SLOVENSKI STANDARD
SIST EN 13782:2027

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Začasne konstrukcije - Šotori - Varnost

Temporary structure - Tents - Safety

Fliegende Bauten - Zelte - Sicherheit

Structure temporaire - Tentes - Sécurité

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ICS:

91.040.99	Druge stavbe	Other buildings

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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Temporary structure - Tents - Safety

Structure temporaire - Tentes - Sécurité

Fliegende Bauten - Zelte - Sicherheit

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European foreword

This document (EN 13782:2026) has been prepared by Technical Committee CEN/TC 152 "Fairground and amusement park machinery and structures - Safety", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by May 2027, and conflicting national standards shall be withdrawn at the latest by May 2027.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13782:2015 [1] .

This document includes the following significant technical changes with respect to EN 13782:2015 [1] :

— the whole document was editorially revised and adjusted to the spelling of Eurocodes;

— Clause 2 updated;

— new term 3.6 "*anti-slip mat*" added;

— former Annex A has been moved to 7.4.2.3.3;

— Table 3 amended to include "anti-slip mats";

— In 8.6, a distinction is made between welded connections (8.6.2) and non-welded connections (8.6.3);

— new Annex A on the use of anti-slip mats has been added;

— new Annex D on tents with extended setup durations has been added;

— new Annex E on examples of design methodology for closed double curved Big top tents, non-circular Circus tents and pole tents has been added.

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

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Introduction

The object of this document is to provide safety requirements for tents. The safety requirements are aimed to safe-guard persons and objects against damage caused by design, manufacturing and operation of these structures.

These guidelines have been drawn up according to past experience and risk analysis.

Existing national rules concerning health and safety of workers remain untouched.

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1 Scope

This document specifies safety requirements for the design, calculation, manufacture, installation, and maintenance of mobile, temporary installed tents with more than 50 m^2 ground area.

This document also applies to multiple small tents installed close together and exceed 50 m^2 in sum.

NOTE Information is given in Annex C on examination and approval.

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 2602, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*

EN 1990, *Eurocode - Basis of structural and geotechnical design*

EN 1991-1-1, *Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings*

EN 1991-1-3, *Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads*

EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*

EN 1997-1, *Eurocode 7 - Geotechnical design - Part 1: General rules*

EN ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 12385-1, *Steel wire ropes - Safety - Part 1: General requirements*

EN 12385-2, *Steel wire ropes - Safety - Part 2: Definitions, designation and classification*

EN 12385-3, *Steel wire ropes - Safety - Part 3: Information for use and maintenance*

EN 12385-4, *Steel wire ropes - Safety - Part 4: Stranded ropes for general lifting applications*

EN 15619, *Rubber or plastic coated fabrics - Safety of temporary structures (tents) - Specification for coated fabrics intended for tents and related structures*

EN 818 (all parts), Short link chain for lifting purposes - Safety

EN 1090 (all parts), Execution of steel structures and aluminium structures

VDI 2700 Part 15:2009, *Securing of loads on road vehicles - Slip-inhibiting materials*

3 Terms and definitions

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

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

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3.1
tent
mobile, temporary installed structure enclosed with covers (textiles, foils) or partly with rigid elements

Note 1 to entry: It can be built as an enclosed or open building i.e. marquee, tent-hall, booth.

3.1.1
tent with primary load-bearing structure
load-bearing structure with enclosing elements

EXAMPLE Structures with primary load-bearing structure can be roofs, frameworks, post-and-beam system.

3.1.2
membrane tent
tent (3.1) with a load-bearing pre-stressed textile structure with double curved shape, supported by masts and/or cables

3.1.3
pole tent
tent (3.1) with centre poles, where guying is used to stabilize the fabric covering

3.2
initial approval
design and calculation review, verification, examinations and tests necessary for *tent* (3.1) operation

3.3
modification
alteration of a *tent* (3.1) which results in a deviation from the original design specification

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3.4
repair
restorations of worn, damaged or decayed parts back to the original design specification

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3.5
maintenance
inspection and replacement of components as necessary

3.6
anti-slip mat
slip-inhibiting material with a specific friction coefficient of $\mu = 0,60$

[SOURCE: Adapted from VDI 2700 Part 15:2009 [2]]

4 General requirements for design, analysis and examination

4.1 Design documents

The design documents shall include information for the verification of the stability, resistance and operating safety, especially a description of the construction and operation, the stability verification and design drawings as well as relevant documents concerning the burning behaviour.

The documents shall include all the possible configurations of the tent.

4.2 Description of construction and operation

The *tent* (3.1), in particular its design, intended use and its static system shall be explained in this description.

The description shall include details of the particular features of the tent and of any alternative modes of installation, also details of the main dimensions, limitations, design particulars and materials.

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4.3 Construction drawings

Construction drawings shall exist for all sub-assemblies and individual components, the fracture or failure of which might endanger the stability or operating safety of the tent.

The construction drawings shall feature all the dimensions and cross-section values required for testing and approval, also details of materials, structural components, fasteners and connectors.

The construction plans shall comprise the following:

— general drawings in plan view, elevation and sections, to one of the following scales, i.e. 1:100, 1:50 or 1:20. If clearness and readability does not suffice other scales shall be used;

— detail drawings relating to all the structural sub-assemblies not clearly discernible on the general drawings, also detail plans of connections and of individual items of structural nature that are likely to affect the safety of the tent and of its operation, drawn to a larger scale.

5 Selection of materials

5.1 General

Structural components shall be manufactured from materials whose properties are specified in European Standards.

Other materials may only be used on condition that proof of their serviceability has been established. The designer shall give special consideration to structural joints which are to be welded and the weldability of the selected metals in accordance with European Standards.

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5.2 Selection of covering materials

For rubber and plastic coated fabrics, EN 15619 shall be applied. The supplier certification shall be provided.

For other fabric materials and cladding elements of:

— cotton fabrics;

— synthetic fabrics;

— solid covering and sheeting such as sectional metal sheets, wood or plastic panels and multi components elements,

the following requirements shall be regarded:

— fabric materials designated for structural use shall conform to EN standards or, in absence, to agreement by the parties involved;

— it shall be ensured that the material and the connections specified provides sufficient weather-tightness, tensile strength to ensure safe and durable performance of the textile cover. The partial safety factors for structural use of fabrics shall be according to 8.6;

— standards for textile, membrane and inflatable structures.

5.3 Joining of covering materials

Joints by sewing, welding and by adhesives and zips shall conform to the relevant EN standards or shall be tested for their ultimate tear and shear properties. The ageing and environmental influences shall be taken into account by the application of additional partial safety factors.

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Zips shall be tested for their strength to withstand the calculated loads of the structure. Effects of wearing out and influence of UV light on plastic shall be considered.

If suitable structural strength cannot be verified, they shall only be used in non-safety critical applications.

6 Principles of numerical analysis

6.1 General

If subsequently not determined differently, the verification shall follow the relevant part of the Eurocode and shall comprise:

— limit states analysis (according to theory of 1st or 2nd order);

— stability limit states analysis, i.e. bar buckling, plate and shell buckling;

— if required, verification of deformation limit states;

— verification of safety against overturning, sliding and uplift.

6.2 Verification

The verification shall include the following details, amongst others:

— design loads, taking into account the possible operating conditions or installations alternatives. Special loads imposed during erection should be recognized;

— information concerning material and components;

— main dimensions and cross-section values of all load-bearing structural components;

— determination of the most unfavourable stresses and details relating to the strength of the load-bearing structural components and of the fasteners;

— if calculations are insufficient to evaluate limit states of assemblies the analysis may be substituted by testing at an independent testing body. There, the testing body shall commit the appropriate number of tests, samples, the testing procedure, the reporting etc., according to the relevant EN standards or in absence of the relevant EN standards by agreement with the parties involved;

— details of deformations (flexure, torsion), in as much as such details affect the serviceability or operating safety of the tent;

— details of those components which require special examination and inspection.

7 Design actions

7.1 General

All the applicable actions shall be taken into account according to EN 1991-1-1, EN 1991-1-3 and EN 1991-1-4.

Adaptations due to the specific use of tents are stated below.

7.2 Permanent actions

For tents a very precise assumption of the permanent actions is possible. As far as variation can occur the values $G_{k,sup}$ and $G_{k,inf}$ shall be taken into account for assessing the applicable structural response. Elsewhere a single characteristic value G_k is sufficient:

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