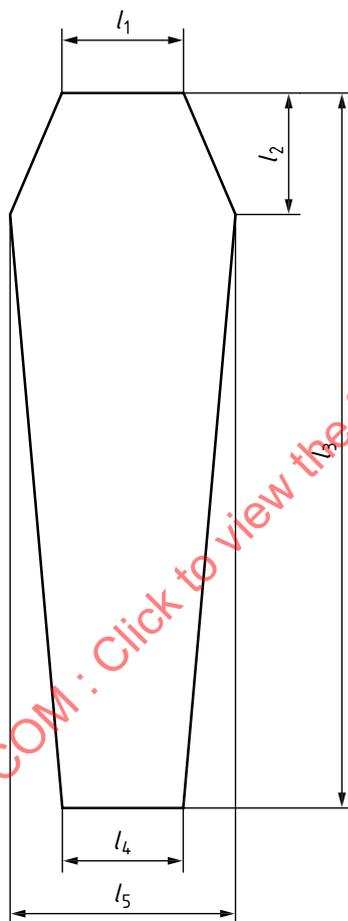
## 5.2 Test area 1 for camping tents cat. A

The test area is measured at a height of 5 cm.

**Table 1 — Dimensions of the reference value**

Dimensions in centimetres

$l_1$	$l_2$	$l_3$	$l_4$	$l_5$
35	30	195	35	58



**Figure 1 — Area of the reference value**

## 5.3 Test area 2 for cat. B camping tents

Test area: 200 cm × 60 cm, height 5 cm.

## 6 Requirements

### 6.1 General requirements

#### 6.1.1 Fabrics and their connections

##### 6.1.1.1 Tear resistance, breaking strength, resistance to penetration by water, weatherability

Fabrics and their connections shall meet the requirements specified in [Table 2](#).

Material connections (e.g. by bonding or sewing) shall have no lower than 10 % less than the tensile strength of either of the fabric connected. Test in accordance with [8.7](#).

For example, a material with a breaking strength of 300 N the connection shall not have less than 270 N.

**Table 2 — Requirements for fabrics and their connections**

		Camping tents cat. A			Camping tents cat. B		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Tear resistance in accordance with ISO 13937-2 <sup>a</sup>	Outer tent, coated	10 N	10 N	15 N	10 N	15 N	20 N
	Outer tent, uncoated	10 N	10 N	15 N	15 N	20 N	25 N
	Inner tent	8 N	8 N	12 N	8 N	9 N	13 N
	Ground-sheet	12 N	12 N	15 N	12 N	15 N	20 N
Breaking strength in accordance with ISO 13934-2 <sup>a</sup>	Outer tent, coated	250 N	300 N	400 N	300 N	400 N	500 N
	Outer tent, uncoated	250 N	300 N	400 N	300 N	400 N	500 N
	Inner tent	150 N	200 N	300 N	200 N	300 N	400 N
	Ground-sheet	250 N	300 N	400 N	300 N	400 N	500 N
	Plastic windows	100 N	150 N	200 N	100 N	150 N	200 N
Resistance to penetration by water in accordance with ISO 811 <sup>a</sup>	Outer tent, coated	15 000 Pa	15 000 Pa	25 000 Pa	15 000 Pa	20 000 Pa	30 000 Pa
	Ground-sheet	15 000 Pa	30 000 Pa	50 000 Pa	15 000 Pa	30 000 Pa	50 000 Pa
Colour fastness to artificial weathering in accordance with ISO 105-B04 <sup>a</sup> measured against blue wool	Outer tent, coated	3	3 to 4	4	3	3 to 4	4
	Outer tent, uncoated	3	3 to 4	4	3	3 to 4	4
	Plastic windows	3	3 to 4	4	3	3 to 4	4

<sup>a</sup> If not stated otherwise, the tests shall be carried out at standard atmosphere in accordance with ISO 139. Manufacturers of products complying with this standard should consider the health and protection of the user, the environment and the supply chain. Materials used should not, during foreseeable conditions of normal use, release or degrade to release substances generally known to be hazardous and should comply with national legislation for such substances.

NOTE Conversion factors for the units of resistance against penetration by water: 1 Pa = 0,01 hPa = 0,01 mbar = 0,101 971 62 mm H<sub>2</sub>O = 0,010 197 162 cm H<sub>2</sub>O

Table 2 (continued)

		Camping tents cat. A			Camping tents cat. B		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Colour fastness to rubbing accordance with ISO 105-X12 <sup>a</sup> (wet test)	Outer tent, coated	3 to 4	4	5	3 to 4	4	5
	Outer tent, uncoated	3 to 4	4	5	3 to 4	4	5
	Inner tent	3 to 4	4	5	3 to 4	4	5
	Ground-sheet	3 to 4	4	5	3 to 4	4	5
	Plastic windows	3 to 4	4	5	3 to 4	4	5
Resistance to puncture in accordance with ISO 23388 <sup>a</sup>	Ground-sheet	10 N	15 N	15 N	10 N	15 N	20 N
Resistance to cold crack in accordance with ISO 4675:2017, 10.1. Test temperature shall be -5 °C (performance level 2) and -10 °C (performance level 3).	Plastic windows	—	Cracks of grade A acceptable	Cracks of grade A acceptable	—	Cracks of grade A acceptable	Cracks of grade A acceptable

<sup>a</sup> If not stated otherwise, the tests shall be carried out at standard atmosphere in accordance with ISO 139. Manufacturers of products complying with this standard should consider the health and protection of the user, the environment and the supply chain. Materials used should not, during foreseeable conditions of normal use, release or degrade to release substances generally known to be hazardous and should comply with national legislation for such substances.

NOTE Conversion factors for the units of resistance against penetration by water: 1 Pa = 0,01 hPa = 0,01 mbar = 0,101 971 62 mm H<sub>2</sub>O = 0,010 197 162 cm H<sub>2</sub>O

**6.1.1.2 Dimensional stability**

When tested in accordance with ISO 7771 using a cycle of 2 h, the dimensional change shall be not more than ±3 %.

**6.1.1.3 Flammability**

**6.1.1.3.1 General**

If the fabrics of camping tents are claimed to have flame retardant properties, they shall be tested when new and shall conform with the requirements in 6.1.1.3.2, 6.1.1.3.3 and 6.1.1.3.4. Where applied chemical finishes are used to produce the flame retardant properties, see Table 2, NOTE, as well as 11.1.2 and Annex B.

**6.1.1.3.2 Outer tent material**

When tested in accordance with ISO 6941:2003, Procedure A (using a 10 s ignition time, face ignition), no marker threads shall be severed, there shall be no flaming debris, there shall be no flame to either vertical edge of the test specimen, no single sample shall show after-flame time exceeding 10 s, and the average after-flame time not exceeding 6 s.

#### 6.1.1.3.3 Inner tent material

When tested in accordance with ISO 6941:2003, Procedure A (using a 10 s ignition time, face ignition), no marker threads shall be severed, there shall be flaming debris on no more than 2 of the tested samples, there shall be no flame to either vertical edge of the test specimen, no single sample shall show after-flame exceeding 20 s, with an average after-flame time not exceeding 12 s. Should a single sample fail, the test shall be repeated once more and if the fabric fails a second time then the fabric is deemed to have failed the test.

#### 6.1.1.3.4 Groundsheet

When tested in accordance with ISO 6925, the radius of burn shall be less than 35 mm.

#### 6.1.2 Ground fastening

At least one ground fastening shall be provided for each corner or four ground fasteners as a minimum if the camping tent is not rectangular.

#### 6.1.3 Protective measures

Points on the ground-sheet which are in contact with frame parts shall be suitably protected.

#### 6.1.4 Ventilation

##### 6.1.4.1 General

In order to reduce the risk of suffocation camping tents shall be designed to maintain a circulation of air and minimise the opportunity for a build-up of harmful gases to dangerous levels within the sleeping areas.

NOTE For warning label, see [Clause 9](#).

##### 6.1.4.2 Sealed tents

In order to provide a sufficient circulation of air, a minimum of 2 ventilation openings shall be provided. Each of which shall be of a minimum size of at least 100 cm<sup>2</sup> per person. These openings shall be of such a design that when opened they cannot be closed by prevailing weather conditions. At least 50 % of the vent size per person shall be in the top 50 % of the tent.

##### 6.1.4.3 Double-skin tents

By the suitable choice of materials and product design, a camping tent shall enable a permanent circulation of air to reduce condensation.

#### 6.1.5 Entrance/exit

Camping tents shall have an entrance/exit in both the flysheet and the inner tent where appropriate.

- a) with an area of  $\geq 0,5 \text{ m}^2$  and a width of  $\geq 500 \text{ mm}$  for category A, and
- b) with an area of  $\geq 0,9 \text{ m}^2$  and a width of  $\geq 500 \text{ mm}$  for category B.

Camping tents with a sleeping capacity of five or more persons and an inner tent area of  $\geq 3 \text{ m}^2$  per person shall have at least one additional exit. Where two exits are provided, this size requirement only applies to the first.

Camping tent exits may be closed using a zip fastener (see 6.2.2) or any other system, provided that they can be opened easily from the bottom, if the exit is higher than 100 cm.

NOTE In order to provide an escape route for children.

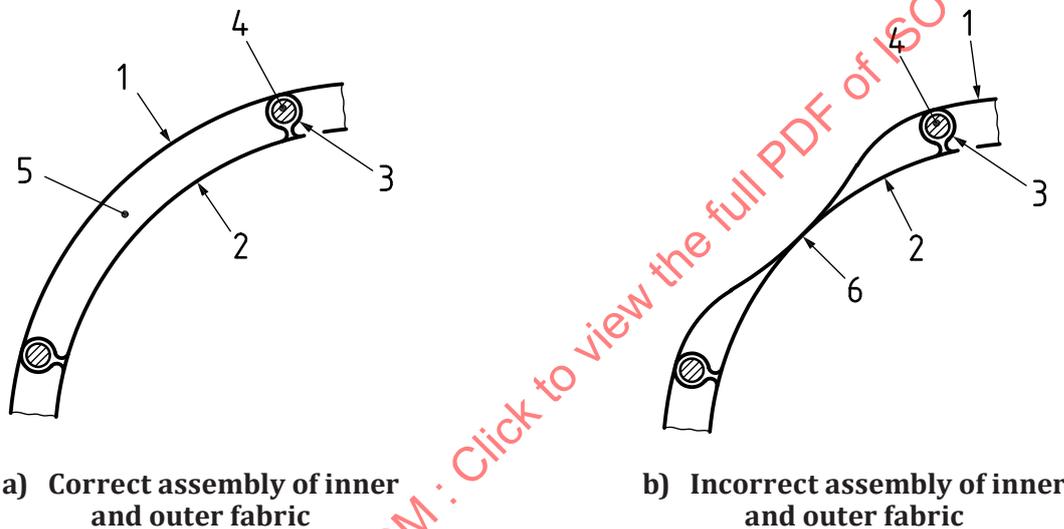
6.1.6 Insect protection

Doors and openings for inner tents shall be insect proof when they are closed. Insect resistant nets, if used, shall have a maximum mesh size of 1 mm × 1 mm.

6.1.7 Resistance to penetration by rain

The resistance of the camping tent shall be such that no water penetrates the camping tent interior except a light mist during the first 2 min, when the rain test in accordance with 8.3 is carried out.

The outer fabric of the camping tent shall not come into contact with the inner fabric unless designed to do so, e.g. pole sleeves of geodesic tents, see Figure 2.



Key

- |   |              |   |  |
|---|--------------|---|--|
| 1 | outer fabric | 4 | frame  |
| 2 | inner fabric | 5 | required distance of outer fabric to inner fabric      |
| 3 | eyelets      | 6 | unacceptable contact of outer fabric with inner fabric |

Figure 2 — Assembly of outer and inner fabric

If the fabric requires a pre-conditioning (due to soaking behaviour of seams) it shall be made in accordance with 8.3. If additional preparation work (e.g. seam sealing) is recommended by the manufacturer, it should be carried out in accordance with information supplied by the manufacturer.

6.2 Requirements for components

6.2.1 Frame

6.2.1.1 General

All metal parts shall be such that there is no change at the end of the test in accordance with 8.2, except a minor discolouration. In the case of enamelled or coated frame components, there shall be no infiltration under the varnish of more than 0,5 mm in accordance with ISO 9227.

The frame parts shall be clearly marked to facilitate the pitching, the only exception to this being, if the frame parts for a camping tent can only be assembled in one form or a detailed construction plan is available.

If two frame components are fitted together, the lower component shall not become detached when subjected to twice its own weight in a vertical position.

The tubular connection of the frame components to be fitted together shall have a minimum length of two times the outside diameter.

#### 6.2.1.2 Edges and corners

Edges and corners accessible during assembly and use shall be free from burrs and/or sharp edges. Test in accordance with [8.6.1](#).

#### 6.2.1.3 Tubular components, holes and gaps

Tubular components, holes and gaps accessible during pitching, striking and use shall be covered if a 7 mm or 12 mm test probe can be pushed into them in any direction to a depth of more than 10 mm when tested in accordance with the requirements in [8.6.2](#).

#### 6.2.1.4 Shear and squeeze points

Shear and squeeze points that are created only during setting up or folding are acceptable, providing that the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately on experiencing pain. The edges of shear and squeeze points shall be rounded or chamfered.

There shall be no accessible shear and squeeze points created by parts of the frame assembly operated by mechanical mechanisms, e.g. mechanical springs, gas lifts.

There shall be no accessible shear or squeeze points created by loads applied during normal use (this hazard is best prevented by the use of automatic locking systems).

Test in accordance with [8.6.3](#).

### 6.2.2 Zip fasteners

#### 6.2.2.1 General

The slider shall not be the same colour as the teeth and ribbon of the zip, unless a conspicuous handle of a different colour shall be attached to the slider.

In order to open the doors from inside and outside independently, the zip fasteners of doors shall have double tagged sliders.

#### 6.2.2.2 Lateral strength of zip fasteners

The lateral strength of zip fasteners shall be in accordance with the values in [Table 3](#).

**Table 3 — Lateral strength of zip fasteners**

Dimensions in newtons

		Camping tents cat. A			Camping tents cat. B		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Lateral strength of zip fasteners	Outer tent	200	250	300	250	300	350
	Inner tent	150	200	250	200	250	300

Test in accordance with [8.4](#).

### 6.2.3 Guying system

The individual guying assembly including eyelets, lower and upper attachments and tensioning device shall withstand a minimum tensile force in accordance with [Table 4](#).

Test in accordance with [8.1](#).

**Table 4 — Strength of guying system**

Dimensions in newtons

	Camping tents cat. A			Camping tents cat. B		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Strength of the guying system	250	300	350	300	350	400

For resistance to corrosion of metal eyelets, see [6.2.1.1](#).

### 6.2.4 Tent and pole bags

At least one bag shall be supplied for the camping tent.

The characteristics of the material used for the bag shall be at least in accordance with the specifications of fabrics for outer tents (coated/uncoated) in accordance with [Table 2](#), except for resistance to penetration by rain.

Separate bags shall be supplied for the frame assembly and the pegs, where applicable.

## 7 Tent accessories

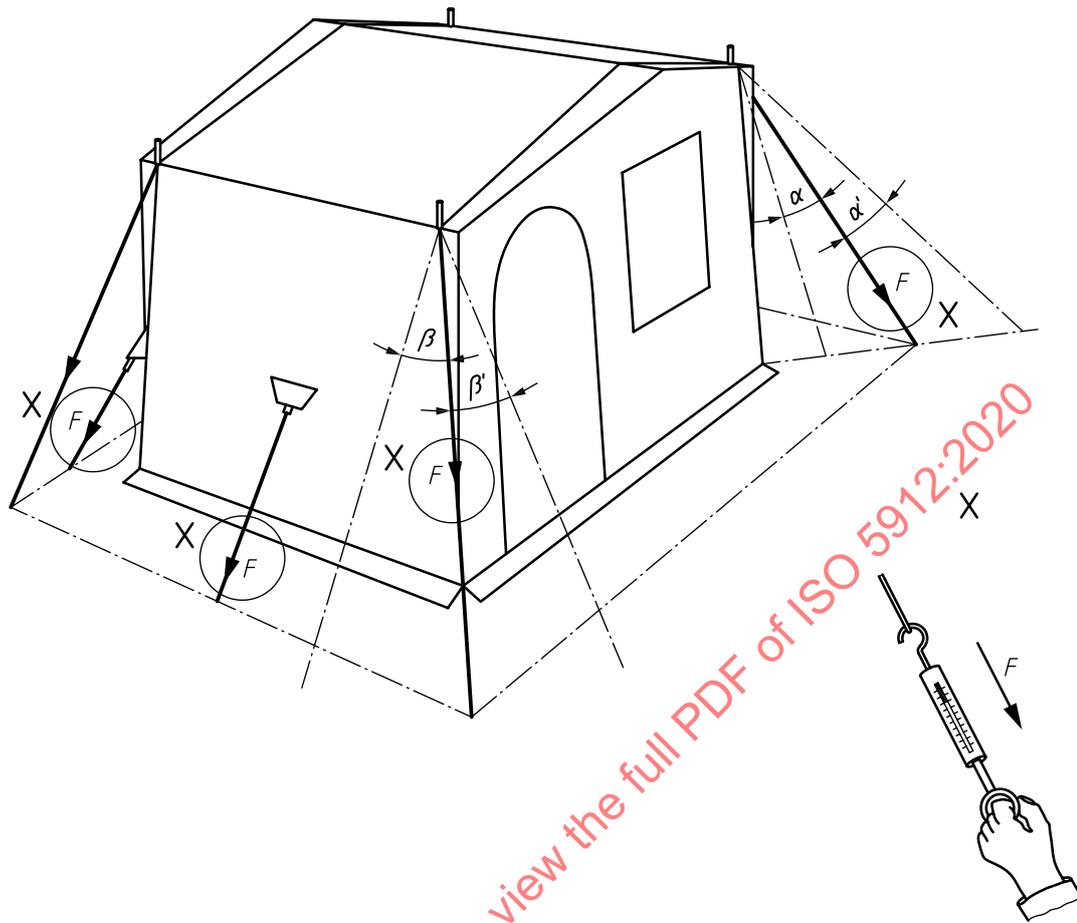
The camping tent shall be supplied with sufficient tent accessories to ensure the performance of the camping tent in accordance with this document.

## 8 Test methods

### 8.1 Strength of guying system

Assemble and pitch the camping tent in accordance with the instructions supplied by the manufacturer and close the tent doors and windows.

Dismantle a guy and apply a tensile force in accordance with [Table 4](#) for the respective performance level of the camping tents cat. A or camping tents cat. B on the guying system for 1 min in the direction of the ground fastening (see [Figure 3](#)).

**Key**

- $\alpha/\alpha'$  angle of deflection of the guy (parallel to the usual position of the ground fastening)  
 $\beta/\beta'$  angle of deflection of the guy (rectangular to the usual position of the ground fastening)  
 $F$  force

**Figure 3 — Strength test of the guying system**

Re-assemble the guy afterwards. The test shall be repeated for each individual style of attachment points provided on the camping tent.

## 8.2 Corrosion on frame assembly and metal eyelets

Subject the framework to a 36 h salt spray test in accordance with ISO 9227 or to a 192 h test in accordance with ISO 2081.

## 8.3 Rain test

### 8.3.1 General

To test the requirements of [6.1.7](#) the procedure as given in [8.3.2](#), [8.3.3](#) and [8.3.4](#) shall be followed.

### 8.3.2 Preconditioning and preparation

Where instructions provided with the camping tent indicate seam sealing by the consumer is required prior to use, this shall be completed following the manufacturer's instructions.

Camping tents composed of an uncoated outer material shall be subjected to a pre-treatment process consisting of a single rain test and a subsequent drying period of a minimum of 24 h at ambient conditions.

NOTE It is recognized that due to local conditions and weather at the time of testing the drying period can be longer than 24 h.

### 8.3.3 Essential test requirements and test installation

The camping tent shall be tested on water permeable ground for example a lawn or synthetic turf surface with suitable drainage to avoid water pooling around the tent openings.

For water conservation purposes, water may be recycled, however care should be taken to ensure re-used water does not contain any impurities which may block the spray system.

The water pressure shall be 300 kPa to 450 kPa, water shall be evenly sprinkled over the test area from a height of 4,5 m to 5 m above the ground. The water flow rate shall be a minimum of 60 l/h/m<sup>2</sup> over the test area. A pumped water system consisting of a ring main, or similar are acceptable to achieve the desired pressure, flow rate and evenness of application.

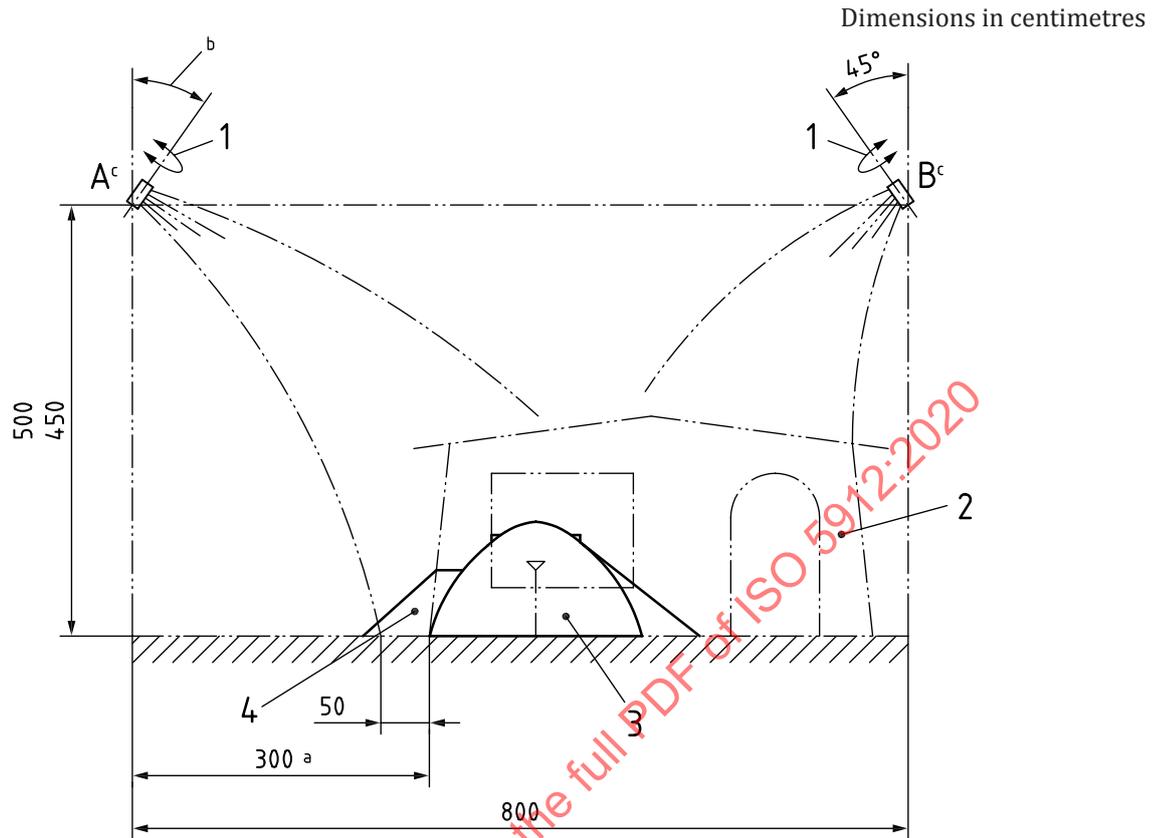
Sprinklers shall be designed to provide even and uniform coverage of the test area either by means of oscillation as in [Figure 4](#) or by their position in a grid formation as in [Figure 5](#) or other overhead manner.

NOTE A specific sprinkler "hole" size is not specified, as holes are not generally used to deliver the water from overhead sprinkler systems. Rain formation is usually in the form of a shower of droplets, not large drops, as long periods of medium rainfall are more likely to penetrate openings in use than heavy storms which tend to cause ingress by poor drainage or badly located camping tents.

Test installations and equipment may be of varying designs providing the criteria detailed in 8.3.3 are met, it has been found that static installations with the side sprinklers as shown in [Figure 4](#) are suitable, as are other designs which achieve the necessary key criteria. For example, test installations based on overhead sprinkler systems such as those used for building fire sprinkler systems see [Figure 5](#).

In addition, suitable test installations may rely where necessary on manual rotation of the camping tent to ensure different entrances face the sprinkler systems, or on relocation of the sprinkler systems themselves, or an intermittent mechanical rotational system for the camping tent, or a fully automatic continual rotational system for the camping tent.

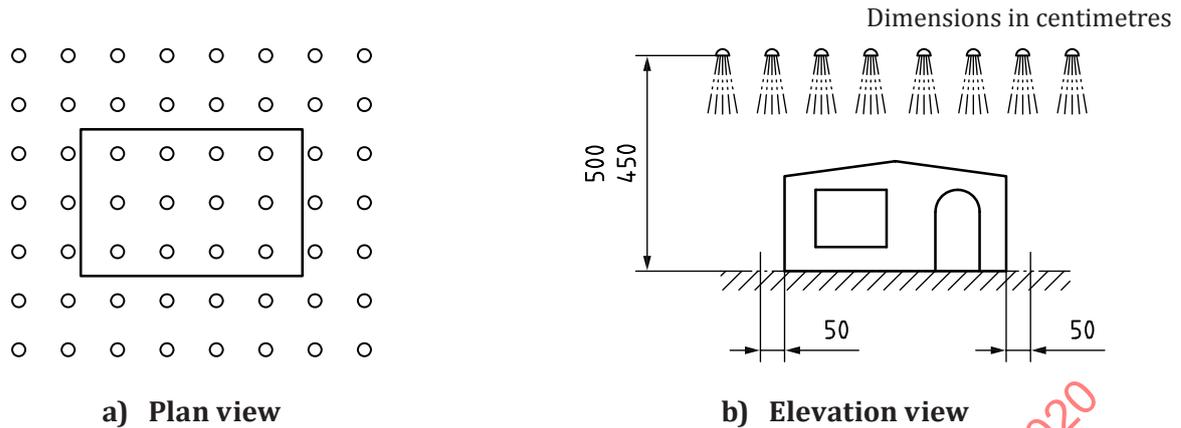
For large camping tents manual rotation of the camping tent itself to face different openings to sprinkler systems such as those in [Figure 4](#) may be impractical due to the weight of the camping tent whilst wet and problems with correct re-erection, re-locating the sprinklers may be more practical.



### Key

- 1 adjustable inclination
  - 2 swivelling
  - 3 large camping tent after turning the entrance through about 90° away from sprinkler A
  - 4 small camping tent placed with entrance facing sprinkler A
- a Swivelling sprinkler with adjustable inclination which is capable of swivelling up to 90° maximum (45° each side across the centre line A-B), and fitted with a rose type spray head capable of delivering the required water volume in the form of a shower of droplets. The angle of inclination is to be adjustable to allow correct positioning of the spray area at a distance of 50 cm in front of the outer edge of the side of the camping tent facing the sprinkler.
- b Swivelling sprinkler with fixed inclination which is capable of swivelling up to 90° maximum (45° each side across the centre line A-B), and fitted with a rose type spray head capable of delivering the required water volume in the form of a shower of droplets. The angle of inclination is to be 45°.
- c Both sprinklers shall be fitted with a rose-type spray head capable of delivering the required water volume in the form of a shower of droplets.

**Figure 4 — Example of one suitable form of static test installation using an oscillating side sprinkler system**



**Figure 5 — Example of one suitable form of static installation using an overhead grid sprinkler system**

**8.3.4 Test procedure**

Pitching of the camping tent shall be in accordance with manufacturer's instructions, ventilation points shall be left open as instructed for use, and doors shall be closed for the duration of the test.

All different types of entrances, ventilation points or openings shall be subjected to the rain test.

The water shall be applied in such a way as to fall onto both the roof area of the camping tent (including any ventilation openings) down the sides of the camping tent, and at least a minimum distance of 50 cm beyond the dimensions of the outer tent and any porch, or extension onto the ground (see [Figure 4](#) and [Figure 5](#)).

If the test installation is designed such that the whole camping tent is tested at once (for example as in [Figure 5](#) using an overhead spray system on a static or fully automatic rotational base), the complete test time shall be 30 min.

If the test installation is designed such that the camping tent can only be tested in sections such as in [Figure 4](#) and the camping tent is to be rotated manually or in a semi-automatic fashion then the main entrance shall be tested facing sprinkler A in [Figure 4](#) for 15 min, the camping tent shall then be rotated approximately 90° and tested for a further 15 min, thus a minimum of 30 min, and any additional entrances, ventilation points or openings of different designs shall also be tested facing sprinkler A in [Figure 4](#) for 15 min each.

For fully automatic rotational test installations with rain being presented by side sprinklers rather than fully overhead sprinklers, the total test period shall be a minimum of 30 min plus an additional 15 min for each type of entrance, opening or ventilation point.

Testing shall be carried out at ambient temperature.

**NOTE** It is recognized that the ambient temperature will vary due to location of test and time of year, however the volume of water and type of spray applied to the camping tent is the important parameter for this test.

Following completion of the test, leave the camping tent for 2 min to allow excess water to drain from the vicinity of the doors before opening them to examine any ingress.

The report shall include reference to any dampness or water on inner surfaces, pooling of water on the floor of the camping tent, or similar issues including location and severity.

For camping tents which are rotated manually to perform the test, inspection shall occur at the end of each 15 min increment in order that point of ingress can be correctly identified.

In addition, the type of installation used shall be described including details such as the manual rotation of the camping tent, relocation of the sprinkler systems, mechanical discontinuous rotational system, or fully automatic continual rotational system.

## 8.4 Lateral strength of zip fasteners

### 8.4.1 Lateral strength of the zip fastener

The velocity at which the clamps (see [Figure 6](#)) withdraw from each other is 15 cm/min. Prior to testing, the zip fastener shall be conditioned in the measuring atmosphere for at least 48 h.

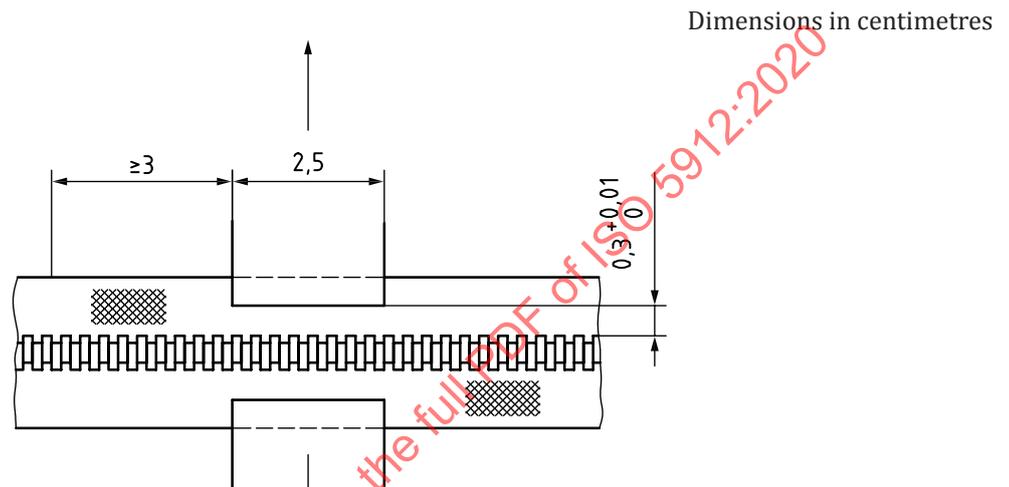


Figure 6 — Stretching to determine the maximum lateral strength

### 8.4.2 Behaviour of the zip fastener under conditions of continuous reciprocating movement

Testing of behaviour under conditions of continuous reciprocating movement shall be carried out by a device in accordance with [Figure 7](#).

Apply a Force  $F_1$  in the lateral direction and a force  $F_2$  in the longitudinal direction, to the tapes on both sides half-way between the two extreme ends of the slide,

where

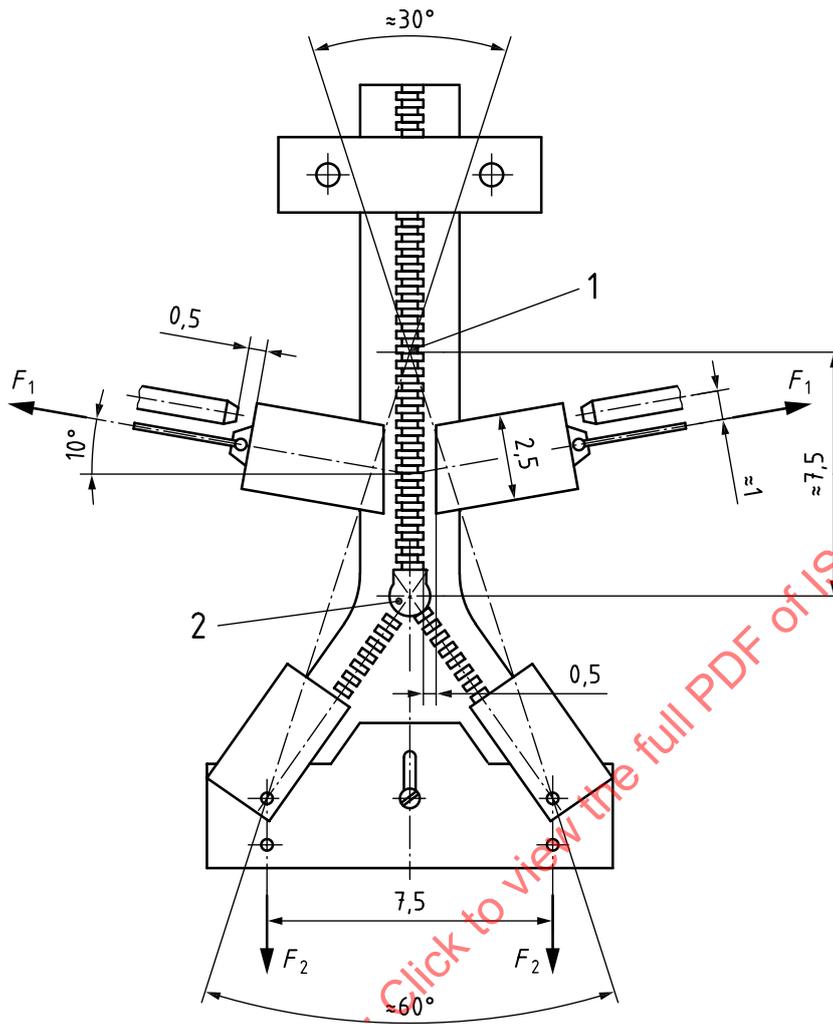
$$F_1, \text{ in N} = 3 \times \text{width of the zip fastener, in mm;}$$

$$F_2, \text{ in N} = 2 \times \text{width of the zip fastener, in mm.}$$

Set and apply the test loads with the slider on the zip fastener, at the bottom end, and do not change them during the test.

Ensure that the opening angle of the slider tab is approximately  $30^\circ$  at the upper point of reversal and approximately  $60^\circ$  at the lower point of reversal. When opening,  $F_1$  may be zero.

Open and close the zip fastener 200 times by moving the slider over a length of traverse of 7,5 cm, a to and fro movement being designated as a stroke, at a test velocity of 30 strokes/min.



**Key**

- 1 upper point of reversal
- 2 lower point of reversal
- 3 test length
- $F_1$  force in lateral direction
- $F_2$  force in longitudinal direction

**Figure 7 — Device for the reproducible simulation of a load situation at the zip fastener**

Subsequent to this pre-loading, the maximum lateral strength of the zip fastener shall be determined in accordance with [8.4.1](#).

**8.5 Resistance of plastic sheets to discolouration under the effect of moisture**

Expose the plastic sheets to weathering in accordance with ISO 105-B04 for 24 h. Afterwards, store the sample at standard atmosphere in accordance with ISO 554 for 24 h. Evaluate a possible discolouration on the basis of the grey scale for the assessment of colour changes in accordance with ISO 105-A02.

## 8.6 Components tests

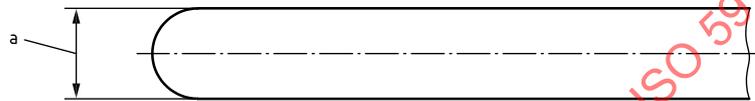
### 8.6.1 Edges and corners

Inspect all types of components visually and by hand for the presence of any sharp corners and edges.

### 8.6.2 Tubular components, holes and gaps

Check if a  $7_{-0,1}^0$  mm or  $12_{0}^{+0,1}$  mm test probe (see [Figure 8](#)) can be pushed in any direction into any tubular components, holes and gaps accessible during pitching, striking and use to a depth of more than 10 mm using a maximum insertion or removal force of 30 N.

There shall be two cylindrical probes with diameters of  $7_{-0,1}^0$  mm or  $12_{0}^{+0,1}$  mm with hemispherical ends, see [Figure 8](#).



<sup>a</sup>  
 $\phi 7_{-0,1}^0$  mm or  $\phi 12_{0}^{+0,1}$  mm

**Figure 8 — Measuring probes**

### 8.6.3 Shear and squeeze points

Assemble the camping tent in accordance with the manufacturer's instructions and ensure there are no accessible shears and squeeze points created by parts of the frame assembly operated by mechanisms, such as mechanical springs, gas lifts, or by loads applied during normal use.

Inspect the edges of any shear and squeeze points visually and by hand to ensure they are rounded or chamfered.

Where automated locking systems are used, ensure that they prevent the creation of any shear and squeeze points which may be created by loads applied during normal use.

## 8.7 Material connection test

Testing shall be conducted in accordance with ISO 13934-2, with the material connection in the middle of the test sample at right angles to the direction of tensile load application. Breaking point shall be noted.

## 9 Advice to occupiers

A permanent legible notice, at least in one of the official languages of the country of sale, giving simple fire prevention and ventilation advice shall be attached inside the camping tent in a position where it can be easily and readily seen.

The minimum dimensions of the notice shall be 60 mm × 130 mm for each language.

The letters for the heading "Fire and ventilation precautions" shall be at least twice as high as the letters for the remainder of the text.

The heading shall be in red letters, the remainder of the text shall be black on a white background.

The following wording shall be used, in accordance with [Figure 9](#).

<p><b>Fire and ventilation precautions</b></p> <p>Caution for your safety:</p> <ul style="list-style-type: none"> <li>— If using gas or other combustion appliances additional ventilation will be required</li> <li>— Do not place hot appliances near the walls, roof or curtains</li> <li>— Always observe the safety instructions for these appliances</li> <li>— Never allow children to play near hot appliances</li> <li>— Keep exits clear</li> <li>— Make sure you know the fire precaution arrangements on the site</li> <li>— Make sure ventilation openings are open all the time to avoid suffocation</li> </ul>
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**Figure 9 — Wording for fire and ventilation precautions**

If the fabric of a camping tent is claimed to have a flame retardant performance a respective warning shall be attached inside the camping tent in a position where it can be easily and readily seen (see [Annex B](#)). The minimum dimensions of the notice shall be 50 mm × 80 mm for each language.

## 10 Instruction supplied by the manufacturer

Each camping tent shall be accompanied by instructions for use with explanatory sketches or drawings.

This might be provided either with the camping tent in either a printed or digital format. In particular, these instructions shall ensure that the pitching and maintenance can be easily understood by a novice user.

The instructions for use shall at least contain information about the following items:

- a) Pitching/striking/repacking:
  - information concerning the marking of the frame assembly;
  - order of pitching/striking/repacking;
  - fastening, storm guys;
  - packing of wet camping tents (consequences).
- b) Behaviour in the event of fire/means of escape;
- c) Advice on the importance of ventilation and how to adjust it:
  - use of gas or other combustion appliances;
  - importance of maintaining a high level of ventilation by keeping ventilation points clear.
- d) Dimensions:
  - If a camping tent is described as a camping tent with a standing height it shall be at least 185 cm high at some point inside the tent;
  - inner tent dimensions, in cm;
  - outer tent dimensions, in cm;
  - pitching dimensions, in cm.

The instructions for use may contain additional information about the following items:

- a) Maintenance/repair
  - cleaning, spot removal;

- storage;
  - repair of minor leaks;
  - reproofing;
  - maintenance of zip fasteners and frame assembly;
  - repair or replacement of broken frame parts;
  - repair of damage to fabrics and plastic sheets.
- b) Trial pitching of the camping tent (to get used to the design);
- c) Choice of the site and issues with different ground and weather conditions:
- type of ground, e.g. snow, sandy soil;
  - prevailing wind direction and particular environmental conditions.

## 11 Marking

### 11.1 General

**11.1.1** Camping tents shall be marked with the name or trademark of the manufacturer, supplier or importer.

**11.1.2** Camping tents conforming to this document shall be marked in such a way that the consumer, when buying a camping tent, is able to recognize essential data concerning the camping tent, including the level of material performance in accordance with [Table 2](#). The marking should preferably be in accordance with the examples given in [Table A.1](#) and [Table A.2](#), see [Annex A](#). At the top of the marking the explanation of the level as given in [4.2](#) shall be included.

In order for a particular component (outer tent, inner tent, groundsheet) to be labelled as having flame retardant properties, over 75 % of the area in question shall be made of the flame retardant material.

Where indications are made in relation to flame retardant performance, based on the appropriate testing and areas of use of flame retardant materials the manufacturer shall indicate which component parts are flame retardant e.g. outer tent, inner tent, groundsheet, see [Annex B](#).

**11.1.3** The manufacturer is allowed to indicate, on his own responsibility, that tents are in conformity with this document by adding a reference to ISO 5912.

### 11.2 Information at the point of sale

Purchase information shall be available at the point of sale, showing the types of camping tents in accordance with [Clause 4](#) in comparison to each other, and shall contain at least the following:

- a) type of camping tent regarding this document;
- b) designed usage;
- c) water column (hydrostatic head) of
  - 1) side walls and roof; and
  - 2) ground sheet.

NOTE An example for the display of this information is given in [Annex C](#).